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GEORGE H. SIMMONS, M.D., LL.D.

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RADIUM EMANATIONS IN EXOPHTHALMIC GOITER—BLOOD VESSELS OF ADENOMAS OF THYROID *

WALLACE I. TERRY, M.D.
SAN FRANCISCO

The subjects which I desire to offer relate to the thyroid gland. There are many problems connected with goiter which are not yet settled, and if I can add anything to our existing knowledge I shall feel greatly repaid.

FURTHER REPORT ON THE USE OF RADIUM EMANATIONS IN EXOPHTHALMIC GOITER

In The Journal, a year ago,[1] I made a brief report on the use of radium emanations in the treatment of exophthalmic goiter, based on eleven cases. Since then twenty-two additional cases have been treated by my associates and myself at the University of California Hospital, making a total of thirty-three. Only patients suffering from an extreme degree of hyperthyroidism, due to hyperplasia of the thyroid—the true exophthalmic goiters—have been subjected to this form of treatment, and only with the idea of converting them into better risks for major surgical procedures.

We have endeavored to make the technic of introducing the bare tubes containing radium emanations within the substance of the thyroid gland as simple as intramuscular hypodermic injections. No elaborate skin preparation is made. The operation is done at the office or at the patient's bedside. A local anesthetic is used, and the patient is often permitted to go home within a few hours. For the local anesthetic we prefer to chill the skin at the sites selected with a small cotton sponge saturated with ethyl chlorid. Then the minute capillary tube containing the emanation is introduced into the gland by means of a small caliber, hollow needle, and is pushed into place by a plunger. Usually six emanation tubes, containing a total of from 6 to 10 millicuries, are inserted in the upper, middle and lower thirds of each lobe and through one skin puncture on each side. As the emanations act in all directions, we endeavor to bury the tubes at least half a centimeter in the thyroid, for pathologic changes extend at least that distance from the tube.

Dr. Edwin I. Bartlett has thus described the changes produced by the emanations:

> There is a small area 2 mm. across, pearly white, in the center of which can be seen an emanation tube. Microscopically, the area shows for the most part fibrin, with here and there some shadows of old alveoli. Beyond this is a narrow zone of atrophic or degenerating thyroid and increase of connective tissue. Beyond this is compact thyroid tissue with undifferentiated cells, barely formed alveoli or completely formed alveoli. The alveoli are lined by cuboidal or low columnar epithelium, and contain little or no colloid. Many show desquamated cells. Beyond this the picture is that seen in hyperplasia.

This affected area approximates 1 cm. in diameter, but it is possible that a further zone is inactivated than is revealed by the microscope. It would at least seem that in certain of our cases the clinical effect has been more extensive than the pathologic picture would indicate.

Having had considerable experience in operating on goiters which had been treated with roentgen rays, we naturally feared that radium emanations might give rise to annoying adhesions between the thyroid and its surrounding structures, but we were pleased to find that no adhesions were present or that they were minute points where the needles had entered the gland. As the needles are only about 1 mm. in diameter, it is apparent that the adhesions would not be extensive, unless suppuration should follow, which is unlikely, as the tubes containing radium emanations are sterilized, as well as the needles, by boiling. As a matter of fact, the adhesions are less than are found after ligation of an artery.

I realize that radium emanation tubes are available in only a few cities in the United States, but they could be sent by mail or express for 400 or 500 miles. The tubes lose 16 per cent. of their strength each twenty-four hours, so that provision would have to be made to counterbalance the loss during transportation by charging them with sufficient emanations. The total effective action of the emanations in bare tubes is approximately thirty days.

Final results have been obtained in sixteen of the thirty-three cases in which radium emanations were received. Fourteen patients had resections of the thyroid after intervals varying from thirty-two to 114 days after radium. One patient died two days after a bilateral resection from acute hyperthyroidism. Another patient died nine months after resection of both lobes from recurring hyperplasia of the thyroid (substernal) and marked hyperplasia of the thymus and a terminal pneumonia. A third patient died three months after radium, from cirrhosis of the liver. A fourth patient died fifteen days after bilateral resection of the thyroid, from acute yellow atrophy of the liver.

Ten patients are definitely cured after resection. Of these, one had diabetes mellitus, which has apparently disappeared since resection. Another had profound toxemia with jaundice at the time of entrance. She weighed but 67 pounds (31 kg.), and was consid-

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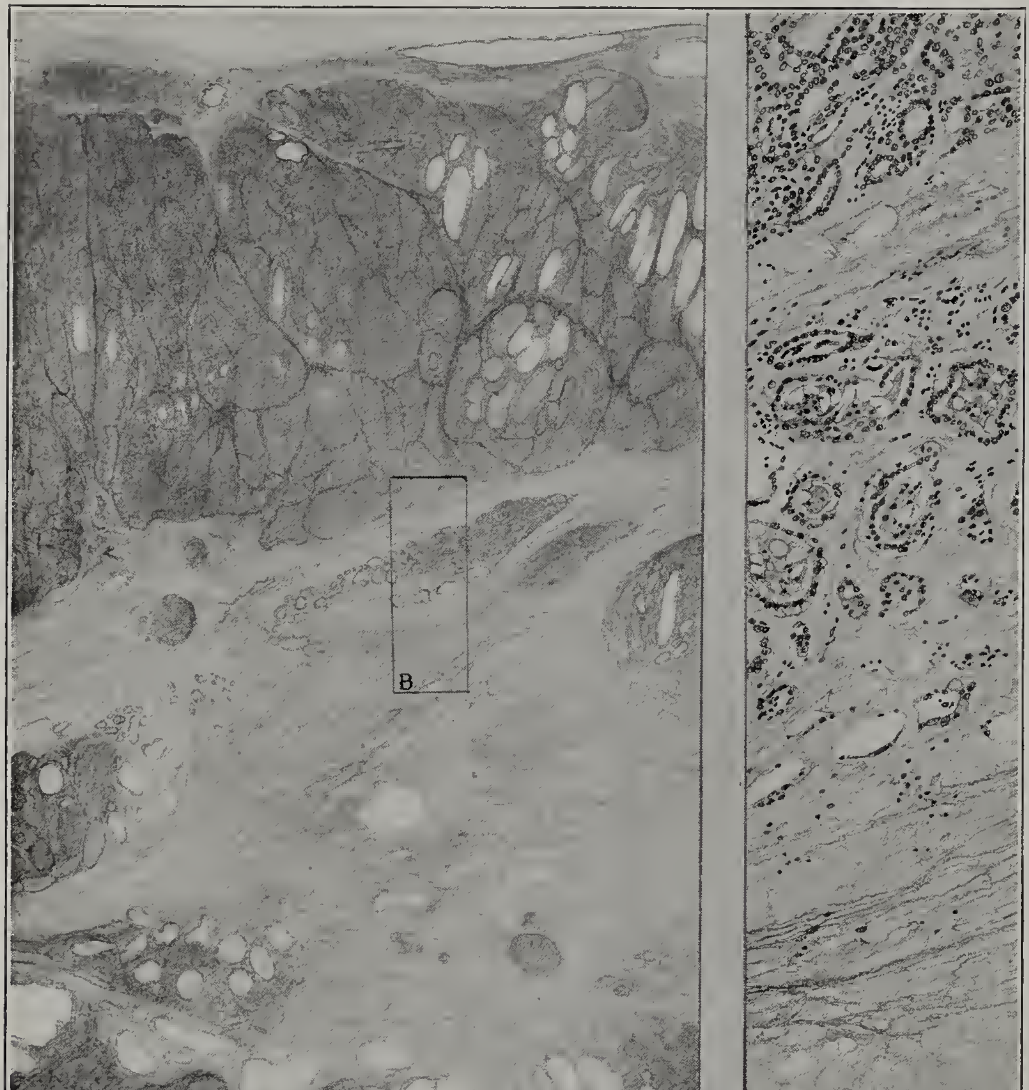
* Chairman's address, read before the Section on Surgery, General and Abdominal, at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Terry, W. I.: Radium Emanations in the Treatment of Goiter, J. A. M. A. **76**: 1821 (June 25) 1921.

ered practically moribund. Four tubes, containing 6 millicuries of radium, were put in the thyroid. Four months later her weight was 92 pounds (42 kg.), and she was considered a sufficiently good risk for resection of the thyroid. Since that operation she has steadily gained in all respects. Her weight is at her normal of 125 pounds (57 kg.), and she is apparently entirely well except for a slight irregularity of the heart.

In two cases there has been an apparent cure by radium alone. In one the basal metabolic rate was 122 per cent. plus before the introduction of eight tubes, containing 5.6 millicuries of radium emanations. Two months later his basal metabolic rate was 27.5 per cent. plus, and four months after radium it was 12.9 per cent. plus. The other patient had a basal metabolic rate of 84.4 per cent. plus before five tubes, containing 6.7 millicuries, of radium emanations were given. Two months later his basal metabolic rate was 38 per cent. plus, and four months after radium it was 5.7 per cent. plus. He is now working as a stevedore and teamster, and seems entirely recovered.



A, hand lens sketch of radium reaction. Center shows necrosis, and edges undamaged hyperplastic thyroid. Transition from complete necrosis to undamaged tissue is sharp. *B'*, high power view of transitional area.

We have not used radium emanations in the treatment of simple colloid goiters or for adenomatous goiters. It might be worth a trial in the colloid and simple hypertrophic types, but I think it is distinctly contraindicated in the adenomas for the same reason that the roentgen ray should not be used, viz., the danger of producing atrophy of the thyroid gland proper and consequent hypothyroidism.

The conclusions I am willing to draw from our work with radium emanations in goiter are:

1. The tubes can be easily introduced into the thyroid gland under local anesthesia.
2. The amount of emanations and the number of tubes should vary according to the size of the goiter and the intensity of the symptoms—from 4 to 10 millicuries, contained in from six to eight tubes.
3. The emanations are of value in preparing bad risk cases of exophthalmic goiter for further surgical treatment.
4. The emanations should not be used in adenomatous goiters.

THE BLOOD VESSELS OF ADENOMAS OF THE THYROID

We know that hemorrhages are very likely to occur within adenomas of the thyroid. Indeed, the majority of the larger adenomas when sectioned show gross evidence of degeneration, consequent upon hemorrhages within the capsules. Such degenerations as calcification, fibrous masses and cysts are probably all the result of effused blood. Sudden growth of adenomatous goiters can usually be explained by finding recent blood clots in the adenomas.

As it is unusual to find such changes in colloid or hyperplastic goiters, it seemed probable that the explanation might be found through a study of the blood vessels and the blood supply of adenomas. At my request, this work was undertaken by Dr. G. S. Delamere, whose training in surgical pathology gave him the necessary qualifications. When removing adenomas of the thyroid we took pains to ligate doubly the larger arteries and veins so that most of the blood would remain in the specimens. Then the blood was washed out with physiologic sodium chlorid solution, and suspensions of India ink or bismuth subnitrate or campho-acetone-celloidin mixture were injected into the vessels. The technic of the various procedures will be published later, and need not be given here. Some of the specimens were stereoscopically roentgenographed so that the vessels could easily be visualized, while others were digested, leaving only the vascular tree. Microscopic examinations were made of all except the digested specimens.

It was found that the capsular vessels of adenomas freely anastomose, and that many branches penetrate deeply into the substance of the adenomas from these capsular vessels. Within the adenomas there is an extremely rich arterial supply, but without any apparent pattern formation. The intracapsular vessels also show free anastomoses between them and in all portions of the tumor. The vessel walls show certain peculiarities. No adventitia as such can be definitely made out, the connective tissue stroma of the gland taking its place. The musculature is the most variable element in the walls; occasionally in some of the larger vessels there is only a mere scrap remaining in one portion of the wall. The inner elastic coat of the intima is often very poorly formed or partially absent. On the other hand, the endothelial lining of the blood vessels is always present and well preserved.

There is a very marked difference in the strength of the arteries and the veins. An initial pressure equal to 250 mm. of mercury—much higher than normal blood pressure—is tolerated by the arteries without rupture, whereas all attempts to inject the veins with the celloidin or the bismuth suspensions under an initial pressure as low as 100 mm. resulted in rupture of the veins within the capsule of the adenoma.

It would therefore seem reasonable to explain the frequency of hemorrhages within adenomas as due to the weak walls of the intracapsular veins which are deficient in adventitia, musculature and elastic tissue. Any abnormal intravenous pressure, due, let us say, to prolonged coughing, might result in the rupture of a vein within an adenoma.

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OBSERVATIONS ON THE HEART IN MOTHERS AND THE NEW-BORN *

S. CALVIN SMITH, M.S., M.D.
PHILADELPHIA

The studies herein reported were undertaken for the purpose of determining what changes, if any, were induced in the mother heart by pregnancy. Clinical observations were supplemented by electrocardiographic studies, in order to secure written evidence of any possible heart abnormalities which might not be detected by ordinary clinical methods. The opportunity to study the hearts of babies immediately following birth and for varying periods during the first few weeks thereafter was taken advantage of at the same time, and the observations on the hearts of the new-born are incorporated in this article. The investigations were conducted at the Medico-Chirurgical Hospital of the University of Pennsylvania Graduate School of Medicine during the summer and fall months of 1921.

REASONS FOR EMPLOYING ELECTROCARDIOGRAPHY

For the information of those who may not yet appreciate the clinical significance of the recently introduced method of heart examination, it is well to set forth at this point the reasons for employing electrocardiography in the study of the mother and infant hearts. The electrocardiogram is a written record of the spread of the impulse for contraction—the excitation wave of the heart—which precedes each pulsation of the organ. Normally, each impulse is constantly propagated along a definite, neuromuscular pathway called the conduction system. The wave has its origin in the sino-auricular node, which is located in the auricle, and from there traverses the auricular musculature until it reaches the node of Tawara, which is located in the junctional tissues between the right auricle and the right ventricle. The node is the head of the bundle of His, which bundle divides into two branches, conducting the impulse to the right ventricle and to the left ventricle. Each bundle-branch further divides and subdivides, eventually terminating in fine arborizations known as the fibers of Purkinje. The fibers of Purkinje discharge the impulse into the heart muscle, and thus the excitation wave, which had its origin in auricular tissue, is conveyed to the ventricular muscle and results in ventricular contraction. The normal electrocardiogram, Figure 1, is composed of certain waves which represent the auricular contraction (P), and also the ventricular waves, known as the Q-R-S-T group.

The myogenic theory of heart muscle sets forth that the heart muscle possesses five properties, viz.: stimulus production, excitability, conductivity, contractility and tonicity. It is apparent that if these functions are interfered with by toxins or disease, the excitation wave, in all likelihood, will not have its usual origin, nor would it travel along customary pathways, as it does in the normal heart; on the contrary, it will take an abnormal course and an abnormal electrocardiogram will result. The abnormality will show itself in the written record by some deviation in the sequence, amplitude, direction, duration or distance of the respective waves. It thus becomes evident that it is possible for the electrocardiogram to furnish actual written evidence of heart abnormalities which cannot be detected by the ordinary means of clinical examination. And it is equally true that the written record can identify and clear up the origin of heart irregularities which are clinically puzzling. On the basis, then, that it is possible for the electrocardiogram to furnish indisputable written evidence of the changes which may take place in heart tissue, whether those changes are of a transient or of a permanent nature, electrocardiography was employed in these studies.

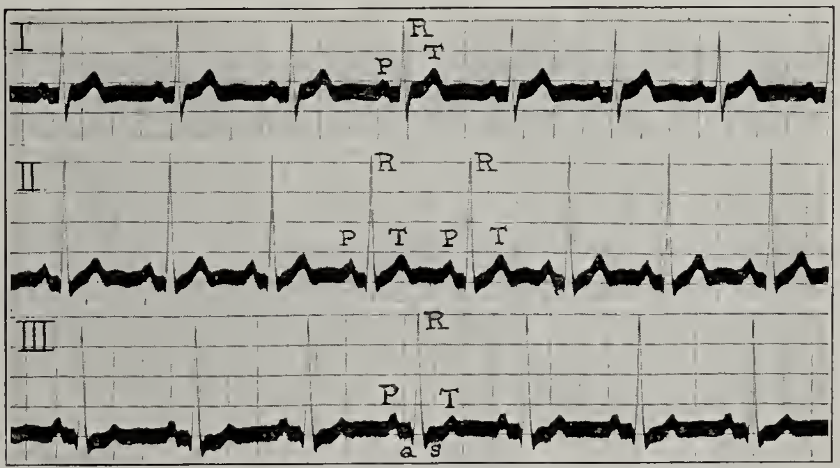

Fig. 1.—Normal electrocardiogram (for comparison with subsequent illustrations). The representative of the auricular impulse is called the P wave. The Q-R-S-T complex denotes ventricular activity. From T to P is the diastolic period of the heart. Usually, each cycle is a rhythmic repetition of its predccessors. Abnormalities of the cardiac mechanism are present when any of the waves of one or more cycles are changed in sequence, amplitude, direction, duration or distance.

Section I: The Mother Heart

CONCERNING HEART ENLARGEMENT DURING PREGNANCY

There is a general belief that the heart enlarges during pregnancy, and it has been stated that the enlargement is due to cardiac hypertrophy. At the commencement of these studies, the clinical observations and the first few written records seemed to confirm this opinion of heart enlargement. Examination of the expectant mother in the sitting position quite constantly showed that the left border of the heart was farther to the left than one would ordinarily expect, and the point of maximum intensity was greater by 3 or 4 cm. than the customary distance of that point from the midsternal line; the right border of the heart

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* Read before the Section on Practice of Medicine at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

in such patients could not be determined by percussion, probably for the reason that the right border was under the sternum; furthermore, the electrocardiograms of such patients showed some degree of inversion of the Q-R-S group in Lead III, thus indicating that the left ventricle predominated (Fig. 2). Such evidences of apparent heart enlargement could be found at any period between the fifth and ninth months of pregnancy, but were not observed before the fifth month.

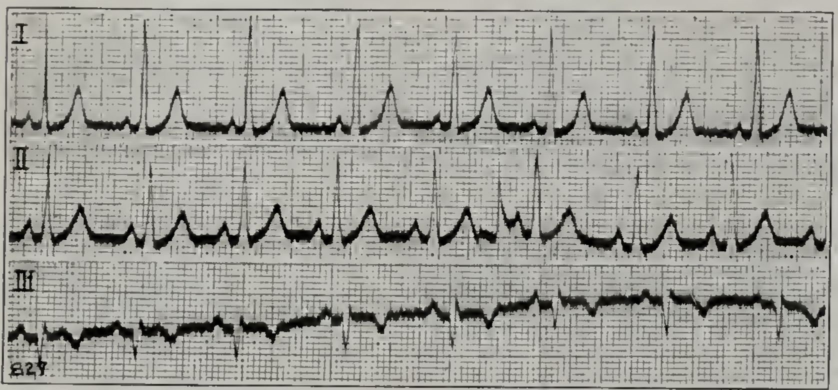

Fig. 2.—Mother's record, one month before confinement. In Lead III, the ventricular waves, when the patient is sitting, are directed downward, usually an evidence of preponderance of the left ventricle, lending confirmation to the statement frequently made that the heart hypertrophies during pregnancy.

The enlargement, however, was more apparent than real; for when the expectant mother was examined in the standing position, the left heart border (in those women who were free from other evidences of circulatory fault), usually returned to its customary position in the chest, as did also the point of maximum intensity. Examination with the patient recumbent did not reveal as marked a change in the left border as was produced by standing, the palpable reason being that it is customary for the heart to shift to the left in many persons during recumbency. The apparent "hypertrophy" of the heart when the patient is sitting can therefore be attributed to pressure of the gravid uterus and abdominal contents from below, causing mechanical displacement of the organ.

The records of a patient who had evidences of heart enlargement when sitting or lying, but who did not have such records when standing, are shown in Figures 2, 3 and 4. These figures show that, as the baby descended into the pelvis during the first stage of labor, the graphic evidence of heart enlargement became less pronounced, and promptly after the birth of the child the records have no evidence whatever of heart enlargement. Hypertrophy is defined as the morbid enlargement or overgrowth of an organ. Surely if the heart "hypertrophies during pregnancy," the alleged overgrowth of heart tissue is subject to miraculous and unnatural resolution, for within half an hour following birth the evidence of "hypertrophy" no longer existed.

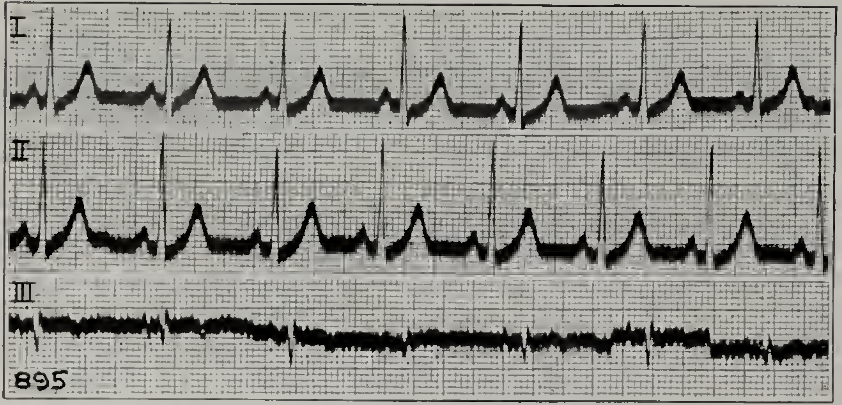

Fig. 3.—Mother's record, forty-five minutes before delivery. As the uterus descended into the pelvis during labor, the inversions of Lead III became less marked.

Pregnancy, per se, is certainly not a cause of cardiac enlargement. If pregnancy in itself were a cause of heart enlargement, then obviously it would be manifest in a mother who had carried many children. The roentgen-ray studies and electrocardiograms of a mother taken toward the close of her eleventh full-term pregnancy were normal, as shown in Figures 5 and 6.

THE HEART LOAD OF PREGNANCY.

There can be little doubt that pregnancy throws a load of some degree on the normal heart. The mother furnishes oxygen and nourishment and performs the process of elimination for two bodies instead of one; increases in the demand for oxygenation, elimination and digestion are effective only so far as the heart efficiently responds to the demand. But such a load is a gradual increment, added as pregnancy advances, and the heart is fully capable of adapting itself to the load of pregnancy as naturally as it adapts itself to other demands which are within physiologic limits.

One of the evidences of heart load is the increase in pulse rate observed in some mothers. The increase in rate, which may be from eight to fifteen beats per minute, is not usually accompanied by a corresponding increase in the intensity of the heart sounds, nor is the precordial impact unduly accented. Other evidence of heart load may be furnished by the mother whose heart has habitually exhibited premature contractions; these contractions do not tend to disappear—as they usually do—when the heart's effort is increased by exercise. On the contrary, premature contractions have been observed to persist throughout pregnancy and to be noticeable in some instances even between labor pains. It may be that toxins peculiar to pregnancy are responsible for the persistence of premature contractions under circumstances, such as increased pulse rate or physical effort, which would ordinarily cause them to disappear.

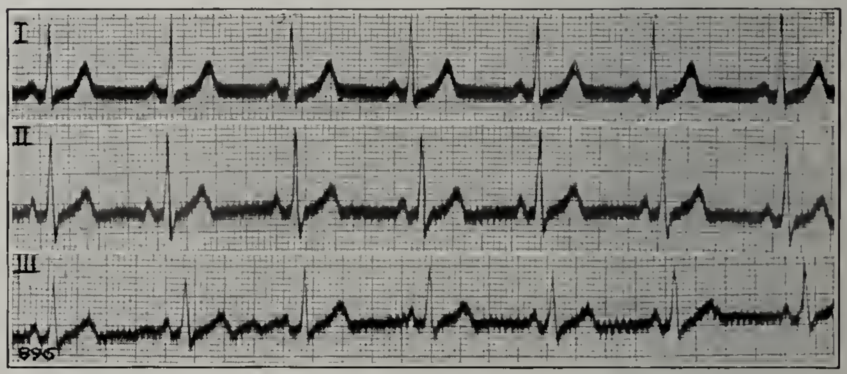

Fig. 4.—Mother's record, one-half hour after delivery. When the uterus was completely empty, Lead III became normally upright; for the heart was no longer displaced upward and to the left by the gravid uterus. "Hypertrophy" could scarcely correct itself within thirty minutes. Hence, the heart enlargement of pregnancy is apparent, not real; it is caused by cardiac displacement, not by morbid overgrowth of the heart.

There are certain waves of the electrocardiogram which I have observed to be fairly constantly increased, in persons who seem to be carrying an extra heart load; such increased waves are also found in some pregnant women, and if the hypothesis is correct that a deep S wave or the presence of a U wave can at times be considered as evidences of a heart load, then the occurrence of these waves in pregnant women and their absence after delivery may logically be taken as graphic evidence of a physiologic heart load at the time of their projection in the record. Finally, in the records written by the heart, it is rather the rule that all the waves of all leads, in all postures, are of greater amplitude during pregnancy than after delivery. Inasmuch as the heart has the inherent property of stimulus production, and as the electrocardiogram depicts the stimulus, this observation may be taken to indicate increased strength of the heart's excitation wave. The entire trend of cardiographic study supports the opinion of those who hold that the heart responds as naturally to the demands which may be made by pregnancy as to any other demands which are within physiologic limits.

HEART AFFECTIONS DURING PREGNANCY

In considering what may be called minor heart disturbances, reference has already been made to premature contractions. There is another minor disturbance of the pulse rhythm, called sino-auricular block, which may occur during any period of pregnancy. As this irregularity is in all likelihood a physiologic manifestation in certain hearts, its occurrence may be disregarded, provided one feels reasonably certain that one has identified it clinically.

Sino-auricular block can be clinically suspected in a person whose pulse is irregular as the rate returns to normal after physical effort, and who is free from symptoms and signs of circulatory fault. The condition must be differentiated from sinus arrhythmia and from premature contractions; in sinus arrhythmia, the rate increases on inspiration and decreases on expiration, the irregularity disappearing when the breath is held. Respiration has no effect on the irregularity called sino-auricular block. Premature contractions may be associated with other evidence of cardiocirculatory fault; they disappear on exercise and do not usually recur for several minutes following increased physical effort; they are especially noticeable when the patient is at physical rest or falling asleep. A person whose heart exhibits premature contractions (particularly if they be of ventricular origin) is usually conscious of the irregularity; the intermittency of sino-auricular block produces no such subjective symptoms.

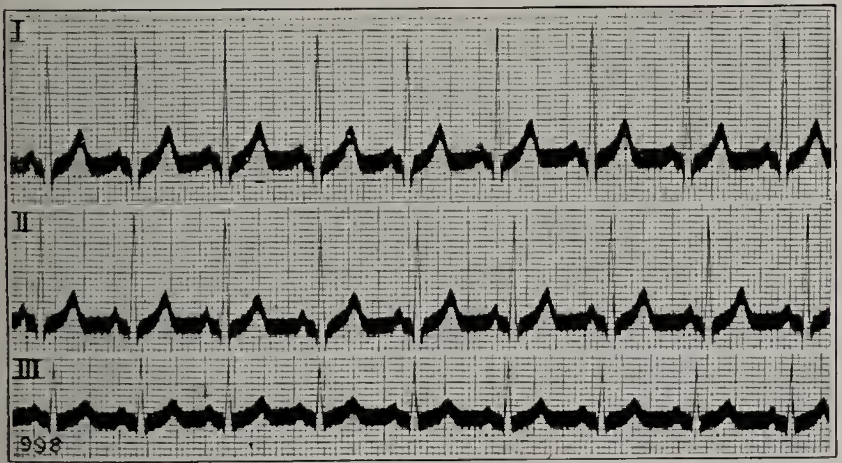

Fig. 5.—Eleventh full term pregnancy. Records of the mother when standing give no evidence whatever of heart enlargement.

Sino-auricular block may not be manifest on those occasions when the physician examines the heart of his patient prior to delivery, unless she has been exercising. The irregularity may not be manifest until toward the termination of some cases of prolonged and tedious labor. In such instances, the irregularity completely disappears following labor and does not return except as a sequel to exercise. By such behavior, sino-auricular block, occurring in the woman during labor, takes on the same significance as does sino-auricular block occurring in the athlete on exertion; in both instances, the irregularity, in all likelihood, is a physiologic manifestation in certain hearts.

Turning to the consideration of the more serious forms of heart irregularity, such as auricular fibrillation and heart block, I have seen patients with the extensive cardiac damage which the presence of permanent auricular fibrillation so often indicates pass through a sixth pregnancy and be apparently none the worse for such additional load as pregnancy throws on an affected heart. I have never had an opportunity to study a patient with high grade heart block during labor; patients with low grade heart block, however, such as delayed conduction, undergo pregnancy and labor with no demonstrable evidence of circulatory fault. Another serious heart irregularity, called pulsus alternans, I have never seen in the pregnant woman, probably for the reason that pulsus alternans, as well as high grade heart block, is indicative of that profound cardiac damage which usually occurs in the later years of life, after the child bearing period has passed. From a study of the powers of endurance exhibited by young persons who have high grade heart block, and from a study of an apparently healthy youth of 24 who, clinically and polygraphically, persistently exhibited pulsus alternans, I would be inclined to permit pregnancy to continue if either one of the infrequent conditions occurred in a woman of child bearing age, she being otherwise free from symptoms and signs of serious cardiocirculatory disturbance.

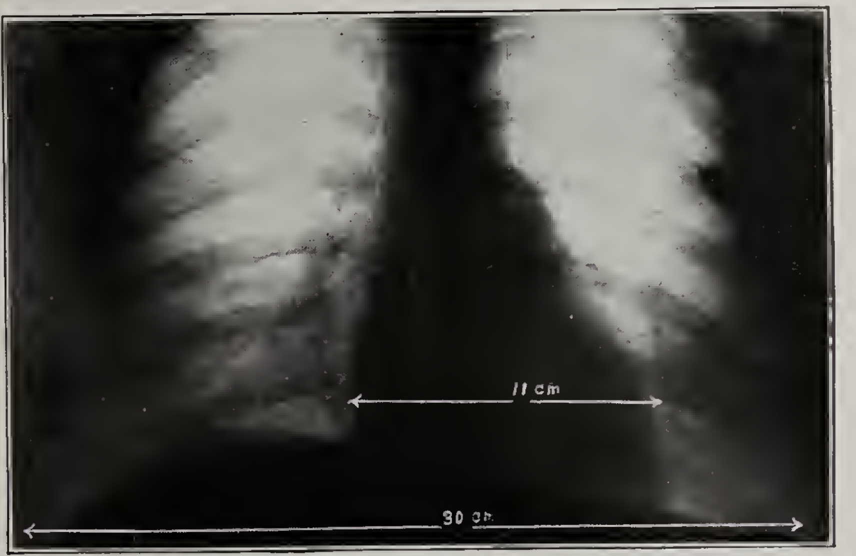

Fig. 6.—Roentgenogram of patient whose record is presented in Figure 5. The heart is in normal ratio to the thorax and the mother in her eleventh pregnancy gives no evidence of "cardiac hypertrophy." (Roentgen-ray studies by Dr. G. E. Pfahler.)

From the preceding consideration of pulse abnormalities as among the indications of heart muscle fault, it is seen that their usual clinical signficance is not altogether applicable to the pregnant woman. The import of the pulse abnormalities is modified by the youth of the patient, by the resistance and recuperative powers of youth, and by the adaptability of the heart to a physiologic circumstance. While a pulse disturbance is, on the whole, a more reliable indication of heart muscle fault than is a murmur, neither the pulse nor the valve, in itself, furnishes an indication for the interruption of pregnancy. It is the progressive reduction in cardiac reserve, despite watchful care and heart conservation, which should guide one on those rare occasions when it is necessary to terminate gestation, whether a pulse abnormality or valve affection be present or not.

CARE OF THE HEART DURING PREGNANCY

When a woman is known to have had a definite heart affection at any period of life prior to entering on pregnancy, she will require all the cardiac prophylaxis which modern medicine can give her. This applies as well to those patients whose hearts have apparently escaped damage during previous sieges of acute rheumatic fever, repeated tonsillar infections, chorea, diphtheria, pneumonia, typhoid fever, scarlet fever or other infections. If the patient has recently passed through these diseases, or if they occur during pregnancy, the indications for heart care become even more imperative. It is not possible accurately to estimate a degree of heart damage; the evidence of heart impairment may be promptly apparent or may not be manifest for years; it is therefore the part of caution to regard as a potential cardiopath any pregnant woman who has a previous history of infectious conditions.

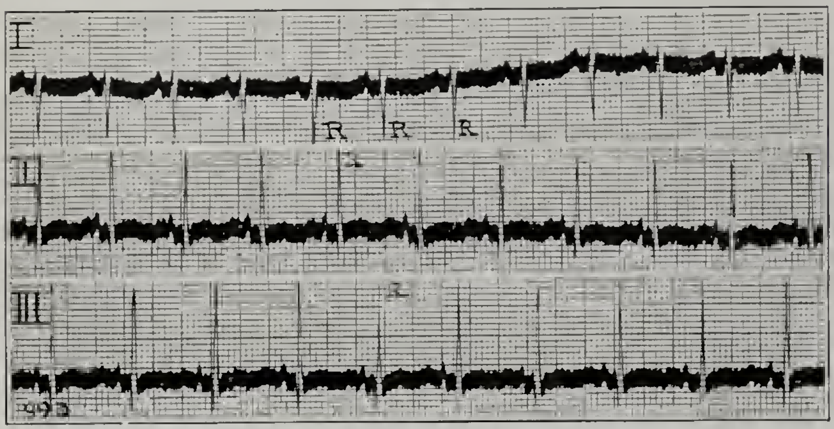

Fig. 7.—Heart enlargement in baby one hour after birth. The inversion of the R waves in Lead I is an evidence of preponderance of the right ventricle.

Focal Infections—When one considers how frequently tooth decay may be hastened by the demands of pregnancy, the peril of apical infections and dental necrosis assumes signficant proportions. Tooth integrity is not assured by a casual dental inspection; the electric test for vitality and a roentgen-ray study of every tooth and socket should be made when the physician first assumes the responsibility of conducting a patient through gestation—and the examinations may well be repeated later on if there are any symptoms of occult septic absorption.

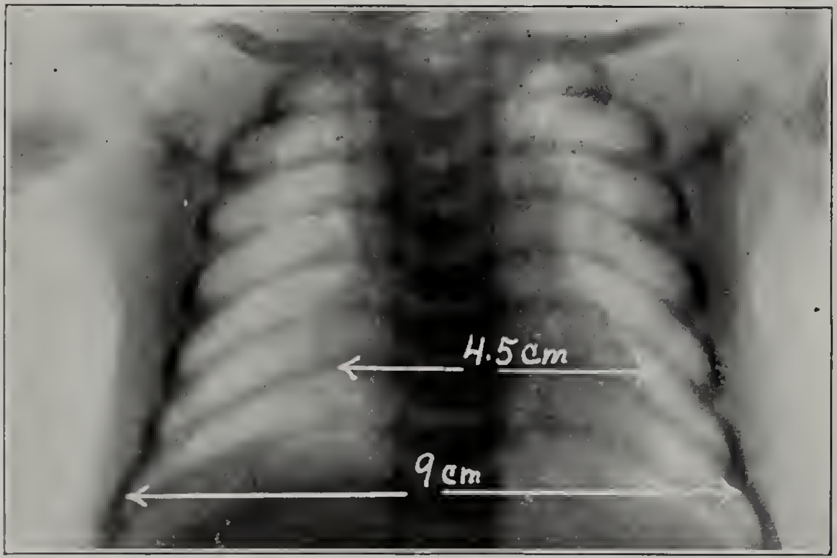

Fig. 8.—Roentgenogram of baby whose record is presented in Figure 7. The heart is farther to the right of the midsternal line than one would expect, and the cardiothoracic ratio confirms the cardiographic evidence of heart enlargement (Roentgen-ray studies by Dr. G. E. Pfahler).

Infective tonsils may be a source of heart disturbance during pregnancy; therefore, the condition of the tonsils should be ascertained at the beginning and frequently observed throughout pregnancy. It is not always possible to exclude the possibility of tonsillar infection without a special opinion, but as a rule-o'-thumb it may be stated that tonsils which are enlarged, reddened, resistant, caseous, catarrhal or bound down, or which present large follicles, are suspicious tonsils. Redness of the anterior tonsillar pillars is regarded by some observers as most important evidence of tonsillar toxicity.

Intestinal disturbances and intestinal putrefaction are at times evidently induced or aggravated in pregnant patients by the displacement of the abdominal contents from their customary position. The routine urine examinations of pregnancy should include a search for an excess of indican or skatol which, by their digestive and intestinal significance, may point the way to the correction of a condition that is burdening the heart unnecessarily.

The endocrine disturbances which are likely to be attendant on pregnancy may so disturb the nerve control of the heart as to counterfeit actual heart disease. It should also be remembered that toxins of pregnancy—or indeed hysteria—may simulate heart disease in women with previous histories of heart failure, and it is then necessary to make a differential diagnosis between the heart affection which is apparent and the heart affection which is real. A few days' rest in bed, with freedom from anxiety and with proper eliminative treatment, may clear up such doubtful diagnoses. I have never seen a patient, in such circumstances, in whom the immediate and precipitate interruption of pregnancy was necessary from a cardiac standpoint.

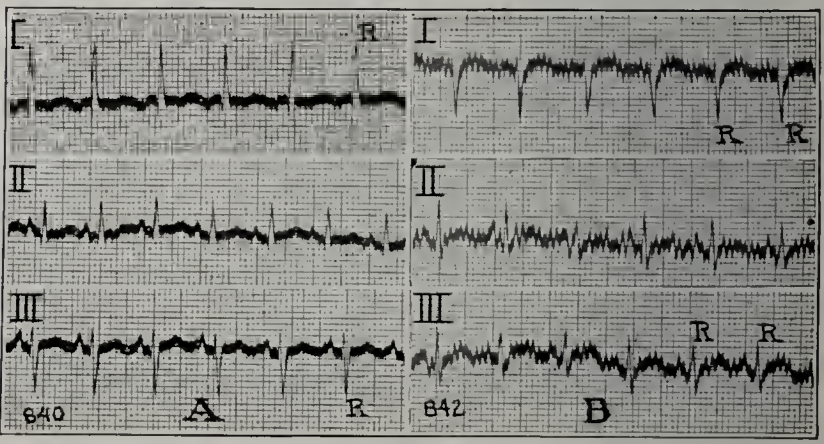

Fig. 9.—Baby's records before and after breathing. The records on the left, in Section A, were taken immediately after birth and before the child had breathed. The inversion of the R waves in Lead III is an indication that the right ventricle predominates. The records on the right, in Section B, were taken a few minutes later when the baby was crying; the R waves are now directed upward in Lead III and downward in Lead I, indicating that the right side of the heart has now assumed its extra-uterine function.

CARDIAC INDICATIONS FOR THE INTERRUPTION OF PREGNANCY

Such indications are clinically rare indeed. Hearts that are frankly diseased will often bear up remarkably well during pregnancy and will resist the tremendous effort imposed during labor with a surprising exhibition of heart strength. This may be found to be due to the cardiac stimulation produced by glandular secretions which are especially active during pregnancy. However, if despite thorough and repeated searches for infections which might be aggravating the symptoms of heart failure, and if despite rest and other therapeutic measures, the heart progressively fails, then the question of terminating pregnancy presents itself for serious consideration. An estimation of the degree of heart failure should be predicated on the degree to which the heart is incapable of supplying the vital organs of the mother; if it is failing in this regard, it is also probably failing regularly to supply the fetus with the quantity of blood necessary for proper nutrition.

When an expectant mother is a frank cardiopath and when all measures for the relief of progressing heart failure are fruitless, it may be necessary to sacrifice the fetus in order to save the life of the mother. I have seen only one such instance in which I considered the interruption of pregnancy imperative, and that was in a patient at the fourth month, with a history of repeated attacks of acute rheumatic fever. She had a double aortic murmur, a greatly increased transverse cardiac diameter (16 cm.) in a slender chest, urgent dyspnea on trivial effort and progressing heart failure which became more marked as the days of pregnancy advanced, despite the most watchful hospital care and a search for coincident infections.

In considering the question of the interruption of pregnancy, one should bear in mind that pregnancy is essentially a physiologic process and that the heart has the same power of adapting itself to the physiology of pregnancy as have other organs of the body. With this thought uppermost, one should ferret out every possible clue that may lead to the detection of an extracardiac factor other than pregnancy which is likely prostrating the heart.

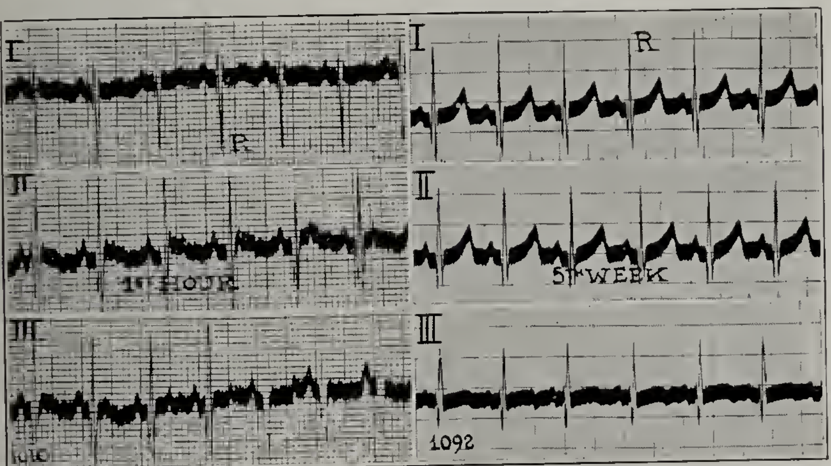

Fig. 10.—Baby's records assuming adult characteristics. The records on the left were taken twenty minutes after birth; those on the right were taken when the baby was five weeks old. Note the upward directions of the R waves in Lead I at the fifth week, as compared with the downward direction in Lead I at birth.

Section II: The Infant Heart

CONCERNING HEART ENLARGEMENT AT BIRTH

During intra-uterine life, the heart gradually evolves from an embryotic structure to a functioning organ that assists in propelling the blood through the body of the fetus. Only the left side of the heart is concerned with blood propulsion in the maturing fetus, and the left ventricle has gradually become accustomed to its task as intra-uterine development proceeds from month to month. The right side of the heart, which later on maintains the pulmonary circulation, may be said to be functionally inoperative while the child is in utero. Owing to the load which is suddenly thrown on the previously nonfunctioning right side of the heart when the new-born child begins to breathe, one would logically expect the right side then to enlarge in order to adapt itself to the new and as yet unaccustomed demand. This is exactly what happens. The right ventricle predominates at birth and for a varying period of weeks thereafter, until that side of the heart accommodates itself to its new functional duties, as is shown by clinical examination, graphic records and roentgenograms. (Figs. 7 and 8). Contrary to the experience gained with expectant mothers, cardiographic studies of babies in various postures produced no change whatever in the written evidence of ventricular preponderance.[1]

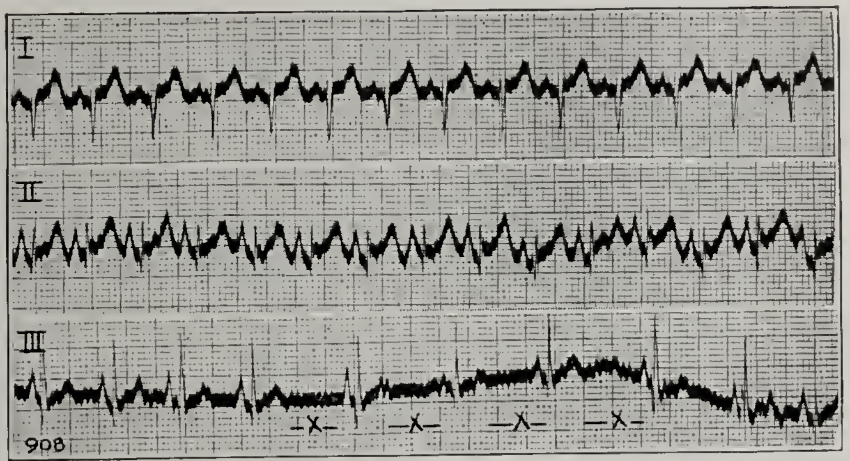

Fig. 11.—"Sino-auricular block" in baby 4 days old. The irregularity is identified by the long periods of diastole in Lead III, which interrupt the regularity of an otherwise rapid heart.

As a corollary to the foregoing observations on the cardiac effects of suddenly breathing, one would expect that an infant who did not start to breathe immediately at birth would show preponderance of the left ventricle. Again the expected happens. In Figure 9 is shown the record of a new-born baby who did not breathe at birth: the left ventricle predominates. The right half of Figure 9, taken a few minutes later when the youngster was lustily crying, shows that the right ventricle predominates, as is normal in the new-born.

Reasoning along lines similar to the foregoing, it is to be expected that the heart of the new-born would gradually become accustomed to the burden of sustaining the pulmonary circulation and that evidence of right sided preponderance would gradually disappear. The change is always gradual, never sudden; as early as the fifth week of life, marked evidence of right heart preponderance disappears, as shown in Figure 10, and the records begin to take on adult characteristics.[2]

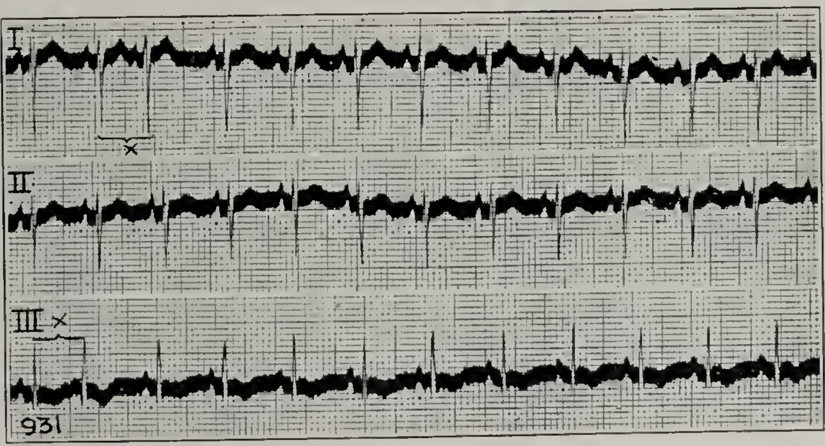

Fig. 12.—Premature contractions in baby 4 days old. Auricular premature contractions in Leads I and III can be so located by the check marks.

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[1] In this connection, a note may be made on the interesting behavior of the T wave in children who were held upright on the nurse's shoulder or laid flat on the back. Otherwise directed upward, the T wave under such circumstances became inverted.

[2] As concerns the direction of the Q-R-S group in Leads I and III.

(Compare also Figure 14, records of a 38-year-old mother and five-week-old twins.)

Concerning the duration of right ventricular preponderance in the heart records of babies, the period is variable and seems to depend somewhat on whether the infant is delicate or robust. The delicate ones usually showed adult characteristics in their records about the fifth week, one especially quiet baby showing, as early as the tenth day, an upward R wave in Lead I to be even then 50 per cent. established. The stronger and larger infants required between six and eight weeks before manifesting adult characteristics in their records, one of these, especially vigorous and with lusty lungs, still showing the typical infant Lead I at the third month. One might venture to interpret these findings on the premises that the more vigorous the baby, the more physically active it will be; increased physical and pulmonary activity mean increased heart effort, with a consequent delay in the subsiding of right heart enlargement.

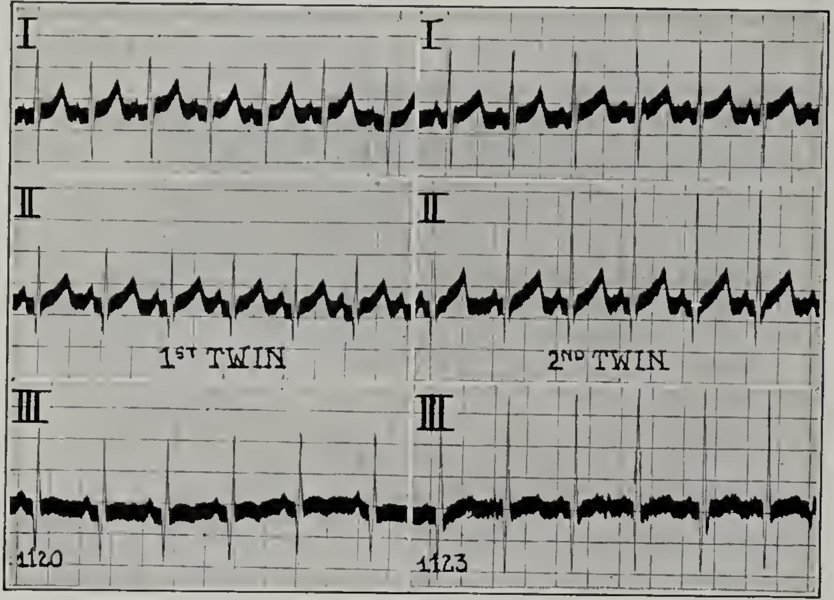

Fig. 13.—Heart records of twins, side by side. The heart records of the first-born twin are on the left; those of the second-born are on the right. Note the resemblance in all leads and that the heart rate is 150 per minute in each.

HEART VAGARIES IN THE NEW-BORN

The cardiac mechanism, by which is meant the sequential, rhythmical and orderly contraction of auricles and ventricles in response to the stimulus of the normally conducted excitation wave, is subject to many deviations during the first few days of life. The heart action of the newly born child is not always as synchronous and regular as is the mechanism of a newly purchased watch, for the cardiac mechanism does not always promptly adapt itself to maintaining the circulation independent of accustomed maternal aid. Alterations in regularity may occur and the pulse seem to "drop beats," as shown in Figure 11, owing to sino-auricular block; or the rhythm of the pulse may be interrupted by premature contractions, as shown in Figure 12. Some records will present no evidence of auricular activity at first, while others show auricular activity to be absent one day and present the next. There are brief periods during the first few days of life when auricular and ventricular impulses are scarcely in evidence in Lead I. That such anomalous registrations in Lead I are not due to technical error is proved by the natural registrations secured in Leads II and III.

The above mentioned vagaries in the hearts of the new-born are certainly not of any serious consequence. The infants in whom they occurred were living and well months afterward, and during return studies showed none of the earlier deviations. The vagaries in the pulse were, I believe, an evidence of cardiac adaptation, rather than manifestations of cardiac pathology.

Average Pulse Rates.—The average pulse rate under varying circumstances of test were calculated from the written records of ten babies. During the first hour after birth, the pulse rate averaged 122; on the tenth day, 156; and at the fifth week, 135. During the nursing periods in the fifth week, the rate was 160; during sleep, 127; and when the child was crying, the average rate at the fifth week was 150. The general average for the usual circumstances of health during the first five weeks of life gave a pulse rate of 132 beats per minute.

THE FAMILY RESEMBLANCE IN HEART RECORDS

As seen in the day's work, there is no resemblance in the hearts or cardiographic records of members of one family. There are too many factors which are capable of changing the characteristics of an individual heart for one to expect a familial conformity; environment, age, sex, temperament, emotion, occupation, habits and infections could one or all completely change the physical findings and the graphic records. Yet, if one could secure two persons with a common parentage, who were of the same environment, age and sex, too young to have developed temperaments and subject to only the most primitive emotions—persons of no perverse habits and having had no previous disease—under such circumstances, there should be a definite heart resemblance, just as there are family resemblances in bony framework, muscular structure and facial configuration. The hearts of male twins were remarkably alike, as shown in Figure 13. When the heart records of the twins are studied in connection with the mother's, after making allowance for the slower rate of the parent, one can certainly recognize the three as being intimately related to each other (Fig. 14).

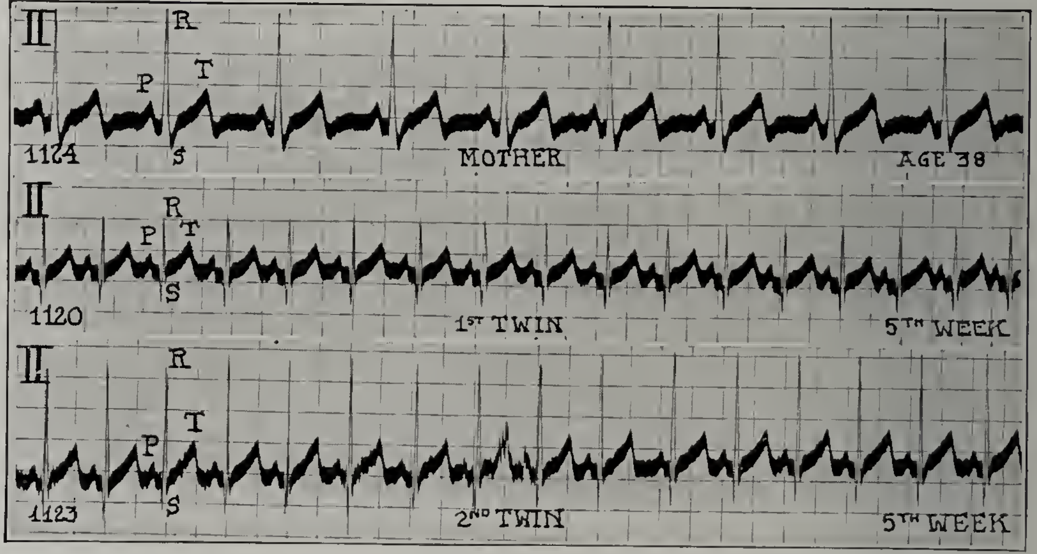

Fig. 14.—Mother and twins together. The second leads from the three persons are shown together in order to develop the family resemblance in the heart records. Note in all three the unusually sharp P summits, the slender and rapid R spikes, the presence of the often missing deflection S and the abrupt descent of the T wave.

A family resemblance might be more satisfactorily established if a physiologic irregularity in the mother's record were found to be duplicated in the heart of her baby. But here the investigator would probably be baffled by the rapid rate of the infant's heart as compared with the mother's; for, as is well known, all irregularities, excepting auricular fibrillation, tend to disappear when the rate is rapid. Many studies attempted along this line were finally rewarded and, in a case of prolonged and painful labor in which an anesthetic and instrumental delivery were necessary, the baby's rate was so slowed that the infant heart had an opportunity to simulate the irregularity of the mother's (Fig. 15). Perhaps it is possible for a heart irregularity to be transmitted from parent to child.

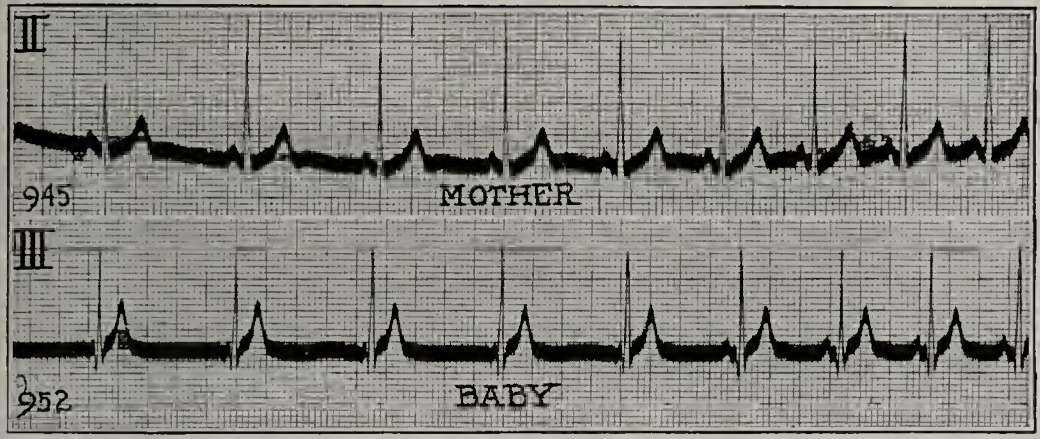

Fig. 15.—A maternal irregularity simulated by infant heart at birth. The record of the mother was taken two hours before the termination of a slow and tedious labor which had lasted ten hours, and exhibits a respiratory arrhythmia. The baby was apneic at birth, and its record, taken eight minutes after birth, resembles the record of the mother's heart in irregularity. The rate of each heart was seventy per minute.

HEART ACTIVITY IN THE STILLBORN

During the course of these studies, opportunities were afforded to observe the manifestations of heart activity which may occur after all external evidences of life have ceased. In one baby, who lived for only five days and in whom an early death was predicted because of a sharp and persistent inversion of the T wave in Lead II, the heart continued rhythmically to activate the electrocardiographic string in waves of decreasing amplitude for one hour and twenty-six minutes. Another infant, one of twins, who was stillborn, yielded the record which is shown in Figure 16. This case is of interest on account of the clinical lesson which it teaches. Fifty-four minutes after the stillbirth, Figure 16 was obtained and shows rhythmic activity of the string galvanometer. Gradually, the impulses became less frequent, declining to a point where the record became flat, one hour and ten minutes after stillbirth. At this juncture, the precordium was massaged for a minute and the chest enveloped in hot towels, with the surprising result of revived activity, which continued for twenty-one minutes. Repeated employment of precordial massage and heat continued to reexcite the string, and the evidence of activity continued in all for three hours and twenty-four minutes, following the stillbirth, before finally disappearing.

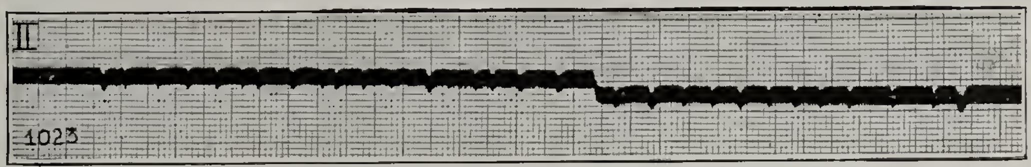

Fig. 16.—Record taken fifty-four minutes after a stillbirth.

The clinical lesson which can be drawn from these stillbirth studies is that efforts to revive a stillborn baby should be unremitting and long continued. The purpose of such efforts is to stimulate sufficient blood supply to the respiratory center to, in part, maintain it until that center, perchance, becomes functionally active. The usual attempts at artificial respiration, it seems, could well be reinforced by the repeated application of heat to the entire chest and by an attempt to massage the heart with the sides of the fingertips in the interspaces. If such measures are capable of repeatedly stimulating what was probably some type of cardiac response in a baby three hours after stillbirth, there is warrant for their continued employment in those instances in which the usual means of resuscitation are not promptly effective.

SECTION III: CONCLUSIONS

1. Clinical, cardiographic and radiographic examinations indicate that pregnancy, in itself, does not cause cardiac enlargement.
2. Such evidences of cardiac enlargement as may be present in the expectant mother under certain circumstances of examination are shown to disappear under other circumstances.
3. Cardiac enlargement in the latter half of pregnancy can be simulated by the upward pressure which the gravid uterus exerts on the heart, causing cardiac displacement.
4. There are no heart affections which are characteristic of or incident to pregnancy.
5. While pregnancy, in all likelihood, throws a load of some degree on the heart, the heart is as fully capable of adapting itself to this as to other physiologic demands.
6. A definite history of previous infections requires that the expectant mother be closely observed, as pregnancy advances, for symptoms of masked heart disease, which may not become apparent until brought to light by the heart load of pregnancy.
7. Focal infections may cause symptoms of heart embarrassment in pregnant patients, which might erroneously be attributed to pregnancy.
8. Definite cardiac indications for the interruption of pregnancy are rare. Even frankly diseased hearts will exhibit a surprising adaptability to the physiologic demands of pregnancy.
9. The right side of the heart is enlarged in the new-born.
10. Evidence of cardiac enlargement persists for five weeks, or longer, before the baby's record begins to assume adult characteristics.
11. The heart, following birth, is frequently irregular at intervals during the first week. Such irregularities may be expected to disappear at a later date and are not indicative of cardiac pathology.
12. Graphic records suggest that it may be possible for maternal irregularities to be transmitted to the child.
13. In a stillborn baby, evidences of heart activity were observed for three hours and twenty-four minutes following stillbirth.

14. Massage of the heart through the chest wall may prove to be a useful adjunct to other methods of resuscitation in the stillborn.

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ABSTRACT OF DISCUSSION

Dr. Alexander Lambert, New York: I congratulate Dr. Smith for bringing forward some evidently new facts in the study of heart conditions, and in showing that the normal heart can carry, as expected, the work put on it. The question arises often as to whether or not a patient can carry the load of pregnancy with a diseased heart. The question seems to be, What diseases of the heart are the ones that most often affect pregnancy unfavorably? Usually, the experience is that the double mitral lesion, especially mitral stenosis, is the unfavorable factor, both because of its peculiarity and because it is the most common lesion that brings an early upset of equilibrium. In the majority of cases the breakdown comes between 34 and 37; that is, in the full vigor of a woman's life. She may bear one or two pregnancies well; but the breakdown is coming, because it is a progressive lesion. Time was when we regarded any heart lesion as dangerous; but we now realize that mitral stenosis is a subacute inflammatory lesion of the auriculoventricular opening. It is a progressive inflammation. That is why it is so dangerous. Dr. Smith has shown that we must consider pregnancy as an extra load on a damaged heart. If the damage is not great or serious, these patients can go through pregnancy, especially if they can go through with the ordinary strains of life. If a breakdown is liable to occur, then pregnancy is probably dangerous.

Dr. Harold E. B. Pardee, New York: I agree with Dr. Smith's observation that there are not many women with heart disease whose pregnancy must be interrupted. At the Lying-In Hospital, I have seen about as many patients whose pregnancy was interrupted unnecessarily, I believed, as were allowed to go on with a pregnancy which should have been interrupted. The problem is to decide when interruption is or is not indicated. As long as the amount of exercise which the patient can take does not decrease, she is safe. When she shows shortness of breath on exertion of decreasing severity, it is an indication for a proper course of medical treatment. If this fails to improve her condition, so that she is again able to be about without relapsing, then intervention is indicated. If she improves under treatment, then she can go on to delivery with safety. When intervention is indicated, the operation should be prompt and of such a nature as to throw the minimum degree of additional strain on the heart. Cesarean section is safest. It is equally difficult to decide the problem of those women who wish to know whether it is safe for them to undertake pregnancy. We have found little help from the type of valvular disease or the degree of cardiac enlargement. Mitral stenosis is the most frequent cause of trouble; but it is not more severe than aortic regurgitation, merely more frequent. A high percentage of severe cases is found in those with combined aortic and mitral lesions and those with markedly enlarged hearts. We have found great help from a consideration of the physiology of the circulation of the individual patient, inquiring what her cardiac symptoms have been in the past, how much she can do without shortness of breath and how much this has diminished during pregnancy. We also consider the reaction to a test exercise. Combining history, test exercise and physical examination, we have been able to give a reasonably correct prognosis in the vast majority of cases; but not in all. The reason is that the severity of the labor in a given case is not exactly determinable. An unusually difficult labor may cause severe heart failure in a patient who could have perfectly well withstood a normal labor with less strain; while a precipitate delivery has been seen to save a situation which might otherwise have been fatal.

Dr. L. F. Bishop, New York: It is interesting to see the tracings of the twins which correspond mathematically. Both children were born with irregular hearts. That may seem a bad thing, and it leads to the question of irregularities of the heart. We are all born with sinus arrhythmia. We all have extrasystoles sometimes during our lives when occasion arises, such as in the case of distended stomach or of exhaustion, and we nearly all die with fibrillation. So that we have an irregular heart in one form or another all the time. The important point is that cardiac irregularity is not important of itself; but the careful study of it by modern methods forms the best means by which we can analyze the heart muscle. Tracings in themselves are important only when they are interpreted with the whole case. Sinus arrhythmia late in life means a great deal. When we find a right predominance of the heart and a sinus arrhythmia after the twentieth year, it is a type of heart which I have termed the infantile type, characterized by right predominance, sinus arrhythmia and consciousness of the heart by the patient and a tendency to palpitation. Often there is a blowing murmur, not very loud, in the pulmonary area. I tell these patients that they are not suffering from heart disease: to take good care of themselves and to forget it. The importance of the classification is that it forms a dumping ground for a large group of cases and helps us out in practice. Dr. Smith's appraisal of the whole question of cardiac disease and pregnancy cannot be improved on. I think that a woman with a defective heart has a perfect right to undergo pregnancy and childbirth if she wishes to do so. So many mothers with heart disease have borne safely a single child that it would be a shame if we were to deprive them of that happiness. I think we can put the probabilities before our patients and let them decide. If they are willing to take a certain amount of risk, it is our duty to see them through the best we can.

SYNDROME OF MALIGNANT TUMORS OF THE NASOPHARYNX

A REPORT OF SEVENTY-NINE CASES *

GORDON B. NEW, M.D.
ROCHESTER, MINN.

During the last six years I have examined in the Mayo Clinic seventy-nine patients with malignant tumors of the nasopharynx. These tumors include only epitheliomas and lymphosarcomas, not fibromas or myxomas. I have gradually become impressed with the facts that: (1) malignant tumors of the nasopharynx are much more common than has been believed; (2) the syndrome which they present is not generally known, which accounts for many patients being treated medically and surgically without the discovery of the tumor, and (3) there is a striking lack of nasal or nasopharyngeal symptoms in many of these cases.

The close relationship of the nasopharyngeal region to the eustachian tube, the second, third and fourth nerves, the second and third divisions of the fifth and the sixth nerves, the gasserian ganglion, the sella turcica, the jugular foramen, and the ninth, tenth, eleventh and twelfth nerves may make the symptoms and findings of a growth in this region extremely variable. Symptoms of involvement of any of the structures enumerated should immediately suggest the possibility of a nasopharyngeal tumor even in the absence of symptoms suggestive of a lesion of the nose or throat. In order to establish the syndrome of nasopharyngeal tumors, I reviewed the symptoms of the patients in the series of seventy-nine cases.

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* From the Section on Laryngology, Oral and Plastic Surgery, Mayo Clinic.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

The oldest patient examined was 66 years old, and the youngest, 4. More than 50 per cent. of the tumors occurred in patients between 41 and 60. The duration of the symptoms ranged from five weeks to four years; the average duration was fourteen months (Table 1).

TABLE 1.—AGE OF PATIENTS

Years	Number of Patients
Under 10	2
From 10 to 20	11
From 21 to 30	6
From 31 to 40	10
From 41 to 50	22
From 51 to 60	21
From 61 to 70	7
Total	79

The number of epitheliomas and lymphosarcomas was about equal (Table 2).

TABLE 2.—TYPES OF TUMORS

	Number of Cases
Epitheliomas	34
Lymphosarcomas	33
Malignant (type not determined)	7
Pathologic examination not made	5
Total	79

Many patients with tumors of the nasopharynx do not come to the clinic because of nose or throat complaint; they are referred for a nasopharyngeal examination from the Section on Ophthalmology, Neurology or General Medicine, because of various symptoms.

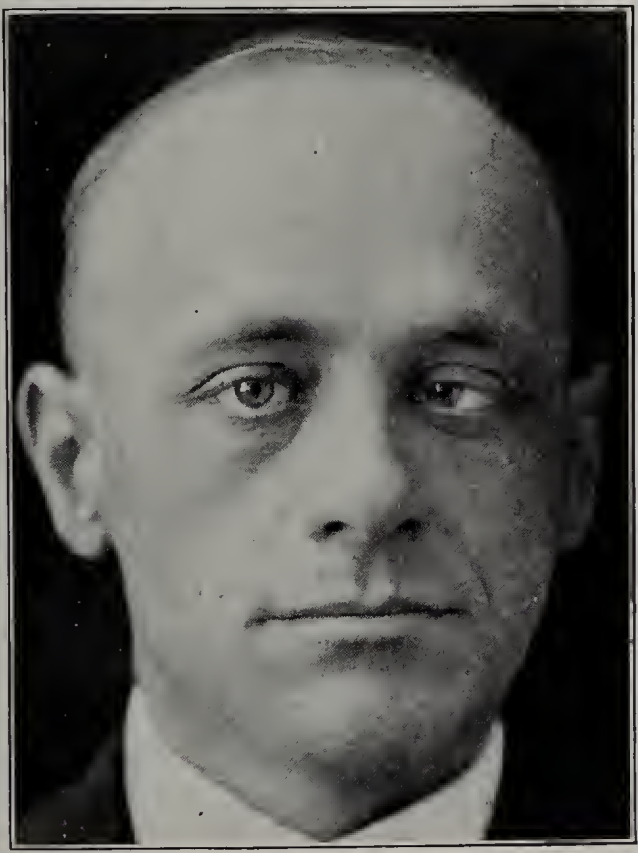

Fig. 1 (Case A 321838).—Lymphosarcoma of the left nasopharynx, involving the eustachian tube. The external rectus had been paralyzed for eleven months. A history was given of two years of pain and fulness in the ear. The left antrum was irrigated; the septum was operated on, and tonsillectomy and paracenteses were performed.

Often it is only after a careful examination that the tumors are found. They are sometimes very small; they are situated laterally in Rosenmüller's fossa, and they usually involve one eustachian tube.

The nasopharyngeal examination is made by means of the ordinary No. 2 nasopharyngeal mirror. Sometimes cocainization and drawing the palate forward by a retractor may be necessary in order to obtain a good view of the nasopharynx. I believe the nasopharyngeal mirror gives a much better perspective than can be obtained by special nasopharyngoscopes.

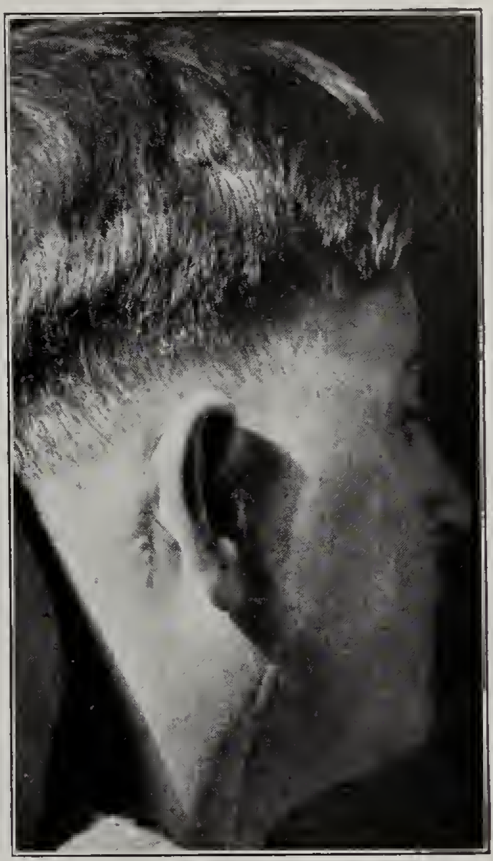

Fig. 2 (Case A 337767).—Lymphosarcoma of the right nasopharynx. The earache started thirteen months before, followed by difficulty in opening the mouth. The tonsils and adenoids were removed ten months before, and a mastoid operation was performed nine months before. Tuberculous glands of the neck were operated on three months before.

TABLE 3.—SYMPTOMS

	Number of Cases
Referable to the eye	21
Referable to the ear	29
Referable to the nose and pharynx	38
Referable to the glands of the neck	51
Referable to the gasserian ganglion	4
Referable to the jugular foramen	2
Intracranial	11

In the nasopharyngeal syndrome (Table 3), pain may simulate that in acute conditions of the ear and the patient may have been free from trouble until the acute condition arises. The pain may be constant or recurrent, extending over the cheek, the mastoid region, and the frontal and temporal regions, or it may be in the eye. It is especially troublesome when the patient lies down and is sometimes believed to be due to a tooth. Many patients have their teeth removed in the hope of securing relief. One patient complained of diplopia and severe frontal headache for six weeks. Two patients complained of pain in the occipital region. If the tumor involves the gasserian ganglion, the typical pain of trifacial neuralgia may occur and, later, anesthesia and numbness over the distribution of the fifth nerve. A small epithelioma of the nasopharynx which had perforated the skull and invaded the ganglion was found in a patient who was referred to the clinic for operation on the ganglion for trifacial neuralgia. Shelden[1] asserts that the symptoms and clinical signs of nasopharyngeal tumors which have secondarily involved the gasserian ganglion are not distinguishable from symptoms and signs of tumors arising in the cranial cavity and involving the ganglion, and that nasopharyngeal tumors have produced this syndrome almost as often as tumors arising in the skull. Many of these patients do not have pain: they seek relief from enlarged glands of the neck, tinnitus and deafness, or double vision. One patient came for keratosis on one side of the nose and, on routine examination of the nasopharynx, a lymphosarcoma was found in Rosenmüller's fossa. It had not caused symptoms.

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[1] Shelden, W. D.: Tumors Involving the Gasserian Ganglion, J. A. M. A. **77**: 700-705 (Aug. 27) 1921.

Twenty-one of the seventy-nine patients had symptoms referable to the eye at the time of examination. The most common complaint was diplopia, and in these cases the external rectus muscle was paralyzed. Both sixth nerves may be affected and the upper eyelid ptosed. A complete ophthalmoplegia with choked disk may be found; later, there may be optic atrophy.

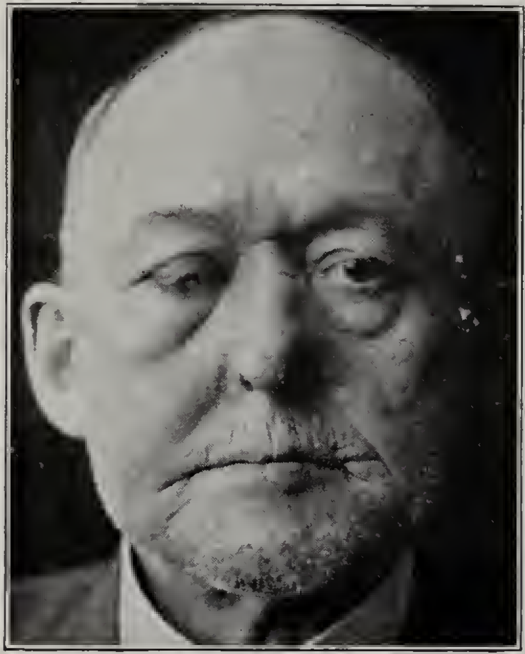

Fig. 3 (Case A 305751).—Epithelioma of the right Rosenmüller's fossa, involving the gasserian ganglion. The eyelids were sewed together for a corneal ulcer. There was a history of three years of pain in the right ear and face, and an increasing deafness. The patient was referred for gasserian ganglion operation.

Twenty-nine of the seventy-nine patients complained of the ears; some of gradually increasing deafness with tinnitus or fulness of the ear. The onset of this trouble may be acute and a paracentesis may be performed in an attempt to give relief. This was done five times in one case of the series. Many of the patients had ear treatments; one was treated for six months and had four paracenteses, without the cause of the trouble being discovered, and one had a mastoid operation because of the pain. A discharging ear may be a part of the picture. Deafness may be bilateral, if both tubes are involved.

Only thirty-eight of the seventy-nine patients presented nasal or nasopharyngeal symptoms, such as bleeding or symptoms of nasal obstruction. This is significant and it brings out a point that I made in previous papers[2] on this subject; many of these patients are symptomless from the standpoint of the nose and throat, and it is only by careful examination of patients who present part of the syndrome that the tumor is found. The tumors do not present the syndrome usually associated with the nasopharynx, such as nasal obstruction, bulging of the palate, and so forth, but often are very small flat growths, situated laterally in Rosenmüller's fossa and involving one tube. It is possible that a few tumors that were quite large at the time of the first examination may have originated in the sphenoid.

Fifty-one of the seventy-nine patients had enlarged glands of the neck. A microscopic diagnosis of endothelioma from the gland removed had been made elsewhere in three cases, in all probability owing to the fact that the primary epithelioma had not been found. Metastasis to the glands of the neck is often bilateral, and in the lymphosarcoma group gives a clinical picture of Hodgkin's disease. Three of our cases had been thus diagnosed elsewhere. The involvement of the glands of the neck may be extensive, with a very small primary growth.

Ankylosis of the lower jaw may occur from direct extension of the tumor to the pterygoid muscles. Such a condition makes a nasopharyngeal examination more difficult; but when this complaint is associated with pain in the ear or around the head, the possibility of a nasopharyngeal tumor must be eliminated. Some patients with this symptom had had their wisdom teeth removed, believing that they might be the cause of the complaint.

It may be very difficult to differentiate intracranial and extracranial symptoms, as many of the nerves may be involved extracranially and give the same syndrome as would appear with primary intracranial neoplasm. The only possible differentiating point is a unilateral choked disk, and this, of course, is not absolute. The growth may penetrate or invade the sella turcica and simulate a pituitary tumor, as occurred in one of the cases reported in a previous paper.[3]

The jugular foramen syndrome of Jackson was present in two cases. In one case, the ninth, tenth, eleventh and twelfth cranial nerves and the sympathetic nerve were affected, as shown by paralysis of half of the palate, tongue, pharynx and larynx, and the sternocleidomastoid and trapezius muscles. There were sensory changes in the pharynx and disturbances of taste over the posterior half of the tongue. Enophthalmos, narrowing of the palpebral fissure, and small pupil indicated involvement of the sympathetic nerve. In the other case, in which the jugular foramen syndrome was present, all of the cranial nerves on the side were affected except the first and the seventh.

Besides the seventy-nine cases of nasopharyngeal tumors, there were four in which a tumor invaded the nasopharynx secondarily. Bulging of the lateral wall of the nasopharynx was found, without ulceration. One of these tumors presented the jugular foramen syndrome with involvement of the ninth, tenth, eleventh and twelfth nerves, but the three others presented pictures similar to the intrinsic nasopharyngeal tumors.

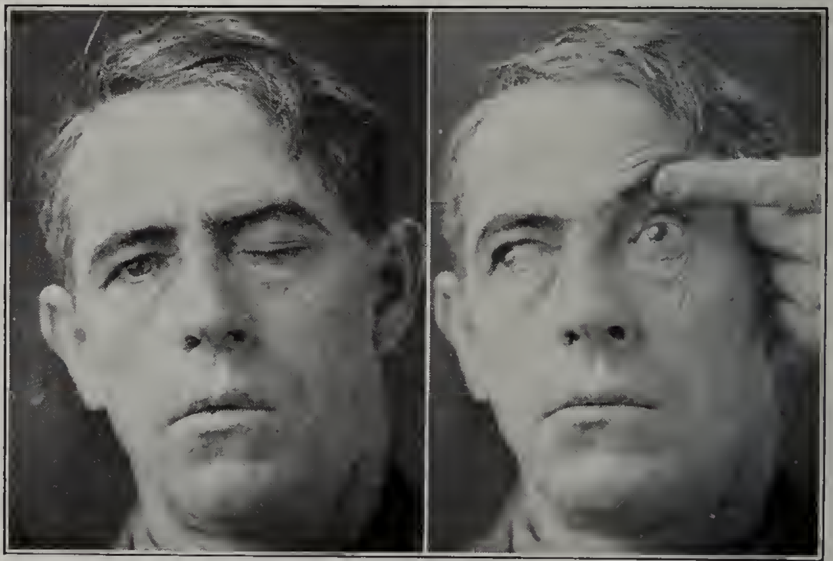

Fig. 4 (Case A 377033).—Epithelioma of the left nasopharynx with orbital and cervical involvement; complete ophthalmoplegia with ptosis of the left upper lid. There was a history of two years of pain and deafness. The glands of the left side of the neck had been removed fifteen months before.

Eighteen of the fifty-one patients in whom the glands of the neck were involved had had operations on the neck without discovery of the primary tumor. One patient had had five operations because of recurring involvement of the glands. Twenty-three patients had had the tonsils removed after the onset of the complaint, because of the enlarged glands of the neck, or in an attempt to relieve the head complaint. Eighteen patients had had nasal operations to relieve the trouble, including operations on the septum, the antrum, and the ethmoid and frontal sinuses. Twelve patients had had teeth removed, usually wisdom teeth, because of the pain. One patient had had a mastoid operation. In the seventy-nine cases, seventy-four operations were performed, including removal of teeth, in attempts to relieve the symptoms caused by the nasopharyngeal tumor. This number does not include paracentesis, which was performed many times (Table 4).

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[2] New, G. B.: The Relation of Nasopharyngeal Malignancy to Other Diagnosis, Minnesota Med. 4: 419-422 (July) 1921; Two Unusual Nasopharyngeal Tumors, Laryngoscope 32: 99-102, 1922.

[3] New, G. B.: Footnote 2, first reference.

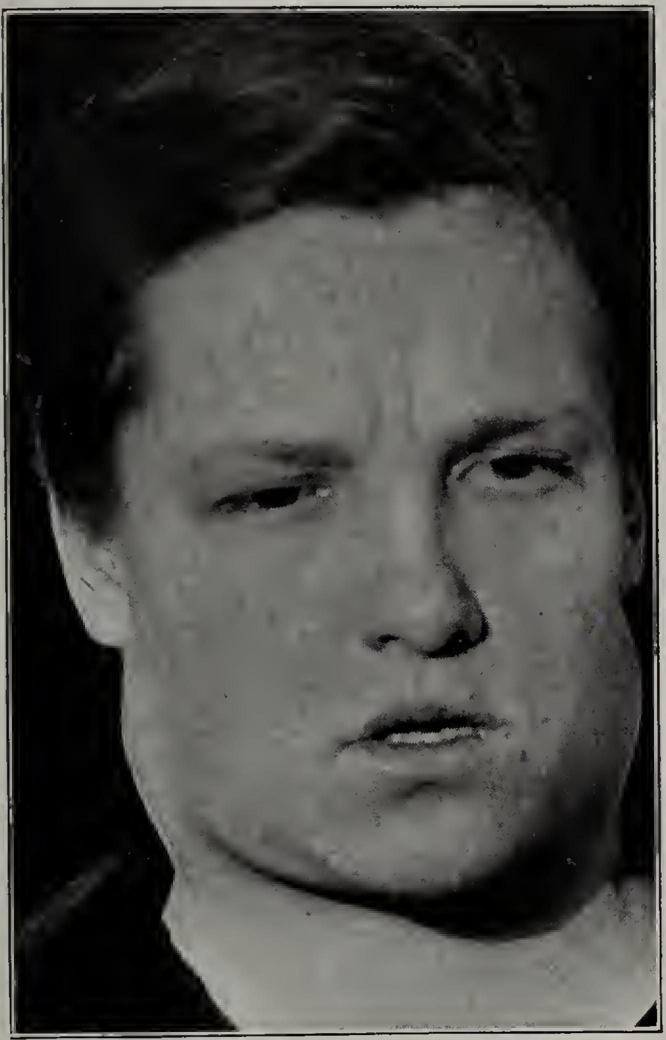

Fig. 5 (Case A 182860).—Lymphosarcoma of the nasopharynx, with bilateral cervical involvement. The previous diagnosis, from a gland removed from the neck, was Hodgkin's disease.

TABLE 4.—OPERATIONS

	Number of Cases
Removal of tonsils and adenoids	24
Removal of glands of the neck	18
Removal of wisdom teeth	12
Intranasal	19
Mastoid	1
Total	74

Observations in these cases demonstrate that many nasopharyngeal tumors are overlooked. This may be due to the fact that the patients consulted internists, neurologists, general surgeons or ophthalmologists, and an examination of the nose and throat was not made. In most cases, however, the tumor had been overlooked because a careful nasopharyngeal examination had not been made by the laryngologist.

The syndrome presented by these tumors is quite typical, and the finding of a small nasopharyngeal tumor will usually clear up the diagnosis in cases in which it had been previously impossible to account for certain symptoms and findings associated with the head (Figs. 1-6).

ABSTRACT OF DISCUSSION

Dr. H. W. Woltman, Rochester, Minn.: Dr. New recently called attention to the relation of malignant tumors of the nasopharynx to other diagnoses. Of great importance is the fact that often these patients have no symptoms referable to the nasopharynx. From the neurologic standpoint, these cases fall into four fairly well defined groups. Pain referred to the side of the head, the ear or the face, many times associated with annoying paresthesias, is common. This type has been known in the literature as the neuralgic type. Then follows the glossopharyngolaryngeal group, patients complaining of dysphagia or recurring attacks of aphonia. Finally, there are the cases of mental disturbances, syncopal and epileptiform attacks, and symptoms due to malignant involvement of the distant parts of the nervous system. I would like to emphasize the necessity of referring patients having unexplained cranial nerve palsies or symptoms suggesting gasserian ganglion tumor or pituitary tumor to a specialist, for a careful examination of the nasopharynx.

Dr. Joseph C. Beck, Chicago: I saw a case of retromaxillary tumor that later became a nasopharyngeal growth of a tuberculous nature in which the jacksonian syndrome was present with other complications. The patient had otosclerosis, with deafness, and he developed a vertical nystagmus. I have seen four cases of malignant nasopharyngeal disease in which for a long time the only evidence of involvement of the nasopharynx was a slight bleeding. On examining the postnasal space, I could not locate any bleeding point. However, by retracting the palate with a catheter and looking directly into the region of the Rosenmüller fossa, I found the bleeding area from which the growth extended. I think that while these are nasopharyngeal growths, when they come to our attention they probably are retromaxillary tumors, as described in Denker's work.

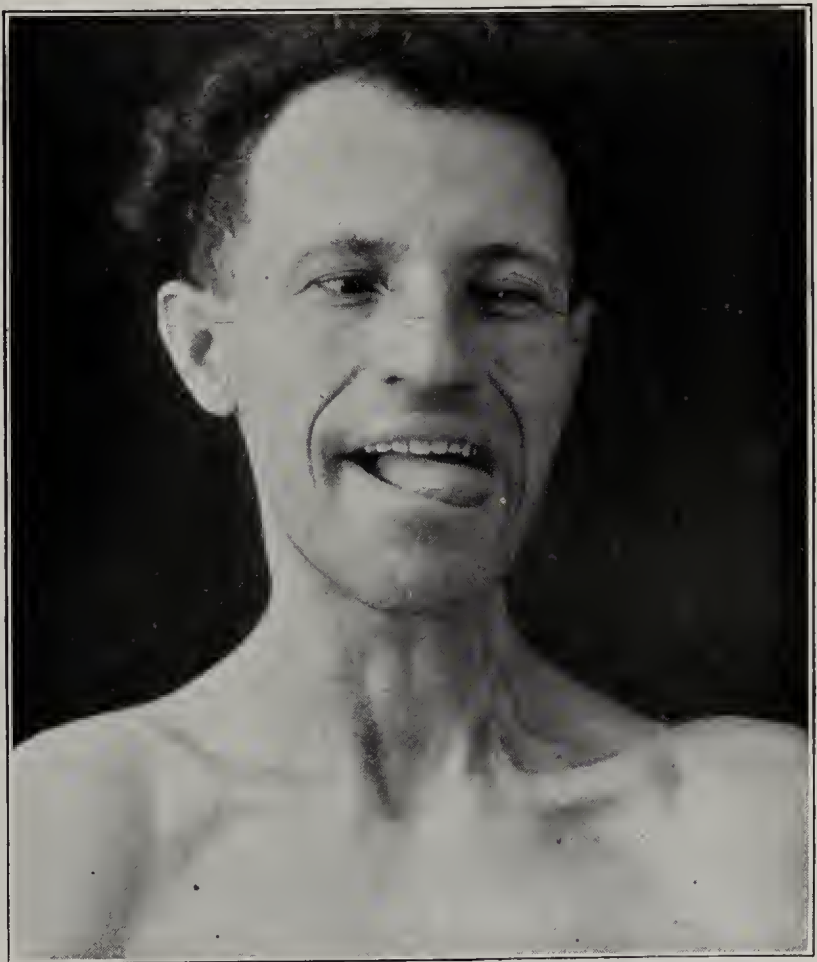

Fig. 6 (Case A 383900).—Epithelioma of the left nasopharynx involving the ninth, tenth, eleventh and twelfth cranial nerves and the sympathetic nerve (Jackson's syndrome). Enophthalmos, small pupil, and narrowing of palpebral fissure were noted, with paralysis of the left side of the tongue, and the sternocleidomastoid and trapezius muscles. The left side of the palate and larynx were also paralyzed.

Dr. Gordon B. New, Rochester, Minn.: I was much interested in the case Dr. Beck reported, but, as the group I am reporting were all malignant cases, it was not included. Regarding the retromaxillary group, I have seen several cases with secondary involvement of the nasopharynx from retromaxillary malignancy. I believe these are entirely different from those I mention in my paper. The group I am reporting are primarily nasopharyngeal tumors and are usually in Rosenmüller's fossa. I did not mention treatment because I felt that if I did I would get away from the question of diagnosis. We have seen many of these patients who were treated with radium continue well for three or four years, and feel that it is the only treatment that offers relief. When surgery has been attempted, most patients have been made worse.

MONGOLIAN IDIOCY IN A CHINESE BOY *

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The term "mongolian idiocy" is applied to a condition presented by certain children of retarded development manifesting peculiar mental and physical phenomena, the most remarkable of which is the resemblance to the Mongolian facies. The mongolian idiot resembles the Mongolian in the oblique palpebral fissure, epicanthal fold, widely placed eyes, flat-bridged, snub nose and expanded ali nasi. Brachycephaly is present in both; but the flattening of the occiput is characteristic of the idiot. The mongolian idiot differs physically from the Mongolian in the squat hand with tapering fingers, short thumbs and short, incurvated little fingers, the second phalanx of which is shorter than the terminal. His hair is not usually black, although it may be straight and is often wiry. The face is broad, but it is moon shaped and has no prominent cheek bones. He is small in stature and has broad, flat feet. There is marked hypermobility of the joints. There are chronic infections of the mucous membrane, with affections of the lids, lips, nose and throat. The tongue is furrowed and fissured from constant motion. It is described as "scrotal" by the French writers. There is no blue spot. The voice is guttural. Changes in the sella turcica have recently been described by Timme.[1] The mongolian idiot differs mentally from the Mongolian in his retarded development, marked restlessness and activity, mimicry and indifference to his surroundings. In addition, the idiot manifests a fondness for music, exhibits a good sense of rhythm, is very amiable, has a good memory, and is usually contented. Sutherland [2] happily states that the "smiling face of the mongolian imbecile suggests the possession of a secret source of joy."

From the time of Langdon Down,[3] who first described mongolian idiocy in 1866, until the present, the cases reported have belonged to the Caucasian race. In 1903, Muir [4] concluded from his investigations that this peculiar form of retardation was a matter of the Caucasian race and summarized thus: "Mongolism probably exists everywhere; and no white race is exempt."

The case described here illustrates that mongolian idiocy occurs in the Mongolian race, and the Mongolian features of mongolian idiocy are not masked by the Mongolian features of the Mongolian race. Indeed, the family of the affected boy testified that "his eyes are more slitlike than those of the other children."

REPORT OF CASE

From the mother it was learned that the child was born at term. No instruments were used, and there was no asphyxia. The child was breast fed. The first tooth appeared at 11 months. The child crawled at 13 months, sat up at 14 months, and walked at 2½ years. The other children of the family walked at 1 year. The first word was spoken at 14 months, and distinct phrases were used at 4 years. His speech was never so distinct nor so fluent as that of the other children. It was always guttural in tone. Nocturnal enuresis stopped at 5 or 6 years, but a tendency remained. Later, it was learned that the child was delivered by Dr. Effie Lobdell, who gave the information that the labor was normal. At 6 months, she recognized the condition and prescribed thyroid extract combined with pituitary extract in 2-grain (0.13 gm.) doses, three times daily. This was continued at varying intervals for three years. Dr. Lobdell had noted the short, thick fingers and the constant drooling. The child was taught to walk in a chair and was found to be very imitative.

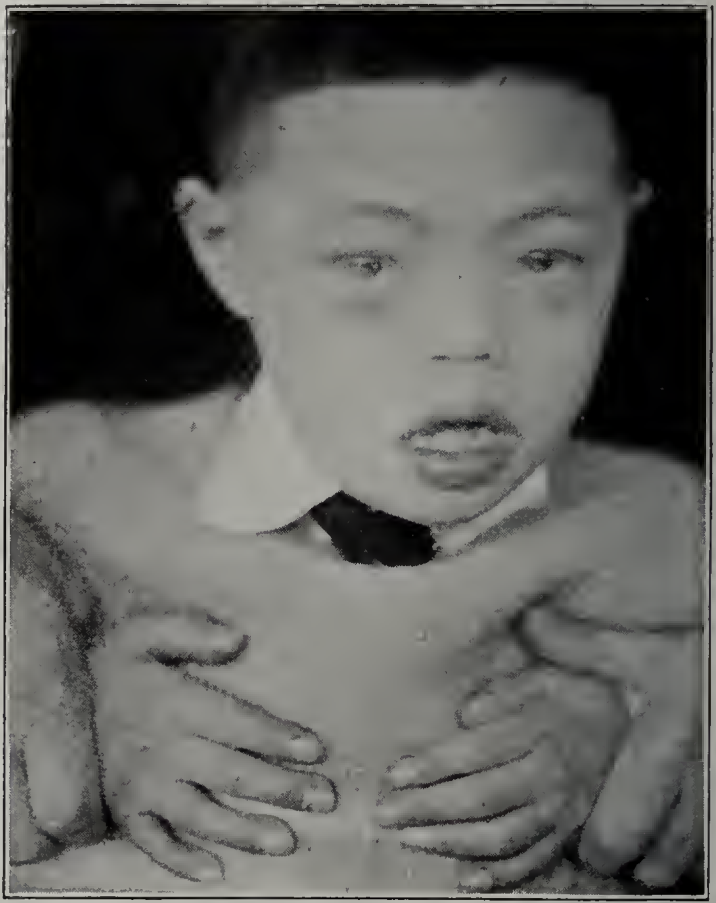

Fig. 1.—Appearance of patient.

The mother stated that he had never had an acute illness, although the drooling and purulent nasal discharge were practically constant.

The paternal grandparents died in China at 71 and 74 years of age. The maternal grandparents were living in China. The family was Cantonese. The father was 66 years of age and the mother 38. They were not related to each other. All the children were born in the United States. There were nine pregnancies. There are no other retarded children in the immediate or remote family, and there are no cases of supernumerary digits, such as are sometimes found.

In response to a question as to whether they had noted anything peculiar about the boy, his mother and a cousin, a

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* From the Pediatric Clinic of the Post Graduate Hospital and Medical School.

[1] Timme, Walter: The Mongolian Idiot: A Preliminary Note on the Sella Turcica Finding, Arch. Neurol. & Psychiat. **5**: 568 (May) 1921.

[2] Sutherland: Lancet **1**: 23, 1900.

[3] Down, Langdon: London Hosp. Rep., 1866, p. 259.

[4] Muir: Arch. Pediat. **20**: 161 (March) 1903.

student at the university, volunteered that his eyes were more slitlike than those of the other children, his tongue was larger, and his head was flatter; the other Chinese children of the neighborhood as well as his own brothers and sisters knew that he was different. His mother also stated that he was always happy, gave her no trouble, and did not even care if his playthings were taken from him.

Examination revealed a moon-faced boy, who looked as if his face had been pushed in (Fig. 1). His mouth hung open, and a mucopurulent discharge issued from his nostrils. The lobules of the ear were adherent, and the bridge of the nose was flattened. The eyes were widely spaced, and there was a marked epicanthal fold. The teeth were irregular, and many were decayed. The pupils reacted to light and accommodation, and were equal. The tongue was of the typical "scrotal" variety. The tonsils were large and irregular, and the throat was congested. There were signs of blepharitis. The chest and abdomen were not remarkable. There were no signs of the congenital heart lesions which are often described. The prepuce was long, and the left testicle was not in the scrotum. The reflexes were all active. There was marked hypotonia, with hypermobility of the joints, so that the most bizarre attitudes were adopted with ease. He assumed the uterine position on lying down. The hands were squat; the fingers tapered; the thumbs were stubby; the little fingers were incurvated and did not reach the terminal phalangeal joints of the adjacent fingers. There was general adenopathy. The scapulae were moderately scaphoid. There was no blue spot.

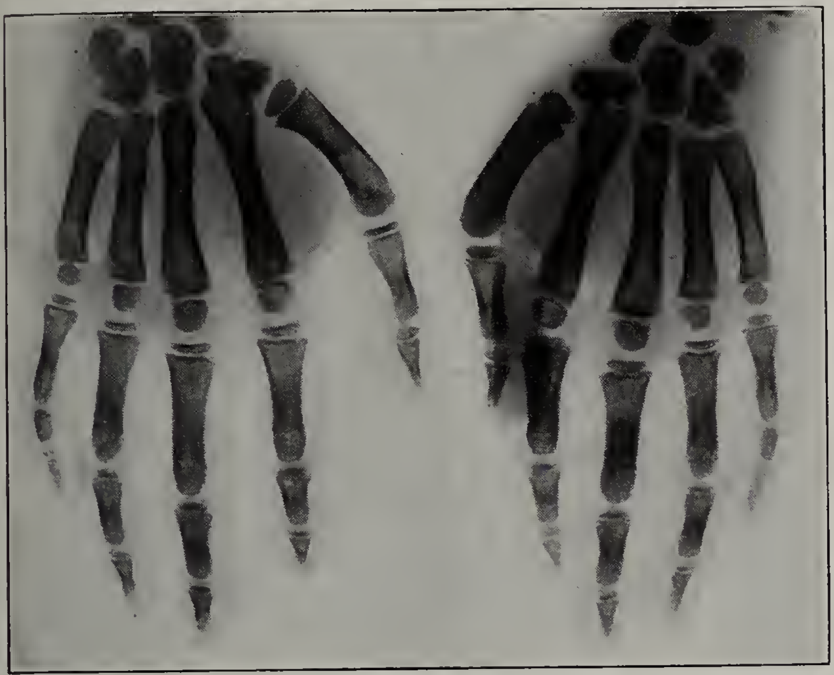

Fig. 2.—Appearance of hands: incurvated little finger, shortening of second phalanx of little finger, and normal centers of ossification.

The weight was 46½ pounds (21 kg.); height, 122.5 cm.; sitting height, 68.3 cm.; occipitofrontal circumferences, 46.6 cm.; the anteroposterior diameter, 15.4 cm.; biparietal diameter, 14 cm.; the arm span, 116.5 cm.; the interacromial diameter, 26 cm.; the intercristal diameter, 19 cm.; the chest circumference, 55 cm., and the abdominal circumference, 55 cm.

Ophthalmoscopic examination revealed no cataract. There was marked myopia.

The pulse rate was 88; blood pressure, 96 systolic, 70 diastolic.

An electrocardiogram revealed a sinus arrythmia, a P R interval of 0.14 second, and slight notching of R_{III}.

The basal metabolism, with a Tissot apparatus, was 9 per cent. below the usual, which lies within the normal limits.

The Wassermann test on the blood was negative, as determined by two different laboratories.

Roentgen-ray examination revealed that the second phalanx of the little finger was shorter than the third. This finger curved inward (Fig. 2). There was also a marked inward curve of the phalanges of the big toe. The sella turcica was flattened, and there was a shadow under the anterior clinoid process (Fig. 3). There was some separation of the sutures in the vertex of the skull, and there were digital impressions, particularly in the frontal region.

The mental age of the child was 3 years and 4 months by the Stanford revision of the Binet-Simon scale.

CONCLUSIONS

1. This Mongolian child was a mongolian idiot in the generic sense of the word, as proved by the typical findings of the oblique palpebral fissture, epicanthal fold, flattened bridge, widely placed eyes, "pushed in" face, flattened occiput, scrotal tongue, guttural voice, squat hands, Telford Smith[5] finger, stub thumbs, hypotonia, excavation of the sella turcica and other less characteristic findings, such as chronic nasopharyngeal infection, undescended testicle and inward bowing of the phalanges of the great toe. There was further proof in the characteristic mental phenomena of restlessness, amiability, mimicry, good memory and mental retardation.

2. The most recent finding in mongolian idiocy is here confirmed. In twenty-three of his twenty-four cases, Timme found an excavation under the anterior clinoid process and presumably under the olivary process and the optic groove. It communicated with the anterior portion of the fossa itself. He suggests that this change may explain the stature and lack of sexual development.

3. This case speaks against the theory of exhaustion of the generative organs as the etiology of mongolian idiocy, since there were normal children born before and after the patient. If the idea of exhaustion be even remotely entertained in this instance, it must be ascribed to the paternal element and not the usually condemned maternal element, since the father was 57 and the mother 29 at the birth of the boy.

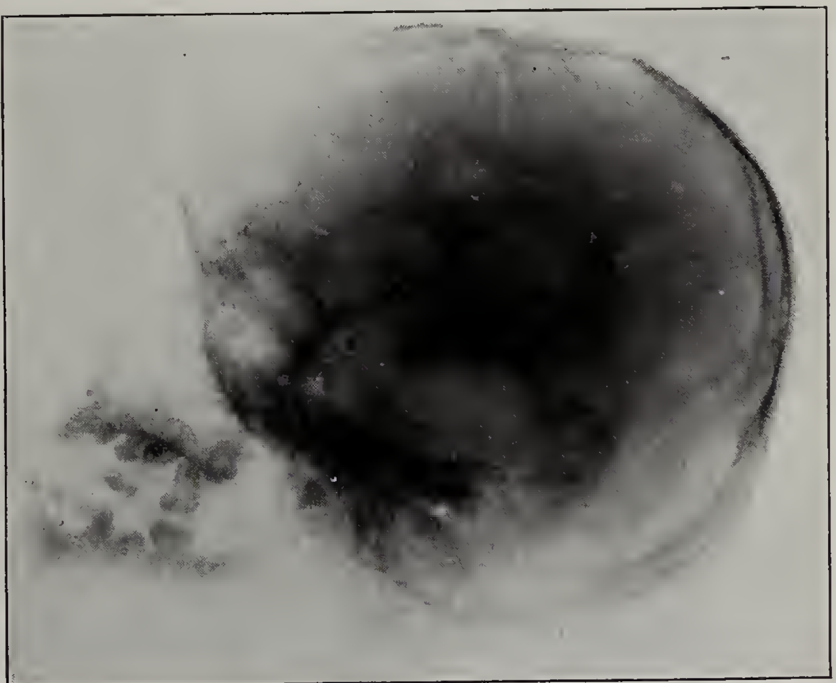

Fig. 3.—Appearance of skull: shadow communicating with anterior portion of fossa of sella turcica.

4. The fact that the basal metabolism rate was not significantly lowered confirms the view that this condition is not primarily, at least, a thyroid hypofunction, and should not, therefore, be confounded with myxedema. This may also explain why striking improvement of these cases by thyroid feeding is not observed.

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[5] Smith, Telford: Pediatrics 2: 315, 1892.

5. The term idiocy is inaccurate because the mental age reached by those affected is nearly always from 3 to 7 years. The condition is more properly mongolian imbecility.

25 East Washington Street.

CONGENITAL MALFORMATION OF THE HEART

WITH COMPLETE OBLITERATION OF THE PULMONARY ARTERY *

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The question of cardiac malformation is one of those questions supported by contradictory theories which frequently enliven and stimulate productive discussion in what would otherwise be sterile sessions in certain medical research gatherings. And so anomalies of the heart have furnished controversial subject matter since the time of Meckel and Cruveilhier.

REPORT OF CASE

Baby D., born at term, Nov. 20, 1920, with high forceps delivery on account of inertia uteri, died, November 28. The mother, a primipara, aged about 40, and father, aged about 45, were in good health. The Wassermann test was not made and no history of syphilis was given.

The child did not breathe regularly. The circulation at times was fairly good, though the color was never a bright baby-pink. One hour after birth, the infant became very cyanotic and the breathing was bad. Mustard baths and oxygen were administered with prompt result. The breathing and color was always much better when the infant was held in the vertical position; whereas if it was held horizontally, there was a more or less marked tendency to cyanosis.

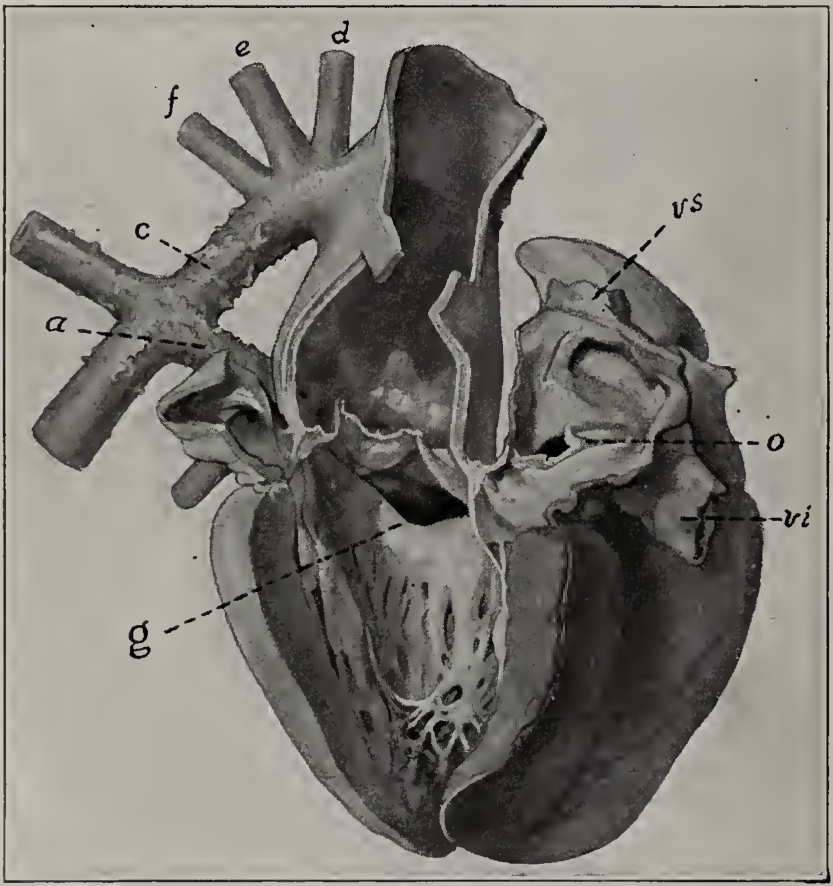

Fig. 1.—Left side of heart: *a*, pulmonary artery; *c*, ductus arteriosus; *g*, interventricular defect; *o*, foramen ovale, partly covered by membrane.

On the second day, the child was put to the breast, and though it attempted to nurse on two occasions, it did not have sufficient strength. It was fed artificially with mother's milk during six days. The bowels functioned fairly regularly, with evacuation during the first few days of large quantities of meconium.

The temperature was 35.2 C. (95.4 F.) one hour after birth and ranged between 36 and 38.6 (96.8 and 101.4 F.) until the day before death, when it again dropped to 35.4 C. (95.8 F.). Just before death it was normal.

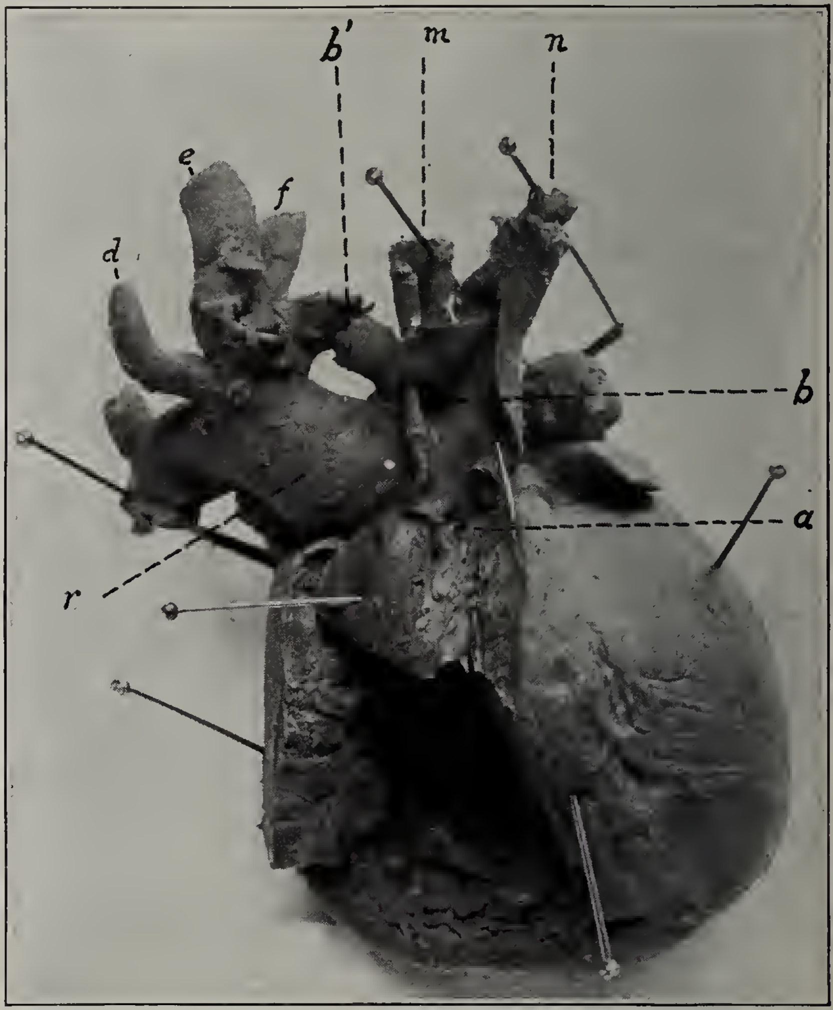

Fig. 2.—Origin of pulmonary artery in epicardium: *a*, small button; *b*, ductus arteriosus; *b'*, tear in ductus arteriosus; *d*, *c*, *f*, brachiocephalic trunks; *m*, *n*, branches of pulmonary artery; *r*, aorta.

The infant died on the ninth day, with fairly good color under administration of oxygen, of cardiac failure.

Necropsy Report.—Abdominal section revealed nothing worthy of note, either from the point of view of pathology or teratologically. The pleural cavities were normal. The lungs showed no morphologic changes. There was hypostatic congestion to a moderate degree, more marked on the left.

The pericardial sac contained a slight amount of clear light straw-colored fluid. The heart measurements were: base to apex, 4.2 cm.; breadth, 3.5 cm.; thickness, 2.7 cm.; left ventricle, wall, from 3 to 4.5 mm.; right ventricle, wall, from 2.5 to 3 mm. (hypertrophied); mitral valve, from 26 to 27 mm.; aortic valve, 25 mm.; tricuspid valve, 35 mm.; pulmonary artery origin, 6 mm.; left branch, 10 mm.; right branch, 9 mm.; ductus arteriosus, 11 mm.; foramen ovale (diameter), 4 to 5 mm.

The aorta was larger than normal. The pulmonary artery was very small, tapering down toward its origin from the right ventricle: here its wall was thinner and showed a tendency to collapse slightly, like a vein. The muscle was firm, the right ventricle hypertrophied. On section, the left ventricle opened into the large aorta. There was communication with the right ventricle by means of an opening in the interventricular septum. There was no outlet from the right ventricle except into the left ventricle at the mouth of the aorta, which was displaced to the right so that its orifice almost straddled the interventricular septum. The mitral and tricuspid valves showed small nodules, some of them dark colored, probably the remains of a fetal endocarditis.

The aorta was supplied with three efficient valve cusps, the coronary orifices normally placed behind them. The arch of the aorta gave source to a single large branch, which immediately divided into four branches of approximately even caliber. The first of these was probably slightly the largest. It formed the ductus arteriosus, which was patent and communicated directly with the pulmonary artery, joining the latter at its division in such a manner as to form a cross, the ductus continuing onward, as it were, to form the right pulmonary artery (Fig. 1). The three other branches formed the arterial trunks which usually spring directly from the aortic arch.

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* From the obstetric service of Dr. Bouffe de St. Blaise, whom I wish to thank for his kind permission to study this case.

The pulmonary artery from its origin to the point of communication with the ductus arteriosus was small and funnel-shaped, with the apex of the cone in the epicardium of the right ventricular wall. When one attempted to pass air by means of a small pipet inserted deeply into this rudimentary vessel, which was patent down to the level of the origin, the bubbles of air always escaped by the ductus arteriosus or by the branches of the pulmonary artery: it was impossible to communicate with the right ventricle.

SUMMARY

The following anomalies of the heart and vessel trunks were observed:

1. Complete obliteration of the pulmonary artery at its origin from the right ventricle.
2. Perforation of the interventricular septum.
3. Patent ductus arteriosus which functioned from birth until death.
4. Hypertrophy of the right ventricle.
5. Open foramen ovale.
6. Anomaly of the aortic arch and its branches.
7. Dilatation of the aorta and displacement of its origin to a position almost directly over the malformed interventricular septum.
8. Distinct evidence of a probable fetal endocarditis.

COMMENT

At a glance, it is evident that this case does not readily fall into the category of the "tetralogy of Fallot"; [1] it more readily fits into the trilogy of Fallot, which is characterized by (*a*) narrowing or total obliteration of the pulmonary artery, (*b*) interventricular communication and (*c*) patent foramen ovale, with, of course, a persistent functioning ductus arteriosus. In the present case, there is in addition an unusual abnormality of the arch of the aorta which might furnish material for an interesting study of the embryology of the branchial arches.

In discussing the etiology of cardiac anomalies, Prospert,[2] in a recent study of six interesting cases in which necropsy was performed, states that direct heredity as an etiologic factor is very rare. Fournier, thirty years ago, laid stress on the rôle of syphilis as a causal influence Marfan likewise considers syphilis the determining factor in the majority of cases. As stated by Prospert,[2] the Wassermann reaction is no criterion here on account of its inconstancy in the newborn. According to statistics, in from 60 to 90 per cent. of infants with stigmas of syphilis, tests are negative.

As mentioned above, opinion has ever been divided between the embryogenic theory formulated by Meckel and the inflammatory theory of Cruveilhier and Lancereaux, the latter of whom went so far as to say, "The teratology of the heart is simply its pathology during uterine life." Apert [3] takes a decided stand against the theory of inflammation. Professor Letulle, on the other hand, has persistently emphasized the occurrence of chronic endocarditis in these cases; only recently, he has reopened the question by the report of a case [4] of chronic cardiac inflammation of a very advanced degree, involving the musculature as well as the endocardium. Also Professor Vaquez of Paris, even now, staunchly defends the inflammatory theory.

Ballantyne [5] says: "The heart is almost as perfectly developed at the beginning of the second month of pregnancy as it is a few days before birth: therefore, it is extremely difficult to understand how endocarditis supervening between these two dates can produce malformations which are evidently arrests of formative processes anterior to the first of these dates." He quotes Moussons,[6] who makes a nice observation when he says: "Malformation predisposes to disease." Laubry and Pezzi,[7] voice the same idea in still more emphatic fashion when they say that pulmonary stenosis with interventricular communication, which is one of the common forms of congenital heart disease, requires an inflammatory process of short duration, springing up always just at that critical few days' period during which the heart is undergoing the development of these parts; namely, the seventh week of embryonic life.

In the present case, there is definite evidence of a probable fetal endocarditis (small nodules on the valve cusps of the tricuspid valve). This would seem to lend argument to the theory of fetal inflammation. However, the presence of the anisopsia (the right eye was larger than the left), not to mention the curious branching of the vessels of the aortic arch, points with a more reasoning finger to the embryogenic theory. The advanced age of the mother is another factor in favor of the latter theory, since it is known from statistics that anomalies are more common in the offspring of primiparous women of an advanced childbearing age.

American Hospital.

THE DIAGNOSTIC VALUE OF BLOOD FIBRIN DETERMINATIONS

WITH SPECIAL REFERENCE TO DISEASE OF THE LIVER *

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Fibrin, in marked contrast to the other proteins of the blood, varies widely in amount. Persons may differ as to the fibrin content of their blood, but for the same person in health the amount is always essentially the same. On the other hand, in disease, according to the nature of the morbid process, fibrin values vary to a marked degree.

This very labile blood protein is found only in the plasma—not in the cells. Its source has been variously stated by investigators to be the intestinal wall, the bone marrow, or the liver. Whipple has demonstrated in animals that the production of fibrin is stimulated by slight liver injury, while it is depressed by extensive injury. He has reason to believe that this protein is being constantly used up in the body, and his experi-

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[1] Fallot, quoted by Prospert, E.: Thèse de Paris, No. 434, 1921.

[2] Prospert, E.: Contribution à l'étude et diagnostic des maladies du cœur, Thèse de Paris, No. 434, 1921.

[3] Apert, E.: Les affections congénitales du cœur, Nourrisson **8**: 347 (Nov.)1920.

[4] Letulle, cited by Laubry and Pezzi: Traité des maladies congénitales du cœur, Paris, 1921.

[5] Ballantyne, J. W.: Antenatal Pathology and Hygiene: Foetus, Edinburgh, 1902, p. 370.

[6] Moussons, in Granchers: Traité des maladies de l'enfance **3**: 601, 1897.

[7] Laubry and Pezzi: Traité des maladies congénitales du cœur, Paris, 1921, p. 56.

* Read before the Section on Practice of Medicine at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

ments point to the liver as the sole source of supply. One is tempted, therefore, to believe that, when disease of this organ is suspected, a knowledge of the amount of blood fibrin may be of diagnostic value.

Since, however, the methods of estimation used in the past either required too much blood or were inaccurate, our knowledge today of the fibrin content of human blood is meager. The only comprehensive clinical observations on blood fibrin which I can find are those recently reported by Gram of Copenhagen. Certain details of the method devised by him and used in his experiments would lead one to question its absolute accuracy. Nevertheless, I have been interested to find how closely his figures tally with mine.

A new method which seems to meet the requirements of accuracy and which demands less than 10 c.c. of blood has just been devised by Foster and Whipple. It is readily adaptable to clinical use. Briefly the method is this: Two c.c. of oxalated plasma is permitted to clot in a large quantity of physiologic sodium chlorid solution containing a calcium salt. The clot, after being thoroughly washed, is dried in a crucible, which is then weighed, ignited, and reweighed. The difference in the two weighings tells the amount of fibrin. All determinations are made in duplicate.

I wish to report a series of observations made by this method on the plasma fibrin of fifteen normal persons and 100 patients, of whom eleven had definite disease of the liver. Since the character of one's food seems to influence the amount of his blood fibrin, all specimens for these determinations were obtained before breakfast. The figures given are for 100 c.c. of plasma.

For the fifteen normal persons, the fibrin values are nearly alike, varying only from 272 mg. to 385 mg., with an average of 333 mg. Roughly speaking, normal limits for plasma fibrin seem to be 250 mg. and 400 mg.

Inflammation and other tissue injury as observed in animals powerfully stimulates fibrinogen production. Foster and Whipple call attention to the fact that bacteria play no direct part in this stimulation, since a sterile turpentine abscess is just as effective in increasing blood fibrin as an abscess of bacterial origin. Twenty of my patients were acutely ill of various forms of sepsis. The plasma fibrin of all of these was increased, varying from 624 mg. to 1,120 mg., with an average of 829 mg. Four convalescent patients gave lower values, averaging 540 mg., and it is evident that just as soon, for instance, as drainage of an abscess is established the fibrin begins to fall.

Related to those with septic inflammatory processes were eight patients with pneumonia. The plasma fibrin of these was even more uniformly increased, varying from 726 mg. to 1,447 mg., with an average of 1,069 mg. Influenzal bronchopneumonia and lobar pneumonia behaved alike as regards fibrinogen stimulation.

Since the extent of tissue injury rather than the nature of the infection determines the degree of fibrinogen stimulation, we would expect to find increased fibrin in tuberculosis. Such has proved to be the case. Among four patients with tuberculous peritonitis, without obvious liver injury, the increased plasma fibrin varied from 621 mg. to 938 mg., with an average of 766 mg. Three additional patients with pulmonary tuberculosis gave similar figures.

In two instances of acute epidemic (lethargic) encephalitis and one of tuberculous meningitis, the plasma fibrin was only a little above normal.

One wonders whether the greatly increased fibrin found in the one patient with tetanus—978 mg.—could be attributed to increased muscle strain.

Two patients with diabetes mellitus and three with peptic ulcer, representing diseases with limited tissue injury, gave only slightly increased fibrin values.

The impression was gained that conditions of extreme debility are liable to be accompanied by low plasma fibrin. This was exemplified particularly by one case of hookworm infection and another of grave anemia of unknown origin.

Two instances of extensive sarcoma were, in spite of the resulting anemia and debility, accompanied by moderately increased fibrin, which leads one to surmise that malignant cell proliferation is a cause of increased fibrinogen production.

Four patients with so-called essential hypertension and one with grave uremia showed slightly increased fibrin, averaging 441 mg.

Of the heart patients, six with myocardial incompetence, and two with acute endocarditis, all gave moderately elevated figures. Others with well compensated myocardial degeneration showed a smaller amount of fibrin.

There were three patients with leukemia, two of the myeloid and one of the lymphatic type. Two of these patients, presenting both types, had abnormally low fibrin content, 189 mg. and 240 mg., while the fibrin of the other was within normal limits. It is noteworthy that the two with reduced plasma fibrin content had extensive involvement of the liver, as was evidenced by enlargement. One of these was treated by radiotherapy, and, coincident with the improvement in the general health and decrease in the size of the liver, there was increase of the plasma fibrin.

There were eleven patients with evident disease of the liver, not including the two with leukemia, of whom I have just spoken. Three of these had portal cirrhosis with ascites, and gave moderately low fibrin values, ranging from 222 mg. to 373 mg. with an average of 301 mg. One of these cirrhosis patients also had tuberculous peritonitis, a disease which is usually accompanied by an increase of plasma fibrin, and I think it fair to assume that liver cirrhosis prevented this expected increase. Another patient with cirrhosis and ascites had an extremely large liver. Unlike those with small livers, his plasma was increased, being 448 mg.

The lowest fibrin of the entire series was found in a patient who at necropsy showed extensive tuberculous destruction of the liver. He had only 133 mg. of fibrin in 100 c.c. of plasma. Here again we assume that the destruction of liver parenchyma prevented the fibrin increase seen in other tuberculous processes.

A patient with a freely draining small abscess of the liver, and another with old well-treated syphilis of the liver, both showed increased fibrin, 616 mg. and 643 mg.

There were four patients with clinical evidence of cancer of the liver. The fibrin of three of these varied from 205 mg. to 494 mg., with an average of 389. The fourth patient had an enormous liver, sensitive to pressure, which on histologic examination proved to be carcinomatous. The very high plasma fibrin found in this last case—1,212 mg. and 1,386 mg. (two determinations)—was in keeping with the size of the liver, and one is tempted to conclude that prolific growth of tumor cells in the liver, to a certain point at least, stimulates rapid fibrinogen production.

SUMMARY

1. The fibrin of normal persons varies approximately from 250 to 400 mg. in 100 c.c. of plasma. The same person in health always presents fairly constant values.
2. Greatly increased plasma fibrin is seen in all inflammatory tissue reactions of whatever nature.
3. Moderately increased fibrin is seen in many other diseases.
4. Stimulation of liver parenchyma by inflammation or by tumor growth, or otherwise, seemed to cause increased production of fibrin.
5. Great destruction of liver parenchyma decreases fibrin production; the more complete the liver destruction, the lower the blood fibrin.

CONCLUSION

Blood fibrin is a very labile body which in its wide fluctuations reflects the nature of the patient's disease. It is not unreasonable to expect that further study leading to a more intimate knowledge of the laws which govern fibrinogen production will ultimately give information of direct clinical value.

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PROGRESS IN THE HANDLING OF CHRONIC PEPTIC ULCER

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The internist and the surgeon are still far apart in their estimation of the necessity for the surgical treatment of peptic ulcer and of the value of such treatment, but the lines of divergence are converging. They are now quite generally agreed that, other things being equal, all patients with chronic mechanical obstruction and those who suffer from repeated hemorrhages or evidences of acute or chronic perforation should be treated surgically. They agree also that in all other types of the disease the patient should have as careful medical treatment as circumstances will permit until cure or chronicity is established. It goes without saying that recent ulcers should be treated medically. The surgeon sees patients whom medical treatment has failed to cure permanently, and he is, perhaps, less enthusiastic in his prognosis under such treatment than the internist who has relieved patients, greatly to their comfort and enthusiasm. Patients the internist fails to relieve slip quietly into other hands and later may come to operation. Not infrequently the surgeon sees patients who have been "cured" by a number of internists, as they in good faith believe. On the other hand, the internist sees a considerable number of patients who have so completely failed to obtain relief from surgical treatment as to give him a healthy suspicion of its value.

The natural history of the development of peptic ulcer is interesting. The patient suffering from ulcer has spells of more or less severe symptoms, followed with treatment or without treatment, by periods of marked relief, lasting perhaps for months or years. Gradually, however, the periods of improvement diminish, and the exacerbations become more frequent and prolonged, until permanent crippling is manifest. The amount of disability depends on the location, depth, and attachment of the ulcer, factors which greatly influence the severity of symptoms, especially as they relate to pain and interference with nutrition. It is sometimes a little difficult for the uninitiated to see the difference between the spontaneous improvement which is a definite feature of the natural course of the disease and the improvement brought about by medical treatment. However, any fair-minded observer will admit readily that careful medical management usually results in great improvement and amelioration of the symptoms, and that, if such management can be continued, the improvement may be prolonged, and even become permanent.

THE FINANCIAL QUESTION

The successful medical management of peptic ulcer presupposes the hospitalization of the patient for a number of weeks under a regimen which, in order to be successful, must be rigid and prolonged, and carried on by the patient afterward. Unfortunately, only a small number of patients with peptic ulcer are financially able to make a pet of an ulcer. More than 90 per cent. of those coming to us are wage earners who cannot afford the time and care that are necessary for medical cure. At more or less frequent intervals, their wage earning capacity has been interfered with seriously by undernutrition, pain, and disability. Their diet cannot be controlled, as their social condition compels them to eat such food as they are able to obtain and pay for. To prescribe a specific diet for a laboring man working for wages on a farm or in a factory, or even for one in his own home under present day household conditions, is about as reasonable as advice given in the past to a poor man with tuberculosis, and with a family to support, "go to Colorado or Arizona and do nothing for two years." As a result of these practical considerations, prolonged medical treatment of peptic ulcer is out of the question for the large majority of patients. Nearly all such patients have been treated medically, but, under existing circumstances, ineffectually. They have little desire to undertake further medical treatment and readily accept surgery. Only the minority are willing and financially able to submit to proper medical management. That medical treatment, under most favorable circumstances, often fails to cure permanently, must be conceded by even the most enthusiastic advocates. Enough has been said to indicate that patients with peptic ulcer cannot be treated as a group. Each case must be considered individually, and, when it is reasonably possible, careful medical management of the ulcer should be given a thorough trial before operation is recommended. Following operation, the after-care of the patient should be conducted by the internist. Possibly educational propaganda may be instituted for the benefit of the patient with peptic ulcer, as has been done for the patient with diabetes.

In connection with our care of these patients, we are establishing a diet kitchen, where they will be taught how to prepare their food properly and how to live.

RESULTS OF TREATMENT

It is not necessarily the fault of the internist that medical treatment fails so often. He knows that in many cases nonsurgical treatment has not had a fair chance. The sins of the internist are omissions, those of the surgeon, commissions; shortcomings in the surgical field are more disastrous to the patient.

To express it in the form of an Hibernicism, the most frequent cause of surgical failure in such cases is to operate for peptic ulcer when there is no ulcer. The patient may have been treated medically for a long time without cure. Prolonged medical treatment is sometimes accepted by the surgeon, in his innocent respect for the previous diagnosis, as one of the indications for operation, and an unnecessary gastro-enterostomy is performed, which leads surgery into disrepute. At the Mayo Clinic we have removed several hundred unnecessary gastro-enterostomies that had been made in good faith and bad judgment; fourteen of them were our own early cases. Such instances are solace to the medical man who holds them up as evidence of the failure of surgery to cure peptic ulcer instead of failure to cure a wrong diagnosis.

Another occasional cause of dissatisfaction with the surgical treatment of chronic peptic ulcer is the curious obsession, apparently common to the patient, his medical adviser, and his surgeon, that if the first operation is not successful, surgery has shot its only arrow. We have recognized the fact that medical treatment may be repeated, but we have been slow to see that surgical operation may be repeated, provided it has a definite object. It has been shown that in more than 90 per cent. of duodenal ulcers and more than 80 per cent. of gastric ulcers satisfactory results are obtained by single operations. Some of these ulcers, however, have deep craters, and when these involve the pancreas, with fixation of the gastric or duodenal wall, pain may continue or hemorrhages may recur. If 90 per cent. of patients with duodenal ulcers get well without excision of the ulcer, shall the entire 100 per cent. be subjected to radical operation, with increased risk, in order to protect the 10 per cent. from secondary operation? Increasing experience enables one to prognosticate, with a fair degree of accuracy, which of the ulcers of the duodenum should be excised at the primary operation. The practice of excising certain types of duodenal ulcers and of combining the excision with the excellent pyloroplasty of Finney is becoming more and more prevalent.

The preponderance of males over females with duodenal ulcer is perhaps partly due to anatomic reasons. In the female, the first portion of the duodenum is more nearly transverse than in the male, so that the alkaline juices of the bile and the pancreatic secretion more or less constantly bathe the upper duodenum. In the average male, the first portion of the duodenum, as a rule, passes upward, and then the second portion to the common duct descends, so that the first inch and a half of the duodenum is not so readily alkalized. Perhaps one of the great merits of the Finney pyloroplasty is the change in mechanical conditions; that is, the duodenum is drawn down and sutured to the greater curvature of the stomach at the pyloric end, thus permitting not only ready emptying of the stomach, but also alkalization of the former ulcer area. Recurrence of an ulcer after a Finney operation is rare. However, the ease and safety of gastro-enterostomy, and the fact that it deals with sound tissues, give it great advantages over the pyloroplasty which must be done in edematous adherent scar tissues at the site of the ulcer.

When gastrojejunal or jejunal ulcer occurs following gastro-enterostomy, the Finney type of operation presents great advantages. Merely to excise the gastrojejunal or jejunal ulcer is to invite recurrence. We find it wise to separate the gastro-enterostomy completely, close the jejunal and gastric openings, and make a Finney pyloroplasty. As new ulcers may occur in the vicinity of the gastro-enterostomy in about 1 or 2 per cent. of cases, the Finney operation is a valuable reserve method. Closure of the pylorus, pyloric occlusion, or operations of that character, which have been shown to be wholly unnecessary, are unwise if for no other reason than because in the 1 or 2 per cent. of cases in which separation of the gastro-enterostomy and a pyloroplasty becomes necessary, the pyloric procedure is more or less hampered by a previous pyloric closure or occlusion. Unnecessary pyloric tinkering originated in the attempt to make gastro-enterostomy relieve disability not due to ulcer, for example, to force a tardy prolapsed stomach to empty more quickly through an unnecessary gastro-enterostomy, in the hope of relieving neurasthenia and gastric neurosis. There are two causes of failure of surgery to relieve patients suffering from peptic ulcer: (1) functional disturbances due to subsequent faulty dietary conditions, which the internist can relieve, and (2) mechanical disturbances due to faulty surgical methods which can be relieved by secondary surgical procedures.

It was not until the surgeon penetrated the abdomen and actually saw the pathologic condition in the form of peptic ulcer that the present understanding of it was reached. Previous to this development of surgery, 96 per cent. of peptic ulcers were believed to be in the stomach. As a matter of fact, only about 25 per cent. are so situated. Ulcer was believed to be a disease much more common in females than in males; in reality, the incidence is but little over 25 per cent. in women. It was believed that patients with ulcer suffered pain immediately after eating; we now know that temporary relief follows eating. It was believed that hemorrhage was often a sign of peptic ulcer; we now know that it occurs in less than 25 per cent. of cases. The greater number of sudden hemorrhages from the stomach which are not preceded and followed by the ordinary symptoms of ulcer are not caused by ulcer but by superficial erosions of the gastric mucous membrane due to toxic hepatitis, the result of focal infection often originating in the appendix, gallbladder, teeth, tonsils, and so forth.

Roentgenograms, correctly interpreted, have been extraordinarily valuable in the diagnosis of peptic ulcer. A roentgen-ray specialist attached to a medical clinic has little opportunity to perfect himself in the interpretation of shadows of gastric and duodenal ulcer. Skill is acquired only by directly comparing the plate with the actual condition as disclosed at operation. Every roentgenogram of the abdomen is capable of enlightening or of misleading interpretation. Plates honestly but incorrectly interpreted, purporting to show certain conditions, are constantly being submitted. The value of the roentgen ray in the diagnosis of gastric and duodenal lesions is measured, not by artistic success, but by the skill and experience of the interpreter. In the year ending June 30, 1921, Carman and his associates diagnosed by the roentgen ray 523 cases of duodenal ulcer, in which operation was performed; the diagnosis was confirmed in 500 (95.6 per cent.) cases. During the same period, roentgen-ray diagnosis of gastric ulcer in 125 cases was confirmed at operation in 122 (97.6 per cent.); eight of the ulcers, however, proved to be malignant. In the same period, eight cases were diagnosed gastrojejunal ulcer, of which six

(75 per cent.) were confirmed at operation. Besides these, 7,868 cases were diagnosed as negative for duodenal, gastric, or gastrojejunal ulcer. Exploration was performed in 631, and the absence of ulcer was verified in 587 (93.1 per cent.).

Double ulcer, gastric and duodenal, has been found in about 6 per cent. of the cases seen at the Mayo Clinic. Several patients with duodenal ulcer were relieved temporarily by gastro-enterostomy, and on return of symptoms were found to have gastric ulcer. I have observed three such cases. Perhaps the gastric ulcer did not follow the gastro-enterostomy but was present and overlooked at the time of operation. A surgeon operates on a patient and finds an obvious duodenal ulcer with obstruction, the type that gastro-enterostomy is almost certain to cure, and promptly performs a gastro-enterostomy. If the condition of the patient is none too good, the examination of the stomach may be cursory, and the gastric ulcer may be overlooked. Such instances at least bring up the fact that the results of gastro-enterostomy alone in cases of gastric ulcer are satisfactory in only about 60 per cent. of cases. Excision of the ulcer, preferably by cautery, is essential to the best results.

The greater number of duodenal ulcers are entirely different pathologically from gastric ulcers. Chronic gastric ulcers always have craters; the majority of duodenal ulcers do not have craters, and, therefore, often are not recognized at necropsy. Gastric ulcers are the callous type, and penetrate all coats of the stomach to the peritoneum. In the duodenum, ulcers are usually erosions; little fissures or cracks extend through to the muscular coat and peritoneum, giving the appearance of erosion as by a file, the significance of which may be missed by an observer who bases his idea of duodenal ulcer on his knowledge of the appearance of gastric ulcer. Only the minority of duodenal ulcers have true craters; and such as occur are usually on the posterior wall of the duodenum.

MALIGNANT DEGENERATION OF PEPTIC ULCERS

In five cases of carçinoma of the upper duodenum which came under my observation, four of the tumors were so closely connected with the pancreas or common duct that I could not determine that they were primary in the duodenum. The practice of excising duodenal ulcer to obviate a liability to cancer has not a sound foundation. I have, however, seen a few cases of gastric cancer in which a duodenal ulcer extended to the pylorus. Whether there was causal relation between the gastric margin of such an ulcer and cancer is open to discussion.

My experience coincides with that of surgeons the world over, and leads to the belief that cancer of the stomach rather often originates in ulcer of the stomach or perhaps from the same causes as those that produced the ulcer. Unless the ulcer is excised, it cannot be determined whether or not its margin is cancerous. A specimen of tissue removed from the base of the ulcer may not show the carcinoma if it exists only in the margin.

Balfour[1] has demonstrated the ease and safety of the cautery in operations for ulcers of the stomach, and as a preventive against overlooked carcinoma on the margin of an ulcer it has been of the greatest value. The heat not only destroys the ulcer but also sterilizes the nuclei of the malignant cells at a distance, by selective effect, so that, following this procedure, recurrence of carcinoma has been extraordinarily reduced, as compared with that following knife excisions.

Putting aside evidence derived from operating room experience, which might be influenced by the character of the lesions to be resected, I wish to call attention to some valuable collateral evidence. Von Eiselsberg, studying the material at the Vienna Hospital, in reference to the ultimate results of the surgical treatment of gastric and duodenal ulcers, showed that of forty-one deaths at dates remote from operation thirteen were known to be from cancer of the stomach. But, since only twenty-three postmortems were held, it is readily seen that the thirteen known cases of carcinoma of the stomach were not representative of the total group of forty-one but of the group of twenty-three. It should be remembered also that von Eiselsberg's cases were both of gastric and of duodenal ulcers; that ulcers exist in a ratio of three duodenal to one gastric, and that duodenal ulcers do not have a tendency to become cancerous. The statistics of Joslin[2] of the Massachusetts General Hospital, showing that 24 per cent. of the late deaths following gastric and duodenal ulcers were from cancer of the stomach, are pertinent. Again, it may be noted that duodenal and gastric ulcers were grouped together, and probably only one-fourth could be considered gastric ulcers and, therefore, as having a cancer liability.

Standard life insurance companies were anxious to know whether or not patients who had been operated on for gastric and duodenal ulcers were insurable. Mr. Hunter, actuary of the New York Life Insurance Company, with his staff, investigated 2,323 cases at the Mayo Clinic in which operations had been performed for gastric and duodenal ulcers. The results proved that the death rate in cases of duodenal ulcer, in the five years following operation, was no higher than the average for the same age and condition in the insurable risks as shown by the life insurance mortuary tables, while the rate in the gastric ulcer group was three times that of the normal risk. In 1914, Wilson[3] summarized the results of a study of resected tissue containing the primary carcinomatous lesion in 399 cases of gastric cancer seen at the Mayo Clinic; nineteen (4.8 per cent.) showed ulcers with doubtful cancer in the border. Photomicrographs from five of the nineteen cases had been shown before the Association of American Physicians in 1909, when they were considered by the members who examined the slides to be benign ulcer. Three of the five patients died of cancer in the next five years.

SUMMARY

1. Duodenal ulcer is treated satisfactorily by surgery in approximately 95 per cent. of cases, although in 1 or 2 per cent. of these a second operation may be required. The ulcer is not associated with cancer liability.

2. The average operative mortality in cases of duodenal ulcer, including the acute and chronic cases, is under 2 per cent. from all causes; and, as the part of the duodenum usually involved is merely the vestibule of the small intestine, permanent interference with function is slight.

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[1] Balfour, D. C.: The Use of the Actual Cautery in Treating Benign Lesions of the Stomach and Duodenum, Surg. Clin. N. America **1**: 1233-1240 (Oct.) 1921.

[2] Joslin, E. P.: End-Results in Cases of Gastric and Duodenal Ulcer, J. A. M. A. **63**: 1836-1839 (Nov. 21) 1914.

[3] Wilson, L. B., and McDowell, I. E.: A Further Report of the Pathologic Evidence of the Relationship of Gastric Ulcer and Gastric Carcinoma, Am. J. M. Sc. **48**: 796-816, 1914.

3. In cases of gastric ulcer, satisfactory results are obtained by one operation in more than 85 per cent. In the remaining cases, a secondary operation, preferably resection, which eliminates, to a great extent, future ulcer possibilities, brings the surgically satisfactory group of gastric ulcers well above 90 per cent., but there is a definite cancer liability in the years to follow.

4. The average mortality in the operative treatment of cases of gastric ulcer, including the acute and chronic cases, is about 3.5 per cent. The stomach has important functions to perform and a certain amount of permanent crippling may result.

5. In about 50 per cent. of the patients who fail to obtain satisfactory relief, the difficulty is functional and can be relieved by medical management. The other 50 per cent. must be classified as surgical failures due to faulty mechanics, and will require secondary corrective surgical procedures for relief.

6. The patients' general condition must be considered and rational habits of living established. The elimination of all sources of focal infection is also an essential measure.

RELATIVE VALUE OF SURGICAL AND MEDICAL TREATMENT OF GASTRIC AND DUODENAL ULCER *

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During the last ten years or more I have had the opportunity of making, with my medical colleagues at the Presbyterian Hospital, a combined study from both the medical and surgical points of view of the subject of peptic ulcer. I believe that we have approached this matter with open minds and have attempted, in this clinical research, first, to establish the relationship between the clinical picture and the pathologic anatomy, and, secondly, to determine the value of both the medical and the surgical treatment and the indications for each. During this period of ten years, of course, similar researches have been made in a large number of clinics, both in this country and abroad; notably by workers in the Mayo Clinic at Rochester; by the Leeds group in England, headed by Moynihan; by von Eiselsberg and his assistants, Haberer and Clairmont, and by Schmieden, who was formerly with Bier and who now has a chair of surgery at the new university at Frankfort, and, of course, by many others.

ETIOLOGY OF PEPTIC ULCER

I shall attempt to summarize briefly the results of my experience with this problem. In the first place, I think it might be well to discuss the present status of our knowledge of the etiology of peptic ulcer. Peptic ulcer is a lesion in the causation of which a number of factors play an important part; but, of course, that is true of almost all lesions. Take, for instance, such a simple lesion as a furuncle on the back of a man's neck. I have for years taught my students that here we had at least three causative factors, and I have expressed the matter by the algebraic equation $X + Y + Z =$ furuncle. In this equation X is the essential germ cause, usually *Staphylococcus aureus;* Y is the small abrasion produced usually by a rough collar, which furnishes the atrium of infection; Z is the general lowered resistance of the individual that permits of the growth of the organisms in his tissues. These three factors combined produce the resulting boil.

I think peptic ulcer is a more complicated condition than the simple boil and that we have at least three, and probably more, factors in its causation. If we expressed these in terms of the same algebraic formula, we would have $X + Y + Z =$ peptic ulcer. I am rather inclined to consider the X in this equation as the gastric juice with its power of digesting devitalized tissue. I place this first because it is the characteristic factor of peptic ulcer. Peptic ulcer does not occur in the absence of gastric juice. Y is an area of lowered local resistance, resulting usually from some injury or lesion of the blood vessels of the mucous membrane, interfering with the blood supply of a small area of tissue and so lowering its vitality that the gastric juice can destroy and digest it. Z is again the lowered general resisting power of the individual, which, I believe, in this case presents probably a rather complex picture, as this lowered resisting power may be due to a number of quite different causes.

First, anemia is undoubtedly one of the conditions lowering the resisting power of the patient. General poor nutrition is an important factor. This was well demonstrated during the last war when the hunger blockade of the central European countries was followed by an enormous increase in peptic ulcer, due to the lack of proper food and to the ingestion often of food that was difficult to digest. Another factor which lowers the resistance of the individual and plays an important part in the production of peptic ulcer is increased nervousness of the patient. Nervous strain (worry) is recognized by many investigators as being one of the important factors in the development of peptic ulcer. This may produce its effects in several ways, increasing possibly the high acid content of the gastric juice and possibly producing pyloric spasms or possibly lowered resistance against the action of gastric juice by impairment of proper nerve function, although the last suggestions are, of course, purely theoretical. I believe we can safely say that all these factors—the $X + Y + Z$, which I have described—play important parts in the production of peptic ulcer.

There has been of late years a good deal of investigation directed toward demonstrating that focal infections, such as infected teeth and tonsils, an infected appendix or an infected gallbladder, may cause peptic ulcer by producing hematogenous septic infarcts of areas of the mucous membrane of the stomach. Rosenow has particularly called our attention to this point. There can be no doubt that infections occur in which we have the picture of an acute ulcer of the stomach or duodenum which results from a hematogenous infection or septic embolism of a vessel of the mucous membrane of the stomach and duodenum, from a focus of infection, such as the tonsils or teeth, or from an extensive area of skin infection following a burn. My own impression is that these acute cases usually heal promptly or if they are very serious they may result fatally; but I believe that they are not the ordinary common cause of the cases of peptic ulcer of the stomach and duodenum which we see clinically, and that the infection from pus organisms plays a minor rôle in the causation and the persistence of peptic ulcer.

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* Read before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Gastro-Enterology and Proctology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

SYMPTOMS

My conception of the symptoms of peptic ulcer, especially the essential and common symptom of stomach distress, I shall present very briefly. The sensations experienced by the patient with peptic ulcer may be described as sensations of discomfort or distress, or of actual pain. We surgeons who operate today, very frequently under local anesthesia, on abdominal viscera recognize the fact that we can handle the stomach and duodenum with little or no distress to the patient. We can sew the stomach and intestines together as in a gastro-enterostomy without any sensation. We can burn off the end of the stomach or duodenum with a cautery without causing any sensation, and we sometimes wonder why an ulcer in the duodenum or in the stomach produces pain and how it produces pain. We know that if in performing an operation under local anesthesia we pull on the viscera we can produce very great pain. We know too that in the abdominal cavity the most common cause of pain is distention of some viscus, as is clearly shown in the great pain resulting from obstruction of the cystic duct in gallstone colic, or the great pain resulting from obstruction of the ureter in kidney stone colic, or the great pain resulting from the obstruction of the bowel in ileus. In these cases we can quite clearly see and can demonstrate experimentally and clinically that it is the intravisceral tension which produces the pain. We know too that tissues that are the site of an inflammatory process are much more painful than the normal tissues in the abdominal cavity.

Pain, as I have studied it in peptic ulcer, occurs under three conditions: first, when there is an intravisceral tension due to the distention of the stomach or the bowel with gas and food, and associated often with obstruction or a spasm preventing the normal emptying of these viscera; secondly, when there is irritation caused by the gastric juice on the raw surface of the ulcer, the so-called chemical pain, and thirdly, when there is lighting up of an acute inflammatory process in and about the ulcer itself. This sort of pain is liable to produce a picture in a patient with duodenal ulcer resembling very closely that of a gallstone attack. I have been able to unravel a number of cases in which because the character of the pain so closely simulated gallstone colic we had made that clinical diagnosis before operation and in which at operation I have found no lesion of the gallbladder but an inflamed and often a penetrating ulcer, usually either in the duodenum or in the stomach, and close to the lesser curvature.

Personally, I can understand quite well stomach and duodenal pain which results from intravisceral tension and pain which results from an acute inflammatory process developing in and about the ulcer. In the light of the fact that we can crush a part of the stomach or the duodenum or cut it off or destroy it with a cautery without producing any sensations to the patient, it is difficult for us to understand how gastric juice poured over the raw surface of an ulcer can produce pain, unless we accept the proposition that in this pathologic condition of ulcer the tissues are more sensitive than under normal conditions. This I consider is the fair and logical explanation of the facts. I am quite willing to accept the generally accepted belief that the ordinary pain of peptic ulcer is due to pouring over the raw surface acid gastric juice with a high free hydrochloric acid content, and I believe we are compelled to accept this point of view by the results which we can so constantly observe of the neutralizing of free hydrochloric acid with alkalis, with the resulting cessation and disappearance of the pain. However, I do believe that intravisceral tension plays a definite and important part in the distress and pain of peptic ulcer, as it does in almost all painful conditions of the abdominal viscera. I believe that this phase of peptic ulcer deserves special study and that when this problem is solved we will have learned that here, as in almost all painful abdominal lesions, intravisceral tension plays an essential part.

HEALING OF PEPTIC ULCER

In regard to the healing of these ulcers, I want to draw a parallel, as I have done in my own study, between the ordinary varicose ulcer of the leg and peptic ulcer. We can study the healing process of a varicose ulcer and watch the process directly under our eye from day to day. First, let me again suggest the algebraic equation $X + Y + Z =$ varicose ulcer. In this algebraic equation the X, the essential and characteristic factor in the etiology, is the obstruction of the return circulation; Y is usually some slight traumatism of the skin. This slight injury becomes the starting point of an ulcer, sometimes of considerable size. Instead of healing, the tissues about the injury break down and the ulcer grows in size. Z is the general resisting power of the individual again and this is modified by poor nutrition, poor hygienic surroundings, hard work and general constitutional disease. If one makes a culture of the secretions of the varicose ulcer he will have no difficulty in demonstrating pus organisms of various kinds and often saprophytic organisms. I believe, however, that these organisms do not play an important part, either in the production of the ulcer or in preventing wound healing. Of course, at times, a varicose ulcer becomes acutely infected and inflamed. I would draw, therefore, a close parallel between the varicose ulcer and the peptic ulcer as far as pus organisms are concerned; that is, they are present in both; they are, however, as a rule simply an incident and they may occasionally be the cause of lighting up of an acute infection, but they are not the essential cause of the ulcer.

Now let us examine the natural history and the wound healing of a varicose ulcer. I believe I can speak on this subject with some authority since I have watched carefully a large number of these cases. Keeping in mind the X and Y and Z which equal varicose ulcer, if we place the patient at absolute rest in bed in a recumbent position and elevate the affected leg we do away for the time being with the X, the most essential factor in the production and maintenance of varicose ulcer; that is, the interference with the return circulation. If we do only this, without attempting to do anything else, as a rule in a very limited period (from ten days to two weeks or more) the ordinary varicose ulcer will heal. In the healing process the bacteria which are on the surface gradually disappear and granulations become healthier, and with the complete epidermization of the ulcer the bacteria disappear entirely. If the general condition of the patient is bad, if the patient is anemic, run-down from any cause or undernourished, improved hygiene, better food, fresh air, cleanliness and attention to proper elimination are important in improving the general condition of the patient. Under this improved general condition, wound healing is more rapid.

If there is a combined condition, such as varicose ulcer plus syphilis, antispecific treatment is of very definite value. In other words, the history of a leg ulcer is that when we remove the essential cause and contributing causes and place the patient and the part involved in the best possible condition for healing, especially when we remove the essential cause—the interference with the return circulation—wound healing, as a rule, occurs promptly.

There are, however, some exceptions to this rule. The old time surgeons recognized perfectly well the existence of some of these old leg ulcers of a certain type which they called "callous ulcers." If you examine one of these you will find a rim of very dense scar tissue around the ulcer, and in the crater-like depression of the ulcer itself. In these callous ulcers, wound healing is very slow and sometimes almost impossible to obtain with the ordinary elevation of the limb, rest and improved general condition of the patient, which is in varicose ulcer of the ordinary type so efficient. Old time surgeons understood this problem very well and in order to heal one of these ulcers they would dissect out the hard indurated callous margin of the ulcer and the base of the ulcer itself, then place the patient in a recumbent position and treat the ulcer as the varicose ulcer of the ordinary type and obtain in this way wound healing.

There is a third type which one might mention in continuing this parallel between the varicose and peptic ulcer, and that is the old chronic ulcer in which such great changes have occurred at the site of the ulcer that the tissues have apparently lost their power of repair, and not infrequently in these cases we must resort to dissecting out the ulcer and employing either skin grafting or covering the area with a flap by some plastic operation.

I should like now to ask you to keep in mind this picture of varicose ulcer as I have drawn it and apply it to the study of peptic ulcer. I am thoroughly satisfied that very much the same thing happens in the ulcer in the interior of the stomach and duodenum that happens in the ulcer of the leg. If we can place a peptic ulcer under conditions in which we eliminate, as we can do in a varicose ulcer, the essential causes which produce and maintain the ulcer, we can in the vast majority of cases succeed in producing wound healing on the interior of the stomach and duodenum just as we can on the external integument. In order to do this it is clear that we must place the patient at rest in bed and we must place the stomach and duodenum at rest as much as possible. There is no doubt in my mind but that rest in bed is very desirable, certainly for several weeks. Local rest of the stomach and duodenum are obtained by removing food traumas and by the blandest possible diet. This, of course, is the practical method which we employ in clinical work.

We can demonstrate absolutely the value of rest in the healing of these peptic ulcers by the results which can be obtained from the operation known as jejunostomy. If, for instance, under local anesthesia, we pick up the first part of the jejunum and introduce a small rubber tube into the intestine, performing the operation with good technic so as to prevent any leakage and resulting peritonitis, and if we keep this tube in the jejunum for a number of weeks, or even months, and put nothing of any kind in the stomach but feed the patient entirely through this jejunostomy tube, we, in this way, of course, place the stomach and duodenum at absolute rest and we can cure almost any of the peptic ulcers in the stomach or duodenum in this manner. That has been demonstrated now in a number of cases. I think we should keep this in mind as a very definite illustration of the importance of rest in the management and the healing of peptic ulcers.

In the next place, and most essential, is the neutralizing of the acid of the gastric juice so as to prevent the irritating digestive effects of the gastric juice on the raw ulcer surface. We must place the patient, handicapped as he is by being in bed, under the best possible hygienic conditions as far as food, fresh air, nursing and massage are concerned to improve his general condition. In the large majority of peptic ulcers, rest of the patient in bed, rest of the stomach and duodenum, neutralization of the gastric juice and improvement of the general condition of the patient will result, in the course of some weeks, or possibly several months, in a complete healing of the ulcer. There are, however, very definite exceptions to this rule. I believe there is no doubt that old callous ulcers of the stomach and duodenum are often very refractory, just as are old callous ulcers of the leg, to this rest treatment, and when the ulcer is situated so as to impair seriously the functions of the stomach and duodenum, as at, or near, the pylorus, producing obstruction and deformity, complete wound healing cannot, as a rule, be obtained by medical management alone.

I desire by the rather rough outline which I have drawn to present to you the conception that both the ulcer of the leg and the ulcer of the stomach and duodenum are the result of a number of causative factors; that when we recognize these factors we are then in a position to apply this knowledge in a practical way to the cure of the disease, and that the cure depends on the recognition of the principle that if we eliminate altogether or in large part the causative factors we can, as a rule, place the patient and the local lesion in a condition in which wound healing can go on to completion and we can cure the disease. Although we can cure the great majority of peptic ulcers by medical management on the principles which I have outlined, there remains a considerable number of cases, just as in ulcers of the leg, in which we must resort to something more than medical management, namely, to surgical treatment of one kind or another.

We can cure a varicose ulcer of the leg by proper treatment. We can cure a peptic ulcer by proper treatment. We want to remember, however, that the ulcer in either case may recur, that it may recur at the original site or a new ulcer may develop, and that this is liable to happen unless we take pains to eliminate, to some degree at least, the causes which produced the ulcer in the first instance.

In the case of the varicose ulcer the important factor of interference with return circulation can be remedied often by wearing a proper bandage or by a surgical operation, removing a segment of the veins and breaking the long column of blood. In the case of the peptic ulcer, if we are to prevent recurrence, which is unfortunately common, we must, by proper attention to diet and the general condition of the patient, eliminate the acidity and food traumas, the nervous tension and the bad general conditions which were responsible for the ulcer in the first instance. The person who has been cured of a peptic ulcer must know that the price of a permanent cure is eternal vigilance, and this is true whether the cure has resulted from medical management or surgical operation.

SURGICAL TREATMENT

Now let us turn to the surgical treatment of peptic ulcer. Surgical treatment includes operations for perforation, for pyloric obstruction for hour-glass stomach and operations performed for the actual removal—the resection—of the ulcer. It includes also gastro-enterostomy and jejunostomy. There can be no question, of course, about the necessity and great value of the surgical treatment for perforation and for cicatricial and unyielding pyloric obstruction and for hour-glass stomach in which the deformity produces symptoms. All internists and surgeons agree that these conditions demand surgical treatment.

What can surgery do to cure chronic peptic ulcer of the duodenum and stomach:

1. The ulcer may be excised by one of several methods and the patient cured by an operation which carries a certain amount of risk, which varies enormously with the skill and experience of the operating surgeon.
2. Ninety per cent. of ulcers of the duodenum and 50 per cent., or more, of ulcers of the stomach may be cured by gastro-enterostomy, which again carries a certain amount of risk, probably less than 2 per cent. in skilled hands, with an associated risk of developing a jejunal ulcer in 3 per cent., or more, of the cases.

How does gastro-enterostomy cure an ulcer in the stomach and duodenum? This has been answered in several ways. Patterson believes that the important factor in the cure is the neutralization of the acid gastric juice by the alkaline bile and pancreatic juice which results from their pouring into the stomach through the new opening. Admitting that there is probably some truth in this theory, I believe that the value of a gastro-enterostomy is in the safety valve action of the new opening, the relief of tension. Let us apply this conception to a gastro-enterostomy performed for a duodunal ulcer, in which the prospects of cure are, I believe, 90 per cent. I visualize the result in this way: As soon as the gastro-enterostomy is performed, spasm of the pylorus prevents the gastric contents from passing into the duodenum, and, as a result, the gastric juice and food take the course of least resistance and pass out through the new opening. The duodenal ulcer is thus put at rest, is protected from the irritating actions of the gastric contents and wound healing proceeds rapidly and the ulcer heals. As soon as the ulcer heals, or possibly even when it begins to heal and becomes covered with healthy granulations, the pyloric spasm ceases, in whole or in part, and the gastric contents begin to take the normal course through the pylorus. In my mind, one of the reasons for the marked relief which follows gastro-enterostomy is probably the relief from intragastric tension which the gastro-enterostomy affords. In the case of the cure of a gastric ulcer produced by a gastro-enterostomy, I believe relief from gastric tension, the freer emptying of the stomach and the neutralization of the gastric juice by the bile and pancreatic juice furnish the logical explanation.

I have already referred to the cure of peptic ulcer by jejunostomy. Here the explanation is very definite. The ulcer, whether in the stomach or duodenum, is at once placed at rest by feeding the patient through the jejunal tube and healing usually progresses rapidly. The operation is, however, in spite of its efficiency, not a very practical method of treatment and should be reserved as a preliminary procedure in seriously handicapped patients. In one case, by a jejunostomy I was able to save the life of a man who had at the time of the operation but 17 per cent. hemoglobin.

What can be said of the operations for excising peptic ulcers? This can be accomplished either by an oval or wedge-shaped excision, when the conditions permit, or by transverse resection of the stomach or by what is now being tried rather extensively, a resection of the stomach and duodenum by the Billroth II and the Billroth I operations. The excision of the ulcer seems the ideal treatment. The risk, however, is considerable. It is the operation of choice when it can be performed without great risk and without resulting deformity. A new chapter is being written at this time in stomach surgery by the men who are performing the extensive resections of the duodenum and stomach, which are termed the first and second Billroth methods. These operations have proved, in the hands of a few expert surgeons, surprisingly successful. Moynihan, Haberer, Clairmont, Eiselsberg and Schmieden have reported series of fifty or more cases, with from 1 to 2 per cent. mortality. I have been much impressed with the value of the Billroth II excision for ulcer and am trying it out in a series of cases, especially in cases of callous ulcers in which the possibility of carcinoma must be considered.

The Billroth excision accomplishes definitely three things: (1) It removes the ulcer. (2) It removes the pylorus and the element of pylorospasm. (3) By removing a considerable amount of the secreting area of the stomach, it diminishes the free hydrochloric acid content of the gastric juice, and finally it removes, with the ulcer area, a possibly existing or a potential carcinoma.

MANAGEMENT OF PEPTIC ULCER

Now that we have reviewed the essential principles of this subject, let us ask ourselves how we shall apply this knowledge to actual practice, let us say in a hundred ulcer cases? I believe that we can make this matter simpler and clearer if we answer the question: With our knowledge of this subject, how would you and I like to have an ulcer of the stomach or duodenum treated? After all, this is the real test. If I had a peptic ulcer, uncomplicated by any of the conditions which, we all agree, demand surgical treatment, perforation, pyloric obstruction from scar, etc., I should want it treated by a scheme of sound medical management and would place myself in the hands of my colleagues, Sippy or one of his disciples, because I believe that he has worked out the best method so far devised. I believe that my chances of cure would be from 80 to 90 per cent., and that I could keep well if I took reasonable care of myself. I would recognize the fact that there was a certain definite risk of recurrence. How large this is is difficult to state in figures.

If I had had repeated hemorrhages and the evidence showed the ulcer was probably in the duodenum, I should want to be operated on by one of my good surgical colleagues who had devoted special attention to this subject and I should want a gastro-enterostomy performed. If in the course of the disease persistent pyloric obstruction developed, I should want a gastro-enterostomy performed. If in spite of good medical management, I was not completely cured and symptoms recurred on slight provocation, I should want a gastro-enterostomy performed. If in spite of good ulcer management, the symptoms persisted I should want to be handled as a carcinoma suspect and be given the benefit of an exploratory operation. If at the operation a callous ulcer was found on the stomach side of the pylorus, I should want the benefit of a second Billroth operation. If I had an operation for ulcer, either a gastro-enterostomy or a resection, I should want to be given medical ulcer management as a part of the after-care for the purpose of reducing to a minimum the chances of a jejunal ulcer.

If I attempt to put the question of the medical and surgical treatment of ulcer in figures, I should do so in about this way: Almost all ulcers in their early history should be treated medically. When they persist under good medical management, when they recur in spite of good medical management and the care which the patient can obtain in his or her peculiar station of life, when serious and repeated hemorrhages occur, when pyloric obstruction does not yield to good medical management, when there is a reasonable suspicion of malignancy, in all of these cases medical management should not be too long persisted in but should give way to exploration and surgical therapy as the safer plan and the plan which affords the better prospect of cure. Numerically, I believe that these cases demanding surgical treatment for their best interests would constitute about 10 per cent. of the ulcers of the chronic type.

To visualize this a little more clearly, let us take 100 cases of peptic ulcer. Practically all of these should be given at first the benefit of sound medical management. Possibly ninety of these patients may be cured and kept well by medical management. Probably 10 per cent. of these cases, after repeated trials of medical management, will prove refractory and should then be given the benefit of exploratory operation and surgical therapy. I have no sympathy for the position taken by some surgeons that ulcer of the stomach and duodenum are conditions like gallstone disease that are to be relieved by surgical operations. Nor have I any sympathy with the position taken by some gastro-enterologists, that all ulcer cases must be treated medically and that surgical therapy should be put off as long as possible and be regarded simply as a last resort. To my mind, the great value of medical management has been clearly shown, especially by Dr. Sippy and his disciples. They have shown that peptic ulcer can be cured by medical management and that the great majority of patients can be so cured.

On the other hand, no more brilliant chapter has been written in the history of surgery than the chapter on gastric and duodenal ulcers. We owe to our surgical colleagues most of the knowledge that we have of gastric and duodenal ulcers; the knowledge which we have obtained by the autopsies in vivo which we have made in the last twenty years. Twenty years ago, we hardly knew that there was such a thing as a duodenal ulcer. The surgeons furnished us with the knowledge of its existence and its frequency. The surgeons made mistakes in the development of this subject. They performed too many gastro-enterostomies. They placed too little value on medical management.

But in spite of mistakes, great progress has been made and today we can say with much confidence that in the cases of ulcer which prove refractory to medical management, modern surgery offers much to these patients. The ideal situation is the joint treatment of these cases by internist and surgeon, who realize the field of usefulness and the limitation of both the medical and surgical management and who give to their patients the benefit of their combined judgment and the treatment demanded in each individual case.

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RELATIVE VALUE OF MEDICAL AND SURGICAL TREATMENT OF GASTRIC AND DUODENAL ULCER *

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The relative value of medical and surgical treatment of peptic ulcer and the indications for each are dependent on a number of factors. Among these, three stand foremost. The first factor has to do with the conditions and complications that attend the ulcer. The second involves a careful consideration of the character of the surgical treatment to which the patient is to be subjected. Herein, the skill of the surgeon who is to perform the operation is of the utmost importance, since it influences enormously the immediate mortality and, to a lesser degree, the late bad effects of the operative treatment of the disease. The third pertains to the straightforwardness with which the type of medical treatment employed combats or removes the conditions that retard or prevent healing and thus contributes to the eradication of the ulcer and its complications.

Careful analysis of these three factors should more frequently serve as a basis for choice of method to be employed. Proper analysis of the first factor necessitates an accurate study of the case for the purpose of revealing the conditions and complications that attend the ulcer. If one knows what to look for and how to go about it, prolonged study of the case is seldom required for an exceedingly trustworthy investigation relative to the presence of ulcer and such important conditions and complications as may attend it. Then the question so often contemplated in the improper form: Should peptic ulcer be treated surgically or medically? becomes one easier of solution in this form: Should this particular ulcer, with the recognizable conditions and complications that attend it, be treated surgically or medically or by combining both methods?

Obviously, the best answer to such a question cannot be given without a thorough and unbiased understanding of what may be done by each of these procedures to relieve the symptoms of distress and eradicate the disease. Then the discomforts, probability of cure and, last, but not least, the mortality that is likely to attend the adoption of such surgical or medical measures as are to be applied to that particular patient must be carefully weighed in the balance before proper choice of procedure can be made.

SURGICAL TREATMENT OF PEPTIC ULCER

The surgical treatment of ulcer and its complications incorporates two methods of attack. The method that

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has been, and still is, the most widely used leaves the ulcerated area virtually unchanged at the time of the operation, but employs measures that tend to remove complications and distress symptoms and to bring about conditions that contribute to the healing of the ulcer. Gastro-enterostomy for ulcer resulting from pyloric obstruction is the most common and, when successful, the most effective procedure representing this method of attack.

The other method makes a direct attack on the ulcer and attempts to reduce it in size or to remove it. The two methods of attack are combined, under certain conditions. It is to be understood that in proportion to the number of cases of peptic ulcer treated surgically, relatively few ulcers have been removed directly by operative procedure. Inaccessibility, due to location, adhesions or other unfavorable conditions, not infrequently render removal of the ulcer impossible. In those cases in which the ulcer-bearing area has been accessible, the mortality attending excision and resection has heretofore very generally caused the surgeon to hesitate to employ either of these two surgical procedures as a substitute for, or in addition to, gastro-enterostomy.

Within recent years, there has been a growing tendency among the most skilful surgeons to adopt the direct method of attack, employing such measures as excision of the ulcer with knife or cautery, reducing it in size by cautery or suture, resecting that portion of the duodenum or stomach containing the ulcer and incorporating a removal of the ulcer in pyloroplastic operations. In the surgical treatment of gastric ulcer, a tendency to remove more and more of the stomach is apparent. Partial gastrectomy is being performed and advocated by some of the experts as the ideal toward which surgical skill should be directed. Sir Berkeley Moynihan has published articles portraying the failures and bad results following excision of ulcer alone or combined with gastro-enterostomy and reports a death rate of 4.7 following partial gastrectomy in his service. A symposium on the end-results of the surgical treatment of gastric and duodenal ulcer, in which several exceptionally well trained experts in gastric surgery participated, was held in Washington this month. The mortality resulting from surgical treatment contained in these reports ranged from 6 to 8 per cent. It is probable that an exceedingly few, exceptionally eminent supersurgeons are able to quote figures indicating a lower mortality. A death rate of one for every thirteen to twenty patients operated on in the services of such men as those that reported at the Washington conference is a matter for thoughtful consideration, when contemplating the relative value of surgical and medical treatment of peptic ulcer.

When one considers that the vast majority of all patients with peptic ulcer treated surgically are operated on by men of much inferior training—men who when challenged to operate by having a case referred to them, attempt to imitate the technic of the expert surgeon—one can readily understand that the mortality that attends the surgical treatment of ulcer must range from 1 to 100 per cent., depending on the skill of the operator. In many instances, the medical practitioner referring the case has watched the skilful surgeons at the noted clinics, listened to their addresses, read their articles and has become convinced that the operative treatment of peptic ulcer is relatively easy, that the results justify the risk involved. Thereupon, being confronted by a patient afflicted with peptic ulcer, he sends the patient to a surgeon of local reputation who has operated and strives to imitate men who, through years of unusual training and experience, have acquired a low mortality.

It is during this striving and never arriving period of the surgeon's development that the mortality of the surgical treatment of peptic ulcer is likely to be high. Unless human nature changes, the development of the so-called system of group practice is likely to warp the judgment of many medical practitioners in favor of the surgeons of their particular groups.

With the exception of certain types of resection pyloroplastic operation, nearly all of the operative procedures are performed in conjunction with gastro-enterostomy. It is recognized that jejunal ulcer following gastro-enterostomy becomes manifest clinically in 2 or 3 per cent. of the patients who survive the operation. It is improbable that this percentage approximates the total number that develop and either heal spontaneously or persist without symptoms. Similar to the nonobstructive type of ulcer, a jejunal ulcer is likely to be latent unless it penetrates to, or through, the peritoneal coat or erodes a large blood vessel, thus causing hemorrhage sufficient to attract attention. Aside from development of jejunal ulcer, the late bad effects of well conducted operative procedures for peptic ulcer are seldom of serious moment.

Brilliant as are the results of surgical treatment when applied to such cases of peptic ulcer as clearly require the services of the surgeon, sufficient evidence may be found upon thoughtful consideration to cause one to hesitate to advise surgical treatment for the relief of peptic ulcer unless the conditions are such as to render operative treatment necessary or a surgeon highly skilled in the technic of gastric surgery is to perform the operation.

May there not be a method fraught with less danger when applied in a world-wide way to those persons afflicted with ulcer?

MEDICAL TREATMENT OF PEPTIC ULCER

What may be done by medical treatment to relieve the distress symptoms and contribute to the eradication of the ulcer and its complications? Obviously, medical treatment can contribute directly to the eradication of the ulcer only by employing such measures as promote the healing of ulcer. Likewise, when the surgical treatment of the disease does not include a direct removal of the ulcer, eradication of the ulcer by the surgical measures employed must act by establishing conditions that promote the healing of the ulcer. Gastro-enterostomy, the operation most frequently performed for the relief of peptic ulcer, does not remove the ulcer. The ulcer cannot cease to exist without undergoing a definite healing process terminating in a mature cicatrix. It must be obvious, therefore, that except in those instances in which surgical treatment includes removal of the ulcer, both surgical and medical treatment contribute directly to the eradication of ulcer only by promoting its healing. Nature fills in the defect. All that medical or surgical treatment can accomplish toward directly promoting the healing process is to remove such hindrances to healing as may exist. For many years two essential factors have been recognized as contributing to the development and chronicity of the clinical type of peptic ulcer: (1) local malnutrition or necrosis of the mucous membrane or walls of the stomach or duodenum; (2) the destructive action of digestive gastric juice on such local areas of malnutrition or necrosis as exist.

Well nourished and otherwise undamaged tissue fully resists peptic digestion. It matters not whether the tissue is protected by its normal coverings or whether raw surfaces are exposed. The rapid healing of the usual experimental ulcer produced, for example, by the injection of silver nitrate is thus explained. Unquestionably peptic ulcer, developed and attended by few or no symptoms, heals without treatment in an enormous number of instances. The tissue adjacent to, and constituting the surfaces of such ulcers is enabled through adequate nutrition or vitality successfully to resist the eroding action of the gastric juice and such other hindrances to healing as may exist. All accumulated evidence has demonstrated that when tissue, lowered in vitality, from any cause, is exposed to the digestive action of the gastric juice, the surface of that tissue becomes eroded. The healing of peptic ulcer is retarded or prevented by the eroding action of the gastric juice proportionately to the diminution in the vitality of the tissue exposed in the ulcer and the constancy with which digestive gastric juice is in contact with the ulcer. The digestive or eroding action of gastric juice is due to the solvent action of pepsin in the presence of free hydrochloric acid. As an eroding agent, gastric juice is absolutely inert in the absence of free hydrochloric acid. When the vitality of the tissue present in the surfaces of a gastric or duodenal ulcer is lowered sufficiently to render it susceptible to gastric juice digestion, the maximum efficiency of medical treatment cannot be attained without bringing about an accurate neutralization of the free hydrochloric acid as advocated in my articles, beginning with the year 1912, and carried out with increasing accuracy and improved results in our clinical work since the year 1903.

With the free hydrochloric acid accurately controlled in the manner advised, the greatest known hindrance to the healing of ulcer that is amenable to medical or surgical control is removed. The conditions for the healing of the ulcer are rendered as ideal as possible in the light of all accumulated knowledge. The beneficial influence of gastro-enterostomy in bringing about a cure of gastric and duodenal ulcer through a reduction in the free hydrochloric acidity from 14 to 30 per cent., as is asserted, and more particularly through the accelerated emptying of the stomach, thus reducing the duration of gastric juice contact, has been the recognized explanation of the wonderful relief of symptoms and the apparent and real cures following successful gastro-enterostomy when applied to ulcer associated with pyloric obstruction.

The higher the grade of obstruction, the greater the benefit of the operation. In high-grade obstruction the contact of the irritant contained in the gastric juice is reduced from twenty-four hours to between nine and fifteen hours each twenty-four-hour period. If the healing of obstructive ulcer is so greatly favored by such a limited reduction in the duration of peptic gastric juice contact, is it not logical to conclude that the healing of the ulcer would be much more greatly favored by destroying virtually all peptic activity by the ingestion of alkalis in carefully regulated doses, thus much more efficiently protecting the ulcer from gastric juice contact than can be accomplished by gastro-enterostomy or any other operative procedure that does not occlude the pylorus? Our work has demonstrated that, as a result of the constant protection of the ulcer from digestive gastric juice contact, one of the most common and serious complications of peptic ulcer—namely, pyloric obstruction—is likely to yield rapidly. In approximately 85 per cent. of all cases of pyloric obstruction due to ulcer, ranging from the lowest to the very highest grade, the obstruction is overcome during the first three weeks of treatment to such a degree that a full meal of ordinary food is discharged through the pylorus within the normal seven-hour period. In such cases the obstruction is not due to actual tissue narrowing but presumably to spasm of the pyloric muscle, acute inflammatory swelling and rarely to local peritonitis. In the remaining 15 per cent. of cases, the obstruction yields more slowly and is due to actual tissue narrowing which cannot be completely overcome without surgical interference in approximately one half of these cases. As far as the hindrance to healing occasioned by the digestive gastric juice is concerned, the conditions for the healing of the obstructive type of ulcer following gastro-enterostomy are rendered approximately the same as those that are present in the cases of nonobstructive gastric or duodenal ulcer without treatment. It must be remembered that after gastro-enterostomy the stomach does not empty itself of ordinary food and secretion appreciably earlier than the normal time and that the stomach continues to discharge its contents through the pylorus at a rate proportionate to the size of the opening through it.

In all cases in which pyloric occlusion is not included in the operation, the opening through the pylorus is sufficiently large to insure the contact of digestive juice with the ulcer for the entire time that food and its accompanying secretion are present in the stomach.

Following gastro-enterostomy for the relief of pylorus obstruction, greater efficiency may be secured and the end-results improved by including in the after-treatment of the case an accurate neutralization of the free hydrochloric acid as advised.

RELATIVE VALUE OF THE TWO METHODS

It would seem fair to conclude that in the absence of certain conditions and complications, such as are recognized by all as requiring immediate or subsequent surgical relief, the skill of the surgeon who is to perform the operation and the type of medical treatment that is to be employed should be the important factors influencing the choice of procedure in a given case. In general, I am in close agreement with the statements made by Dr. Bevan in his paper regarding the indications for surgical treatment provided the medical treatment employed is to be of the most efficient type, as implied in his paper. When, however, patients with peptic ulcer are to be placed on medical treatment based almost entirely on empiricism, developed and handed down virtually unchanged in effectiveness during the last century, devoid of accurate technic, lacking in purposeful attack on such hindrances to healing as are known to exist under certain circumstances, then the indications for the surgical treatment of ulcer as outlined by Dr. Bevan may be very greatly broadened, provided the operation is to be performed by a surgeon of the ability of Dr. Bevan.

It is to be understood that an ulcer may be so large, broad and deep that healing may never take place.

Roentgen-ray examination is likely to give a valuable clue to the extent of the pathologic process when unusual difficulties in healing are likely to be encountered.

In Oxford Medicine and in the Nelson Loose-Leaf System of Medicine, I have summarized the results that may be obtained by maintaining an efficient neutralization of free hydrochloric acid in the treatment of ulcer. These results may be briefly stated thus:

1. Pyloric obstruction is influenced as described.
2. The pain is completely controlled.
3. Excessive night secretion is controlled.
4. Hemorrhage ceases, occult blood disappears from the stool.
5. Perforation has not been known to occur after the second day on management in our service.
6. The penetrating type of ulcer is rapidly influenced; the defect as shown by the roentgen ray relatively rapidly disappears. If the defect is not definitely influenced during the first two weeks of treatment, cancer is thereby suggested or the defect is due to an old cicatrix or the conditions for healing are not good. If a skilled surgeon is available, the patient should be operated on.
7. Ulcers of the stomach and duodenum that failed to heal after gastro-enterostomy and other surgical procedures are relieved at once of the distress symptoms and eventually healing has taken place in many instances.
8. Healing of ulcer occurs. Necropsies on patients that have died of pneumonia or other intercurrent disease while on management have shown that the ulcer was healing or healed. Operative removal of the ulcer bearing area for various reasons, a few months after treatment has been instituted, has shown on many occasions that this was healing or healed. Accurate clinical observation extending now over a period of many years furnishes such evidence as may be obtained by observing that all symptoms of the disease have disappeared and not returned. It is to be understood that a healed duodenal ulcer is likely to show a cap deformity. More than half of all cases treated have been of the pyloric obstruction type with such definite evidence of obstruction as visible peristaltic waves, food retention, Sarcinae and cap deformities.

CONCLUSION

Whatever the future reveals as to the causes of ulcer and the influences that retard its healing, these results—as published in detail elsewhere—may be obtained by maintaining an efficient neutralization of free hydrochloric acid in the manner advocated. In our service the method has been found applicable to the rich and poor alike. After the four-week period of accurate supervision, the patient is able to take up his full work and continue with it, irrespective of its character, for the required time—a year or more if necessary. Prepared chalk, magnesium oxid and sodium bicarbonate are relatively inexpensive drugs. Except in those cases in which surgical treatment is clearly indicated, all agree that medical treatment should be given a thorough trial before resorting to surgical measures. I am sure that if the medical treatment as outlined in Oxford Medicine is applied without modifying it to such an extent as to destroy its value, the necessity for surgical treatment of peptic ulcer will be very greatly reduced.

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THE RELATIVE RÔLES OF MEDICAL AND SURGICAL TREATMENT IN GASTRIC AND DUODENAL ULCER *

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In presenting one's views as to the relative value of the nonsurgical and the surgical treatment of gastric and duodenal ulcer, one cannot help feeling the essential and inherent difficulties of such a discussion. The enormous amount of literature on this subject of the past few years, with many conflicting articles trying to evaluate the various modes of therapy, some attempting to prove the wondrous merits or the hideous defects of some special operative procedure, or some selected diet or some drug, others trying to show that certain bacterial or neurogenic factors or vascular disturbances are the sole etiologic factor in the disease; others insisting that in the roentgen ray lies the sole hope of correct diagnosis; others that it is often unnecessary, and that the anamnesis or the utilization of certain special tests is the prime factor of importance in arriving at a true realization of the underlying condition; all show beyond peradventure the unsatisfactory and unsettled state in which this subject, so long studied by so many men of so many minds and from such different angles, still is, and how much both physicians and surgeons are in need of some rational basis of agreement as to the proper mode of attack in this group of cases.

Certainly, as I look back through that long vista of years since the swaddling clothes of medicine first enfolded me, I seem to see, "as in a glass darkly," scattered through this vast and often arid desert, oases —appearing at regular intervals devoted to similar symposiums on the treatment of gastric and duodenal ulcer, where noted surgeons and intrepid clinicians battled valiantly for their special mode of therapy; and where, at the end of these Homeric conflicts, each left the field even more convinced than before of the omnipotence of his especial therapy, were it surgical or medical, and of the weakness and fraility of the lance of his opponent in these periodic struggles. The reason for such dissatisfaction and for such uncertainty is not hard to find; for treatment without knowing the cause, without being sure that the symptoms are characteristic, and without being certain beyond reasonable doubt as to the diagnosis, must, of necessity, be unsatisfactory.

ETIOLOGY

Let us for a moment, before discussing the question of treatment, mention briefly some of the moot questions in the field of etiology, symtomatology and diagnosis. As regards etiology, the usual explanation is still that the immediate cause of the condition is the digestion of a certain portion of the mucosa by the proteolytic enzyme of the stomach, or its destruction by the corroding effect of the hydrochloric acid; but as to the contributory causes, the views are myriad. Disturbance of circulation and consequent lowering of the vitality, as first suggested by Virchow, seems to me still to be the most plausible factor in many cases; but whether this is due to thrombi, or emboli, or to

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constriction of blood vessels due to pressure or to reflex cause or to spasm or to a break in balance between vagus and sympathetic systems, it is often impossible to say.

Certain experimental work in this field has shown that ulcers can be produced by occluding the vessels in various ways; but that this is not the only factor is shown by the fact that these ulcers heal spontaneously very rapidly, although their healing is distinctly retarded by chronic irritation from food, by an artificially produced anemia, or, according to some, by the administration of hydrochloric acid in considerable amount. These three additional factors, that is, trauma, either external or internal, be it mechanical, chemical or thermal, anemia, notably chlorosis, and hypersecretion or hyperacidity of gastric juice—perhaps the terms are in reality synonymous—have many adherents. Some believe, on the other hand, that qualitative changes rather than quantitative changes in the gastric juice play the fundamental rôle; others that the lack of antipepsin in blood or stomach wall is the prime cause.

Many believe with Eppinger that a marked instability of the sympathetic and vagus systems is the underlying cause; others, that definite changes in the nerves themselves play a large rôle, and this has some experimental basis. Disturbances in the motor sphere; peculiarities in the form of the stomach, such as ptosis or congenital malformation; functional or organic abnormalities in vascular and nervous systems; all of these have been regarded as factors of importance. That the essential rôle is played by bacteria is insisted on by many, some believing in their specificity, others that they simply represent secondary invaders which inhibit healing and lead to chronicity. As regards the former, many believe that the presence of specific streptococci is essential. It is well to remember in connection with these various theories that the gastric veins are freely open to any substances coming from the spleen; that this may give rise to infectious emboli, as Gibson has insisted; and that "the anatomical distribution of the blood supply of the mucosa of the stomach is a prime factor in determining not only the location, but also the cause of gastric ulcer" as Hofmann and Nather have so beautifully shown, which supports the original view of Virchow that "ulcers are caused by embolism or thrombosis of the small vessels of the stomach, the congestion caused thereby leading to a diminution of the vitality of the tissues and digestion by the gastric juice," as well as the vagotonic and reflex theories of origin.

The point always difficult to explain is, Why do ulcers become chronic? The striking feature of all artificially produced ulcers, whether due to freezing, to local trauma, to injury to nerve or blood vessel, or to other causes, is their tendency to spontaneous healing; and any one who has studied necropsy records must realize that this must happen in many cases in human beings as well—cases either diagnosed as ulcers or, more often, not diagnosed at all, owing to either absence or vagueness of symptoms. Why some ulcers become chronic and intractable and others heal spontaneously is hard to determine; but it is probable that bacterial, chemical, traumatic or mechanical irritants notably, from the food or from its admixture with pathologic excretions or secretions of mouth, tonsils, accessory sinuses and stomach, or persistent and reflex gastric stimulation from elsewhere, notably the appendix, as Moynihan has so often insisted, or the instability of vegetative nervous system, which we call vagotonia, may be the factors which convert the superficial acute to the deep chronic ulcer. Perhaps, after all, this is the safest view to hold; that is, in the absence of a proved specific cause, an ulcer usually represents destruction of tissue by acid or by proteolytic enzyme due either to a localized lowered vitality secondary to some disturbance in blood supply, thrombotic or embolic, or to the constriction of spasm or pressure; and that chronic irritation of food, definite vagus irritation and bacterial invasion probably play the larger rôles in preventing the ulcer from healing, and in tending to progression of the ulcerative process with its concomitant induration and cicatrization, although certain constitutional disturbances, notably anemia, may also play a rôle in certain cases.

SYMPTOMS AND DIAGNOSIS

As regards symptoms, there is again nothing absolutely characteristic. In some cases there are no symptoms. Think, for instance, of the number of healed ulcers found at necropsies, in cases in which there were absolutely no symptoms during life which would make one suspect the diagnosis. Think of the other cases in which the first symptom is hemorrhage or perforation; and the many others with such indefinite symptoms that diagnosis is not possible; and, on the other hand, the large number of cases with absolutely classic symptoms, and yet in which the subsequent course of the case or the operative findings reveal no ulcer. In the last, of course, the symptoms are in reality due to some other cause, a diseased appendix or gallbladder, a gastric neurosis, or some instability of the nervous mechanism of the stomach or to its malposition, with consequent disturbance of motor or secretory functions or both. In my experience, for instance, the typical ulcer complex is peculiarly likely to occur in gastroptosis with a high fixed pyloric duodenal region, when decompensating symptoms begin to appear. It is this group of cases, incorrectly diagnosed, which has made so many surgeons regard with skepticism the diagnosis of ulcer on the part of the clinician, and has made them feel that, in many of the so-called cures by nonsurgical methods, ulcer, in reality, was not present at all; a group, however, probably equaled in number by those cases in which the patients are regarded by the surgeons as permanently cured because they leave the hospital with no symptoms, and yet have a return of symptoms later; the suggestive therapy associated with the operation, combined with rest, appropriate diet and hospital care, having led to a temporary complete disappearance of symptoms irrespective of the operative procedure.

On the other hand, it must not be forgotten in this connection that, if the ulcer is very superficial, in other words is a real mucous ulcer or erosion, often it cannot be felt by the surgeon by palpation of the peritoneal surface, and, unless the stomach is opened, will not be recognized; and the latter procedure—opening the stomach—is hardly justifiable unless the case has been peculiarly intractable, or frequent hemorrhages have occurred, or pylorospasm with partial obstruction is a striking part of the picture.

As regards the symptoms in detail, pain is often absent, sometimes atypical; but it is, of course, a valuable symptom, its relation to meals, its disappearance with the addition of food, often being extremely significant. Periodicity of the attacks is, to our mind, the one most valuable clinical symptom, peculiarly likely to occur in spring and fall, peculiarly unlikely to occur in summer—diagnostic points on which Moynihan lays special stress, and so beautifully brought out by Cohnheim's analysis of a large group of cases. In all cases diagnosis must be made by a complex of findings: vomiting, hemorrhage, effect on the appetite, sensitiveness to pressure or to percussion, dorsal pain points, the finding of evidences of hyperacidity or hypersecretion notably, of course, in the fasting stomach, the finding in the fasting stomach test of microscopic or macroscopic evidence of pyloric obstruction, the finding of occult blood in the stools, most important if the test is carried out with rigorous exactness, and findings from roentgen-ray examination.

As regards hypersecretion, a few believe that hypersecretion always represents a potential ulcer; a view, we believe, that is not sound. We must not forget that ulcer, especially of the duodenum, is not at all uncommon in children; that juxtapyloric and duodenal ulcers may all have practically the same symptoms and are much more common in man; and that ulcers of the lesser curvature are more frequent in women, have a much less clean-cut symptomatology and are much more likely to heal spontaneously.

It is well to remember that, while practically none of the roentgen-ray signs are absolutely diagnostic, no examination is complete without a careful fluoroscopic and roentgenographic study; but the clinician is very unwise who puts his main reliance on this in reaching a diagnosis. Roentgen-ray diagnosis, except in the hands of a very small group of real experts, is a frail reed to lean on as the sole diagnostic support. We must not forget that filling defects, besides being due to definite organic lesion of the stomach wall, may represent anatomic peculiarities; may be an evidence of spasticity, peculiarly likely to be met with in the so-called vagotonic group, or may be due to posture or to pressure, and are peculiarly likely to be met with in association with adhesions or as a reflex phenomena from disease elsewhere, notably the appendix. When the roentgen ray can make a definite diagnosis, in many cases, probably in most, such a diagnosis could have been reached by other methods. It is needless here to insist that frequent roentgenographic studies are important, and that one should not depend on one examination alone. A persistent break in continuity in such examinations, or disturbance in the peristaltic wave often corresponding to the site of the pain on deep pressure is, of course, of extreme value; while modification in the peristaltic rhythm, and alternation of phases of fatigue and phases of hyperactivity are always suspicious. In a series of 247 cases, previously studied by a most competent roentgenologist in which the diagnoses were verified by operation, Quervain found that a correct diagnosis was reached by the roentgen ray in 87 per cent. of the gastric ulcers, but in only 54 per cent. of the duodenal ulcers.

In regard to the value of the occult blood test, it is well to remember that the benzidin test is far more satisfactory than the guaiac, but that certain of the substances used in the treatment of ulcer, notably bismuth salts, and various absorptive mediums, can inhibit the catalytic action, and we will have a negative finding, notwithstanding the fact that bleeding still takes place. With the utilization of all these signs and symptoms, with especial attention to a careful history of the case (and to me this is the one most important individual factor), especially the symptoms in the early phase before the picture has been blurred by late changes, such as increasing induration and adhesion development; with the thorough roentgen-ray study, and the careful study of the stool for occult blood and the gastric contents for both secretory and motor abnormalities; and with a thorough general physical examination, unquestionably we have done all that can be done in diagnosis in this field.

That it is not completely satisfactory, however, is shown by the large number of incorrect diagnoses as demonstrated by the subsequent history of the case or by surgical treatment; diseases of the gallbladder, renal crises or ureteral calculus, appendicitis, carcinoma, conditions caused by various forms of intestinal parasites, various neuroses, visceroptosis, the gastric crises of tabes, epigastric hernia, all of these present symptoms which in certain cases can make a real differential diagnosis almost impossible.

TREATMENT

I have obviously far too little time to go into many of the details of treatment, medical and surgical, and therefore will call attention only to certain impressions, convictions, if you will, which I have reached from my experience in this field. In the first place, it is singularly unfortunate that there has always existed and that there still exists the feeling that we must commit ourselves in all, or almost all cases of ulcer, to an exclusively medical or an exclusively surgical form of therapy—a point of view which is peculiarly unfortunate and absolutely false, because, in order that the treatment of these cases may be successful, each case must be studied individually, attacked as a definite entity, and treated accordingly, with utilization of every therapeutic measure at our command, including, of course, surgery, in a very considerable proportion of cases.

In a disease of such varied etiology there must be a varied therapy, and the proper utilization of that therapy must be fitted to the case under study, be it regulation of life, dietetic suggestions, the use of drugs, the application of various forms of physical therapy or the utilization of one of the various surgical procedures, and must of necessity be determined in each case individually. To hold a brief for any special therapeutic procedure, be it the employment of a rigorous scheme of diet, or a certain drug, or a small bucket on the end of a rubber tube, or a special operative method, is unscientific and unsound and unsafe. Each case must be regarded individually; each case has its special features in etiology and symptomatology, and in each case these must be carefully considered in planning the appropriate treatment.

Let us briefly touch on some of the points of importance in the treatment of these cases as I have seen them.

As regards planning the special treatment, I have to reiterate that I have been helped considerably by careful analysis of the patient's history, the attempt to elucidate factors which seem to play a part in calling forth the syndrome and to combine this with a most complete general physical examination in order to determine other factors of equal importance; the presence or absence of focal infection, the condition of the circulatory apparatus and of the nervous system, and the presence or absence of psychic factors in the case; in other words, the attempt to get every possible help from the history, from the physical examination, and from special tests before attacking the special problem of the individual patient.

If it seems wise to attack the problem first without surgical help our main reliance must be on rest and diet. Rest does not necessarily mean rest in bed, although in most cases such an absolute rest is important; but most people forget that the rest of the mind and of the nervous system is of as great, and sometimes greater, importance than mere bodily rest, as disturbance in the psychic sphere may produce far more marked secretory and motor disturbances than even active exercise. On the other hand, if bleeding is not taking place and the symptoms are relatively mild, very often for various reasons an ambulatory treatment will be more successful than absolute rest. If the symptoms are acute, if bleeding is present, rest is essential, and it is our most valuable therapeutic aid. In these cases, whether it is for two weeks, four weeks or six weeks must depend on the individual conditions; but, unless we can promote psychic rest at the same time, our efforts sometimes go for naught.

The principles of diet are relatively simple. From the days of Leube and Ziemssen, it has been recognized that diet must be nonirritating, must furnish a sufficient number of calories, must call forth as little as possible gastric secretion, and yet must neutralize as much acid as possible. It is, therefore, quite obvious that certain diets will better satisfy certain of these requirements; other diets, other requirements. If the patient is strong, or if bleeding is marked, a few days of absolute starvation with a rectal drip to relieve thirst and to lessen acidosis is advisable. Again, in robust patients, we can give diets of lower caloric value than in those that are depleted, and quite obviously need building up. Whether we choose a cereal-carbohydrate diet, a milk diet, an olive oil-gelatin diet, a pure diet or a mixture of soft foods must depend on the individual patient. Some do well with one; some do well with all. The proportion of cures, if one can judge by statistics, seems to be about the same with any of the special diets; but I wish to reiterate: do not confine yourself to one special dietetic scheme; try to suit the individual findings and the individual tastes of your patient. It is far better to satisfy a patient with cereals than to disgust him with an exclusive milk-cream diet, and vice versa, while often a combination of both is better than either.

Whether to feed at one hour or two hours or at even longer intervals is again a question which must be decided in each case. The important thing is to prescribe the diet which will bring the best results in the quickest time, and then not forget that the treatment must not end with the cure, but that the patient must follow careful dietetic directions, the diet, of course, being in most cases a relatively broad one, yet always within the limit of his capabilities, for a long period of time, sometimes for a year or more, sometimes, in the chronic cases, practically indefinitely.

If the patient does not respond to rest, simple drugs and diet, and local applications of heat or cold, whichever seems the most effective, within ten days' or two weeks' time, especially in cases which have had a long history, it is always wise to ask ourselves the questions, Is the diagnosis of ulcer correct? and, If it is correct, are we not also dealing with definite complications, such as marked induration and cicatrization and development of adhesions? Whether we use alkalis or not is again largely a question of individual feeling. Most patients get along better with them, and recent work seems to show that if properly administered they not only neutralize the acid formed, but distinctly inhibit acid secretion. On the other hand, there are certain cases in which alkalis, especially the carbonates, do unquestionable harm. Again, in regard to belladonna; if we have evidence that one, at least, of the factors in the ulcer picture is an irritable vegetative nervous system, with unstable balance between vagus and sympathetic, it is the most valuable drug we have, but only if given in maximal doses.

With the foregoing treatment, we can really cure a large number of acute cases; we can definitely relieve the symptoms in many of the chronic cases; and if the patient is conscientious in carrying on the proper after-treatment, may have a symptomatic cure; but we must always realize that the mere cessation of symptoms does not necessarily mean cure, and until we are able definitely to attack the causal factors, we cannot honestly say we have cured the chronic cases. An ulcer scar, if deep, is a point of least resistance, which may produce no symptoms under ideal conditions, but may play a very potent rôle in disturbing motor and secretory functions if these ideal conditions—psychic, dietetic, physical—are interfered with; and in life, alas! as it is lived now, it is practically impossible to avoid this. As long as an indurated area or a callous scar remains, we have the potential basis for further trouble; and this is, and must be, an important reason for the surgical attack on this group of cases.

It is, of course, obvious that in perforation or gross obstruction which represents organic stricture, and not spasm or edema, or the tendency to repeated hemorrhage, or malignant change, surgery is the only rational procedure; and it seems to me just as obvious that for the acute superficial ulcer, medical treatment is the only procedure to be considered. But in that large group of cases of chronic ulcer without obstruction, without repeated extensive hemorrhage, we must always realize that, up to the present at least, neither method of treatment has been sufficiently successful to warrant the exclusion of the other. Of course, if you believe with some that every ulcer is a potential carcinoma, operative treatment is the only treatment; but I think this belief is not well founded. It seems to me that it is very safe to preach the doctrine that, in these chronic cases without need for immediate surgery, it is far safer to try medical treatment first. Little time is lost and no harm is done; the second state of the patient is no worse than the first; and it is possible that a symptomatic cure may be obtained. But if such treatment conscientiously applied, skilfully given, with a sufficient period of time to test its efficacy, does not yield results, I feel that the patient, even in the present status of surgery, should be treated surgically and not medically. Before making this decision, however, it is wise to try every one of the factors mentioned above to see whether good results can be obtained. Improving the general condition is one of the most potent of these factors, and nothing demonstrated more strikingly the importance of systematic exercise and freedom from responsibility than the marked improvement met with in many cases of absolutely definite ulcer among men who were in active service during the war.

In treating the complications of ulcer, I feel that the treatment of extensive hemorrhage should always be medical; that the appearance of tetany after the preliminary treatment with calcium acetate or ammonium chlorid given intravenously should call attention to the need of immediate surgery to relieve the obstruction; and that the only justification for duodenal feeding is vomiting which cannot be controlled by other means.

In discussing treatment by surgical means, we must always compare the severity of the symptoms, their frequency, their alleviation, if not cure, by medical means, and the effect of the patient's symptoms on his happiness and his work, with the probable results of surgical treatment. After all, only two forms of benign gastric disease have a vital indication for operation: almost complete pyloric stenosis and frequently recurring hemorrhage; in all other cases the need of operation is relative, not absolute.

That surgery has not been universally successful in many of these cases is shown by the shift of surgical opinion as to the operation of choice; gastro-enterostomy, pyloroplasty, cauterization or excision, resection, Polya operation; all of these having their adherents. At the present time, not one of these operations will bring about a condition approximating the normal; each is liable to development of certain postoperative complications: jejunal ulcer, vicious circle, recrudescence of ulcer symptoms, intestinal indigestion after gastro-enterostomies, and the possibility of obstruction or of the formation of adhesions to a greater or less extent in all the other cases, as witness the many patients returning for a second or even a third operation. In this field, the technical difficulties of many of these operations are great, notably in pyloroplasty, although, if properly performed, I believe it is the best operation. Each operation will leave behind something abnormal in the stomach or duodenum which, given other factors of disturbance in gastro-intestinal mechanism, may lead to definite reflex disturbance in the secretory and the motor spheres or in the metabolic gradient, if you will.

Certainly, it is well to remember all of these factors before committing the patient to surgical therapy; and yet, in my experience, in the chronic group of cases, even without obstruction, surgery has been more effective and more permanent in its results in the majority of cases than medical treatment, notably in cases in which pyloroplasty, resection or the Polya operation has been done. To me, gastro-enterostomy has always seemed peculiarly unphysiologic; I have rarely seen cases, except those of almost complete pyloric obstruction, in which it has been absolutely successful; and gastro-enterostomy has never seemed to me the operation of choice, but the operation of necessity.

It is hardly worth while reiterating here the fundamental importance of careful postoperative treatment in order to prevent the formation of adhesions, the development of a new ulcer, or the recrudescence of the ulcer which we have not been able to remove. The avoidance of gastric and intestinal symptoms must be dependent on careful postoperative management, and this, I feel, can be far better directed by the clinician than by the surgeon. Many potential successes have been converted into absolute or complete failures by the lack of this cooperation in the after-care of surgically treated cases, and there is no condition in which an ulcer cure is more plainly indicated than after surgical removal of the ulcer. It seems to me that it is a very poor clinician who will refuse the help of the surgeon in this group of chronic cases, and an equally poor surgeon who will not utilize the clinician's knowledge of dietetics and physical and drug therapy.

It is interesting to note that practically the same percentage of cures is claimed by the followers of each special scheme of diet as by the followers of special surgical procedures. Each must be deluded as to these figures. Certainly from 75 to 90 per cent. of ulcers are not really cured in the true sense of that word by either medical or surgical procedures. Our clinics and consulting rooms are filled with patients suffering from recurring symptoms after medical treatment, and with patients that return with the same or different symptoms after surgical therapy.

SUMMARY

We have tried to show certain of the difficulties inherent in this subject, especially as regards treatment, but also as regards etiology, symptomatology and diagnosis. Certainly, any one who approaches this subject with an unbiased mind cannot help feeling more dissatisfied than satisfied at the picture presented; but there are, I feel equally sure, certain conclusions that we are justified in drawing from this survey, based on proved facts in etiology, symptomatology and diagnosis, on the experience founded on the careful study of many hundreds of such cases over long periods of time and on the many lessons learned from our successes, and especially from our failures, always remembering that, with such a probable multiplicity of etiologic factors, there cannot be one, and only one, successful mode of treatment. Relative rest, a nonirritating but ample diet, the utilization of certain simple principles as to physical therapy and simple medication, with the subsequent inculcation in the patient of proper habits of living, not only as regards diet but also as regards the proper attitude toward his environment; these are the fundamentals of medical therapy, in addition, of course, to the elimination of factors that may play a large etiologic rôle, notably focal infection and diseased conditions in other portions of the abdomen.

Individualize your cases; do not treat all cases alike; remember that what is one man's meat is another man's poison. Some will do well on milk and cream, others on a diet rich in carbohydrate, but relatively poor in protein. In some hourly feedings are beneficial; in others longer intervals bring better results. Never fail to remember that practically the same estimated proportion of cures—all, incidently, far too high in my opinion, because of the improbability of correct diagnosis in certain cases and the impossibility of thoroughly following up many cases—have been reported by the violent partisans of each special dietetic schema; which should suggest to us that frequent feeding with any suitable nonirritating diet is the great desideratum, if the patient is given, in addition, proper bodily and mental rest. Remember that many cases are cured spontaneously, and will be cured whatever the diet, and also, alas! many others are not cured by any of the diets chosen. Never forget the important contributory rôle that psychogenic and neurogenic factors play in some cases, unquestionably a larger rôle than mechanical irritation of food, and that the mitigation and diminution of these factors will do more than any one thing in bringing about a symptomatic cure at least or in preventing a relapse, and never forget that far too little attention has been paid in the period of after cure to exercise and other forms of physical therapy to improve the nutrition of the patient.

It seems wise that all acute ulcers, except, of course, those with symptoms of perforation, be tried first with medical treatment; for the success of such treatment in this group of cases is large, and it seems wise also that, in the present state of surgical therapy, even in the chronic ulcers, except those with marked organic obstruction or with a history of repeated hemorrhage, nonsurgical treatment be tried first, not because we can produce a true cure, because in the case of the deep callous ulcer with induration and cicatrization, cure, in the true sense of the word, cannot be obtained by medical means, though often we can bring about a disappearance of symptoms and a symptomatic cure; but because it seems fairer to the patient than immediate recourse to surgery, with its multiple possibilities of early and late postoperative complications.

If, on the other hand, medical treatment does not bring about relief, it is foolish not to give the patient the possible benefit of surgical therapy, with resection of the ulcer, and as close an approximation to the normal physiology as possible, in the hope that adhesion formation and disturbance of gastric function will be reduced to a minimum after the operation. After all, chronic callous ulcer is fundamentally surgical, and would always be surgically treated were it not for these many postoperative complicating possibilities. It is well to remember that many failures are not referable to the operation as it is conceived, but as it is performed; for the technical difficulties of this work are great, and the really capable surgeons in this sphere none too numerous.

There are, of course, certain encouraging aspects of this subject. Even if we do not know the fundamental cause of ulcer (if there is such a cause), we have, at least, added largely to our knowledge of certain contributory etiologic factors. The many spontaneous cures as shown by pathologic reports; the number of cases of undoubted recovery under medical treatment; the definite realization that certain of these conditions never, in the strict sense of the word, become chronic, that is, the lesions do not become indurated, but remain superficial; the prolonged periods of perfect health between the periodic outburst of symptoms in many cases of duodenal ulcer; the great improvement in surgical technic, with its minimization of avoidable complications; the addition of operations which attempt a closer approximation to the normal physiology, and certain additions to our diagnostic methods, notably the study of the stool and roentgenologic studies; all of these show beyond question that there has been some progress in this field.

On the other hand, when we think of the investigators who have struggled, in the main unsuccessfully, to clear up the fundamental question of etiology in this group of diseases: Virchow, Rokitansky, Cohneim, Pavy, Ziemssen and literally hundreds of others; when we think of the ever present difficulty of making a correct diagnosis and the many moot points in symptomatology; and when we remember the great number of complete and partial failures after treatment both medical and surgical, we must, I believe, have a feeling of dissatisfaction rather than of satisfaction at the present state of this subject. The unsolved problem is still the problem of many years ago: Why does not the spontaneous ulcer of man heal as rapidly as the experimental ulcer of animals, and why does it show such a tendency to the progressive changes that lead to chronicity? We are still unable to answer to our complete satisfaction the two questions: Why is an ulcer? and When is an ulcer? Could there be a more discouraging admission as to our dissatisfaction with the present status of ulcer therapy than Moynihan's recent suggestion of jejunostomy with subsequent complete rest of the stomach for many months in certain cases except perhaps it be for the apparent demand for these periodic and inconclusive symposiums?

We are still waiting for a Moses to lead us out of the wilderness, for some one to show us at last what the fundamental underlying factors are so that we can utilize that best of all therapeutic measures, preventive therapy; but, until such a promised land is reached, we must of necessity be compelled to utilize the means at present at our command. For these measures to give the optimum result, we must realize that the blind following of any one method of therapy can never spell progress; that the patient must be the first consideration; that each case must be studied and treated individually; that, in the treatment, that form of therapy must be employed which is best suited to his special needs and this can only be brought about by a far closer cooperation between clinician and surgeon in the study as well as in the treatment of these cases; and that, as a result of this cooperation, which will redound not only to the benefit of the patient but also to the benefit of surgeon and physician, we shall no longer talk of medicine *versus* surgery, but medicine *and* surgery in the treatment of gastric and duodenal ulcer.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BEVAN, SIPPY AND BROWN

Dr. J. M. T. Finney, Baltimore: The subject has been covered so well by these papers that I find myself at a loss in attempting to discuss them. About all I can do is simply to emphasize a few of the more important points. In discussing the management of gastric ulcer, it must be admitted that the prevailing feeling is one of dissatisfaction, with both the medical and the surgical treatment. We are still short of saving 100 per cent. of cases, and the goal is 100 per cent. The reason is the lack of certain knowledge as to the etiology of ulcer and our lack of ability to make a diagnosis of ulcer with any degree of certainty. Even with the aid of my skilled medical colleagues, I find myself sometimes unable to make a definite diagnosis of ulcer, either duodenal or gastric. Furthermore, sometimes I find myself very much embarrassed when I have the stomach right before me to tell whether there is an ulcer. Even when I have opened the stomach in the course of a pyloroplasty, I find myself still more embarrassed to tell whether there is an ulcer—with the mucosa right before me. I heard Dr. Pool say that in case of doubt he did a gastro-enterostomy to see whether there was an ulcer or not. That encouraged me greatly. The prevailing method of treatment in the vast majority of cases of ulcer has been gastro-enterostomy, so that many surgeons invariably think of gastric and duodenal ulcer and gastro-enterostomy almost synchronously. That is one of the greatest reasons for this feeling of dissatisfaction that exists today with the treatment of gastric or duodenal ulcer. We have been generalizing too much on insufficient data. We have been operating without really sufficiently definite indications for operation. I would urge that we endeavor to unravel the mystery which exists in regard to the etiology, and to establish a satisfactory treatment, whether medical or surgical, or both, of gastric and duodenal ulcer. I have tried every accepted method of surgical treatment and I am still dissatisfied with the results. I have felt that the best thing to do is to extirpate the ulcer. I have tried the excision method advocated by Moynihan, with really satisfactory results; but that is a big operation, an operation that seemed almost too extensive to be performed as a routine procedure. I have satisfied myself that gastro-enterostomy per se offers no guarantee of a cure of the ulcer. I have done simple pyloroplasty by my own method and by other methods, and I have satisfied myself that pyloroplasty by itself offers no sure guarantee of a cure of ulcer. Therefore, I now try to excise the ulcer through a pyloroplasty excision suggested by me about twenty years ago. So far I have not had enough cases to convince myself that there is enough merit in that operation to advocate it. So far there has not occurred a death or a recurrence. My experience up to the present time convinces me that in the vast majority of cases it is feasible to excise an ulcer situated within 2 inches (5 cm.) of the pylorus, on either side, through a pyloroplasty incision, with comparative ease and with great satisfaction to the patient. I do not advocate that operation, but I believe it offers something for us to think about. My experience convinces me that when we can devise a method which will allow us to mobilize those parts sufficiently, the proper solution of this question will have been reached.

Dr. Franklin W. White, Boston: The opinions of medical and surgical advocates on this subject are getting closer and closer together, and we find that, whatever differences of opinion there have been in the past, they were largely due to the different types of case seen by the physician and by the surgeon. Virtually every ulcer is first treated medically, and out of this big group is selected a small group of more serious, resistant, complicated cases, with stenosis or recurrent hemorrhage, which go to the surgeon. The treatment of ulcer is not medical or surgical, but a combined treatment, one method being employed as far as available, and followed with the other method. We get good, permanent results with real medical treatment in a large percentage of cases, Dr. Bevan said about 90 per cent., which leaves only 10 per cent. for the surgeon. This shows the heavy medical responsibility of the family physician and the internist for the treatment of most of the ulcers. Dr. Mayo's argument for the saving of expense and loss of time to the wage earner by surgical treatment is not a very strong one. Medical treatment is ambulatory, as a rule. Only a small group of the more seriously ill patients need a rest in bed for a week or two at the start, so that there is little economic loss in medical treatment, unless there is a recurrence. Recurrence is preventable, as a rule, or easily controlled, in the uncomplicated cases. The essential difficulty in medical treatment is not the early control of symptoms, such as pain, vomiting and bleeding, but the carrying out of the regimen when the patient is symptom free. Failure to do this has discredited medical treatment; and it has been a frequent cause of recurrence and failure of the ulcer to heal. It is a matter of patience to heal a chronic ulcer; it takes time. This should be explained to the patient in advance, so that he will understand what is expected of him. If recurrence can be avoided, medical treatment is the method of choice in uncomplicated cases. The patient must always make some sacrifice in taking either treatment: on the one hand, the sacrifice of a month or two for surgery and convalescence, the time in the hospital, the cost and moderate risk; on the other hand, with medical treatment, the moderate sacrifice of tastes and habits, but for a much longer time: the observance of better hygiene; giving up tobacco, and coarse foods, and overcoming bad habits of eating. The change of diet is not for a lifetime, but for a year. Most patients with uncomplicated ulcer, the 90 per cent. group, prefer medical treatment, but naturally in the serious cases, the 10 per cent. group, the patients, when the situation is fairly put to them, usually prefer surgery. Another point is the importance of medical treatment for quite a long period after the operation. The patient, and often the surgeon also, will probably feel that after the operation he is good as new; and he begins to boast about what he can eat. As a matter of fact, there is a real necessity for some care in diet for months afterward. The best results are obtained by the hearty cooperation of physician and surgeon.

Dr. Walter C. Alvarez, San Francisco: Whenever one of my surgical or medical friends says to me that he can cure all cases of ulcer, I like to tell a little story of St. Peter and St. Paul. They were sent to earth to make a little report. Lunch time arrived and they went into a café to eat. When the time to pay came Paul said, "I will pay," and Peter said, "Oh, no, I will pay." As they could not agree, the waiter brought a little box with dice. Peter shook the dice and said a few words and rolled out five sixes. Paul shook them and said a few words and rolled out five sevens and Peter said, "Now Paul, no miracles between friends." Although I am a clinician, I must admit that I have more faith in the surgical than in the medical treatment of ulcer. It is easy enough to cure many of these patients medically, but the trouble is, they will not stay cured. The tendency to relapse is too strong. I believe that people seen in the first one or two attacks should be given the chance to try a medical "cure," unless they present certain features, such as marked gastric stasis, tendency to perforation, or a suspicion of carcinoma, which make them fitter subjects for surgical attention. But, what are we to do with the many patients who cannot afford a strenuous and expensive "cure" in a hospital, especially when there is a big chance that the ulcer will return in six months or a year? Let me offer a suggestion from my experience. Years ago, I thought an ulcer cure without rest in bed did not amount to much, but I have since discovered, to my surprise, that I can get as good results in ambulant cases as I used to get in the hospital. The best cases for medical treatment are those with fairly recent duodenal ulcers. Their main symptom is pain, relieved by the taking of food. Insist on their taking some food every two hours, and in uncomplicated cases you will give immediate and striking relief. A man who is up and at work needs a liberal diet, so let him have three square meals. Forbid him the coarser vegetables, salads, fruits, bran and all foods with pits, seeds and skins. In the morning, have him mix up a pint and a half of milk, a half pint of cream and the yolks of four eggs. Some of this eggnog should be taken to the office in a vacuum bottle so that he can take a glassful every two hours between meals. Some should be taken also on retiring, and a glassful should be beside the bed in case he wakens during the night. Many of these people fatten on this diet and feel fine. Those who are not helped will generally do better in the hands of a good surgeon. Others are perfectly comfortable so long as they stay on the diet, but develop symptoms again when they stop. They also may have to be subjected to operation. Remember, that the essential thing is the giving of food so soon after each meal that the hunger pains cannot develop.

Dr. Albert J. Ochsner, Chicago: My observations have had very much the same scope as those of Dr. Bevan and Dr. Sippy. In other words, my clientele represents a group of people who are likely to consult me when they have some disease from which they have not recovered under the treatment of their local advisers. I have had the opportunity of observing thousands of gastric and duodenal ulcers, both from the medical and from the surgical standpoint. When I looked up my series last, it had far exceeded a thousand cases that I have treated surgically; and I have found that there are at least four patients that will recover permanently, under proper internal treatment, to every one that requires surgical treatment. I have had the opportunity to see the late results in the cases observed, because I am constantly in contact with the same group of people. The papers presented this morning outline the best possible medical and surgical treatment of gastric and duodenal ulcer. What Dr. Bevan and Dr. Sippy said covers general practice. What the Mayos have said gives the very best of surgical practice in cases that have failed after going the limit of medical treatment. Almost all of the failures in treatment of the internist ultimately come to the surgeon. If the surgeon is not in contact with patients who are being successfully treated by the internist, he comes in contact only with those patients who have been cured five or six times medically and at last have to be cured by surgical operation. He does not come constantly in contact with the four patients out of five that have permanently recovered under the Sippy treatment, or that which Dr. Alvarez has just described. Virtually every case in which the surgeon has failed to obtain a cure is bound to come to the internist. Consequently, he has no judgment about the large proportion of cases that have satisfactory results from surgical treatment. The reason that certain persons have such extraordinary results under medical treatment is that the patient will do what his physician instructs him to do. Recurrences are prevented in a large percentage of cases. I have found, in watching these cases of recurrent ulcer that had been treated medically, that in every instance something has happened which stirred up a latent ulcer, which would not have been stirred up if the primary directions had been carried out. We know from experimental observations in animals that it is almost impossible to keep a gastric or duodenal ulcer open. No matter what you try to do, almost all of them will heal. Why should they not heal under similar conditions in the human? Take a dog and cause a gastric ulcer in his stomach, and try to feed him bones. He will not eat them. He has too much sense; humans have not. Postoperative jejunal ulcer has been mentioned a number of times this morning. In every case in which I have operated on a jejunal ulcer following a gastro-enterostomy, I have found that the anastomosis was not made at the lowest point of the stomach, usually through some mistake. The surgeon tries always to get the lowest point, but for some reason he may fail to get it. If the anastomosis is made too high, there will be an accumulation of acid or of decomposing gastric contents, which corresponds to the condition which produced the duodenal ulcer in the first place. We should also remember that, following any form of surgical treatment for gastric or duodenal ulcer, we have a badly impaired machine. Consequently, if you abuse that machine dietetically after the operation, you are bound to have trouble. It is as important to insist on a proper diet after surgical treatment as it is during medical treatment.

Dr. Frank Smithies, Chicago: The chief satisfaction that has come out of this discussion is a general admission of the fact that we have not advanced very far, either nonsurgically or surgically, toward the permanent relief of certain types of ulcer of the stomach and duodenum. Virtually everything that has been talked over this morning, with the exception of certain frills in surgical technic, was discussed by the ancients, and they expressed in almost precisely the same language as has been used here this morning their puzzlement respecting the etiology of peptic ulcer, and admitted that they were defeated in attempts toward securing permanent relief from certain types of ulcer. The time has come for a revaluation of certain known factors in the causation, the continuance and the healing of peptic ulcer. From these discussions, the knowledge derived from the experimental production of ulcer and from the results of treatment of patients carefully followed up, certain significant facts are revealed. Among these I would mention the fact that all types of treatment have had the same influence toward the permanent relief or cure of proved peptic ulcer. The ulcer that we cure readily by nonsurgical treatment is usually the ulcer about whose existence we have been in doubt. The ulcer that we cure most permanently by surgical treatment is the ulcer that is most complicated. In other words, the treatment in both instances has been directed toward what might be called the complications of a certain type of disease, which disease has certain gastric manifestations both symptomatically and pathologically. It would appear to me that the time has come for us to recognize that very likely with peptic ulcer, either gastric or duodenal, we are not dealing with a disease in the stomach or duodenum *sui generis,* but with a type of complication of systemic disease in which disease the stomach or duodenum has become involved. Such disease may be initiated by a wide variety of systemic upsets. It thus follows that numerous etiologic factors can be brought forward in ulcer; that there are different types of pathology associated with it and there is a wide variation in reports regarding the results of treatment. So general is the dissatisfaction throughout the country as to the results of ulcer treatment that it almost becomes the duty of these combined sections to appoint a committee to study into this question. It occurs to me from study of the so-called etiologic factors in ulcer that we are not going to make any permanent therapeutic advance until we recognize that what we are now doing in the treatment of ulcer is merely treating a local gastric complication and not a disease which is systemic in type, and which may be initiated by a wide variety of agents.

Dr. Robert C. Coffey, Portland, Ore.: Too much pessimism has been shown here. No condition responds to treatment more readily and more accurately than duodenal and gastric ulcer. Dr. Sippy has developed the best and most rational system for treating a given lesion medically. I believe that Dr. Sippy has given us the best conception of the agencies required for treatment, either medical or surgical. I wish I could be as positive and agree with Dr. Bevan. If I were in the Presbyterian Hospital and had the association of Dr. Sippy I am sure I would have the same opinion he has. The great majority of medical men who claim to be using the Sippy treatment do not get the results. On the other hand, if the only surgeon available were the one who has the fatalities, I would want medical treatment. But, if I could go to the best surgeons, that would be a different story. I believe with Dr. Sippy that it is a medical disease primarily, a bacterial disease perpetuated by chemical agencics, and that the treatment should be primarily chemical. I do not believe in the radical operation. The results were better in my early cases of gastric and duodenal ulcer in which I did not excise the ulcer than where I excised it. Of course, if you suspect that a gastric ulcer is going to be malignant, or if it has a large crater which cannot be collapsed in any way, operation is indicated. The whole question of dealing with these cases is that we must perfect our technic no matter whether we treat medically or surgically. We should give the medical men the first chance. If they are competent they will get a good percentage of cures. In my last 119 cases, there has been one death after gastro-enterostomy alone. That is not a mortality which should bother us. It is no greater than that with medical treatment. The majority of cases will be better treated by that method. My plan is to do a gastro-enterostomy and then await results. Excision should be very carefully guarded and watched. I believe, too, that the complete removal of the pylorus is better treatment because the other does not cure the ulcer. Pylorectomy as done now is undoubtedly a better plan of treatment.

Dr. Seale Harris, Birmingham, Ala.: Dr. Alvarez brought the Bible into this discussion, and I think I can quote a passage from the Bible which fits most of the patients with gastric and duodenal ulcer. It is about the woman whom Christ healed at the well, who "had suffered many things at the hands of many physicians until she had spent all of her substance and she was neither better, but rather grew worse." I think that most of the ulcer patients who come to us have gone through that period. The reports of the Mayos a few years ago stated that the average length of time that their ulcer patients had had symptoms was more than nine years. A report of 1,000 cases studied by Finney and Friedenwald showed that their patients had symptoms probably due to ulcer for ten years. In a study of 500 of my cases I estimated that they had had ulcer symptoms for five years. The most important problem in handling ulcer patients is to make an early diagnosis, and that depends to a great extent on the diagnostic skill of the gastro-enterologist or the physician, and also on his interest in the subject. I had an experience during the World War that illustrated this pronouncedly. We were supposed to have a gastro-enterologist assigned to each of the army hospitals. In inspecting these hospitals I went first to the hospital at Camp Devens. There a gastro-enterologist was placed in the ward and he had about fifteen cases of gastric ulcer, which were proved by roentgen ray and occult blood in the stool and other symptoms and signs. I then went to Camp Dix, where the gastro-enterologist had been assigned to drill physicians to teach them to be soldiers. There was only one ulcer case in the 40,000 soldiers there. I went to Camp Green, and there the gastro-enterologist had about twenty cases of ulcer in the hospital. There were very few cases of ulcer operation in soldiers during the World War. Textbooks will have to be rewritten before many cases of gastric and duodenal ulcer diagnosis will be made early. The triad of symptoms, pain, vomiting and hemorrhage, is usually considered pathognomonic in ulcer. They are all late symptoms, usually, not always. In my series of cases less than 10 per cent. of the patients had hemorrhage, and nearly all had symptoms of ulcer over a period of a number of years before the hemorrhage occurred. Pain may never be present in ulcer, as surgeons know who operate in cases of perforation of the stomach in which the patient had no symptoms until the perforation occurred. One diagnostic point I should like to bring out is the syndrome of the so-called chronic appendix. About 50 per cent. of patients with ulcer who come to me have first had an appendectomy with a small incision in the right lower quadrant of the abdomen. The surgeon who operates in a case of chronic appendicitis, so-called, with a small McBurney incision, in an operation of election, not an acute case, and does not extend that incision up to explore the duodenum, the stomach and the gallbladder, is very remiss in his duty to his patient. We shall come nearer approaching the 100 per cent. cures when we make the diagnosis early. Ulcer is first a medical case, and the number of cures depends to a considerable extent on the technic of the physician. The best diet in these cases is my modification of the Lenhartz diet, but we owe a great debt to Dr. Sippy for his effort to alkalize the contents of the stomach in the treatment of ulcer.

DR. J. SHELTON HORSLEY, Richmond, Va.: Dr. Brown has struck the keynote of the whole thing. He says that in the treatment of gastric or duodenal ulcer we must have medicine *and* surgery, not medicine *or* surgery. Almost all acute cases should be treated medically. Postoperative cases, so far as diet is concerned, should be in charge of a medical man, and, after the patients leave the hospital, they should be in charge of a medical man. The object of all surgery should be to extirpate or correct pathologic conditions and to restore physiologic conditions as far as possible. With this in mind, gastric and duodenal ulcers will fall into definite groups: First, simple ulcers in the first inch of the duodenum, or near the pylorus, best treated by pyloroplasty, with excision of the ulcer. I do the pyloroplasty I described in 1919, which consists of incising the duodenum not more than 1 inch from the pylorus, and making an incision into the stomach at least double the incision into the duodenum. The wound is sutured vertically. This pyloroplasty is simple, exposes the pyloric portion of the stomach well, does not require mobilization of the duodenum, and is accompanied by excision of the ulcer. If there is marked destructive stenosis or a large ulcer with extensive leukocytic infiltration, the disease has gone too far for physiologic restoration, and pyloroplasty is not indicated. Gastro-enterostomy then gives the best results. When the ulcers tend to recur or malignancy is suspected, pylorectomy by the Billroth I method, or by the Polya operation, should be done. Pylorectomy should not be a routine primary operation for ulcer, when pyloroplasty or gastro-enterostomy, which are less dangerous, may give as good late results. If there are adhesions of the duodenum, particularly to the gallbladder, that gallbladder should be removed (and the stump should not be drained) at the time of the pyloroplasty. This also extirpates a possible focus of infection. If there are adhesions elsewhere, gastro-enterostomy should be done. As food goes out the normal outlet, tugging on adhesions by peristalsis will produce somewhat the same pain as is produced by the ulcer. In doubtful cases, when it is difficult to decide between pyloroplasty and gastro-enterostomy, the former operation should be done, because it is easier and safer to do a secondary gastro-enterostomy than to uncouple the gastro-enterostomy and also do a pyloroplasty.

DR. ARTHUR DEAN BEVAN, Chicago: I have been interested and instructed. I think, however, that altogether too pessimistic a tone has prevailed. We have made great progress in the last twenty years. Twenty years ago when a man had a duodenal perforation he died almost invariably. Think of the hundreds of lives which have been saved, with perforating duodenal ulcers, in the last twenty years, by the knowledge that we have obtained since that time, the knowledge that enabled us to recognize this clinical picture and to operate immediately and close the leak and save the patient's life. In the last twenty years the medical men have contributed knowledge of great value and have demonstrated their ability to cure these ulcers under medical management. I think that is as definite as that two and two make four. From now on there will be a stronger tendency for all of us to recognize more fully than we have before the value of medical management and the indications of the different surgical procedures that have been evolved. In regard to the operation on the ulcer itself, when the abdomen is opened, one should not forget that probably 20 or 30 per cent. of these ulcers are not palpable even when one sees the stomach and duodenum. The majority of these, however, become tangible when the duodenum and stomach are mobilized; many of them will be plastered to the pancreas. In a good report from the Heidelberg Klinik of 240 resections for duodenal and gastric ulcers it is stated that 30 per cent. could not be seen or felt by the surgeon when he opened the peritoneal cavity; the majority were found only after he had mobilized the stomach and duodenum. We are making progress; we have made progress that is really worth while, and by this sort of combined research between medical men, roentgenologists and surgeons we will place clinical research on the highest plane of all medical work that is being done in medicine.

DR. CHARLES H. MAYO, Rochester, Minn.: I am very glad that Dr. Coffey has discussed this note of pessimism, with regard to the cure of these patients. It would be unfortunate to have a note disseminated, since the majority of these patients are eventually cured either medically or surgically. There is a remarkable difference between hyposensitive and hypersensitive stomachs. Gross ulcers may produce only slight symptoms, and some of the patients who are told they have ulcers are complaining not of spells of remissions and periodic attacks but of constant severe pain, and they strongly urge that some kind of operation be done. Such cases must be investigated carefully. Dr. Sippy is to be congratulated in having done so much to organize medical treatment of ulcer in this country, and it is along the line of his teaching that we have been carrying on the work. Certainly, it would be a crime to subject some of the medical cases to surgery, because of the long time between attacks and the mildness of the attacks. With regard to the patients with achlorhydria and peptic ulcer: It is possible that some of these patients had achlorhydria before they developed ulcer. Others have a small amount of acid, not to exceed 8 or 9 per cent. Such patients are getting the Sippy treatment, but it is not curative. With regard to the medical after-care: A lot of patients, after gastro-enterostomy, need no care at all, but I believe that most of them should be directed to their medical attendant for future care if they need it.

DR. BERTRAM W. SIPPY, Chicago: While it is true that the results of both the medical and the surgical treatment of peptic ulcer as applied today are very far from ideal, we must not lose sight of the fact that sufficient knowledge of the disease and its treatment already exists to combat it successfully in all but the exceedingly exceptional cases. This can be said of relatively few other diseases of serious nature. It is commendable to express dissatisfaction regarding our knowledge of peptic ulcer, but there is scant excuse for the general tendency to fail to make proper use of the very important knowledge already acquired of the disease and its treatment. In the twenty minutes allotted for my paper I attempted to bring out what appears to me to be the important factors influencing the relative value of such medical and surgical treatment as is now available for the relief of patients afflicted with gastric and duodenal ulcer. If the commonly accepted conception of peptic ulcer is correct, namely, that hydrochloric acid and the associated digestive action of the gastric juice constitutes one of the greatest known hindrances to the healing of the clinical type of peptic ulcer that is amenable to medical or surgical control, then it must follow that in the light of existing knowledge the maximum efficiency in the treatment of the unremoved ulcer cannot be attained without the use of alkalis in carefully regulated doses sufficient to neutralize the free hydrochloric acidity as employed in our clinical work.

DR. THOMAS R. BROWN, Baltimore: I think that some persons perhaps misinterpreted some of the points of my paper. The point I wish to make is that the fundamental principle of diet has been frequent feedings with nonirritating diet, the principle which has been prevalent since Leube years ago reported his large series of cases in which he claimed

90 per cent. of cures. The obligation we owe to Dr. Sippy is that he has reiterated the importance of frequent feedings. The great advantage of Sippy's technic is its ease of application; it is fool-proof as diets go, and that is a great advantage. Dr. Coffey said that results were obtained by Sippy that are not obtained elsewhere; that is true, but it is not due primarily to the diet but to the associated psychotherapy, the unconscious individualization. I am perfectly sure that some patients do better on milk and cream than on cereals, and that some do better on cereals than on milk and cream I am not convinced by this discussion as to justifiable optimism concerning the results. When I think that more than twenty years ago exactly the same principle of treatment was insisted on by Leube and others in Germany, when I realize that exactly the same percentage of cures was claimed by them, I do not see how we can honestly say we have made great progress. We do not know the underlying causes, we do not know the fundamental factors. A neuropathic may have hypersecretion all his life and never develop an ulcer. One may have teeth so foul that they are simply breeding places of all kinds of streptococci, and yet have no ulcer. Frankly, we do not know why an ulcer does develop. How can any one be really optimistic when he remembers that Kocher, in reporting his great series of gastro-enterostomies, said that practically every patient was cured, and at the same time Mathieu reported his hundreds of cases similarly headed with not one who had not some symptoms left behind? We have made progress but we honestly owe most of this to the surgeons, and, although I am not a surgeon, I believe the major knowledge has come from our surgical brethren from their correlation of preoperation signs and symptoms with operative findings. I think that every clinician who has made real progress has done so by following up operative cases. We have made progress in surgical technic, tremendous progress; we have made progress along diagnostic lines, notably radiologic, and the realization of the value of periodicity of symptoms in ulcer; but why an ulcer should heal in the autumn and not break out until the spring we do not know. One of the additional reasons for surgical treatment in these chronic conditions is that we, as Americans, do not take kindly to supervision. We are hard to handle, although a person of great personality may keep a patient on a regimen for years. But, after all, we are still waiting for some one, probably not a medical man or a surgeon, but some man experienced in biochemistry and bacteriology, who will tell us why these ulcers develop. Until then, I feel that we shall make a great deal more progress by exhibiting humility for what we have not done, rather than enthusiasm for what we have done.

REPORT OF AN OUTBREAK OF BOTULISM

CHARLES G. BEALL, M.D.
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March 11, 1922, at 1 p. m., a meal was served, at the Lakeside Hospital at Kendallville, Ind., of canned salmon and canned spinach. Within from twelve to twenty-four hours nine persons, all of whom had partaken of this meal, and all of whom had certainly partaken of the spinach, developed typical symptoms of botulinus poisoning, consisting of abdominal cramps, vomiting, diplopia, ptosis, dysphagia and aphonia. All persons who ate some of the spinach developed symptoms. No one in the hospital became ill who had not partaken of the spinach, and there were four or five, though they did eat the salmon. Antibotulinus serum was requested by telegraph from Prof. Robert Graham at the University of Illinois thirty hours after the spinach was eaten. At the same time a similar telegraphic request was sent to Dr. G. W. McCoy, director of the Hygienic Laboratory, Washington, D. C. The first doses were given within forty-nine hours of the time the spinach was eaten.

REPORT OF CASES

Case 1.—Mrs. W., aged 28, on whom colporrhaphy had been performed, March 8, and whose convalescence had been normal, ate spinach, of unknown amount. The symptoms were very similar to those in Case 2, but more severe. At 6 a. m. and 1 p. m., March 12, the patient had respiratory failure, and artificial respiration had to be started. March 12, at 8 p. m., she was totally blind, and there were marked ptosis, dysphagia, complete aphonia, and mydriasis, the edges of the optic disks showed blurring and some hyperemia, she barely moved the jaw, and the tongue could not be protruded. She died, March 12, at 9 p. m.

Case 2.—Mrs. H., aged 35, who had undergone colporrhaphy, March 8, with normal convalescence, had eaten two teaspoonfuls of spinach. March 12, at 1 a. m., she began to complain of dizziness, nausea, vomiting, and griping pains in the abdomen. A few hours later she developed dysphagia, and twice had an almost fatal strangling spell when attempting to drink water. She also had partial aphonia, burning in the epigastrium, and dryness of the throat. Examination, at 8 p. m., revealed masklike expression, marked ptosis, mydriasis, reaction of pupils slightly to the light, partial aphonia, slight conjunctival injection, and cold body. The condition became progressively worse. Treatment consisted of castor oil and enemas, and digitalin hypodermically. March 13, at 2 p. m., 10 c.c. of Type A serum was administered hypodermically. All symptoms progressed rapidly, and the patient died at 7 p. m., March 13.

Case 3.—Mrs. B., aged 62, a cook at Lakeside Hospital, had eaten two sauce dishes of spinach. At 1 a. m., March 12, she developed dizziness, vomiting, griping pains in the abdomen, marked ptosis of the eyelids, amblyopia, diplopia, mydriasis, aphonia, dryness of the mouth, marked restlessness and orthopnia. All these symptoms became progressively worse, and the patient died, March 13, at 2 p. m.

Case 4.—Miss H., aged 35, a nurse, had eaten a sauce dish of spinach. Symptoms began at 5 p. m., March 12, with dizziness, transient amblyopia and diplopia, and abdominal cramps. March 13, the condition became worse, with development of dysphagia, dryness of the throat, speech difficulty and mydriasis. Urinalysis revealed: specific gravity, 1.027; no albumin, and no sugar. March 12, at 2 p. m., 10 c.c. of serum, Type A, was given. March 14, at 4 a. m., the patient swallowed water and talked better; 10 c.c. of serum was given. March 14, at 9:30 a. m., 10 c.c. of Type A serum was given, and at 2 p. m., 10 c.c. In addition, she was given castor oil, digitalin and morphin. The symptoms became progressively worse, and the patient died at 3:30 p. m., March 14.

Case 5.—Miss B., aged 26, a nurse, had eaten a sauce dish of spinach. March 12, at 5 p. m., she developed dizziness, nausea, cramps in the abdomen, amblyopia, diplopia, dysphagia, mydriasis and partial aphonia. Urinalysis revealed: specific gravity, 1.029; no albumin, and no sugar. Castor oil and enemas were given. At 3 p. m., March 13, 10 c.c. of Type A serum was given, and at 10 p. m., 15 c.c. The patient could not swallow, and was barely able to talk. At 4 and at 9:30 a. m., March 14, 10 c.c. of Type A serum was given, and at 11 p. m., 40 c.c. of mixed Type A and B serum. March 15, the symptoms began to improve. The patient left the hospital, March 28, still weak, with slight symptoms of "limber" neck. May 6, she reported that she still had occasional abdominal cramps, and, when tired, the neck muscles became very weak.

Case 6.—Mr. N., aged 50, a patient at Lakeside Hospital, with fractured hip, had eaten a sauce dish full of spinach. March 12, at 5 p. m., he developed symptoms of nausea, vomiting, dizziness, cramps in the bowels, amblyopia, dysphagia, aphonia, dryness of the mouth, and complete ptosis of the left eyelid. Urinalysis revealed: specific gravity, 1.030; no albumin, and no sugar. Castor oil and enemas were given.

March 13, at 2 p. m., 10 c.c. of Type A serum was given; at 10:20 p. m., 15 c.c.; at 4 a. m., March 14, 10 c.c., and at 9:30 a. m., 10 c.c. At 11 p. m., 40 c.c. of mixed Type A and Type B serum was given. March 15, the patient was better. He continued to improve, and was well at the end of a month.

Case 7.—Miss S., aged 26, a nurse at Lakeside Hospital, had eaten a few bites of spinach. March 12, at 5 p. m., dizziness, nausea, vomiting, abdominal cramps, slight amblyopia, transient diplopia, later dryness of the mouth, slight aphonia and mydriasis developed. All these symptoms were more marked the next day. Urinalysis revealed: specific gravity, 1.028; no albumin, and no sugar. March 13, at 2 p. m., 10 c.c. of Type A serum was given; at 10:20 p. m., 15 c.c.; March 14, at 4 a. m., 10 c.c., and at 9 a. m., 10 c.c. At 11 p. m., 40 c.c. of mixed Type A and Type B serum was given. March 15, the symptoms were less severe, and from that date there was a gradual improvement in all the symptoms. April 15, the patient still had slight transient amblyopia, slight dysphagia, and prickly sensations in the arms. May 10, the throat still became quite dry, and the patient was rather weak.

Case 8.—Miss F., aged 30, a nurse, had eaten four teaspoonfuls of spinach. The symptoms began, March 12, at 7 p. m., with dizziness and nausea, later vomiting, no dysphagia, no aphonia and no diplopia. She was given 10 c.c. of Type A serum, March 12, at 9 p. m. Symptoms of dizziness and cramps of the bowels continued for about two weeks. At present the patient is perfectly normal.

Case 9.—Dr. G., aged 48, ate two teaspoonfuls of spinach, at 2 p. m., March 12, and three hours later began to take castor oil, Epsom salt and enemas, because of the symptoms of the other patients. Urinalysis revealed: specific gravity, 1.028; no albumin, and no sugar. March 12, at 8 p. m., 10 c.c. of Type A serum was given. Later, slight symptoms of amblyopia developed, and the patient had cramps in the bowels for about ten days. At present he feels normal, except that he has not quite the usual amount of ambition.

The serum was given subcutaneously. All the patients who lived developed varying degrees of urticaria from seven to ten days after the serum was given. The Type A serum was furnished by Professor Graham, and the polyvalent serum Types A and B was furnished by Dr. J. C. Geiger of the U. S. Public Health Service, who arrived in Kendallville, March 14, with a supply of serum prepared by the New York Board of Health.

ANIMAL EXPERIMENTS

A guinea-pig, March 13, at 4 p. m., was given, by mouth, about 1 dram (4 gm.) of suspected spinach. In the morning the pig seemed "dopy," and could not use the hind legs well. There were violent twitchings and tremblings if forced to walk. A peculiar "croakiness" of the voice was noted. The animal grew rapidly weaker, and convulsive movements were more marked. It died, 10 a. m., March 14. Necropsy revealed engorgement of the blood vessels; congestion of the internal organs, especially the liver and kidneys, and marked congestion of the lungs. The lower bowel was empty. The upper bowel was distended with gas.

A guinea-pig was injected intraperitoneally, March 14, at 10 a. m., with 0.5 c.c. of saline extract of the suspected spinach. Within an hour the guinea-pig had developed the peculiar "croakiness" of voice, but this was the only noticeable symptom up to 6 p. m. of that day. The guinea-pig was found dead at 8 o'clock the next morning. Necropsy revealed congestion of the liver, kidneys and lungs. The lower bowel was empty. The upper bowel was distended with gas.

A guinea-pig injected at the same time with a small amount of saline extract of salmon developed no symptoms.

A guinea-pig injected, March 15, with a mixture of 0.5 c.c. of saline extract of the spinach and 1 c.c. of Type A antibotulinus serum developed a slight "croakiness" of the voice and some diarrhea, but these symptoms wore off in a few days, and the animal seemed as well as usual. Necropsy, March 24, revealed no congestion of the internal organs, but there was engorgement of the blood vessels of the intestines and the abdominal wall. There were numerous adhesions between the intestines, and a portion of the bowel was much distended with gas.

A chicken, fed 1 dram (4 gm.) of the spinach, developed no symptoms.

Dr. Margaret Grant conducted these experiments.

A specimen of the spinach and the salmon had been sent to Dr. Graham, and on March 15 he reported the spinach to contain Type A botulinus toxin. Dr. Geiger also isolated *B. botulinus* from the spinach, of which the minimal lethal dose for mice proved to be something between 0.0001 and 0.00001 c.c.

Two cans of spinach, the last of the hospital supply, had been opened two hours before using. One of the cans looked perfectly normal, the other one showed a very slight amount of bulging at one end. None of the partakers of the spinach noticed anything peculiar about the taste. As soon as the disease was recognized, the supply houses in Kendallville readily agreed to hold all cans from this lot, and Mr. Sweitzer of the Central District of the United States Department of Agriculture then traced and held all cans of this batch. No more known cases have developed.

Clinical Notes, Suggestions, and New Instruments

A CASE OF QUININ POISONING

Charles D. Leach, M.D., Huchow, China

Although cinchonism is of common occurrence, especially in malarial regions, I believe that severe cases of acute poisoning by quinin are not frequently reported. Therefore this case may be of interest.

A boy, aged 3 years and 4 months, found a box containing sugar-coated 2-grain quinin pills, April 15, 1922. He ate a large number, probably not less than twenty or more than a hundred. Finally he bit into one, and came to me for relief. I gave him a dose of castor oil and made him vomit. I did not see any pills in the vomitus, and concluded that probably he did not swallow any, after all. That was about 1 p. m. In less than an hour he complained of severe pain in the general region of the umbilicus. He had a normal bowel movement, after which he vomited until he had emptied his stomach of a hearty meal which he had eaten just before he swallowed the pills. The vomitus contained partly dissolved pills.

The patient was put to bed, but before his clothing could be removed he began to show signs of drowsiness, and there was an irregular shaking of the head from side to side, together with twitching of the muscles of the face. I passed a stomach tube and washed out the stomach. After this procedure he was somewhat cyanotic, but his pulse seemed to be in fair condition. I then gave him a plain water enema followed by a soapstick to stimulate peristalsis and help in the elimination of the quinin. The water returned nearly clear. By that time he had passed into a semicomatose condition. He continued to vomit at intervals of about fifteen minutes during the rest of the day. The intervals gradually increased until midnight, after which time he vomited only once.

About 4 o'clock in the afternoon I gave him a small dose of sodium bromid to combat the cinchonism. The symptoms that I observed were vomiting, stupor, twitching of the muscles around the mouth, combined with slow shaking of his head either from side to side or up and down, occasional spasmodic contraction of the flexor muscles of his limbs, flushed face, and dilated pupils. Owing to the condition of stupor it was difficult to determine to what extent sight and hearing were affected, but he answered his mother when she spoke in a low tone about two hours after the symptoms began. During the night, however, he did not respond when spoken to, or give any sign of either hearing or seeing. Understanding that quinin has a tendency to depress reflex action, I tested him by scratching the sole of his foot. Usually he is very sensitive to the least "tickling" of his feet, but this time I was not able to cause him to move his foot.

As the vomiting ceased during the night, the patient rested more and more quietly, and the latter half of the night he slept very soundly. He awoke soon after daylight, and for the first hour seemed quite confused, but gradually became clearer until the mental condition seemed normal. The sight and hearing also seemed normal, although he made a remark about thunder that made us think that his ears were roaring.

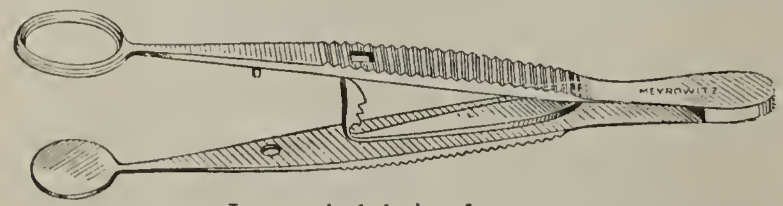
No rash developed after this overdose of quinin, although a year or more previously the patient developed a rash after a therapeutic dose of quinin.

IMPROVED CHALAZION FORCEPS

Samuel W. Green, M.D., Brooklyn

The advantages of this revised instrument are many. It enables the operator to complete a chalazion operation more speedily and safely, and with no resulting postoperative trauma to lids.

The locking device is regulated with three notches to enable the operator to regulate the tension on different lids and also to hold the instrument on the lid, especially if the operator wishes to pick up another instrument and an assistant is not present to hand it to him. It saves the task of eversions of the lid so many times, as was experienced with the older instruments when they slipped from the lessening of tension by the operator's fingers. It will also be noted that the ring is larger than the disk of the instrument. This has been made so as to avoid the strangulation of the lid tissues, which was too often a result from the older instruments because the operator may have handled his instrument a little too firmly to prevent it from slipping. For the same reason the surface of the ring that approximates the disk has been flattened.



Improved chalazion forceps.

All in all, this instrument has proved useful in my chalazion procedures, and may be heartily recommended.

161 Clinton Street.

Precocious Menstruation.—In the first of the two cases reported by S. Tronconi in the *Clinica Pediatrica* **3**:199, 1921, the recurring monthly genital hemorrhages in the girl of 6 were not influenced by tonics, arsenic, hot baths, ergot or other measures, but they did not return after a course of treatment with extract of mammary glands. In the other child, an infant of 12 months, the genital hemorrhage was more continuous, and the final discovery of a tumor cleared up the case. In the first case the hemorrhage returned the sixtieth day after the organotherapy had been suspended. The hemorrhage ceased entirely only when enough of the mammary gland extract had been given to overcome the excessive functioning of the ovaries. Eighteen months later the child seemed in good condition, but had not grown any taller, and the thyroid had increased in size. The precocious development of breasts and growth of body hair had persisted unmodified.

Special Article

VACCINATION IN THE PHILIPPINES STILL EFFECTIVE

VICTOR G. HEISER, M.D.
Consultant in Health to the Governor-General of the Philippine Islands
AND
CHARLES N. LEACH, M.D.
MANILA, P. I.

Recently many publications and statements have been circulated throughout the United States alleging that vaccination in the Philippines had not given protection against smallpox. Quotations from annual reports of the Philippine Health Service have been cited by the antivaccinationists showing that more than 50,000 deaths from smallpox have occurred in the Philippines during the last few years. The inference is that these deaths have occurred among the vaccinated. The inference is entirely without foundation, as the direct opposite actually occurred. The deaths are recorded almost entirely among the unvaccinated.

It may be recalled that during the Spanish régime and for some years after the American occupation more than 40,000 deaths from smallpox occurred annually in the Philippines. When systematic, properly controlled vaccination was instituted, the disease disappeared in the wake of the vaccinators. A striking example of this fact is furnished by the mortality statistics for the provinces surrounding Manila. The death rate from smallpox in these provinces was reduced from 6,000 annually to zero, after a thorough campaign of vaccination. In the city of Manila there was not a death from smallpox for seven years prior to 1914. When the vaccination of the entire Philippine population was completed, so far as practicable, instead of 40,000 deaths a year there were only a few hundred, and these occurred in remote places among persons whom it was impossible to reach with potent lymph. The temperature in the Philippine Islands ranges from 90 to 100 F. nearly the entire year, with the exception of the mountain regions of Northern Luzon. Vaccine under such conditions of temperature would remain potent only a few days after it left the ice. As ice is not obtainable in many sections of the Philippines, it was not possible to supply effective lymph; hence many remained unprotected, and among these the disease was kept alive.

After 1914, general vaccination of new-born children and other unprotected persons was not effectively carried out. It is true that the records show that sufficient quantities of vaccine were made and sent out, but it is likewise true that the results of careful investigations instituted recently show that much of the vaccine was never applied, or not used until it had deteriorated. Minor health officials and vaccinators found it much easier simply to report vaccinations than actually to carry out the procedure. Quantities of vaccine virus were actually discovered in waste paper baskets. In some instances many more vaccinations were reported than would have been possible with the quantity of vaccine sent to the vaccinators. In another instance the total vaccinations reported in Pangasinan exceeded the population by 50,000. Thus, a huge unvaccinated population came into being, and it was only necessary for the ever present spark to fall among them to start the conflagration. The spark fell, and in consequence more than 50,000 unfortunate victims have lost their lives. It is extremely regrettable that, through the circulation of half truths in the United States regarding vaccination in the Philippines, a strong effort is being made to influence legislatures to discourage vaccination against smallpox. This can only result in the sacrifice of more lives. When the situation in the Philippines was finally revealed, active vaccination was resumed, and the islands are again almost free of smallpox. Fortunately, in recent years methods have been discovered for making vaccine that will remain potent under tropical conditions. Consequently, it is now possible to reach many persons who were inaccessible before.

TABLE 1.—AGE INCIDENCE AMONG THOSE ATTACKED IN PANGASINAN

	Under 1 Year	1 to 5 Years	5 to 10 Years	10 to 15 Years	15 and Over	Total
Number..........	1,500	4,381	2,182	704	348	9,115
Per Cent.........	16.46	48.06	23.94	7.72	3.82	100.0

TABLE 2.—CASES AND DEATHS FROM SMALLPOX AT MANILA, 1918

	Smallpox							
			Vaccinated					
	Total		Never		Unsuccessfully		Successfully	
Age	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Under 1 year...	181	165	134	129	37	32	10	4
1 year..........	233	217	160	155	52	48	21	14
2 years.........	172	150	109	100	53	47	10	3
3 years.........	149	123	82	73	49	42	18	8
4 years.........	137	91	82	62	34	20	21	9
5 years.........	91	64	57	44	25	16	9	4
6 years.........	58	37	33	23	16	9	9	5
7-10 years......	80	39	42	26	22	11	16	2
11-15 years.....	47	22	25	16	8	5	14	1
16-20 years.....	88	47	44	31	20	8	24	8
21-25 years.....	51	21	26	15	11	5	14	1
26-30 years.....	18	8	8	3	7	5	3	0
31-40 years.....	12	3	7	2	1	0	4	1
41-50 years.....	6	2	4	1	1	1	1	0
51-60 years.....	3	0	0	0	0	0	3	0
Total........	1,326	989	813	680	336	249	177	60

TABLE 3.—SUMMARY OF TABLE 2

Smallpox Cases		
Among Successfully Vaccinated	Among Others	Total Cases
177	1,149	1,326

Percentage of cases among unprotected....................................	86
Percentage of cases among protected......................................	14

Smallpox Deaths		
Among Successfully Vaccinated	Among Others	Total Deaths
60	929	989

Percentage of deaths among unprotected...................................	93
Percentage of deaths among protected.....................................	7

Table 1, furnished by Dr. Salvador V. del Rosario, assistant director of health, shows the age incidence among those attacked in the typical province of Pangasinan. It will be seen that more than 88 per cent. occurred within the age groups that should have been vaccinated since 1914. The history in the other provinces is more or less the same. Still more interesting, however, is the effect and incidence of smallpox among the vaccinated and the unvaccinated. The Philippine Health Service furnished figures for the city of Manila for 1918, which is the year that the smallpox outbreak reached its greatest proportions (Table 2). Reducing Table 2 to simpler terms gives the result presented in Table 3.

The completed records for the provinces are not yet available, but those which have been examined show practically the same results as Manila, and it would therefore be useless repetition to reproduce them.

In brief, then, the Philippines, since 1918, have had one of the greatest smallpox catastrophes of modern times. Fifty thousand people perished. On the basis of population, the islands lost ten times as many lives from smallpox during 1918-1920 as the United States lost from casualties in the World War.

The death toll in the Philippines could have been avoided. The figures conclusively show that 93 per cent. of the deaths occurred among the unvaccinated.

The 7 per cent. that occurred among the successfully vaccinated would probably have been still further reduced if a virulent strain of smallpox had not developed among the unvaccinated and thus produced an infection which the ordinary immunity of the vaccinated was unable to neutralize.

There are many side lights that confirm the efficacy of vaccination against smallpox in the Philippines. The crews of interinsular vessels numbering many thousands were regularly vaccinated prior to 1914, and for ten years there was not a single death from smallpox among them. After 1914 the vaccination of new seamen entering the service was not regularly carried out. In 1918, no less than fifteen vessels had smallpox among their crews. Vaccination in the middle of the outbreak of 1918 was vigorously resumed and no further cases occurred, although smallpox was very prevalent in Manila and at ports of call.

The Chinese in the islands number more than 30,000. Owing to the strict registration which is maintained, it is comparatively easy to locate them and they are regularly vaccinated. There was scarcely any smallpox among the Chinese, although it was raging all about them.

SUMMARY

The recent outbreak of smallpox in the Philippines, in which more than 50,000 persons lost their lives, again confirmed the great value of vaccination as a protective agent against smallpox. The overwhelming evidence made up of some seven million vaccinations performed prior to 1914, which resulted in bringing smallpox under complete control, has been further supplemented by the outbreak of 1918. In this later outbreak, 93 per cent of all deaths from smallpox occurred among those who were unprotected by vaccination.

The deaths among the remaining 7 per cent. were largely due to a virulent strain of infection which probably developed among the unvaccinated.

The records further show that 89 per cent. of the cases of smallpox occurred among unvaccinated children, the majority of whom were born after 1913.

When effective systematic vaccination was resumed in 1918, smallpox again disappeared in the wake of the vaccinators. The disease showed no signs of abating anywhere until vaccination in the stricken areas was again carried out.

CONCLUSIONS

1. Vaccination is the greatest safeguard against smallpox.

2. In countries like the Philippines, tremendous catastrophes occur unless the entire population is thoroughly vaccinated against smallpox.

3. Millions of vaccinations have been made in the Philippines without the loss of life or limb, or any observable effect on health.

4. In the past, those who have advocated the abolition of vaccination have been the cause of many of the deaths among the unvaccinated. In view of the frightful loss of life that may occur in smallpox epidemics, they are assuming a grave responsibility indeed if they continue their campaign.

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SATURDAY, JULY 1, 1922

FACTORS IN THE CAUSATION OF BOTULISM

No one who has followed the recurring reports of botulism outbreaks in this country can have failed to notice that certain articles of food are implicated much more frequently than others. First come the foods preserved by heat. Since the air is expelled in the heating process and since the containers of these foods must be hermetically sealed, it is easy to see that the anaerobic conditions so produced provide particularly favorable opportunities for the growth of any *Bacillus botulinus* spores that have survived the heating process. As with other bacteria, so here, growth is hindered by a high concentration of sugar or brine or by a marked acid reaction. Botulism from jam or candied fruits or from brine-pickled green olives is unknown; indeed, the disease has been very rarely attributed to the use of any sort of preserved fruit.

Since botulism from canned foods is always traceable to imperfect sterilization, to failure to destroy the spores of *B. botulinus,* it is not surprising that a relatively high proportion of botulism outbreaks should have been traced to foods canned in the household, where facilities for maintaining cooking temperatures considerably above the boiling point are not always readily available. Commercially canned foods, however, are by no means exempt, and several instances are now on record in which foods canned on a large scale by modern processes have given rise to cases of botulism. The Kendallville, Ind., outbreak, which is described in this issue,[1] is an example of poisoning due to a commercial product.

While the reasons for the apparently greater liability of some foods to contain the botulinus toxin are quite obscure, and while the conditions under which botulinus toxin is produced are possibly connected with the composition of the foodstuff and still remain to be worked out, there are other instances in which a plausible explanation may be advanced. It is evident that relative ease of heat penetration must be an important factor in attempts at heat sterilization. Certain foods are much more easily dealt with in this respect than others. Heat penetration is hardly a factor in canning soups, for example. From this standpoint it is tempting to conclude that the recent outbreaks of botulism traced to eating canned spinach, such as the one at Kendallville, afford an illustration of the importance of securing adequate heat penetration. Spinach and some other foods are recognized as presenting special difficulty. There is no doubt that with such foods the size of the container and the amount of material in each can are important factors in the possible causation of botulism. It is reassuring to find that the interests concerned, including state and national health authorities, are alive to the difficulty of the situation, and that suitable standards for the size of the can and amount of material as well as for sterilizing temperatures are being strictly applied.

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[1] Beall, C. G.: Report of an Outbreak of Botulism, this issue, p. 38.

SUNLIGHT AND MEDICINE

Although light is an almost omnipresent factor in everyday life, its possible influence on biologic processes other than vision received very little scientific consideration until recent years. The reactivity of the skin to light and the relation of this to pigmentation has been recognized and given some consideration in climatology. The work of Finsen in his Light Institute at Copenhagen probably represents the first systematic effort to study the biologic effects of light and its possible therapeutic uses.[1] Of late, the profound importance of this subject has been forcibly brought to public attention through the indisputable demonstration by several groups of investigators both here and abroad that sunlight and notably the ultraviolet rays have a marked curative effect on certain forms of rickets, as well as a prophylactic influence where this disease is liable to develop.[2] The influence of photodynamic substances that may sensitize the organism to light has been noted from time to time in The Journal.

In the effort to elucidate the possible chemical reactions associated with these various light effects, attention was focused first of all on the ultraviolet rays. There is evidence on record that these may act on proteins so as to render them less soluble. Solutions of albumin in quartz vessels behave like solutions of the more readily precipitated protein globulin after being subjected to ultraviolet rays. Ordinary glass is a barrier to these potent rays, a fact which should always be borne in mind in contrasting the possible effects of sunshine indoors and outdoors. The harmful effects of light on bacteria may depend on such changes in the protein constituents of their living protoplasm.

Recently Young[3] has found in the Biochemical Laboratory at Cambridge University in England that proteins such as serum albumin and egg albumin which have been sufficiently purified by repeated crystallization become sensitive to intense light, either sunlight or strong arc illumination, from which the infra-red and ultraviolet rays have been removed. The proteins may become denatured and precipitate. The reaction and presence of electrolytes play a part in facilitating these unique responses to light. It is too early to discuss the theories of these manifestations of radiant energy; but if the preeminent constituents of living cells can be so readily disarranged chemically by light, scientific medicine must become alert to consider what the newer knowledge may ultimately have in store for our profession.

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[1] Clark, Janet H.: The Physiological Action of Light, Physiol. Rev. **2**: 277 (April) 1922.

[2] Hess, A. F.: Newer Aspects of the Rickets Problem, J. A. M. A. **78**: 1177 (April 22) 1922.

[3] Young, E. G.: The Coagulation of Protein by Sunlight, Proc. Roy. Soc. London (B) **93**: 235 (March 1) 1922.

ANTHRAX IN AMERICAN TANNERIES

Anthrax in man is a disease of such serious moment that its menace scarcely needs to be emphasized. The fact that it is largely confined to persons engaged in certain occupations which favor infection with *Bacillus anthracis* has perhaps tended to obscure the incidence and seriousness of the malady. The more recent outbreaks of cases attributable to infection from shaving brushes have tended to arouse a greater interest in the subject and to awaken public health officials in many places from the apparent lethargy in regard to it. The United States still lags behind the European countries in preventive legislation relating to anthrax, and in enforcement of active measures to stamp out the disease as well as to protect those most likely to contract it. Anthrax in man is most frequently encountered among workers on hides, hair, bristles, wool, etc., and in laboratory workers, veterinarians, meat inspectors, farmers, cattlemen and butchers. So-called pulmonary anthrax, which describes the cases arising from inhalation of dust from infected materials, may show a mortality of 50 per cent. The type of disease represented by "malignant pustule" is particularly severe. Such facts should serve, therefore, to support every effort which industrial hygiene may initiate in the direction of reform.

Recently compiled statistics from a representative state may help to give emphasis to what has already been noted. In Pennsylvania, according to the investigations of Smyth and Bricker,[1] slightly more than 8 per cent. of the 7,458 men engaged in fifty-seven cattle hide tanneries were directly exposed to anthrax risk during the period under consideration. In nineteen goat skin tanneries employing nearly 6,000 men, somewhat more than 7 per cent. were directly exposed. Thus, a total exceeding 1,000 men, or not quite 8 per cent. of the employees, was exposed to the serious danger. Of these, at least 119 contracted anthrax in the course of the twelve years included in the Pennsylvania study, and four more cases developed in those handling raw hides or skins, making 123 cases in all, or more than 11 per cent. of the number of directly exposed tanners. Seventy-three of these cases were due to the handling of cattle hides, and fifty to the handling of goat skins. One fifth of the patients died.

This is not the place to discuss the comparative danger of hides from different sources. The fact that during a five-year period a yearly morbidity rate of almost 2 per cent. from anthrax among directly exposed tannery employees is on record suffices to point to the lesson. Hides and skins imported into this country are supposed to come in under quarantine unless accompanied by a consular certificate stating that they are from a district free from anthrax. But the experience of Smyth and Bricker [1] agrees with that of others to the effect that this certification is worse than useless, since it merely establishes a false sense of security among the tanners and freight handlers. It is stated that anthrax has been contracted from the handling of both dry and wet salted hides and skins, and from both certified and uncertified stock, and anthrax bacilli have been isolated from both. It is high time to give more serious consideration to the anthrax problem. The tanneries must no longer be allowed to receive anthrax-infested raw stock.

Incidentally, it should be noted that treatment in hospitals has generally been more favorable than the less rigorous therapy of unhospitalized patients. The use of antianthrax serum with excision of the local lesion has given good results. The Pennsylvania experts particularly recommend the injection of phenol (carbolic acid) solutions of from 25 to 50 per cent. strength locally around the area of the initial lesion. Early diagnosis, prompt hospitalization if possible, and absolute rest, they conclude, are essential for success in any form of treatment.

WATER DRINKING AND HYPERTENSION

Fewer features of clinical medicine are the subject of more vigorous debate and of almost acrimonious discussion than is arterial hypertension. With respect to its causes and its therapeutic management, as well as the prognosis of individual cases, the widest ranges of opinion have been expressed. Through the development of sphygmomanometry, the rapid, fairly accurate estimation of blood pressure has been made possible for any practitioner. Consequently, on the one hand it has been remarked of the simple and most important test for high blood pressure that "any social worker would be the better for knowing it and could learn it in fifteen minutes";[1] whereas, on the other hand, physicians are warned against the fancy that the management of hypertension consists in watching a column of mercury, or that success is measured in millimeters.[2]

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[1] Smyth, H. F., and Bricker, Elizabeth: Analysis of One Hundred and Twenty-Three Cases of Anthrax in the Pennsylvania Leather Industry, J. Indust. Hyg. 4:53 (June) 1922.

[1] Cabot, R. C.: A Layman's Handbook of Medicine, Boston, Houghton Mifflin Company, 1916, p. 172.

[2] Osborne, O. T., and Fishbein, Morris: Handbook of Therapy, Chicago, American Medical Association, 1920, p. 368.

This is not the place in which to debate whether permanent pathologic alterations in the blood vessels, nervous reflexes, or poisonous products producing vasoconstriction are the prime factors in the genesis of hypertension, or whether the blood pressure manifestations of acute nephritis, eclampsia or uremia are in any degree due to anatomic changes in the heart or blood vessels. It is obviously not without serious moment for the management of the individual case to know the precise pathology and even the ultimate etiology of the condition under observation. In the present stage of our knowledge, however, facts are more valuable than hypotheses.

Certain striking facts regarding blood pressure have recently been recorded at Aberdeen, where Orr and Innes [3] have observed the influence of increased water ingestion on the blood pressure of some apparently normal subjects and also in pathologic cases in which there was high arterial tension. The addition of from 2 to 3 liters (quarts) of water to the normal daily consumption is followed by a distinct fall in both systolic and diastolic pressure. The fall is not accompanied by an increase of either the rate or the force of the heart beat, and the decreased pressure is maintained for some time after the extra water has been excreted. Clinicians have generally warned against large fluid intakes when the kidneys are incapable of reacting properly, and the therapeutic value of restrictions has been urged by Allen [4] in The Journal.

The British investigators also point out that when diuresis is unable to keep pace with the intake of water, especially in cases of high arterial tension, the fall in pressure is sometimes preceded by a rise beyond the original level, which persists until the bulk of the extra fluid has been eliminated. The renal conditions must never be overlooked.

However, it is the cases of fall of pressure attendant on water drinking, as well as the reported alleviation of disagreeable subjective symptoms in some of the patients with hypertension studied, that challenge attention. The diuretic properties of water taken by mouth are generally recognized. Orr and Innes incline to the view that the chief factor in producing the fall of pressure is the elimination of pressor substances that cause arterial constriction and thereby produce an unnecessarily augmented arterial tension. Friedrich Müller of Munich long ago expressed the conviction that the same toxic substances which produce uremia may, in lessened concentration, affect the vasomotor center, thus causing a heightened blood pressure. By others the seat of origin of the hypothetic toxins or substances with pressor effects has been assigned now to the alimentary tract, now to the tissues themselves. The fact that chemical substances like the amins which exert a vasoconstrictor effect in very small doses have been isolated on various occasions has helped to render the theories of a toxemic etiology for certain cases of hypertension more appealing. If it shall prove to be true that diuresis induced by water drinking in patients with adequately functioning kidneys serves in reality to "flush out" pressor substances from the system, the discovery will be an important one. The present gaps in our knowledge, however, remain conspicuous.

Current Comment

HYDROGEN SULPHID AS AN OCCUPATIONAL POISON

The possible menace of hydrogen sulphid as a cause of occupational disease has lately been brought into a greater prominence than it has heretofore attained. Most physicians think of this foul smelling gas primarily as an artificial laboratory product bearing little if any relation to the work of the everyday world. Its toxicity, to a large extent, has been minimized because the objectionable odor associated with sulphureted hydrogen acts as a protective warning to prevent those who become exposed to the gas from inhaling any considerable quantity. In certain mines it has become somewhat familiar under the name of "stink-damp," and is found occasionally as an occluded gas in coal seams or places where there is a decomposition of pyrites in the presence of moisture.[1] Klein [2] has lately directed attention to the rôle of hydrogen sulphid as a dangerous component of the gases collecting in sewers, cesspools and similar places in which dejecta are permitted to putrefy without ventilation. In the absence of a liberal supply of oxygen, protein material generates, through the action of anaerobic putrefactive micro-organisms, a mixture of gaseous products including nitrogen, carbon dioxid, methane, ammonia, hydrogen and hydrogen sulphid. The proportions of these components may vary, depending on the bacterial pabulum from which they arise. Klein has emphasized the fact, however, that the really toxic menace to persons exposed to such products lies in the hydrogen sulphid, which may attain a concentration as high as 8 per cent. by volume. Under such conditions there is great danger because of the high toxicity of the gas. Usually the danger is minimized because of the low concentrations of hydrogen sulphid concerned. Out of twenty-nine cases of poisoning with this product reported by the chief inspector of factories and workshops in England for the years 1908 to 1912, only five were fatal.[3] Yet, according to Haggard [4] of Yale University, inhalation of hydrogen sulphid kills in a concentration of 7 parts per 10,000 after the lapse of some time. Larger concentrations are followed by more prompt fatalities. According to Haggard, and contrary to conventional beliefs, hydrogen sulphid, when inhaled, does not form a compound with the respiratory pigment of the blood, hemoglobin; nor does it combine with the sodium of the blood. It is transported dissolved as a gas, which the blood has the property of oxidizing to less harmful products if the quantities involved are not so large as to threaten the function of vital organs before the gas can thus be detoxified.

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[3] Orr, J. B., and Innes, I.: The Effect on Arterial Hypertension of Increased Fluid Intake, Brit. J. Exper. Path. **3**: 61, 1922.

[4] Allen, F. M.: Arterial Hypertension, J. A. M. A. **74**: 652 (March 6) 1920.

[1] Kober, G. M., and Hanson, W. C.: Diseases of Occupation and Vocational Hygiene, Philadelphia, P. Blakiston's Son & Co., p. 620.

[2] Klein, W.: Ueber die Vergiftung durch Einatmen von Kloakengas, Deutsch. Ztschr. f. d. ges. gerichtl. Med. **1**: 228 (April) 1922.

[3] Kober, K. M., and Hanson, W. C.: Diseases of Occupation and Vocational Hygiene, Philadelphia, P. Blakiston's Son & Co., p. 47.

[4] Haggard, H. W.: The Toxicity of Hydrogen Sulphide, J. Pharmacol. & Exper. Therap. **19**: 262 (April) 1922.

THE OCCURRENCE OF EXOPHTHALMIC GOITER

The possibility that despite the fact of their unlike physiologic symptoms some etiologic relationship may exist between endemic goiter and the type of hyperthyroidism known as exophthalmic goiter has more than once been referred to in recent years. The incidence of endemic goiter and its geographic distribution are now fairly well known. Its greater occurrence inland and away from the seaboard, both in this country and in continental Europe, is recognized; hence the designation of goiter regions has been applied to lacalities where this thyroid disorder abounds. Exophthalmic goiter, if this somewhat inadequate nomenclature may be permitted for the purpose of description, is no longer such a rarity as it was assumed to be a decade or two ago. Dependable statistics as to its geographic distribution might help to furnish an answer to the possible relationship of this disease to the other abnormal thyroid conditions. Dock[1] has reported that endemic goiter districts are relatively free from exophthalmic goiter, but alleges that this is not true of Switzerland and France, or of the region of the Great Lakes of North America. Dock also records the belief that the incidence of exophthalmic goiter is higher in England and on sea coasts than in some continental localities, but is very high in the interior of North America. Statistics have just become available from the Medical Investigation Department of Guy's Hospital in London, where Campbell[2] has studied a group of more than a hundred cases, along with statistics from outside places. These show that in England exophthalmic goiter is more common in the country than in the towns, more common in the West than in the East, and more common on the sea coast than inland. It does not appear, to Campbell, to be specially prevalent in areas in which goiter is endemic. This tentative conclusion may not be without significance in future discussions on both of the diseases.

THE NATURE OF INSENSIBLE PERSPIRATION IN HEAT REGULATION

Every person continually experiences a loss of water from the skin in quantities that may become not inconsiderable under certain circumstances. The cutaneous excretion of water is determined mainly by the need for regulating the temperature of the body, so that the amount leaving by way of the skin depends on the heat production of the body or on the external temperature, and is very little affected by the quantity of fluid consumed. Under ordinary conditions, in which no visible collection of fluid on the skin surfaces occurs, the water lost is included in the so-called insensible perspiration. According to observations on anomalous persons without sweat glands, the evaporation of water from the nonsweating skin may amount to 800 gm. (28 ounces) a day. In normal persons it will be noticed that the quantity of water thus given off increases with a rise of environmental temperature slowly up to a certain degree, and then rises rapidly. This sudden increase occurs simultaneously with the activity of the sweat glands, resulting in the formation of visible sweat. The insensible perspiration is therefore conventionally regarded as represented by evaporation of water from the surface of the cuticle itself apart altogether from the sweat glands. If the removal of heat through the loss of water by insensible perspiration is a purely physical process, as it is commonly assumed to be, the transfer should be affected not only by temperature factors but also, to some extent at least, by the humidity of the surrounding air. If the skin is to be regarded, so far as the insensible perspiration is concerned, merely as a membrane through which water is diffused into air, obviously the process should be retarded when the external medium tends to be more saturated with moisture. Several investigators have found, however, that in fact this is not necessarily the case. Most recently, for example, in Schwenkenbecher's clinic at Marburg, Moog[1] has observed that at a fairly constant temperature of 25 C. (77 F.) increases of from 30 to 40 per cent. in the relative humidity may actually be attended by increased invisible perspiration through the skin. If such data are accurate, one cannot escape the conviction that this loss, instead of being merely a purely physical process dependent on the composition and temperature of the air, is a physiologic one varied by the necessities of heat regulation in the body. Perhaps we may think of it, with Schwenkenbecher, as an insensible secretion of sweat rather than mere diffusion of water through the skin membrane.

HARMFUL AMINS

Most students of the problem of intestinal obstruction—and there have been many—have come to the conclusion that one or more potent substances arise within the bowel under such conditions and are responsible for the characteristic toxic symptoms. Whether the poisons are of bacterial origin or owe their genesis to aseptic changes in the mucosa and alimentary secretions remains debatable. Whipple and his collaborators have been inclined to identify the toxins as proteose in character, but their conclusions have been challenged. Recently, however, evidence secured from several independent sources suggests that histamin, the amin derived from the amino-acid histidin, which in turn is a familiar cleavage product of proteins, is one, at least, of the possible chemical offenders. Histamin, like other amins, may arise through putrefactive changes in protein-containing materials. It is among the more potent of the bases to which bacteria thus give rise. Micro-organisms capable of producing the amin have actually been isolated from the intestinal contents. Lately, Meakins and Harington[1] in England have found histamin in obstructed colons in man; and now Gerard[2] of Chicago reports the occurrence of the same depressor base in experimentally produced contents of obstructed intestinal loops. It would be unjustifiable to charge histamin or any of its companion products[3] with actual complicity in many of the ills of life referable to the bowel; yet the repeated finding of such potent products there points to the possibility that they may at times actually exert untoward effects. Bronchial asthma has been described as an aminosis or amin intoxication; and urticarial reactions have also been associated with histamin.[4] These amins deserve serious attention as possible pathogenic factors.

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[1] Dock, George, in Osler's Modern Medicine **4**: 417.

[2] Campbell, J. M. H.: Some Aspects of Exophthalmic Goiter, Quart. J. Med. **15**: 55 (Oct.) 1921.

[1] Moog, O.: Der Einfluss der relativen Luftfeuchtigkeit auf die unmerkliche Hautwasserabgabe, Deutsch. Arch. f. klin. Med. **138**: 181 (Jan. 24) 1922.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARIZONA

State Medical Meeting.—At the annual meeting of the Arizona State Medical Association, in Prescott, June 14-16, under the presidency of Dr. A. L. Gustetter, Nogales, the following officers were elected for the ensuing year: president, Dr. Harry T. Southworth, Prescott; vice presidents, Drs. Charles A. Thomas, Tucson, Roderick D. Kennedy, Globe, and Arthur C. Carlson, Jerome; treasurer, Dr. Alvin T. Kirmse (reelected), Globe, and secretary, Dr. Delamere Harbridge (reelected), Phoenix. A motion by the president to secure the privilege of prescribing alcoholics was promptly tabled. Resolutions were adopted to oppose the Sheppard-Towner bill and all "state medicine," and plans were made for a women's auxiliary to the state association.

CALIFORNIA

Japanese Physician Sentenced.—It is reported that S. Wahaume, a Japanese physician, was sentenced to five months in prison for practicing medicine without a license. Wahaume was arrested in Sacramento several months ago on a nonlicense charge and forfeited a $500 bail when he failed to appear for trial.

Hospital News.—The Bard Memorial Hospital, Ventura, will in future be known as the Big Sisters' Hospital.——Dr. James A. Ramsay has assumed control of Hillcrest Sanatorium, Hemet, relieving Dr. Verdo B. Gregory, who formerly had charge of the institution.——The present University of California Student Hospital, San Francisco, has been declared inadequate, and plans are under way to construct a new hospital of 100 beds, to be used by the faculty and students of the university. Dr. Robert T. Legge is director of this hospital.——Dr. Alfred C. Reed has resigned as director of the Ross Sanatorium.

COLORADO

University of Colorado. — The Denver city council announced, May 26, that an appropriation of $20,000 will be made as the city's contribution to the proposed University of Colorado Medical School and state hospital, which will be constructed in Denver. This completes the $200,000 which it was necessary to obtain through popular subscriptions in order to take advantage of sums donated by the Rockefeller Foundation, the Carnegie Foundation, and the Colorado state legislature, aggregating more than $1,500,000.

CONNECTICUT

Yale University.—At the commencement exercises of the university, President Angell announced that additions to the university funds for 1921 amounted to more than $5,500,000. The principal gift was the Harkness Fund of $3,000,000. Gifts and pledges made during the year for additional endowment of the school of medicine, toward the total of $2,000,000 needed to secure the contingent pledge of $1,000,000 from the general education board, total $390,000. This amount includes a pledge, received June 21, of an anonymous gift of $100,000, to be added to the principal of the Anna M. R. Lauder Foundation in the school of medicine, the income of which is to be used each year for the purposes outlined in the letter covering the original gift of this fund for the establishment of the department of public health. In view of the continued progress made by the school of medicine, and of the gifts evidencing the interest of Yale's friends in its development, the general education board has extended the time for fulfilling the conditions of their appropriation from June 30, 1922, to June 30, 1924.

DISTRICT OF COLUMBIA

Legislation Proposed for Tuberculosis Hospital.—A bill introduced into the lower house of Congress by Representative Sproul provides for the erection of a hospital for the care of tuberculous pupils of the District of Columbia. The sum of $150,000 is appropriated to carry out the proposed construction.

GEORGIA

University of Georgia.—Five additional professors for the medical department of the university were recently announced as follows: Dr. Eliot R. Clark, from the University of Missouri, professor of anatomy; Dr. Richard V. Lamar, professor of pathology; Dr. Virgil P. Sydenstricker, Augusta, professor of medicine; Dr. Ralph H. Chaney, Rochester, Minn., professor of surgery, and Dr. Harry B. Neagle, Adrian, Mich., professor of preventive medicine and hygiene. All the present faculty were reelected.——It was announced by the university faculty at the annual commencement exercises that the medical department of the university has been given $40,000 a year by the Rockefeller Foundation, the Carnegie Foundation, and the city of Augusta, through popular subscription, for placing the departments of medicine and surgery on a pay basis, and for general expenditures.

ILLINOIS

Honor for Dr. Humiston.—At the eighty-fifth annual commencement exercises of Marietta College, Marietta, Ohio, Dr. Charles E. Humiston of Chicago received the honorary degree of doctor of science, in "recognition of his efforts to raise the standard of the medical profession in all parts of the country."

New Appointments.—Dr. Charles Lieber has been appointed county physician of Lake County to succeed Dr. Albert E. Brown, who resigned recently.——Dr. Samuel F. Paul was renamed for Rock Island and South Rock townships.——Dr. J. M. Wood has been appointed city physician of Moline.——Dr. John H. Fowler was recently named for East Moline and Hampton.

Chicago

Rush Medical College Alumni Elect Officers.—At the annual meeting of the Alumni Association of Rush Medical College, held in Chicago recently, the following officers were elected: president, E. L. Kenyon; vice presidents, F. B. Moorehead, D. C. Wherritt and T. C. Galloway; treasurer, C. O. Rinder; secretary, C. A. Parker; necrologist, J. F. Waugh, and directors for three years, H. G. Wells and G. H. Coleman.

Donations to University.—By the will of Seymour Coman of Chicago, University of Chicago is made trustee of his residuary estate, estimated to be approximately $145,000, the net income to be used for scientific research, with special reference to preventive medicine and the cause, prevention and cure of diseases. This bequest to be known as the Seymour Coman Research Fund.——By the will of Alexander D. Thomson of Duluth, Minn., the sum of $50,000 is bequeathed to the university for use in the medical department, to be expended under the direction of Dr. Wilbur E. Post and Dr. Herman L. Kretschmer, both of Chicago.

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[1] Meakins, J., and Harington, C. R.: J. Pharmacol. & Exper. Therap. **18**: 455 (Jan.) 1922.

[2] Gerard, R. W.: Chemical Studies on Intestinal Intoxication, I, The Presence and Significance of Histamine in an Obstructed Bowel, J. Biol. Chem. **52**: 111 (May) 1922.

[3] Barger, G.: The Simpler Natural Bases, London, Longmans, Green & Co., 1914.

[4] Sollman, Torald, and Pilcher, J. D.: J. Pharmacol. & Exper. Therap. **9**: 391 (April) 1917.

IOWA

Personal.—Dr. Walter L. Bierring, Des Moines, sailed for Scotland, June 27, to attend the ceremony of his election as an honorary member of the Royal College of Physicians, Edinburgh.——Dr. Jefferson B. Blything has been reappointed city physician of Davenport.——Dr. Henry Albert, head of the department of bacteriology at the University of Iowa, Iowa City, has resigned on account of his health and will become head of the state board of health laboratories of Nevada.——Dr. James W. Osborn was recently elected president of the Des Moines health center.

KENTUCKY

Personal.—Dr. John M. Williams has been elected president of the recently organized health board at Paris. Dr. Arthur H. Keller was reelected city health officer of Paris and secretary of the board of health.——Dr. Joseph E. Wells, Cynthiana, and Dr. James C. Mitchell, Louisville, have been appointed members of the state board of health.

LOUISIANA

New Physicians' Building.—An eight-story structure will be erected opposite the Touro Infirmary in New Orleans, exclusively for physicians. The cost of the building will be approximately $400,000. At the end of ten years, physicians occupying offices in the building, will become permanent owners of the structure.

Illegal Practitioner Charged.—It is reported from Alexandria that the "Rev. Dr." J. S. Wright, a negro, who stated that he was a "doctor of divinity and a healer by faith," was tried and convicted, June 17, by Judge Hundley, for practicing medicine without a license. He was remanded for sentence. Wright had been operating in the city for several weeks, in a tent. Dr. Oscar Dowling, president of the state board of health, called on Wright and was advised that he was suffering from high blood pressure. Wright gave him a prescription, with directions for using, for the sum of one dollar.

MARYLAND

Personal.—Dr. Randolph Winslow, who for forty-nine years was associated with the school of medicine, University of Maryland, and with the University Hospital, has left Baltimore on an extended automobile tour of the Southwest. He will sail on a voyage to South America on his return. In addition to severing his connection with the university, Dr. Winslow has practically retired from active practice of his profession of surgery.——Dr. John M. T. Finney has left for Winnipeg, Canada, where he read the surgical address before the Canadian Medical Association which is in session.——Dr. Edward N. Brush of Baltimore has returned from Quebec, Canada, where he attended the sessions of the American Psychiatric Association.

MASSACHUSETTS

New England Roentgen Ray Society.—At the annual meeting of the society held in Boston, June 2, the following officers were elected for the ensuing year: president, Dr. Arial W. George, Boston; vice president, Dr. Ernest L. Davis, Springfield, and secretary-treasurer, Dr. Adelbert S. Merrill, Boston.

Massachusetts Medical Society.—At the annual meeting of the society in Boston, June 13-14, Dr. John Bartol, Boston, was elected president; Dr. Charles E. Mongan, Somerville, vice president; Dr. Walter L. Burrage, Jamaica Plain, secretary; Dr. Arthur K. Stone, Framingham Center, treasurer, and Dr. Edwin H. Bingham, Brookline, librarian. All officers were reelected with the exception of the vice president.

Harvard University Commencement.—At the two hundred and eighty-sixth commencement of Harvard University thirteen honorary degrees and 1,401 regular degrees were conferred. Dr. Walter Belknap James, New York, received the honorary degree of doctor of laws. Gifts of $4,926,000 to the university were announced by President Lowell. This amount included $100,000 from the class of 1897 in commemoration of its twenty-fifth anniversary.

MICHIGAN

Honorary Degree for Dr. Warnshuis.—At the fifty-seventh annual commencement of Hope College, Holland, Dr. Frederick C. Warnshuis, Speaker of the House of Delegates of the American Medical Association, received the honorary degree of Doctor of Science for work in surgery, public health conservation and medical organization.

Mentality of Prisoners Tested.—Under the direction of Prof. Guy M. Whipple, University of Michigan, tests for inmates of the state reformatory at Ionia, designed to show what part mentality plays in crime, were started, May 26. Dr. R. M. Olin, state health commissioner; Dr. McGregor, and Dr. R. H. Haskell, superintendent of the Ionia State Hospital for the Criminal Insane, assisted Professor Whipple. The examination was authorized by the administrative board, with a view to applying corrective measures where possible and also to furnishing the prisoners employment conforming to their mental development.

MISSOURI

Decision Regarding Impounded Dogs.—Mayor Kiel of St. Louis has announced that he will remove the Humane Society from control of the dog pound because the Humane Society declines to deliver impounded dogs to the medical schools for scientific purposes, as authorized by an ordinance passed by the board of aldermen, recently. The Humane Society has been instrumental in having a suit filed against the city to restrain the city officers from selling the dogs to medical schools, on the ground that the ordinance is unconstitutional.

Osteopaths and Physicians.—The Springfield court of appeals has affirmed the finding of the lower court that an osteopath is not a physician or surgeon within the meaning of the law governing the practice of medicine and surgery. The court of appeals quoted an opinion of the supreme court of Missouri as follows:

> Osteopaths are not physicians or surgeons in any of the departments of medicine or surgery, but may cure or relieve any disease of the human body according to the system, method or science as taught by the American School of Osteopathy at Kirkville or any other legally chartered and regularly conducted school of osteopathy.

NEW JERSEY

New Jersey Pediatric Society.—At the annual meeting of the society held in Spring Lake, June 21, the following officers were elected: president, Dr. Eugene W. Murray, Newark; vice president, Dr. Frank W. Pinneo, Newark; treasurer, Dr. Ernest G. Hummel, Camden, and secretary, Dr. Miller R. Whitenack, Newark.

New Eugenics Bill.—The house of assembly recently passed the new eugenics bill of the Rev. Warren P. Coon. The purpose of this bill is to make uniform throughout the eastern part of the United States the repression of vice as advocated by the federal authorities, as a result of their experiences in the late war. This act has already been adopted in twelve other states and punishes the male (especially when soliciting) as well as the female. It enables the county court to put convicted women or girls on probation or send them to proper schools, and it also takes care of taxicab assignations, which are not covered by the present law.

NEW YORK

Hygiene Essay Contest.—In order to stimulate interest on the part of high school students in problems of disease and hygiene, Dr. Nicholas Lukin offered a gold and silver medal to the two pupils of the Morris High School who would write the best essays on "The Rôle of Bacteria in Disease." Forty essays were submitted, and it is believed that the contest served to stimulate greatly the interest of the students in these questions.

Health Officers and Nurses Meet.—The annual conference of the sanitary officers and public health nurses of New York was held in Saratoga Springs, June 27-29, under the auspices of the state department of health. Dr. Hermann M. Biggs, state health commissioner, opened the conference and introduced Gov. Nathan L. Miller. Dr. Victor C. Vaughan, Dr. Livingston Farrand, president of Cornell University, and Dr. George E. Vincent, president of the Rockefeller Foundation, were among the speakers. At a special session, June 27, a demonstration of the wireless telephone and its uses in educating the public in health matters was given by the General Electric Company.

Personal.—Dr. John Lorenzo Heffron has resigned as dean of the Syracuse University School of Medicine, Syracuse, effective June 15. This resignation terminates the connection which Dr. Heffron has held with the teaching staff of the medical school for forty years, during fifteen of which he has served as dean. Dr. Heffron was made dean emeritus.

Dr. Herman G. Weiskotten, county necrotomist and professor of pathology in the college of medicine, was elected acting dean until October.——Dr. Francis S. Mathews, New York, received the degree of doctor of laws, June 7, from Washington and Jefferson College at its one hundred and twenty-first annual commencement.——Dr. Harold L. Amoss, associate member of the Rockefeller Institute for Medical Research, New York, received the degree of doctor of laws from George Washington University, Washington, D. C., June 7. June 12, the scientific staff of the Rockefeller Institute gave a dinner in honor of Dr. Amoss, who has been appointed associate professor of medicine at Johns Hopkins University, Baltimore.——Dr. Walter W. Palmer, New York, received the honorary degree of doctor of science from Amherst College at commencement, June 21.——Dr. Moses Allen Starr and Dr. Frederick Bierhoff recently sailed for Europe.

New York City

Dinner in Honor of Dr. Sobel.—A testimonial dinner attended by more than 100 physicians and surgeons of this city was given, June 21, to Dr. Jacob Sobel, assistant director of the bureau of child hygiene of the department of health, on the eve of his retirement after being in the service of the city twenty-three years. Dr. Sobel will go to Europe to study diseases of children with Professor Pirquet.

Columbia University Establishes Public Health School.—Under a bequest of the late Joseph R. DeLamar, an institute of public health has been established at Columbia University. The fund turned over to the university for the benefit of the school of medicine by the executors of the DeLamar estate amounts to $777,772.45. The new institute of public health will be primarily for research and the training of research workers; but it will afford instruction to students of medicine and others, and, as Mr. Lamar's will provides, it will engage in giving wide publicity in popular form to the results of scientific investigation. Dr. Haven Emerson has been appointed professor of public health and administration.

NORTH DAKOTA

State Health Survey.—At the request of the state health officer, Dr. Harley E. French, the U. S. Public Health Service has assigned an officer to the state of North Dakota for the purpose of assisting in the organization of an adequate state health department. Surgeon Robert Olesen, who has just completed a three-years' service with the Wisconsin State Board of Health, has been detailed for this purpose. A survey of the state's health needs has been completed and a plan submitted for an organization, based on the local requirements.

OHIO

College of Homeopathy to Be Amalgamated.—At a meeting of the board of trustees of the University of Ohio, June 19, the majority report of the committee appointed to make an investigation of the situation regarding medical education in the university was adopted. This report provides: (*a*) that the College of Homeopathic Medicine be discontinued on and after July 1, 1922; (*b*) that all buildings, instruments, appliances and material supplies of all kinds, now the property of the university and occupied or used by said college, be transferred to the jurisdiction of the College of Medicine; (*c*) that all students at present enrolled in the College of Homeopathic Medicine shall, on their individually expressed desire, be registered as students in the College of Medicine, with the grade now held by them in the College of Homeopathic Medicine, and (*d*) that there be established two additional chairs, elective, in the College of Medicine, one to be known as the chair of homeopathic materia medica and the other as the chair of homeopathic practice, the date of such establishment to be from July 1.

PENNSYLVANIA

Hospital News.—Excavation has been started for a four-story building for the Cottage State Hospital, Philipsburg. ——The newly erected addition to the Mount Sinai Hospital, Philadelphia, was dedicated, June 25. Judge John M. Patterson made the dedicatory address.

Dr. Frazier Receives Chair of Surgery.—Dr. Charles H. Frazier, formerly professor of clinical surgery in the University of Pennsylvania, has been made John Rhey Barton professor of surgery in that institution. The appointment was made at the June meeting of the board of trustees. Dr. Frazier succeeds Dr. John B. Deaver, who will resign at the end of the present college year.

WASHINGTON

Personal.—Dr. Rowe France has been appointed city physician of Seattle to succeed Dr. Hiram M. Reed.——A farewell dinner was given, May 31, to Dr. William N. Keller, retiring superintendent of the Western State Hospital for the Insane, Fort Steilacoom. Dr. Keller was presented with a gold watch and Mrs. Keller with a pearl necklace. Dr. David Livingstone will succeed Dr. Keller.——Dr. A. E. Baldwin, Kettle Falls, was recently elected president of the Stevens County Medical Society at Colville.

CANADA

Canadian Medical Association.—At the annual meeting of the association at Winnipeg, Man., June 20-23, the following officers were elected for the ensuing year: president, Dr. David H. Arnott, London, Ont.; vice president, Dr. Walter L. Muir, Halifax, N. S., and secretary, Dr. John W. Scane, Montreal, Que. The association proposes to investigate the feasibility of establishing a college of surgeons in Canada. A committee was appointed to report on the matter at the next annual session. Dr. Edward W. Montgomery, Winnipeg, is the retiring president.

University News.—At the Canadian Universities' Conference held in Winnipeg, recently, Dean Frank D. Adams of McGill University, and Dean R. W. Brock of the University of British Columbia, urged on the delegates the necessity of founding a Canadian graduate school. Dean Adams suggested that the graduate courses in Canada be pooled as they are in Germany, so that each student could avail himself of them without restriction.——In a recent bulletin published by the Carnegie Foundation for Advanced Teaching, the union of six small universities in the provinces of New Brunswick and Nova Scotia is urged, making one large university at Halifax, N. S. It is proposed to raise $4,500,000 for this purpose. The institutions concerned are King's College, Windsor, N. S.; Dalhousie University, Halifax; Acadia University, Wolfville, N. S.; Mount Allison University, Sackville, N. B.; St. Francis Xavier's University, Antigonish, N. S., and the University of New Brunswick, Frederickton, N. B.——Included in the honors which have recently come to the graduates of McMaster University, Toronto, is the award of a valuable prize to Miss Marion E. Stillwell, in the nurses' training course at the Toronto General Hospital. J. E. Bates, who graduated this year from the University of Toronto, won the Ellen Mickle Fellowship, worth $1,200, for research work in pathology, under Dr. W. L. Robinson.

PHILIPPINE ISLANDS

University of St. Thomas.—The sum of 5,000,000 pesos ($2,500,000) has been appropriated by the Dominican Order which controls the University of St. Thomas College of Medicine, Manila, for the erection of a new concrete building, in which will be housed all the colleges of the university, the laboratories, the dispensary, the libraries, the hall, the chapel and its offices, leaving the old building which the university now occupies in the Walled City. The site for this new building will be on the outskirts of Manila. Construction work will be started in a few months. A university hospital for the practice of the students of the college of medicine will be erected on the same site. Dr. Jose Luis de Castro is dean of the university.

GENERAL

American Therapeutic Society.—At the annual meeting of the association, held recently, the following officers were elected for the ensuing year: president, Dr. Charles G. Jennings, Detroit; vice presidents, Drs. Hermon C. Gordinier, Troy, N. Y.; Arthur Parker Hitchens, Washington, D. C., and C. E. Cooper-Cole, Toronto, Canada; secretary, Dr. Lewis H. Taylor, Washington, D. C., and treasurer, Dr. Spencer L. Dawes, New York.

Prohibiting Importation of Horsehair Brushes.—The House of Representatives this week passed the Winslow bill, prohibiting the importation and the shipment in interstate commerce of shaving and lather brushes containing horsehair. In the Senate, it was referred to the Committee on Interstate Commerce. The purpose of the measure is to prevent the spread of anthrax, it having been discovered during the war by the U. S. Public Health Service and other health authorities that the disease was traceable to horsehair shaving brushes.

Begin Hearings on "Filled Milk" Bill.—The Committee on Agriculture of the Senate has begun hearings on the Voigt filled milk bill, forbidding the shipment in interstate commerce of compounds of skimmed milk and vegetable oil, made in the semblance of whole evaporated milk. Prohibitory and restrictive legislation against these compounds has already been enacted in eleven states of the Union in the interest of public health. The Voigt bill passed the House by a vote of 250 to 40, and is now in the Senate for final consideration.

Tri-State Meeting.—The Medical Society of Virginia, Maryland and the District of Columbia held its spring meeting in Warrenton, Va., May 17, under the presidency of Dr. Stephen Harnsberger of that city. The following officers were elected: president, Dr. William L. Lewis, Kensington, Md.; vice presidents, Drs. James H. Ferguson, Clifton Station, Va., and Edmund J. Horgan, Washington, D. C.; recording secretary, Dr. William T. Davis, Washington, D. C.; corresponding secretary, Dr. Joseph D. Rogers, Washington, D. C., and treasurer, Dr. Robert Scott Lamb, Washington, D. C. The next meeting will be held in Washington, D. C., Nov. 15, 1922.

Medical Museums.—The fifteenth annual meeting of the American and Canadian Section of the International Association of Medical Museums was held in the Army Medical Museum, Washington, D. C., in May, under the presidency of Prof. James Ewing of Cornell University. On recommendation of the Council, the Exchange Bureau and the Bureau for the Preservation of the Results of Medical Research of the Section of the Association of Medical Museums were transferred from the McGill University Medical Museum, Montreal, Canada, to the U. S. Army Medical Museum at Washington. Dr. Daniel S. Lamb, assistant and pathologist at the Army Medical Museum from 1865 to 1920, was presented with a testimonial from the U. S. Army Medical Department by Brig.-Gen. Walter D. McCaw, who called attention to the results of his labors as illustrated by the collections of the institution in which the meeting was being held. The *Journal of Technical Methods* (Bulletin 8) and the *Sir William Osler Memorial Bulletin* (Number 9) were ordered published. The following officers were elected for the ensuing year: president, Dr. Frank B. Mallory, Boston; vice presidents, Drs. Howard T. Karsner, Cleveland, Harry Marshall, University, Va., and Robert A. Lambert (Yale University), New Haven, and secretary-treasurer, Dr. Maude E. Abbot (McGill University), Montreal.

Warning on Leprosy.—According to a warning issued by the U. S. Public Health Service, leprosy in the United States is on the increase. Statistics show that there are 1,200 lepers at large in twenty-five states, with the constant danger of communicating the disease to others. Dr. C. H. Lavinder, in explaining the announcement regarding leprosy said:

> While remarkable results are being obtained in combating leprosy in other countries, it is on the increase in the United States. In the tropics, notably in Hawaii, lepers are being cured by the use of chaulmoogra oil, one of the new discoveries. But we have had no success with it here owing to the difference in the blood consistency of this climate and of this race. Great Britain long ago decided that the only way to eradicate the disease was to segregate the sufferers, so that there could be no chance for it to be communicated to others. We have adopted such a policy in America, and have built a leprosarium at Carville, La. It has room for only 200 patients, and now every available bed is occupied. Each day the government receives applications from lepers seeking admission to the hospital. We pay their transportation and give them the very best of care and attention. But we are compelled to inform health officers who come to us that there is no room. As it is next to impossible for each city to construct its own leprosarium, the sufferers are at large, and each day some one comes in contact with them, adding to the possibilities of the disease being communicated to others.

President Harding, in a recent communication to Congress, asked that sufficient money be appropriated for the enlargement of the leprosarium at Carville. This week, Representative Elliott of Indiana and Senator Ransdell of Louisiana introduced bills in the two houses, providing for the appropriation of $650,000 to be used by the U. S. Public Health Service to prevent the spread of leprosy and to provide care and treatment of all persons suffering with leprosy.

Committee to Study Toxicity and Fatalities in Local Anesthesia.—The report of the Board of Trustees of the American Medical Association (THE JOURNAL, May 27, p. 1617) contained an announcement of the appointment of a committee to continue the study of local anesthetics. This committee is composed of representatives from the several sections of the scientific assembly of the American Medical Association and is constituted as follows: representative of surgery, Dr. Elliott C. Cutler, Boston; representative of stomatology, Dr. Henry S. Dunning, New York; pharmacology, Dr. Robert A. Hatcher, New York, secretary of the committee; ophthalmology, Dr. Robert S. Lamb, Washington, D. C.; medicine, Dr. David I. Macht, Baltimore; laryngology, Dr. Emil Mayer, New York, chairman of the committee; pathology, Dr. Charles Norris, New York, and urology, Dr. Alexander Randall, Philadelphia. This new committee proposes to investigate the causes of toxic effects which have followed the use of local anesthetics, with a view to preventing these so far as possible, and thus to increase the safety, value and importance of local anesthesia. The committee requests that Fellows and members of the American Medical Association transmit to the secretary or to one of the members of the committee, the information indicated: (1) Have you, during 1920 or 1921, observed any toxic effects—fatal or not—following the use of cocain or any of the other local anesthetics? (2) If you have observed such toxic effects, please submit a detailed report of each case; record, among other facts, data concerning the patient's general condition, the occasion for using the local anesthetic, the drug employed, the method of administration and the dose administered. (3) Kindly inform the committee of the name and address of any physician whom you know to have had any accident with any one of the local anesthetics.

LATIN AMERICA

Children's Bureau in Brazil.—The Department of Public Health of Brazil has created a children's bureau under the direction of Dr. Fernandez Figueira, president of the Brazilian Pediatric Society.

Typhoid Vaccination Introduced in Paraguay.—Dr. Cayetano Masi, surgeon-general of the army, has applied to the vaccination of recruits a triple vaccine similar to the one in use in the United States Army. Dr. Masi was in this country last year.

Personal.—Drs. Paulina Luisi and J. C. Brito del Pino will represent Uruguay at the International Congress on Social Hygiene, to be held in Paris this year.——Dr. Ciro León of Manzanilla, Cuba, has been visiting clinics in this country, especially in Chicago.

Mexican Tribute to Cajal.—At a special meeting of the directing board of the National University of Mexico, it was decided unanimously to grant an honorary diploma to Dr. S. Ramon y Cajal. The Mexican Academy of Medicine has also appointed him an honorary member, disregarding, for the occasion, the usual routine requirements. A subscription started by Dr. T. G. Perrin, the bacteriologist, already amounts to more than $3,000.

Leprosy in Colombia.—According to a recent report by Dr. R. F. Parra, physician in chief of the Agua de Dios Leprosarium, Colombia, there are now 2,726 lepers segregated there. Of these, 122 are receiving chaulmoogra oil treatment. There are two other leprosariums in Colombia, but the facilities are considered insufficient. Dr. Erich Martini is now employed by the government to make a survey of the leprosy situation and present recommendations for its control.

FOREIGN

Psychanalysis for the Poor.—Our Vienna exchanges mention that the Vienna Psychanalysis Society has made arrangements for an hour's evening dispensary for consultation with applicants for psychanalysis and training of physicians in psychanalysis.

Petrina Endowment.—Prof. T. Petrina of Prague, professor emeritus of internal diseases, president of the German section of the Bohemian Medical Society, retired from this and other positions on reaching his eightieth birthday recently. The German-Bohemian members of the society have founded the Petrina Endowment in his honor.

Gullstrand Medal.—The Swedish Medical Association at a recent meeting voted to commemorate the sixtieth birthday of Prof. A. Gullstrand, in June, with a special medal, presenting him with the gold medal and selling the replicas to found a fund in his honor. He was given the Nobel prize in medicine in 1911 for his contributions to the science of ophthalmology, especially the Gullstrand lamp.

The Centennial of a Thesis.—Three French societies combined their efforts and invited the world to help them commemorate the thesis presented by Bayle one hundred years ago to the medical authorities of the University of Paris. Bayle had succeeded in isolating general paresis from the confusion prevailing in his day in regard to nervous and mental disease, and his thesis is a masterly description of the disease and its cause.

The Pioneer in Industrial Hygiene.—This is the title bestowed on Dr. B. Ramazzini, the founder of industrial medicine, over two centuries ago (1633-1714). His treatise on "The Diseases of Artificers," was translated into English in 1750. He studied at the University of Padua, which has recently celebrated its septicentennial, and commemorative addresses on Ramazzini have been delivered in several Italian cities as part of the septicentennial ceremonies.

New Medical Society.—The inaugural meeting of the Cambridge University Medical Society was held in the Anatomy School, Cambridge, England, May 10. Dr. W. Langdon Brown of St. Bartholomew's Hospital, London, was the lecturer and spoke on "The Endocrine Glands and Their Relationship to the Sympathetic Nervous System." The following are the officers of the society: president, Mr. E. S. Fellowes-Farrow; vice president, Mr. Norman F. C. Burgess; secretary, Mr. C. L. Owen, and treasurer, Mr. T. F. McNair Scott.

Total of Arsphenamin Fatalities.—The antiarsphenamin agitation in Germany, which was mentioned last week on page 1974, has brought out the fact that the proportion of mishaps with arsphenamin treatment amounts to about 1:10,000. This statement was made by Professor Jadassohn and Professor Galewski in testifying before the committee appointed by the reichstag to investigate the matter. They presented evidence further to show that with anesthetics the ratio of mishaps was 1:4,000 not so long ago, and it is now fully 1:10,000. They said that the aim should be not to restrict the use of the arsenicals but to train physicians in their use.

The Padua Septicentennial.—Among the students who flocked to the University of Padua were Vesalius, who came from Brussels; William Harvey, who came from England to describe the circulation of the blood; Ariosto, Tasso, Copernicus, and Benner. The souvenir medal struck off bears the heads of Morgagni and Galileo. The *Riforma Medica* gives an illustrated description of the festivities and relates that the first anatomy amphitheater was at Padua (1490), and the first chair of clinical medicine was organized in 1543. This was 105 years before Leyden could boast a chair of the kind. Four hundred delegates from various countries and scientific organizations took part in the proceedings, with the king of Italy and the scientific authorities of the land. A bronze bust of the late Prof. A. De Giovanni was also unveiled.

Personal.—Professor Weygandt of Hamburg delivered an address recently at Rome on "Psychology in Art," on the invitation of the medical faculty.——Professor Kolle of Frankfort-on-the-Main was invited to lecture at the medical school at Budapest on the "Present Status of Serotherapy and Chemotherapy."——Professor Siebenmann of the chair for ear and throat diseases at Basel was fêted on the occasion of his seventieth birthday, recently, and the *Schweizerische medizinische Wochenschrift* published a special number in his honor.——The Prussian Academy of Sciences has granted an appropriation to Prof. D. Ackermann to aid in continuing his research on the extractive substances of nonvertebrates, and to Dr. Paula Hertwig for continuing her experimental research on heredity, with 2,000 marks to Dr. F. Levy for his research on the physiology of cell segmentation.

Deaths in Other Countries

Dr. **L. Jeanneret**, a pediatrician of Lausanne.——Dr. **Wilmart** of Brussels.——Dr. **Virgilio Manzanares** of San Miguel, San Salvador.——Dr. **P. Mazzeo,** instructor in pediatrics at the University of Naples.——Dr. **Saint-Hubert Serre** of the medical faculty at Montpellier.——Dr. **Schlange,** chief of the surgical service at the Hannover city hospital, aged 66. Dr. **George D. Wilson,** vice president of the National Medical Union, and former chairman of the British Medical Association, Wandsworth Division; died in London, May 1.——Col. **Michael J. Sexton**; served in the Burmese War, the South African War and the late war, with the R. A. M. C.; died at Herne Bay, England, aged 61.——Lieut.-Col. **C. W. Owens,** R. A. M. C., served in three wars and as surgeon to the late Lord Roberts in India; justice of the peace; died, May 23, aged 69.

CORRECTION

Portrait for University of Pennsylvania.—In The Journal, June 24, p. 1971, it was stated that a portrait of Dr. Fussell was presented to the university by members of the faculty of the medical school. Dr. James M. Anders, Philadelphia, writes that the contributions for the portrait were made by Dr. Fussell's many friends and former medical students.

Government Services

Army Personnel

By the adoption of the conference report by the two houses of Congress, on the Army appropriation bill, all promotions in the Army below the grade of colonel will cease for the next six months. The provision in the bill applies to all branches of the service, including the medical department. The measure as finally agreed upon fixes the size of the Army at 12,000 officers and 125,000 enlisted men. Reduction of the officers' personnel from its present strength to 12,000 will be effected through the appointment of a selection board whose duty it shall be to review the efficiency of all the officers of the Army and recommend those for discharge or retirement who have failed to make satisfactory officers. The medical department will not be materially affected by the commissioned personnel reduction, as the number of its officers at the present time is below the quota.

Bureau Representative to Investigate European Conditions

Major Leon Fraser, assistant director of the U. S. Veterans' Bureau, sailed, June 24, on the *America,* for the purpose of making a survey of conditions affecting the disabled beneficiaries of the bureau in England, France, Belgium, Germany, Austria, Switzerland, Italy and Greece. The bureau has 15,000 insurance and compensation beneficiaries in Europe, receiving more than $600,000 every month, and is at present attempting to handle the situation through American consuls.

Graduation at Army Medical School

General Pershing presented diplomas to the graduates of the Army Medical School at the commencement exercises. Brig.-Gen. Walter D. McCaw, a member of the staff of the Surgeon-General of the Army, delivered the address, in which he praised the members of the Medical Corps for the work accomplished during the World War. Those receiving diplomas were:

Honor Men—Capt. Albert Bowen, Capt. Raymond O. Dart (Sternberg medal), Capt. Arthur D. Haverstock, Capt. John R. Herrick, Capt. Howard J. Hutter, Capt. Douglas H. Mebane, Capt. William C. Pollock (Hoff medal).

Graduates—Major Robert A. Hale, Major William G. McKay, Capt. William B. Blacksnare, Capt. James M. Bryant, Capt. Harry A. Clark, Capt. Joseph S. Craig, Capt. Arthur W. Drew, Capt. John F. Edwards, Capt. William B. Foster, Jr., Capt. Claude V. Gautier, Capt. Emory H. Gist, Capt. Sam Hardeman, Capt. George R. Harris, Jr., Capt. Clarence C. Harvey, Capt. Leonard W. Hassett, Capt. Adam G. Heilman, Capt. Jarrett M. Huddleston, Capt. James R. Hudnall, Capt. Francis B. Hutton, Jr., Capt. Charles H. Irving, Capt. Julius A. Johnson, Capt. John F. Lieberman, Capt. Merrill K. Lindsay, Capt. William D. McClelland, Capt. John I. Meagher, Capt. Joseph A. Mendelson, Capt. William J. Miehe, Capt. Frank McA. Moosc, Capt. Charles R. Mueller, Jr., Capt. Cyrenius A. Newcomb, Capt. James A. Orbison, Capt. David L. Robeson, Capt. John E. Robinson, Capt. Myron P. Rudolph, Capt. Montraville A. St. Peter, Capt. John M. Tamraz, Capt. Robert E. Thomas, Capt. Anthony J. Vadala, Capt. Logan M. Weaver, First Lieut. George F. Cooper (Slce Medal), First Lieut. Walter C. Royals, First Lieut. George P. Sandrock, First Lieut. William LeR. Thompson.

Citizens' Training Camps

Improvement in the health of the youth of the country is one of the prime results to be sought by the Citizens' Military Training Camps, which are to be held throughout the United States by the War Department during July and August. Full information as to entrance requirements, including application blanks, may be obtained from corps area commanders, nine of whom are located at various points in the country, as follows:

First Corps Area, Boston, includes: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut.

Second Corps Area, Governors Island, N. Y., includes: New York, New Jersey and Delaware.

Third Corps Area, Fort Howard, Md., includes: Pennsylvania, Maryland, District of Columbia and Virginia.

Fourth Corps Area, Fort McPherson, Ga., includes: North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi and Louisiana.

Firth Corps Area, Fort Benjamin Harrison, Ind., includes: Indiana, Ohio, West Virginia and Kentucky.

Sixth Corps Area, 1819 W. Pershing Rd., Chicago, Ill., includes: Illinois, Michigan and Wisconsin.

Seventh Corps Area, Fort Crook, Neb., includes: North Dakota, South Dakota, Minnesota, Nebraska, Iowa, Kansas, Missouri and Arkansas.

Eighth Corps Area, Fort Sam Houston, Texas, includes: Texas, New Mexico, Colorado, Oklahoma and Arizona.

Ninth Corps Area, San Francisco, includes: Washington, Oregon, Idaho, Montana, Wyoming, Utah, Nevada and California.

Foreign Letters

PARIS

(From Our Regular Correspondent)

June 2, 1922.

Fatal Poisoning with Naphthol Salve

At a recent session of the Therapeutic Society, Dr. H. Busquet related that a 5-weeks-old babe, who had a gluteal erythema and excoriation, had been treated by its mother with naphthol pomade, on lay advice. Besides naphthol, the salve contained sulphur and menthol, which did not have any part in the poisoning. The total amount used in two inunctions in twenty-four hours was 10 gm., corresponding to 1 gm. of naphthol. A few hours after the second application, pallor and acceleration of the pulse were noticed. The next day, jaundice appeared, followed by cyanosis of the lips, diarrhea, vomiting and scanty urine with albumin. The following day the child was in coma and death occurred with a temperature of 35.7 C. (96.3 F.) In the course of the discussion concerning this communication, Artault remarked that products formed by alteration of naphthol are more toxic than naphthol itself. Thus, it is important to keep naphthol in well-stoppered bottles, sheltered from light, and it is still better to use a fresh product. Richaud and Desesquelle emphasized the ease of absorption of phenol products when the skin is not intact, as in Busquet's case.

Illegal Practice of Medicine by a Truss Maker

Is a truss maker, not a physician, who sells his apparatus regularly in certain territories, guilty of illegal practice of medicine? As a rule, the courts have decided in his favor when the truss maker confines himself to the sale of his apparatus and the taking of measurements, without making a diagnosis or treating the affection. In this case, the truss maker must not question the patient on his health condition, or examine him, either to make a diagnosis or to give him the necessary truss. Apparatus must be made at the order of a physician only. He is considered as practicing medicine illegally if he tells the patient that, with his apparatus, he can be cured within a certain time, or if he dissuades the patient from having an operation considered necessary by a physician, and that he claims to prevent by the use of his apparatus. The *Concours médical* publishes a case of this kind in which the truss maker guaranteed a complete cure to his patient in two years, and made him sign a contract for the purchase of his apparatus. But the patient consulted a physician, who diagnosed the case as hydrocele. Thus, the truss maker's diagnosis was detrimental to the patient, who was obliged to purchase from him an apparatus not only expensive but also harmful, which might have increased his suffering.

Memorial to the Army Medical Service of the World War

A ceremony was held recently at the Ecole d'application de médecine et de pharmacie militaires at Val-de-Grâce in memory of the officers and soldiers of the medical corps who died during the World War. The minister of war, who spoke in behalf of the government, said that homage must be paid to civilian physicians who enlisted during the war, as well as to regular army physicians. The ceremony was presided over by the president of the republic, and Mme. Millerand placed a wreath at the base of the bronze monument "In the Mud of the Somme," which symbolizes the devotion of the stretcher bearers.

Propaganda Against Conception

In a preceding letter (The Journal, March 5, 1921, p. 666) I mentioned the law against enticement to abortion and the propaganda against conception. The attorney-general of Nantes made use of this law against a storekeeper who had sold or exhibited for sale instruments and articles to prevent conception. But, notwithstanding the fact that the goods had been exhibited in the store window of the accused, the Nantes court did not agree with the attorney-general, and acquitted the man, stating that:

> No law prevents, at the present time, the manufacture, sale or exhibition of instruments or articles to prevent conception, and although the accused offered these instruments or articles for sale, there is no act, plot, intent or advertising showing that, by exhibiting them, he intended to carry on a propaganda against conception. Thus, the essential element of the offense is lacking and there is no legal basis for accusation. . .

Creation of Two Chairs of Hydrology and Climatology

A chair of therapeutic hydrology and climatology has been created in the faculties of medicine and pharmacy of the universities of Bordeaux and Toulouse.

War Cross Awarded to the Val-de-Grâce School

At the end of the ceremony mentioned in the previous paragraph, the president of the republic stated that the ministry of war had awarded the Croix de guerre to the school of Val-de-Grâce with the citation:

> True to its noble traditions, the school of applied medicine and pharmacy of the army inspired the officers of the medical corps with the cult of science and the spirit of sacrifice; and, by the admirable devotion and abnegation shown by them during the World War, they merited everlasting homage from the country.

LONDON

(From Our Regular Correspondent)

June 12, 1922.

Death of William Halse Rivers

Through the recent death of Dr. William Halse Rivers, M.D., F.R.C.P., F.R.S., president of the Anthropological Society, at the age of 56, following an acute abdominal illness, a brilliant and subtle mind, which had shed great light on the difficult problems of race, has been lost.

He was educated at St. Bartholomew's Hospital, and graduated with an M.B. degree at the London University, in 1886. He became house physician at the National Hospital for the Paralysed and Epileptic, and, at an early age, was lecturer on psychology at Guy's Hospital and on experimental psychology at the University of Cambridge. He attained the degree of F.R.C.P. in 1899. He delivered the Croonian lectures on fatigue and the action of drugs in 1906 and the Fitzpatrick lectures on medicine, magic and religion in 1915 and 1916. But it was as an anthropologist that he first achieved wide fame. He was a member of the Cambridge expedition to the Torres Straits and wrote a book in two volumes entitled the "History of Melanesian Society," in which he made a bold attempt to reconstruct the history of the migrations of the Melanesians from their culture. The work was a contribution to comparative ethnology, remarkable for both its original research and its scrupulous accuracy. Other anthropologic works were "Kinship and Social Organization," and "The Todas." Then came the period in which he turned his attention to psychology and the writings of Freud, of whom he might be described as a critical follower. He considered that Freud insisted unduly on the sex instinct. In 1920, he published "Instinct and the Unconscious," which he described as "a contribution to a biologic theory of the psychoneuroses." It embodied his life studies and his experience with soldiers who had broken down under the strain of the war.

His special aim was to study the relation between instinct and the body of experience we are accustomed to speak of as "the unconscious." The discovery of Head that in the healing of a severed cutaneous nerve there are two stages of sensibility—protopathic and epicritic—he explained as representing different stages in the development of the afferent nervous system. Certain manifestations of protopathic sensibility are suppressed as belonging to a crude form of nervous system, which has been superseded by a more efficient mechanism. The suppressed reactions are ready to spring into activity whenever the situation calls for an emotional rather than an intellectual response. From these considerations follows the argument that "the suppression of conscious experience is only one example of a process which applies throughout the animal kingdom and is essential to the proper regulation of every form of human or animal activity. Every living process of the animal involves not only activity devoted to the special end to be met but also the inhibition of activities of other kinds." Certain elements of early experience are utilized and form, by fusion with other elements, the products which make up the experience of later life. Elements which are incompatible with later developments are suppressed.

Rivers restricted the term "unconscious" to the earlier forms of mental experience which have not been utilized by the process of fusion. Much, however, of the unconscious he regarded as such, on account of its having accompanied a painful experience. Hysteria he held to be essentially protective. Cases met during the war had the common feature that they unfitted the subject for further participation in warfare. The symptoms appeared in order to "protect" the individual. Thus was the immemorial conflict between instinct and duty solved. By the premature death of Rivers, morbid psychology has lost its most philosophical mind since Hughlings Jackson.

The Reprieve of Ronald True

The case of Ronald True, who was sentenced to death for the murder of a courtesan, has been reported in previous letters (The Journal, May 27, p. 1651; June 17, p. 1907). In spite of the unanimous evidence of the physicians, including those in the jail service, that he was insane, the jury found him guilty of murder and responsible for the act, and the court of appeal confirmed the verdict. The home secretary ordered an inquiry into his mental condition by three experts. They unanimously pronounced him insane. He was therefore reprieved and sent to a criminal lunatic asylum. The reprieve has provoked an unprecedented storm of protest in the press and in journals of all shades of political opinion. The prisoner's disreputable career and the callous brutality of the crime with the sordid motive of theft caused a strong desire to see justice done. The fact that the jury rejected the plea of insanity was considered decisive on that point.

In charging the grand jury at the Devon assizes, the judge (Mr. Justice Avory) said, referring to the lightness of the calendar: "I hope this may be taken as a symptom that a recrudescence of crime which we experienced after the war is abating. Whether it will continue to abate if the infliction of the penalties of the law is to be left to the discretion of experts in Harley Street, I very much doubt, for the only real deterrent to crime is the certainty that the appropriate penalty will follow its commission." This slogan, "Trial by Harley Street" (the principal physicians' street in London), has been taken up by the press. The whole trouble turns on the difference between the legal and the medical conception of insanity, which is a constant bone of contention in the courts. In this case, notwithstanding the medical evidence, the jury refused to find the prisoner legally insane. On the other hand, the committee of experts had not to determine the question of criminal responsibility but whether the prisoner was insane at the time of their examination. It having been determined that he was insane, he could not be executed, for the law forbids the execution of an insane man. But so great was the indignation that the press and public lost sight of these facts, which show that the home secretary had no choice in the matter but was bound to act as he has done. He was assailed with the greatest virulence and has had to defend himself in Parliament. Even the unfounded allegation was made that True had got off because he had relatives high in society.

Another aspect of the case is put by a well-known admiral, who says: "Whether he is a lunatic or not, why should the taxpayer pay to keep in existence a man who brutally murders a woman in order to steal her jewelry? Murderers had better be tried by a naval court-martial. We should expend a few pence more in rope, but save the country many thousands of pounds in lunatic asylums." The press declares that mental experts have become imbued with Freudian and other recent doctrines to the extent of extinguishing human responsibility for anything, and that they have come to regard brutal crimes as a symptom of insanity. If they are to gain a footing at the home office, murder trials will become a mockery, and our criminal lunatic asylums will become overcrowded, unless, indeed, they demand a general jail delivery on psychologic grounds.

An American Surgeon in Charge at a London Hospital

Dr. Harvey Cushing, professor of surgery in Harvard University, is, on the invitation of the governors and of the medical college of St. Bartholomew's Hospital, acting as director of the surgical professorial unit. A similar compliment was paid last year, when the director of the surgical professorial unit of the hospital acted as temporary surgeon-in-chief of the Peter Bent Brigham Hospital in Boston. The interchange of teachers between our medical schools and those of America has sprung from the intimacy and consequent mutual appreciation which was brought about in the war. Professor Cushing was created a Companion of the Order of the Bath for his services with the British Forces in France, and was elected an Honorary Fellow of the Royal College of Surgeons of England.

Tropical Research in East Africa

It is proposed that the research station at Amani in German East Africa, which in the days before the war was reputed to be one of the leading tropical research institutions in the world, shall be made the central research station for the whole of East Africa. During hostilities, the Germans produced there huge stores of food and other supplies, including 15,000 bottles of "whisky," and soap, candles and medicines.

The Increase of Cancer

As stated in a previous letter (The Journal, June 24, p. 1975), the increase of cancer has again become a topic of interest. Our ignorance as to the cause of the disease is reflected in the diverse suggestions which are being made in the press, in some cases by distinguished scientists. Tea drinking, the cooking of food, the inhalation of tar dust arising from roads, microbes which are generated in drinking water stored in reservoirs have been in turn incriminated. The proportional mortality from the disease is shown by the following figures, given in the last census of England and Wales for the deaths from the principal diseases per thousand deaths: cancer, 68; phthisis, 74.3; nervous diseases, 107.4; bronchitis and pneumonia, 140.7; heart disease, 85; violence, 38.5.

Knighthood Conferred on a "Bone Setter"

Mr. H. A. Barker, the "bone setter," has been knighted. He is described officially as "a specialist in manipulative surgery who placed his manual dexterity unreservedly at the disposal of all wounded ex-service men." Though not a qualified member of the medical profession, he enjoyed an extensive and fashionable practice, and for long was a cause of acrimonious controversy. A physician had his name removed from the register for administering anesthetics for him. He possesses considerable manipulative skill, for he won the approval of some leading surgeons, but how far the absence of the regular training led him to adopt "manipulative surgery" in cases in which it did no good or even did positive harm is a question on which we have no light. Some time ago, an attempt was made, as stated in The Journal, by his influential friends to obtain for him an honorary medical qualification, but it failed. The rather absurd reason was given that the fact that he had not a qualification prevented him from explaining his methods to the profession. We have to go back to the days of Queen Anne for an instance of a man outside the profession being given a knighthood for supposed medical skill. She conferred this honor on her oculist, who was unqualified and is regarded as a quack.

BELGIUM

(From Our Regular Correspondent)

May 27, 1922.

The Reserve Medical Corps

The minister of national defense recently submitted to the king a decree concerning the creation of a school whose duty will be: (1) to give or to perfect professional instruction to officers, future reserve officers, noncommissioned officers and certain soldiers in the sanitary service; (2) to experiment with field equipment and to study the operation of the sanitary service, and (3) to give special instruction as ambulance bearers to men preparing for ecclesiastical duties. The school will include a staff, a school for reserve physicians and pharmacists, a company of ambulance bearers and an executive staff. The aim of the school is to train the men in the militia who intend to become physicians or pharmacists in the professional technic of the army; and to give them the necessary military instruction and education to prepare them to fulfil, after their university studies, the functions of reserve physicians or pharmacists, and to enable them, in the interval, to render service in the field, thus insuring a sanitary service with a complete force at all times.

Congenital Upward Displacement of the Scapula

Dr. Delchef presented to the Academy of Medicine two curious cases constituting actual ectopia of the scapula. The malformation is analogous to an arrest of the ascent of one or both ilia with six sacral vertebrae, and has the same clinical significance as cervical ribs. The abnormal bone parts holding the scapula to the vertebrae are not the cause of the malformation, but a complication, probably of vertebral origin. The hypothesis of a regressive anomaly, with a resemblance to the complete scapular girdle of certain fish, is not justified. On the other hand, the resemblance to a cervical rib seems justified, but the extreme difference between the anatomic anomalies increases the doubt as to the pathogenesis. Operative intervention is indicated when the fixity of the scapula entails important functional disturbances. The operation consists, according to cases, in resection either of the superior internal angle of the elongated and curved bone, or of the supernumerary bone parts and dividing the retracted muscular fibers. It may be necessary, besides, to raise the muscles on the inward edge or to fasten the scapula to the ribs, bone or muscle.

Protection of Children Against Tuberculosis

Monsieur Duthoit has published his report concerning the activity of the society for the protection of children against tuberculosis during 1920. The work is accomplished with the cooperation of the Belgian national league against tuberculosis. Its dispensaries send to the society children of the patients frequenting their consultations, who are accepted only on a report from the dispensary physician and the prophylaxis nurse. The society includes, at present, the Edith Cavell infant shelter, twelve cradles, the Berthemlez-Louvain colony, thirty beds, and the Flobecq colony, with 130 children. The "Foyer Elizabeth" was organized in the Flobecq colony, in 1920, to isolate and give special care to children who become ill while out to nurse, and to quarantine those coming from Brussels before they were turned over to the nurses. The total number of days of care in the three establishments in 1920 was 40,130, for an average of 167 children. The upkeep for each child has been 3.48 francs each day.

Pneumococcus Infection and the Congo Troops

Dr. Lejeune recently submitted a report to the Belgian Society of Tropical Medicine concerning some interesting statistics on the morbidity of black troops. The figures show that in German East Africa, in 1917, only 25 per cent. of the deaths were due to the enemy fire. During this campaign, pneumococcic infections alone killed 4 per cent. more men than bullets did. Negroes do not seem to be able to resist the pneumococcus, and the reason for this is not clear. Senegalese troops in France showed that the race factor was not the only cause for, after a few months, by degrees they became spontaneously immunized. There was an average loss of 6 per cent. at the beginning, but later the black troops became as resistant as European troops. Lejeune called the attention of the civil and military authorities to the advantages that would be derived from compulsory vaccination of postoffice employees, soldiers and workmen. Antipneumococcic vaccines and serums should be put at the disposal of all physicians in the colony, and, if possible, they should be manufactured in various parts of the Congo under the same conditions as smallpox vaccine.

Reform of Medical Studies

We mentioned in a previous letter the discussions pertaining to the reform of medical studies. Notwithstanding the differences of opinion, members of the Academy of Medicine have finally arrived at an understanding. Medical studies in universities must be of seven years' duration. This includes all scientific and medical studies for the degree of doctor of medicine.

Anthropometry of the Belgian Woman

Monsieur Gilet has submitted to the Société d'Anthropologie of Brussels the results of his inquiry concerning the anthropometry of Belgian women. His researches were made on 1,000 delinquent women and 400 nondelinquent women. He concludes that the proportion of Belgian women whose weight corresponds to their height is very small. Social conditions and temperaments have an influence on this. He remarks that the muscular type of woman is best, but is rarely found in Belgium, because, on account of education, atavism or indifference, she neglects physical instruction and the improvement of her constitution. Developing exercises should be applied equally to the two sexes, and athletic sports would be of great advantage to women.

BUCHAREST

(From Our Regular Correspondent)

June 10, 1922.

Imbecility in Its Clinical and Medicolegal Aspects

At a recent meeting of the Medical Society of Bucharest, Dr. Popescu read a paper on imbecility in its clinical and medicolegal aspects. He considered that particular form of imbecility described as moral insanity or moral imbecility. The symptoms to which he assigned the foremost place were lack of discretion, absolute incapacity for being influenced, strong criminal propensity traceable even to childhood, lifelong instability and restlessness, aversion to useful employment, unsociableness, exaggerated self-esteem, excessive fancifulness, vanity, egotism, complete want of ethical ideas and impulses, absolute unconsciousness of justice and morality, and a great many bodily signs of degeneration. Heredity had something to do with the development of these defects. Observations extending over many years had convinced Dr. Popescu that the ethical imperfections enumerated in this list and the criminal acts arising from them were the results of mental incapacity dating from the earliest period of life. In all patients whom he had the opportunity of observing from the age of 10 or 12 years to full maturity, he found that the ethical shortcomings which rendered them useless as members of society showed no tendency to increase. He then described those forms of the disease which present similar symptoms and might, therefore, be confused with moral imbecility; called attention to the chief points serving to distinguish them; made some observations on the prognosis; discussed the general question of how such cases should be dealt with, and devoted a few words to the subject of judicial decisions. He agreed with other continental neurologists that this form of mental abnormality presented certain features which were always similar and decidedly characteristic; as already mentioned, the features in question existed from the earliest period of life and showed no tendency to increase; and, on account of possessing these qualities, the condition now described might be reckoned as one of the special or definite types of mental disease.

Poisoning with Methylated Gin

A series of cases of poisoning was reported to the health authorities in Sofia recently, and in subsequent investigations some unexpected disclosures were made. Within a few days, seven cases of illness, all presenting similar symptoms, were observed in a Bulgarian mining district; and, in a Sofia suburb, about forty persons were attacked with marked drowsiness, vomiting and violent muscular cramps. That the condition was a result of poisoning by methylated gin was ascertained in the Sofia cases only after the source of the fatal cases had been discovered in the mining district. Altogether about 1,800 liters (450 gallons) of the poisonous gin has been seized and destroyed, and endeavors are being made to trace the buyers of other quantities of liquor. How the methyl alcohol has found its way into the gin could not be ascertained. This is the first instance, in Bulgaria, in which an alcoholic beverage containing dangerous admixtures has escaped detection by the excise and the health officers.

The Feebleminded

The truth about the feebleminded is gradually being put in plain words before the public, and at a recent meeting of the Kolozsvar education committee, Dr. A. Elfer spoke very forcibly regarding the necessity for legislation giving legal control over those unable to take care of themselves. In moving the adoption of the report of the special schools after-care committee, Dr. Elfer stated that, while the children improved very much in the school, when they were turned out into the world only 5 per cent. proved capable of earning the minimum for maintenance, and many who when they first left school became wage earners fell back into the class of unemployed. The experience of the after-care committee has led Dr. Elfer to the conclusion that the mentally defective require life-long control, some to a greater and some to a less extent; but such control must be provided, or the work spent on them during their earlier years will be entirely wasted.

Spontaneous Fracture of the Ribs in a Syphilitic Patient

The Sarajevo County Hospital reports the case of a woman, aged 41, who presented several unusual symptoms of syphilitic origin. She had contracted the infection fourteen years before, and had been treated with injections of mercuric salicylate. Since that time she had remained free from all symptoms until a few months previously, when suddenly an infiltration of the sternal extremity of the right clavicle appeared and developed into a well defined, immovable tumor, which still existed. Two months previously, a similar nodule had appeared on the sternum and four weeks later a fresh tumor was observed, but this time on the eighth right rib in the posterior axillary line. The nodule was hard, immovable and very tender. The patient said that when bending to the side she suddenly felt a sharp pain and a cracking noise on the side of the new tumor. Since that time, she had felt pain at this point on coughing, turning or breathing deeply. An examination by the roentgen rays revealed the true nature of the affection. The roentgenogram revealed a fracture of the rib, the vertebral fragment having two sharp points and the sternal fragment being distant about 1.5 cm. from the other portion. The rib itself was thickened and the periosteum was infiltrated (gummatous osteomyelitis and periostitis). Cases of such spontaneous fractures are very rare.

PRAGUE

(From Our Regular Correspondent)

June 1, 1922.

Congress of University Teachers

A general congress of Czechoslovak university teachers was held in Prague, May 14-16. The congress was attended by about 500 members. The congress was opened by the president, Masaryk, who was at one time a professor of philosophy at Prague University. In the section on educational questions, Prof. Jaroslav Hlava, senior on the staff of Prague medical faculty, presented a scheme for the reform of medical studies in the republic. The theoretical study should last, according to his plan, for five years, as has been the case up to date. He reserves two years for the study of chemistry, biology, physics, anatomy, histology and physiology, as has been done in the past, adding to these fundamental sciences, microbiology, as a special subject. Under the present plan, the students have to pass the examinations in these sciences at the end of the second year. Professor Hlava would give the examinations in the first four semesters. He also desires to have all the semesters equally long. At the present time, the winter semester is almost twice as long as the summer semester. The most radical changes which he suggests concern the second part of the medical course in the last four years. To the examinations in twelve different topics which the medical students have to undergo, he adds six. He wishes to have included among the new topics public health administration and social medicine. As it would be impracticable for the staff of the medical faculty to hold so many examinations, he suggests that two different categories of examinations be introduced. One group of subjects, including the most important ones, should be passed by all the students, the examinations in the second group being taken only by those who will be called according to an automatic scheme which will be unknown to the students; so that they shall prepare themselves for all the examinations, not knowing whether they will be required to take them. The examinations should be again divided throughout all the semesters of study and not crowded into the last semesters, as they now are. This reform would allow the same time for medical studies as at present, but a new bill regulating the practice of medicine, which is to be introduced into the parliament in the near future, will make it compulsory, for every doctor of medicine who desires to practice in the country, to spend a year in one of the general hospitals of the country. This virtually means that the medical studies will be prolonged by another year. The proposition of Professor Hlava is being criticized, especially by the representatives of the clinical branches of medicine, as being too theoretical and as not allowing sufficient time for practical training; but his suggestion has aroused such an interest in the reform of the study of medicine that, very probably, some changes will be made for the improvement of the medical curriculum, which has not been changed since 1903.

Venereal Diseases Bill

The senate recently accepted the venereal diseases bill which was introduced by the cabinet. It is somewhat surprising that the bill was accepted unanimously, as it was anticipated that there would be some opposition, at least from the Catholic party, since the Catholic papers carried on a campaign against this bill, which introduces abolition in place of the present system of reglementation. The minister of health, Dr. Boh. Vrbensky, made a speech when presenting this bill to the parliament and it is said to be due to his eloquence that all opposition to the bill was suppressed and the bill accepted unanimously. The bill will not appear before the house of commons before the fall season, and as no opposition to it is anticipated there, after such a splendid reception in the senate, it is probable that the bill will become a law late in the fall.

Social Medicine Congress

A social medicine congress will be held in Munkac, June 4-7. Munkac is the capital of Ruthenia, an autonomous territory within the boundaries of the Czechoslovak republic. It is generally known as the most backward province of the republic in matters of hygiene. The people of this territory have had very little education, and little was done to educate them in hygiene before the end of the war. When the territory joined the Czechoslovak republic, a number of enthusiastic Czech physicians, headed by Dr. A. Albert, came to this neglected country and have worked ever since for the improvement of conditions. Now that the most dangerous epidemic diseases have been controlled, the physicians of Ruthenia are calling their colleagues from the rest of the republic to come to Ruthenia for a congress of social medicine, and are asking the best advice for the development of a local program in social medicine. As the congress is well prepared and unusual interest has been aroused, it promises to become a real milestone in the development of public health, not only for Ruthenia but also for the whole of Czechoslovakia.

BERLIN

(From Our Regular Correspondent)

June 3, 1922.

Tuberculosis Problems

The general meeting of the German Commission for the Campaign Against Tuberculosis was held in Bad Kösen in May. In spite of the advantages that large cities offer to conventions, most congresses in Germany are now held in the smaller towns, for the reason that accommodations are procured more easily and more cheaply. There is less competition in the way of outside attractions; hence, a better attendance is secured at the scientific meetings. In recent years, the spas have become popular as meeting places for congresses. The visitors become acquainted with the equipment of the watering place, and this serves as an excellent advertisement. The scope of the tuberculosis congress did not measure up to the amplitude of last year's congress, which was the first to be held since the opening of the war; hence, many problems growing out of the war were discussed. At this year's congress, Kirchner's lecture on the part that human and bovine tubercle bacilli play in the origin of lupus awakened considerable interest. Kirchner subjected particles of lupus-infected tissue to careful scrutiny and found that about half of the affections were traceable to bovine tubercle bacilli. Welfare work among the tuberculous of the middle classes, who, on account of special difficulties in supporting themselves, cannot help themselves to the same extent as formerly, but are obliged at times to accept assistance, was discussed at length. In the course of the discussion, it was brought out that, at present, there are many more cases of tuberculosis in families of the middle class than formerly—many more than in working men's families. Pütter, the director of the Berlin welfare center for the middle classes, vouchsafed the information that, among the 8,928 tuberculous patients receiving assistance, there were 1,654 officials, 119 professors, 153 teachers and 88 authors and artists.

Scurvy in Berlin

At the last session of the Society for Internal Medicine, two cases of scurvy that had developed in Berlin were presented. It was in accord with the present-day conception that these cases had arisen owing to a lack of fresh vegetables and potatoes, the result of the extraordinarily high prices demanded which put vegetables out of the reach of the poorer classes. There seems to be also an actual scarcity of fresh vegetables, one assigned reason for which is the large amount exported to foreign countries. I am aware that this presents a view as to economic conditions, and especially food conditions, prevailing in Germany differing from the one received from newspaper accounts which report observations of feasting in the high-priced restaurants of Berlin. That such feasting is participated in mainly by foreigners, who, taking advantage of the favorable exchange rates, are living here on the fat of the land, or at most by some of Germany's newly rich, is a fact not brought out by the foreign press.

Fixing of Medical Fees

Physicians in a city of Bavaria adapt the medical fees to the increased cost of living. They base their fees on the prevailing price of bread. They make this fact known by the following notice, posted in their waiting rooms:

> The continual advance in the cost of living compels the physicians to adapt their fees to the sinking value of the mark. Until further notice, therefore, the minimum fees will be based on the fees in vogue just preceding the war (3 marks for a visit, 2 marks for office consultation, 1 mark for every 2 kilometers of distance traversed) and will be figured in the following manner: The current price of a pound loaf of bread will be divided by 15 (in 1914, a pound loaf of bread cost 15 pfennigs). The resulting quotient will be used as a multiplier, and the prewar fees given above will be increased in exact proportion with the increase in the cost of bread.

To illustrate: The new bread price in Munich is 3.80 marks, which is twenty-five times that of 1914 (15 pfennigs). Accordingly, the minimal medical fee for a domiciliary visit would be 75 marks; the office consultation fee, 50 marks, and the mileage allowance for every two kilometers traveled, 25 marks.

Marriages

GEORGE EDWARD WEBB HARDY, Catonsville, Md., to Miss Minnie Gertrude Calary of Jarrettsville, Md., June 10.

WILLARD STRICKLAND, Wendell, N. C., to Miss Cleo Mariner of Pocomoke, Md., at Richmond, Va., May 10.

EARL VINCENT MORROW to Miss Frances D. Coakley, both of Portland, Ore., June 10, at Chehalis, Wash.

ROBERT GRAHAM WIATT, University, Va., to Miss Marian C. Myers, Charlottesville, Va., May 5.

SAMUEL GIBBS MILLIKEN to Miss Harriet Elizabeth Bain, both of Galveston, Texas, June 24.

JESSE LITTLETON MEEKS to Miss Ione Tumlin, both of Gainesville, Ga., June 1.

KENNETH ROSS MCALPIN to Miss Margarethe Potter, both of New York, June 14.

WINIFRED VIERS, Minneapolis, to David T. Wooster of San Jose, Calif., June 13.

JOHN TERRELL SCOTT, Lynchburg, Va., to Miss Vivian White of Denver, June 14.

Deaths

Edward Hall Nichols ⊕ Boston; Medical School of Harvard University, Boston, 1892; was taken ill after finishing an operation in a Brookline hospital and died, June 12, from cerebral hemorrhage, aged 58. He was assistant professor in surgical pathology and surgery, 1904-1913, and since 1916, clinical professor of surgery in his alma mater. He was also director of the cancer laboratory of the Croft Research Fund, Boston. During the World War, Dr. Nichols first served as surgeon-in-chief to the first Harvard surgical unit with the British army in France in 1915. Following his return he joined the American Army and served as chief surgeon of U. S. Base Hospital, No. 7, in France, with the rank of lieutenant-colonel, and was cited by General Pershing for exceptional meritorious and courageous conduct. Dr. Nichols was a member of the American Surgical Association, American Association of Pathology and Bacteriology, the Society of Clinical Surgery and several other societies.

Joseph A. Crook, Jackson, Tenn.; Jefferson Medical College, Philadelphia, 1870; member and former president of the Tennessee State Medical Association, and one of the organizers, and former president of the West Tennessee Medical Association; for thirty-four years a trustee of Union University; for thirty-five years district and division surgeon of the Illinois Central Railroad; died, June 12, aged 74.

Jacob Chris Lange, Pittsburgh, Pa.; Bellevue Hospital Medical College, New York, 1875; member of the Medical Society of the State of Pennsylvania; one of the founders and formerly dean and professor of principles of medicine and clinical medicine at the Western University of Pennsylvania, Pittsburgh; at one time president of the Allegheny County Medical Society; died, June 7, aged 67.

Conrad William Wilkowske ⊕ Chippewa Falls, Wis.; Homeopathic Medical Department of the University of Minnesota, Minneapolis, 1904; member of the Minnesota Academy of Ophthalmology and Oto-Laryngology; was drowned in Round Lake, June 17, aged 47, when the boat from which he was fishing overturned.

William V. Marmion, Washington, D. C.; University of Pennsylvania School of Medicine, Philadelphia, 1866; served as surgeon in the U. S. Navy on the flagship *Monongahela* in 1866; in 1883 the degree of Master of Arts was conferred on him by Georgetown University; died, May 24, aged 82, following a long illness.

Joseph A. Gates ⊕ Kenyon, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1895; served in the M. C., U. S. Army, during the World War, with rank of captain; was instantly killed, June 15, aged 52, when the automobile in which he was driving was struck by a train.

Charles Bernard Burke, Atlantic, Iowa; Northwestern University Medical School, Chicago, 1906; member of the Iowa State Medical Society; served in the M. C., U. S. Army, during the World War, with rank of captain; was found dead in his office, June 19, aged 42, from cerebral hemorrhage.

Hartwell Carver Howard, Champaign, Ill.; Starling Medical College, Columbus, 1850; former president of the Champaign Medical Society; member of the city council and board of education; at one time president of the board of trade; died, June 5, aged 92.

George A. Coors, Memphis, Tenn.; University of Arkansas Medical Department, Little Rock, Ark., 1888; Chicago Homeopathic Medical College, 1892; died, May 12, at a hospital in Rawlins, Wyo., aged 53, from chronic nephritis and uremia.

Joseph Edward Kane, Portland, Ore.; University of Oregon Medical School, Portland, 1907; member of the Oregon State Medical Association; on the staff of the St. Vincent's Hospital; died, June 8, aged 39, from influenza and pneumonia.

Walter C. Hemingway, Hemingway, S. C.; Medical College of the State of South Carolina, Charleston, 1900; died, June 3, aged 45, from burns received in the explosion of a gasoline tank when he was sterilizing some instruments.

Ewell Pollett, Jonesboro, Ark.; University of Tennessee College of Medicine, Memphis, 1916; member of the Arkansas Medical Society; was instantly killed, June 16, aged 33, when the automobile in which he was driving overturned.

John Wilson Wood, Lindsay, Ont.; Victoria University Medical Department, Toronto, Canada, 1869; member of the board of education, formerly mayor of Lindsay; at one time warden of Victoria County; died, March 2.

Franklin P. Gates, Manteo, N. C.; Bellevue Hospital Medical College, New York, 1886; member of the Medical Society of the State of North Carolina; died, May 20, at Norfolk, Va., aged 62, from valvular heart disease.

George M. Glaser ⊕ Chicago; Rush Medical College, Chicago, 1892; practitioner in Chicago for nearly thirty years; died, June 26, at St. Luke's Hospital, aged 53, from spinal meningitis, following an operation.

Clarence Warfield ⊕ Baltimore; Baltimore Medical College, Baltimore, 1891; member of the American Academy of Ophthalmology and Oto-Laryngology; died, May 10, aged 56, from pulmonary tuberculosis.

Joseph Richard Culkin ⊕ Rochester, N. Y.; Bellevue Hospital Medical College, New York, 1887; on the staff of the St. Mary's Hospital; member of the board of health; died suddenly, June 9, aged 55.

Henry Thomas Rooney, San Francisco; Cooper Medical College, San Francisco, 1902; member of the Medical Society of the State of California; died, June 3, aged 45, from angina pectoris and myocarditis.

Robert Burns Harriman, Worcester, Mass.; University of Vermont College of Medicine, Burlington, Vt., 1903; on the staff of the Worcester State Hospital; died, June 6, aged 45, from pneumonia.

Moses Cline Hughey, Marianna, Ark.; Memphis Hospital Medical College, Memphis, 1903; member of the Arkansas Medical Society; died, May 28, aged 44, at Hot Springs, from uremia.

Frederick Rovitti, New York; Medico-Chirurgical College of Philadelphia, 1914; served during the World War in the M. C., U. S. Army; died, June 13, at Wilmington, Del., aged 30.

Paul Boyton Doyle, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1897; member of the Medical Society of the State of Pennsylvania; died, June 6, aged 47.

Jesse D. Dickinson, Galva, Ill.; Hahnemann Medical College and Hospital of Chicago, 1874; died, June 10, aged 75, at the Galesburg Cottage Hospital, following an operation.

Edwin Owen Woods ⊕ Chicago; Rush Medical College, Chicago, 1912; assistant surgeon, U. S. Public Health Service, formerly stationed at Manila, P. I.; died, June 26, aged 37.

Ambrose William Jones ⊕ Owingsville, Ky.; Kentucky School of Medicine, Louisville, 1890; died, June 8, aged 51, at the Good Samaritan Hospital, following an operation.

Andrew Jackson L. Dennis, Montgomery, Ala.; Southern Medical College, Atlanta, Ga., 1890; member of the Medical Association of Alabama; died, April 12, aged 66.

Frederick D. Sowden, Philadelphia; Jefferson Medical College, Philadelphia, 1883; member of the Medical Society of the State of Pennsylvania; died, June 6, aged 50.

Herman Amos Jergesen, Tulsa, Okla.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1912; was shot and instantly killed by his wife, May 25, aged 38.

Albert Lauder Kinsey, Gravenhurst, Ont.; University of Toronto Faculty of Medicine, Toronto, Canada, 1908; died, April 29, aged 37, following a long illness.

Clarence Lloyd McNett, Towanda, Ill.; College of Physicians and Surgeons, Chicago, 1903; was killed, June 21, in an automobile accident, aged 43.

Joseph C. Cleveland ⊕ Bald Knob, Ark.; Missouri Medical College, St. Louis, 1888; served as mayor of Bald Knob for ten terms; died, June 4, aged 69.

Corydon Eugene Rogers, Seattle; Medical Department of the University of the City of New York, 1868; Civil War veteran; died, May 29, aged 79.

Nils Albin Killberg ⊕ Chicago; Hahnemann Medical College and Hospital of Chicago, 1918; died, June 20, aged 33, from septic pneumonia.

Rudolph Meyer ⊕ Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1903; died, April 14, aged 43, from paresis.

John W. Mebane, Paris, Ky.; Meharry Medical College, Nashville, 1894; died, June 11, aged 56, from septicemia.

John Frederick Baker, Davenport, Iowa; Bellevue Hospital Medical College, New York, 1868; died, June 16, aged 76.

Clara Augusta Williams, Boston (years of practice); died, April 14, aged 73, from heart disease.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

"MEDICAL" TESTIMONIALS FOR CHIROPRACTIC

Opinions of Some Alleged Well-Known Medical Men on Chiropractic

Chiropractors affect, with "patent medicine" fakers, a fine disdain for scientific medicine and the medical practitioner. How readily, however, do both seize with avidity on any statement made by an individual who may be presumed to have the right to put "M.D." after his name—provided that statement seems favorable to the cause, or may be so twisted as to make the public believe that a reputable physician has spoken a good word, either for chiropractic or the nostrum industry.

For some time there has been going the rounds a chiropractic advertisement purporting to quote "Opinions of Well Known Medical Men" on chiropractic. The material obviously emanates from one of the chiropractic "ad" factories. These make a business of supplying the individual chiropractor with advertising copy that he, because of his educational deficiencies, would be unable to write for himself. Realizing that a chiropractic diploma may be obtained even by those who never reached the eighth grade of the secondary schools, these chiropractic advertisement factories, doubtless, meet a need of the trade.

According to these stock advertisements:

> ". . . there is an ever increasing number of M. D.'s all over the United States and Canada who understand, appreciate and practice straight Chiropractic to the exclusion of medicine and every other method, as witness the following selected at random:"

Then follow what purport to be quotations from physicians. For a while these advertisements contained a quotation credited to Dr. Charles Mayo and reading "The drugless healer is one of the best things that has come into the life of the present." Of course, Dr. Mayo never made such a statement or anything resembling it, but the reiteration of the falsehood was such that he found it necessary to publicly deny, through the pages of The Journal, the preposterous canard. The advertisements also contained an alleged quotation from Dr. Richard Cabot. Whether Dr. Cabot ever made the statement or not is immaterial, as by no stretch of the imagination can it be twisted into an endorsement of chiropractic. Sandwiched in, however, between a number of blatant testimonials for chiropractic, it, doubtless, serves the purpose intended.

The rest of the testimonials credited to alleged physicians will be given in detail and following the quotation a brief statement of what was found regarding the individuals quoted. It is to be borne in mind that the biographical data on file in the American Medical Association's offices are based on official information and have been checked and rechecked. It may, therefore, be assumed that the information is as accurate as can humanly be expected. While the quotations in the advertisements are not arranged in alphabetical order, we will present them in that sequence for the purpose of more ready reference.

Lee W. Edwards, M.D., Omaha:—"Chiropractic truth is so simple, so mathematically exact, that it seems too good to be true."

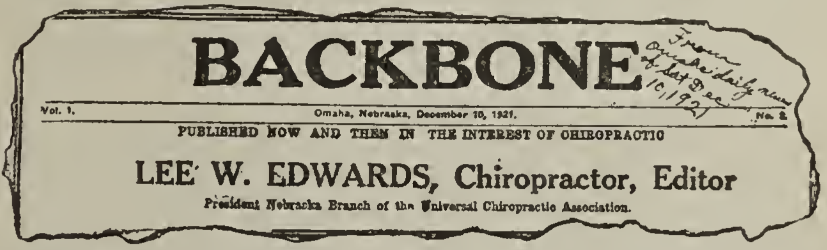
According to our records, Lee W. Edwards was born in 1870; was graduated in 1893 by the University of Nebraska, College of Medicine. He was licensed to practice medicine in Nebraska in 1894 and also holds a license in Wyoming. His name appears in the Propaganda files as one of a committee protesting against compulsory vaccination. His name also appears as the "state vice-president" of the "American Medical Liberty League," an organization of "drugless healers" and "patent medicine" makers. We have, too, a quarter page advertisement in our files from the *Western Medical Review* of June, 1920, in which Edwards holds himself out as a chiropractor and solicits "spinal X-Ray work."

R. C. Ellsworth, M.D., Astoria, Oregon:—"If I were confined wholly to one branch of therapeutics, I would choose Chiropractic unhesitatingly. I hesitate to state the number of women I have helped to health and the evasion of the surgeon's knife thru Chiropractic adjustments alone."

In some of the advertisements the initials of this person are given as "R. E." We have no record of any man of the name of R. C. Ellsworth or R. E. Ellsworth ever holding the title of "M.D." or being licensed to practice medicine.

E. W. Feige, M.D., Huron, S. D.:—"There are many Chiropractors who in certain kinds of cases, I am convinced, do vastly more good than the most highly educated physician."

This man, according to our records, was born in St. Joseph, Mo., in 1871; was graduated in 1895 by the Chicago Homeopathic Medical College. The records also indicate that Feige was one of the incorporators of a preposterous organization calling itself the "Association of Independent Doctors" which was brought into existence, according to its creator, "to combat the Medical Trust"—meaning the American Medical Association. Feige's name also appears as a member of the "staff" (Heaven save the mark!) in 1910 of the "Weltmer Institute of Suggestive Therapeutics." At that time the following letters appeared as a suffix to Feige's name "M.D., D.O., Oph.D., D.C." Whether Feige has accumulated any more nomenclatorial appendages during the past twelve years, we do not know.



BACKBONE

From Omaha daily news Sat Dec 10, 1921

Vol. 1. Omaha, Nebraska, December 10, 1921. No. 2

PUBLISHED NOW AND THEN IN THE INTEREST OF CHIROPRACTIC

LEE W. EDWARDS, Chiropractor, Editor

President Nebraska Branch of the Universal Chiropractic Association.

Reproduction (reduced) of an advertisement in an Omaha newspaper. Evidently L. W. Edwards is featured as a physician only when it suits chiropractic needs.

John A. Fisher, M.D., Philadelphia:—"The Chiropractors are working marvels so wonderful that even members of the medical fraternity are taking notice of their great work."

This man, apparently, spells his name both "Fisher" and "Fischer" and the latest Philadelphia telephone directory has him classified both under "Chiropractors" and under "Physicians." Fischer, according to our records, was born in 1872 and was graduated in 1895 by the Hahnemann Medical College and Hospital of Philadelphia. Needless to say, Fischer is not a member of his local medical society but, according to the latest issue of the Philadelphia telephone directory, he is a member of the "Philadelphia County Chiropractors Association."

Fred L. Fischer, M.D., D.C., Philadelphia, Pa.:—"In the acute cases one gets marvelous results. Do not be afraid of such cases. In adjustments you have absolute control, and after a little experience you will soon realize you have an unequaled health system in your hands. I am in better shape to say that, because I have gone through every stage of 'mixing,' until today I am an out-and-out Chiropractor."

The records fail to show that any man of this name has any right to call himself "M.D." or has ever been licensed to practice medicine; neither does the latest Philadelphia telephone directory show any man in the city of Philadelphia of this name, chiropractor or otherwise.

A. A. Gregory, M.D.:—"Under spinal adjustments, acute diseases are cut short and aborted, and chronic diseases recover which have been believed to be incurable."

This, presumably, refers to Alva E. Gregory, not "A. A. Gregory." This man, according to the records, was graduated in 1897 (when he was thirty-six years old) by the University of Texas, Medical Department. A few years ago

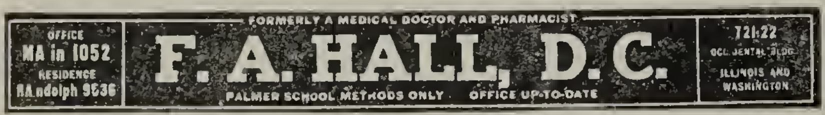
Gregory was editor of the *Progressive Physician* which carried advertisements of various chiropractic institutions and also announced "To the Progressive Physicians of America" the fact that Alva E. Gregory was giving "post-graduate courses" in "Chiropractic Spondylotherapy." The publication also carried advertisements of the "Gregory Office Supply Company," Alva Emery Gregory, secretary. This company sold "Gregory's Motor Traction Table" which would "remove the infirmities of old age, cause the paralyzed to walk" and "restore health and vigor of youth." In addition to being editor of the *Progressive Physician* and secretary of the Gregory Office Supply Company, Alva Emery Gregory seems to have been President of the "Palmer-Gregory Chiropractic College" of Oklahoma City. A "well known medical man," indeed!

H. G. Gould, M.D., Nephi, Utah:—"I have been keeping my eyes open and observing cases under Chiropractic adjustments. I am convinced of the superior merit of this form of health practice."

According to the records, this man, now in Spokane, Wash., was graduated in 1884 by the Fort Wayne (Ind.) College of Medicine, now defunct. Gould's name appeared in the medical directories from 1886 to 1900 at Medicine Lodge, Kansas, and St. Louis, Mo. It does not appear again until 1918, when it is found under McKinney, Texas. In the same letter from which the quotation given above appears, Gould tells why he "abandoned medicine." In this letter we read: "I have seen a beautiful girl of eighteen years die with all the symptoms of morphine poisoning after I had given her as medicine ⅛ grain of morphin sulf. I have known ¼ gram of calomel, which I gave as medicine, to cause every tooth to drop from my patient's head."

F. A. Hall, M.D., D.C., Indianapolis:—"When Chiropractic was brought to my attention I listened to seemingly extravagant statements relative to it, and I was offended because it reflected odium on the old time-honored profession in which I no longer sincerely believe. In time it dawned on me, however, that Chiropractic patients who had from a medical standpoint been considered hopeless cases, such as those with rheumatism, diabetes, Bright's disease, infantile paralysis, and many other maladies, were getting well, so that I began to read up on Chiropractic. The more I read about it, the more I saw it to be the means of true salvation from the cause of disease."

The records fail to show that this man is entitled to write "M.D." after his name or has any license to practice medicine. The Indianapolis telephone directory classifies Hall as a "chiropractor" only. Hall carries a display advertisement (reproduced in miniature) spread the width of the page in his local telephone directory and claims therein to have been "Formerly a Medical Doctor and Pharmacist."


FORMERLY A MEDICAL DOCTOR AND PHARMACIST

OFFICE
MAin 1052
RESIDENCE
RAndolph 9536

F. A. HALL, D.C.

PALMER SCHOOL METHODS ONLY OFFICE UP-TO-DATE

721-22
OCC. DENTAL BLDG.
ILLINOIS AND
WASHINGTON

Reproduced in miniature from the Indianapolis telephone directory. Here, too, the "M.D." becomes "D.C." when seeking business.

D. T. Krudop, M.D.:—"Clinical records show that there is hardly a recognized germ of disease that cannot be successfully 'treated' by Chiropractic adjustments."

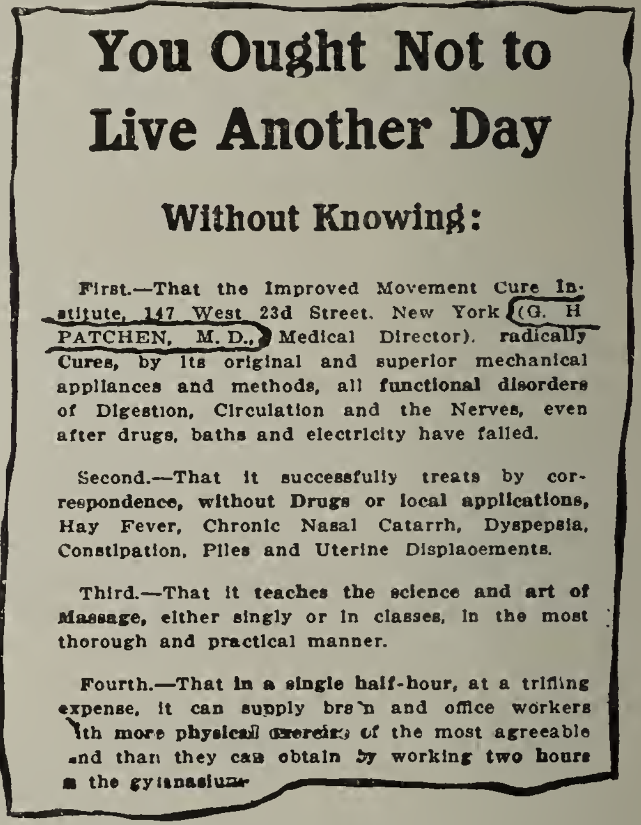
This man was graduated by the Hahnemann Medical College in 1888. He died in January, 1917. His testimonial is still going strong.

G. H. Patchen, M.D., New York:—"Chiropractic removes the cause of disease more promptly, radically and permanently than any other known method."

This man, according to the records, was born in 1845 and was graduated in 1886 by the New York Homeopathic Medical College. Patchen was for some years advertised as the "Medical Director" of the "Improved Movement Cure Institute" which, according to the advertisements, "Radically cures, by its original and superior mechanical appliances and methods, all functional disorders of digestion, circulation and the nerves, even after drugs, baths and electricity have failed." The Institute also "successfully treats by correspondence" uterine displacements and various other conditions! In the April, 1922, issue of the official organ of the egregious "Allied Medical Associations of America," we find Patchen given as "Chairman" of the section on "Drugless Therapy" and also as "Chairman" of the section on "Irodology"—whatever this may be.

E. G. Rutherford, M.D., Birmingham, Ala.:—"Chiropractors are obtaining results that I could not have obtained with medicine or surgery."

Rutherford, according to the records, was graduated by the University of Alabama School of Medicine in 1909—when he was thirty-eight years old. We have in our files an advertisement of Rutherford's in which he tells of his conversion from medicine to chiropractic and states that he had associated with him a chiropractor who, says Rutherford, is "giving adjustments and obtaining results that I could not have obtained with medicine or surgery." Rutherford's name appears in the Birmingham telephone directory classified as a "chiropractor," and not as a physician.


You Ought Not to Live Another Day

Without Knowing:

First.—That the Improved Movement Cure Institute, 147 West 23d Street, New York (G. H PATCHEN, M. D., Medical Director), radically Cures, by its original and superior mechanical appliances and methods, all functional disorders of Digestion, Circulation and the Nerves, even after drugs, baths and electricity have failed.

Second.—That it successfully treats by correspondence, without Drugs or local applications, Hay Fever, Chronic Nasal Catarrh, Dyspepsia, Constipation, Piles and Uterine Displacements.

Third.—That it teaches the science and art of Massage, either singly or in classes, in the most thorough and practical manner.

Fourth.—That in a single half-hour, at a trifling expense, it can supply brain and office workers ith more physical exercise of the most agreeable nd than they can obtain by working two hours n the gymnasium.

One of the advertisements of the Improved Movement Cure Institute of which G. H. Patchen was "Medical Director."

Wm. A. Seeley, M.D., D.C.:—"Results are what count, and Chiropractic adjustments when scientifically given bring them, notwithstanding what our medical friends (?) may say to the contrary."

The records show that William A. Seeley was born in 1847 and was licensed to practice medicine (Homeopathy) in Iowa many years ago on the basis of "years of practice." There is nothing to show that Seeley was ever graduated in medicine. Seeley admitted in a letter to a chiropractic concern that he had practiced medicine twenty years, osteopathy four years, and chiropractic seventeen years. Seeley died in February, 1918; his testimonial still lives.

John M. Shaller, M.D., Cincinnati: — "Many chiropractors are adjusting from ten to fifty patients a day to the satisfaction of the majority of their patients. Most of these patients are chronics who made the rounds of the various kinds of treatment, both regular and irregular. The results would astonish any medical man who would make an investigation."

John M. Shaller, according to the records, was born in 1856 and was graduated in 1874 by the Cincinnati College of Medicine and Surgery, which went out of existence twenty years ago. Shaller is the author of a pamphlet, published in 1917, entitled "Cramps in the Feet Caused by Vertebral Subluxations."

W. H. Shumley, M.D.:—"Eighty per cent. of the population are afflicted with some form of spinal defect; that is the cause of so much nervousness, indigestion, headache, rheumatism, mental weakness and other grave and dangerous diseases."

In some of the advertisements this name is given as "W. H. Schumpley, M.D.," but in none of the advertisements is an address given. We have no record of any individual of either name having been graduated in medicine or licensed to practice.

Wm. Vore, M.D., City Point, Va.:—"I am convinced of the superior method of the Chiropractic form of health practice."

The records fail to show any man of this name as a graduate in medicine or licensed to practice medicine.

Alfred Walton, M.D., Philadelphia:—"Chiropractic reaches successfully a larger number of so-called chronic diseases and is so much superior to the drug method that it is truly laughable to compare them."

This man was graduated by the Harvard University Medical School in 1879. In 1880 he was practicing in New York City as a physician and at the same time manufacturing and selling "Walton's Oxygen: For Consumption, Pneumonia, Anemia, etc." Between 1914 and 1917 Walton moved to Philadelphia where he began practicing as a chiropractor. He had no license to practice medicine in that state but was licensed to practice drugless therapy. Walton's testimonial is still doing service although Walton himself died in February, 1920.

Correspondence

FAILURE OF DIAGNOSIS OF MASTOIDITIS

To the Editor:—Drs. Isidore Friesner and Wendell C. Phillips (The Journal, June 10), in reporting five cases of mastoiditis with atypical symptoms, conclude that textbooks and teachers have failed to describe this condition adequately to students. I feel that the average medical student in the best schools is not only not taught to diagnose atypical mastoiditis but also is not taught to diagnose any mastoiditis.

A physician of good reputation as to ability recently solemnly assured me that a patient did not have mastoiditis because no postauricular edema was present; and as to any of the other textbook signs, he did not know whether they were present or not. After I had been in general practice for some years and had done a fair amount of major surgery, I saw a child with a moderate rise of temperature and a pain in the ear. The tympanum ruptured spontaneously the next day, and the discharge was profuse. In my blissful ignorance I told the mother that all was now well, and that the child would be well soon; but the child died in a few days from meningitis.

Recently the case of a child, aged 4 years, who had had a chronically discharging ear for the past two years, was brought to my attention. Three days before I saw the child, the discharge ceased rather suddenly, the child began to cry and put the hand to the side of the head, the temperature began to go up, and the child developed a facial paralysis on that side. A regularly qualified physician was called, who told the parents that there was nothing seriously wrong, and that the child would be all right in a few days. Three days later another physician was called. In addition to the previous symptoms the child now showed postauricular edema, a temperature of 102, pulse 140, and respiration 44. The child was sent immediately to the Presque Isle General Hospital, where I saw her first. The child arrived in a semistuporous condition. I operated on the child at once. There was a subperiosteal abscess, a mastoid full of foul smelling pus under a good deal of tension, and a moderate sized perisinuous abscess. In spite of an immediate operation, a radical opening of the sinus and resection of the jugular, the child went from bad to worse and died in two days with symptoms of septic pneumonia.

In the smaller cities and towns the condition described will more frequently come first under the observation of the general practitioner rather than under that of the otologist. It is usually on the general practitioner that the burden of the early diagnosis of this condition falls. From my own experience and the evidence about me I feel that the great majority of medical students do not receive proper and sufficient instruction on this subject.

J. L. Johnson, M.D., Presque Isle, Maine.

"PERFORATING ULCERS OF THE CECUM"

To the Editor:—In The Journal, June 10, 1922, p. 1792, Dr. G. K. Dickinson reported three cases of perforating ulcers of the cecum. No very satisfactory explanation of this condition was advanced, although it was suggested that one case was due to "hemorrhagic cecitis" and the others to "a primary inflammation of the adenoid tissue" of the cecum. Emphasis was placed, both in the article and in the discussion, on the possible primary rôle of bacterial infection.

After a careful perusal of the three reported case histories, may I suggest that Dr. Dickinson may have been dealing with instances of acute, subacute or chronic obstruction of the large intestine at some point far distal to the cecum. What the exact cause of the ileus may have been is immaterial, but it is known that colonic obstruction of any kind is not infrequently associated with ulceration and even perforation at points proximal to the site of the primary condition, and that a favorite location for such a secondary pathologic condition is in the cecum. These so-called "Dehnungsgeschwüre" (distention ulcers) were described some time ago by Kocher. They have no special relation to the lymph follicles. They may be single or multiple; they may vary in size from a pin point to a large rent; and they may be round or irregular, with punched out or undermined edges. Detailed studies on this subject are those of von Greyerz (*Deutsch. Ztschr. f. Chir.* **77**:57, 1905) and of Shimodaira (*Mitt. a. d. Grenzgeb. d. Med. u. Chir.* **22**:229, 1910), and a brief but satisfactory account is available in the second (1921) edition of Schmidt-von Noorden's Klinik der Darmkrankheiten, pp. 631-632. Bacterial invasion plays only a secondary rôle in this phenomenon.

The object of this communication, however, is not so much to suggest a more satisfactory explanation of the ulcers in question, as it is to stress the general proposition that, in any form of distal colon obstruction, right colon stasis and right colon symptoms may be predominant, and unless the physician is on his guard a diagnosis of "some form of appendicitis" is made—as it was made in each of the three cases reported. When the clinical picture is not acute and only a *mild chronic or recurrent* obstructive condition is present in the distal colon, a diagnosis of "chronic appendicitis" is almost invariably accepted unless careful consideration is given to the possibility mentioned above.

This possibility is unfortunately not generally accorded the recognition it merits, and I therefore discussed it at some length in a recent paper (On Five Common Clinical Types of "Appendicitis," *M. Clinics North America* **5**:1081 [Jan.] 1922) under the head of Type III of the classification therein presented. Patients suffering from this type of so-called appendicitis may complain of intermittent or constant pains along the course of the colon, very commonly in the right lower quadrant, and not infrequently associated with palpable cecal erections. Careful study and the judicious employment of special diagnostic methods, such as the roentgen ray, will bring out a clinical picture that strikingly resembles in miniature that of obstructing distal colon carcinoma, for example, with the difference that in the case under discussion we are dealing with long-standing, benign factors such as spastic constipation, redundancy of the splenic or pelvic colon with or without recurrent incomplete volvulus, some forms of colitis, and anorectal conditions such as dyschezia and spasm, whether idiopathic or secondary to local disease (fissure, ulcer, hemorrhoids). Any such obstruction to the fecal column, particularly when the effect is intermittent or recurrent, tends to throw back the contents to the head of the colon (exaggerated antiperistalsis), and thus brings on the usual sequence of hypertrophy and dilatation, with local irritation and subjective discomfort.

It is much to be desired that a wider recognition of this really common syndrome will lead to correct diagnosis and appropriate treatment, and so prevent not only the possible terminal stage of "perforating ulcers of the cecum," but also the injudicious and unhelpful removal of innumerable "chronically diseased appendixes" that do not exist in reality.

John L. Kantor, M.D., New York.

THE CASE OF WILLETTA HUGGINS

To the Editor:—I have no quarrel with Professor Jastrow, as I am neither a psychologist nor an oculist; but I presided at the meeting of the Chicago Medical Society when the case of Willetta Huggins was presented, and I believe that, in justice to the intelligence of the audience, those who read his article in The Journal of June 17 should know how the sight test was applied before the Chicago Medical Society.

A pair of ordinary dust goggles was used, and over each glass was placed a piece of dark paper, and then a heavy pad of cotton. I placed these over my own eyes first, and then over the eyes of Miss Huggins.

If this young lady read with a slit of vision as Professor Jastrow states when she performed the tests before our members, it is even more marvelous than his theory of the "will to believe."

J. S. Nagel, M.D., Chicago.
President, Chicago Medical Society.

MEDICAL TERMINOLOGY IN GERMANY

To the Editor:—Peculiar results of the European war continue to crop up in unexpected—or at least unforeseen—places, from time to time. This is true not only in politics, geography and finance, but in art and science as well. In 1920, the Vereinigung der deutschen medizinischen Fachpresse designated a commission to collaborate with the Deutsche Gesellschaft für innere Medizin in selecting German terms which might replace French and English expressions that have been so long in use in medical literature as to have become in many instances a part of the medical language of all nations. The *Deutsche medizinische Wochenschrift* (**48**:493, 1922), the *Münchener medizinische Wochenschrift* (**69**:454, 1922) and other medical periodicals from Germany report the results of this collaboration and give the list of the French and English phrases to be interdicted and their German equivalents. Of these new terms, many successfully convey their exact meaning at a glance; others require a little thoughtful investigation, while still others are composed etymologically of elements so nontechnical that their medical meaning is not easily arrived at—unless, perhaps, by a person "born in (the) two languages"—French and German, or English and German. Taking into account German unity and the German habit of discipline, we may assure ourselves that this terminology will secure instantaneous and universal adoption at the hands of writers on professional themes in Germany, and that such old friends as "contrecoup" and "tic douloureux" will disappear henceforth from German medical literature. It thus becomes important that those who avail themselves of the German periodicals—and especially those engaged in bibliography and the work of classification—should have at hand the list (which is appended) of the new German expressions and their older French and English equivalents.

New Terms	Former Terms
Abwehrspannung	défense musculaire
äusserer Harnröhrenschnitt	boutonnière
Alopecia atrophicans	alopécie atrophiante
Binnenverletzung(des Kniegelenks)	dérangement interne
Docht	mèche
Drehtick	tic rotatoire
Einkerbung (des Bruchringes)	débridement
Florentiner Seide	fil de Florence
Gegenstoss	contrecoup
gemischter Schanker	chancre mixte
Geräusch des gesprungenen Topfes	bruit de pot fêlé
Geschlechtsverwechslung	erreur de sexe
gewaltsame Entbindung	accouchement forcé
gewaltsame Richtigstellung	redressement forcé
gewaltsames Beweglichmachen	brisement forcé
Glanzhaut	glossy skin
gleichsinnige Abweichung	déviation conjuguée
Herzbuckel	voussure
kleiner epileptischer Anfall	petit mal
Klopfbehandlung, Beklopfung	tapotement
knotige parenchymatöse Hepatitis	hépatite parenchymateuse nodulaire
Kolbenfinger	ostéoarthropathie hypertrophiante pneumatique
Kreisbogenstellung	arc du cercle
Larva migrans	creeping disease
Malum perforans	mal perforant
Massen- (reposition)	en masse
moralischer Schwachsinn	moral insanity
Mückensehen	mouches volantes
Muskeltick	tic convulsif
Nachblassen der Haut	dermographie blanche
Panzerkrebs	cancer en cuirasse
Peyersche Haufen	Peyersche plaques
Pulsdruck	amplitude
Pulshöhe	altitude
Rückansteckung	choc en retour
Rücklaufkatheter	cathéter à double courant
Schleimhautpapeln	plaques muqueuses
Schmerztick	tic douloureux
Schwirren	frémissement
Sclerosis redux	chancre redux
Syphilis ohne Primäraffekt	syphilis d'emblée
Tickkrankheit	maladies des tics
unausgeprägte Basedowkrankheit	Basedow fruste
unausgeprägte Formen	formes frustes
unbewusst erworbene Syphilis, Syphilis insontium	syphilis ignorée
Vergleichsfarbe	teinte
Wandertrieb	Fugue-Zustände
warzenähnlicher Zustand	état mamelonné
Wasserkopfschrei	cri hydrencéphalique
Weissfleckenkrankheit, Leukoderma	white spots disease
zwanglose Behandlung	no restraint
Zwiemilchernährung	allaitement mixte
Zuckerstich	piqûre

A. N. Tasker, M.D., Washington, D. C.
Major, Medical Corps, U. S. Army;
Associate Editor, Index Medicus.

[Comment.—It remains to be seen whether language can be created by edict in the new Germany.—Ed.]

"MEDICAL EDUCATION"

To the Editor:—I have just read (The Journal, June 3, p. 1743) certain reflections of a student relative to medical education. Now for some suggestions anent that topic from the practitioner's standpoint.

In my humble opinion (M.D., Columbia, 1904) too much study is required of a purely theoretical nature. The subjects of physiologic chemistry, materia medica, comparative anatomy, etc., while extremely interesting, have too many hours of the course devoted to them. Would it not be wiser to focus on twenty drugs and have a broad, indelible knowledge of these, rather than ramble along over all the pharmacopeia? One should learn twenty drugs thoroughly and well, and read up the other 999 as parallel.

What does the young graduate know of such topics as distribution of physicians in the United States; office equipment—how many rooms, where best to locate in a city or town, a roentgen-ray room, laboratory; bill collecting, how to go about it; how to collect difficult bills; office nurse; relationship to hospitals; group practice; clinics; insurance needs, protective, accident, etc., with good, safe companies; income tax laws; private sanatoriums and hospitals, their outlook from a commercial and professional standpoint; connecting up with industrial work, how to arrive; safe investments for the busy physician, and the difference between stocks and bonds and oil wells?

I could fill a page with practical matters that are sure to be encountered by the young graduate immediately on emerging from school or hospital to practice—matters vital to his success and progress—yet matters which are not even mentioned by the school that is supposed to equip him for his business. The gist of this protest is that the practical, commercial, material side of the practice is just about wholly neglected in our schools. By hard knocks, costly errors and humiliations galore the aspiring medico learns in the hard field of life what he could have at least glimpsed somewhat in a much handier, less expensive shape, in his good old alma mater.

A commercial salesman or business man nowadays is not sent out to deal with the public until he is thoroughly schooled from every conceivable angle—he is even taught psychology. His deportment, his dress, his method of approach, as well as his goods are studied with anxious care. His corporation sees to that. When will our medical schools create a business branch of the teaching—that limb from which depends the bread and butter?

JOHN C. SILLIMAN, M.D., Palo Alto, Calif.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DIGALEN

To the Editor:—I am writing for information concerning the drug "Digalen," about which I believe the Council on Pharmacy and Chemistry has made a ruling. The drug is in common use in this hospital, though I have never ordered it, and I believe that definite information concerning its action, or lack of action, together with accurate data would be of interest. GEORGE FOSTER HERBEN, M.D., New York.

To the Editor:—I have had considerable occasion this winter to use the digitalis preparation called "Digalen," sold by the Hoffman-La Roche Chemical Works, and made in Switzerland. I have seen very fine results from its use, especially in pneumonia, and I and other men here are anxious to have your report on it, provided you have gone over it in the class of New and Nonofficial Remedies. Your answer to this will be sincerely appreciated by myself and other local men.

L. H. NOWACK, M.D., Watertown, Wis.

ANSWER.—Digalen was introduced with the claim that it was soluble, amorphous digitoxin (a substance unknown to chemists) and with the claim that it possesses all the advantages and none of the disadvantages of digitoxin, such as cumulative effects and the production of nausea (claims which have been made for many proprietary digitalis preparations but always proved untenable).

In 1909, the Council on Pharmacy and Chemistry admitted digalen to New and Nonofficial Remedies after the manufacturer had discontinued the palpably unwarranted claims which had been made for the preparation. The Council did not determine whether digalen contained "soluble amorphous digitoxin," but accepted it merely as a standardized and fairly stable digitalis preparation. In 1910 (THE JOURNAL, Jan. 1, 1910, p. 35), Hale reported that a review of the literature contradicted the claims made for digalen, that digalen deteriorated with age, that it was relatively much less potent than corresponding amounts of crystalline digitoxin, and that it was of about the same activity as digitalein. As a result of Hale's report, the Council in 1912 revised the New and Nonofficial Remedies description by omission of the statement that it is a fairly stable digitalis preparation. A biologic study made at the University of Cambridge in 1912 (THE JOURNAL, Dec. 7, 1912, p. 2074), indicated that digalen is not superior to an active tincture of digitalis.

In 1913, Hatcher and Eggleston (THE JOURNAL, Feb. 15, 1913, p. 499) demonstrated that digalen was not devoid of the emetic action of digitalis preparations. They reported that the relatively high emetic action of digalen was unmistakable, while its action on the heart was less than claimed. Hatcher and Eggleston (THE JOURNAL, July 19, 1913, p. 202) also found digalen very variable in strength, perhaps because of its low alcohol content.

In view of increased extravagance of the claims for digalen, the Council, in 1915, made a reexamination of this product. The Council concluded that the presence of amorphous digitoxin in digalen had not been established, that digalen was variable in composition and action, and that it produced the same gastric disturbances as other digitalis preparations. The manufacturer offered to hold the claimed presence of amorphous digitoxin in abeyance, but insisted on the claim that digalen was uniform in action and that it did not produce gastric disturbance. In view of the insistence on these disproved claims, the Council omitted digalen from New and Nonofficial Remedies (THE JOURNAL, Sept. 5, 1914, p. 881).

There is no available evidence to indicate that digalen has any advantage over tincture of digitalis or the infusion of digitalis for oral administration, and there is no evidence that it is equal to ouabain or strophanthin for intramuscular or intravenous injection. With a better knowledge of proper dosage—as advocated, for instance, by Eggleston (THE JOURNAL, March 13, 1920, p. 733)—an increasing number of practitioners find that, except in exceptional cases, the desired action of digitalis may be obtained by the administration of the official tincture of digitalis.

COLLOID BATHS IN TREATMENT OF DERMATITIS EXFOLIATIVA

To the Editor:—Please describe what is meant by colloid baths as used in the treatment of dermatitis exfoliativa occurring after the administration of arsphenamin. I have seen several references in which colloid baths were recommended, but have no description of this special point in treatment. Please omit my name. ——, W. Va.

ANSWER.—Colloid baths, as used in the treatment of dermatitis exfoliativa, are baths containing bran, starch, gelatin or similar substances. A suitable colloid bath can be thus prepared: Two cups of oatmeal are added to 2 quarts (liters) of water and boiled. The boiled oatmeal is then placed in a bag, and the bag hung in a bathtub of water at a temperature of 100 F. One cup of sodium bicarbonate is then added. The bath is employed for twenty minutes three times a day. Lassar's paste, without salicylic acid, or any other bland salve may be used in the intervals between baths.

PREPARATION OF FERRI HYDROXIDUM CUM MAGNESII OXIDO

To the Editor:—This being the season when much arsenic is being used on potatoes and garden truck, I want to obtain a definite formula for preparing the antidote (ferri hydroxidum cum magnesii oxido). The United States Pharmacopeia and your Epitome of the U. S. Pharmacopeia and other works say to take 10 fluidrams of solution of ferric sulphate. Does this mean a saturated solution? If not, how much ferric sulphate should be used? Should the final mixture of the iron and magnesia be greenish? G. C. MOOREHEAD, M.D., Idagrove, Iowa.

ANSWER.—The directions of the U. S. Pharmacopeia for the preparation of ferri hydroxidum cum magnesii oxido are most explicit and easily followed. The iron solution used in the preparation of the arsenic antidote is the pharmacopeial solution of ferric sulphate. Since a ferric solution is used, the precipitate which is produced when the ingredients are mixed has the reddish-brown color of ferric hydroxid. The greenish color to which our correspondent refers would be obtained if a solution of ferrous sulphate had been used.

Leprosy in Japan.—According to police reports, there are 16,261 lepers in Japan, which is lower than the actual numbers since the police report only advanced cases. There are five government leper hospitals in Japan, the largest of which is located in Maruyama-Mura, near Tokyo. Only voluntary cases in more or less advanced stages are taken in these hospitals, as there is no compulsory segregation.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, July 11. Chairman, Dr. Samuel W. Welch, Montgomery.

Arizona: Phoenix, July 6-7. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

Colorado: Denver, July 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: Hartford, July 11-12. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

Connecticut: New Haven, July 11. Sec., Eclec. Bd., Dr. James Edwin Hair, 730 State St., Bridgeport. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

District of Columbia: Washington, July 11. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

Hawaii: Honolulu, July 10. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

Indiana: Indianapolis, July 11-13. Sec., Dr. W. T. Gott, State House, Indianapolis.

Maine: Augusta, July 5-6. Act. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

Massachusetts: Boston, July 11-13. Sec., Dr. Samuel H. Calderwood, 144 State House, Boston.

New Mexico: Santa Fe, July 10-11. Sec., Dr. R. E. McBride. Las Cruces.

North Dakota: Grand Forks, July 4-7. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

Oklahoma: Oklahoma City, July 11-12. Sec., Dr. J. M. Byrum, Shawnee.

Oregon: Portland, July 4. Sec., Dr. Urling C. Coe, 1208 Stevens Bldg., Portland.

Pennsylvania: Philadelphia and Pittsburgh, July 11. Sec., Mr. Thomas E. Finnegan, State Capitol, Harrisburg.

Rhode Island: Providence, July 6-7. Sec., Byron U. Richards, State House, Providence.

South Dakota: Waubay, July 18. Director, Dr. H. R. Kenaston, Bonesteel.

Utah: Salt Lake City, July 5. Director, Mr. J. T. Hammond, State Capitol, Salt Lake City.

Washington: Olympia, July 11. Sec., Mr. William Melville, Olympia.

West Virginia: Martinsburg, July 11. State Health Commissioner, Dr W T. Henshaw, Charleston.

New York January Examination

Mr. Herbert J. Hamilton, assistant, professional examinations, New York State Board of Medical Examiners, reports the written examination held at Albany, Buffalo, New York and Syracuse, Jan. 23-26, 1922. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 140 candidates examined, 115 passed and 25 failed. The following colleges were represented:

College	Year Grad.	Number Licensed
PASSED		
Denver College of Medicine	(1902)	1
Yale University	(1921)	1
Georgetown University	(1921)	1
George Washington University	(1915), (1920)	2
Howard University	(1920), (1921, 2)	3
Emory University	(1921)	1
Rush Medical College	(1921)	1
University of Louisville Medical Department	(1919)	1
Tulane University	(1921)	2
Bowdoin Medical School	(1920)	1
Johns Hopkins University	(1919), (1920)	2
University of Maryland	(1915), (1921)	2
Boston University	(1921)	1
Harvard University	(1914), (1916, 2), (1919, 3), (1920), (1921, 2)	9
Tufts College Medical School	(1920)	2
University of Michigan Medical School	(1919), (1921)	2
St. Louis University School of Medicine	(1919)	1
Columbia University	(1914), (1918), (1920, 3), (1921, 6)	11
Cornell University	(1918), (1920), (1921)	3
Fordham University	(1920), (1921, 8)	9
Long Island College Hospital	(1921)	2
New York Homeopathic Medical College and Flower Hospital	(1917), (1921, 2)	3
Syracuse University	(1921)	1
University and Bellevue Hospital Medical College	(1921, 3)	3
University of Buffalo	(1921)	2
Eclectic Medical College, Cincinnati	(1915)	1
Jefferson Medical College	(1918, 2), (1920), (1921, 3)	6
University of Pennsylvania	(1913), (1920, 4), (1921, 2)	7
Vanderbilt University	(1918), (1919, 2)	3
Baylor University	(1921)	2
University of Texas	(1916), (1920)	2
University of Vermont	(1916), (1921, 3)	4
University of Virginia	(1921)	1
McGill University	(1907), (1916, 2)	3
Queen's University	(1914), (1916), (1918), (1920, 2)	5
University of Toronto	(1919), (1921)	2
University of Graz	(1920)*	1
University of Vienna	(1906),* (1916),* (1917),* (1918)*	4
University of Budapest	(1911),* (1918)*	2
University of Lyons	(1919)*	1
University of Rome	(1916)	1
University of Berne	(1916),* (1917)*	2
University of Lausanne	(1920)*	1
FAILED		
Yale University	(1895)	1
Georgetown University	(1917)	1
Howard University	(1920)	1
Hahnemann Medical College and Hospital of Chicago	(1915)	1
Tulane University	(1913)	1
Tufts College Medical School	(1921)	1
Fordham University	(1921)	1
New York Homeopathic Medical College and Flower Hospital	(1915), (1921)	2
University of Buffalo	(1920)	1
Eclectic Medical College	(1921)	1
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1921)	1
Jefferson Medical College	(1912)	1
McGill University	(1918)	1
University of Toronto	(1920)	1
Bohemian University of Prague	(1920)*	1
University of Budapest	(1912),* (1914),* (1916)*	3
University of Naples	(1907)*	1
University of Palermo	(1894)	1
University of Bogota	(1918),* (1919)*	2
University of Geneva	(1914)*	1
University of Lausanne	(1919)*	1

Mr. Hamilton also reports that from Jan. 6 to April 14, 1922, twenty-eight candidates were licensed by endorsement of credentials. Ten candidates' licenses were issued on recommendation of the Board of Regents. One candidate was licensed on diploma. The following colleges were represented:

College	Year Grad.	Endorsement with
ENDORSEMENT OF CREDENTIALS		
Yale University	(1908)†	Connecticut
Columbian University	(1897)†	Dist. Colum.
Atlanta Medical College	(1916)†	Alabama
Bennett Medical College	(1909)	Illinois
Northwestern University	(1920, 2)	Illinois
Rush Med. Coll.	(1903) California, (1911),† 1914), (1920)	Illinois
Indiana University	(1920)	Indiana
Tulane University	(1913)†	Georgia
Bowdoin Medical School	(1911) Rhode Island, (1913)	Mass.
Baltimore Medical College	(1898)	Mass.
College of Physicians and Surgeons, Baltimore	(1912)	Connecticut
Johns Hopkins University	(1920)	Virginia
University of Maryland	(1905)	Virginia
Harvard University	(1906), (1906)† Mass., (1914)†	R. Island
University of Michigan Medical School	(1910)	Michigan
University of Minnesota	(1905)	Minnesota
St. Louis College of Physicians and Surgeons	(1897)†	Missouri
University of Missouri	(1908)	Missouri
Starling Ohio Medical College	(1909)	Ohio
Eclectic Medical College, Cincinnati	(1920)	Ohio
Dartmouth Medical College	(1902)	Mass.
Jefferson Medical College	(1906)	New Jersey
University of Pittsburgh	(1909)	Penna.
Medical College of Virginia	(1914)	Virginia
University College of Medicine, Richmond	(1905)	Virginia
University of Virginia	(1917)	Virginia
McGill University	(1910)† Maine, (1915)	California
University of London	(1919)	Delaware
University of Halle	(1881)* †	Germany
University of Jassy	(1904)*	Michigan

College	Year Grad.	Number Licensed
LICENSED ON DIPLOMA		
New York Homeopathic Medical College and Flower Hospital	(1876)	1

* Graduation not verified.

† These candidates' licenses were issued on recommendation of the Board of Regents.

Idaho April Examination

Mr. Paul Davis, director, Idaho Department of Law Enforcement, reports the written examination held at Boise, April 4, 1922. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Five candidates were examined, all of whom passed. Seven candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
George Washington University	(1909)	77
Loyola University	(1917) 80, (1919)	78.5
Rush Medical College	(1902)	79
University of Maryland	(1921)	84

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Rush Medical College	(1915) Utah, (1917) Illinois, (1919)	Montana
University of Michigan Medical School	(1911)	Montana
Barnes Medical College	(1904)	Oregon
St. Louis University School of Medicine	(1908)	Montana
Western Reserve University	(1918)	Utah

Miscellany

LAY COMMENT ON ALCOHOL RESOLUTION

The resolution on the alcohol question adopted by the House of Delegates of the American Medical Association at the recent annual session in St. Louis was widely commented on by the lay press: The New York *World* says that the vote of the House of Delegates is interesting as an exhibit of professional opinion, but points out that "Congress is its own medical authority, just as it is its own economic and financial authority. It has ordered, in effect, that whisky is not necessary in medical practice and, having rejected the testimony of the doctors as incompetent, it is immaterial how large a percentage of practicing physicians regard the use of whisky as beneficial." Heading its editorial sarcastically, "A Petition to Old Dr. Congress," the *World* suggests that the American Medical Association would have more hope of securing relief from the Volstead regulation if it based its plea on practical politics instead of on scientific therapeutics.

The Brooklyn *Eagle* points out that it is axiomatic that humanity suffers unless physicians secure freedom in alcoholic prescriptions and pure liquor for their patients, and the Brooklyn *Citizen* affirms that the action taken indicates that "the influence of the medical profession may now safely be said to be decisively arrayed on the side of a liberal modification of the Volstead Act."

The Paterson, N. Y., *Chronicle* believes that the questionnaire conducted by The Journal indicating that physicians in the cities believe that alcohol has therapeutic value, whereas those in the rural districts deny its value, "would seem to indicate that medicine is not yet a sufficiently exact science to be altogether independent of politics.

The Trenton, N. J., *Times* is strongly in favor of the resolution as passed. "Such a reasonable request," it says, "should be granted. Patients who obtain whisky on prescriptions pay dearly for it and there should be no question as to its quality, nor of the quantity delivered."

The Philadelphia *Bulletin*, after stating the case, believes that as long as the federal law recognizes the medicinal use of alcoholic liquors, "there should be some law or body under the government competent to guarantee that the medicinal liquor shall be pure—at least, that it shall not be poisonous. . . . Conscienceless profiteering puts the price of alcoholic stimulant beyond the reach of many a patient for whom it is prescribed. More utter lack of conscience on the part of those in the trade makes it impossible to get good, or even safe, liquor at any price. There is a risk that ought not to be tolerated in the supply of any preparation that may be used as a medicine. These dangerous conditions must be remedied, and if there shall be no other adequate means offered, the suggestion of government control of the medicinal supply may make a strong bid for popular favor."

The Philadelphia *Inquirer* also is strongly in favor of the resolution. "This is a perfectly feasible plan," it says, "and it might well be adopted. . . . Nothing could well be worse than the present situation. It is clear that the prohibition officials have muddled it inexcusably. . . . The law as it stands presumes to limit the quantity of liquor a physician may prescribe in a given case, thus often giving him a choice between breaking the law and letting the patient die. This is bad enough; but to leave him without the assurance that the liquor he is allowed to prescribe is not rank poison is worse. The government will not be blameless in this matter if it refuses to act"; and The Erie, Pa., *Times* supports the attitude of the *Inquirer*, and requotes its views.

The Chicago *Tribune*, heading its editorial, "Physicians are not Bootleggers," supports the action of the House of Delegates vigorously, saying, in part: "If an honest doctor prescribes whisky for a patient it is because he thinks the patient needs it. If so, he is entitled to decide how much the patient needs and not to be told by the law that the requirement is not more than a pint every ten days. Physicians differ as to the value of alcohol as medicine. They differ in many particulars of practice. The community licenses them to practice medicine after a determination of their qualifications. The community does not tell them how they shall write prescriptions. . . . If a physician dishonestly writes whisky prescriptions he is in that operation a bootlegger, and is an element against the enforcement of prohibition just as any other bootlegger or rum runner is. The direct sale of liquor by government agencies on physicians' prescriptions is theoretically good. How it would work we do not know. The government has not kept its prohibition activities free from fraud and dishonesty by a long shot."

The Peoria, Ill., *Transcript* believes that "the principle is sound, and if put into practice would afford grateful relief from the present system of crisscross bootlegging, fake medical prescriptions and blackmail. . . . Neither the reputable physician nor the reputable druggist has any desire to handle whisky under present conditions. Prescribing "whisky" is a plunge in the dark. Nobody knows what it is. Good whisky in bond is widely scattered, and the government is being robbed of revenue and respect by fake raids, burglaries and 'gagged watchmen.' Such sentimental objections as might be urged against making Uncle Sam a bartender would be easily overcome by the practical benefits of direct distribution.

"For many years, Uncle Sam reaped an enormous revenue from spirits, and none was heard to complain. If he can restrict the traffic in poisonous concoctions by donning an apron and tending bar, he will please large areas of America which are weary of law violations, covin, trickery and hypocrisy. The resolution of the American Medical Association is in the form of an appeal to Congress and the Secretary of the Treasury. It is worthy of serious consideration. Under the eighteenth amendment, there is no ban on intoxicating liquors used for other than beverage purposes.

"Reputable physicians and druggists desire to comply with the law without the hazard of being set down as bootleggers or sneaks. If the government sells whisky, it will be known to whom it is sold. Responsibility will be centralized, and people entitled to liquor will get a pure article at a fair price.

"The concentration of all bonded liquors in reserve districts under adequate guard and government distribution would not solve the whole liquor question, but it would obviate fake robberies and stiffen respect for the law. The law needs respect more than the booze-fighter needs whisky."

The St. Joseph, Mo., *Gazette* and the Moberly, Mo., *Democrat* strongly endorse the action of the Association, both on prohibition and on the Sheppard-Towner Maternity Act. "The American Medical Association," they say," at its meeting in St. Louis seems to be in favor of the Canada plan of handling spirits. A resolution favoring the handling of all whisky by the government and its distribution to physicians for medical purposes was adopted by the Association. The Association also took a shot at the maternity law now being urged by a lot of old maids. These two resolutions are remarkable when we consider the fact that the medical profession is closer in touch and ought to know more about both matters than any other class of men in the entire country. Is it possible that the day of propaganda is riding to a fall, and sanity and common sense are again to rule? No body of men can do more than the medical profession to steady the tide of legislation and eliminate hysteria therefrom. It is evident, however, that there was no politics in the national Association, and the members voted their honest conviction on questions coming before the Association."

The St. Louis *Star* is pleased to observe that the first move of the American Medical Association at the St. Louis session was to clear away the difficulties imposed upon the medical profession by the liquor prescription business. "Poor liquor furnished by druggists," says the *Star*, "on genuine medical prescriptions is one difficulty; good liquor furnished on the prescriptions of bootlegging physicians is another. Of the two, the latter is more harmful, both to the public and to the medical profession. Government control of liquor sales to druggists would throw a safeguard around the medical profession, on both of these points, provided the physicians will agree to a drastic limitation upon the number of prescriptions that may be written, and will unite to eliminate the indiscriminate prescribers of both liquor and narcotic drugs."

The Modesto, Calif., *News* believes that "the government control over the medicinal liquor business would prevent evasions or pretense."

Book Notices

The Place of Version in Obstetrics. By Irving W. Potter, M.D., F.A.C.S., Obstetrician-in-Chief, Deaconess Hospital and St. Mary's Maternity Hospital. Cloth. Price, $5. Pp. 138, with 42 illustrations. St. Louis: C. V. Mosby Company, 1922.

The two parts of this book comprise, first, an incomplete historical sketch of version, and second, an exposition of the writer's method of practice, which he has evolved from the descriptions of many dead masters of the subject, and which he has named, "Potter's Version." The historical data are essentially—though not always—accurate, and there is an evident absence of actual reference to the authorities, who are responsible for steps included in the author's method, leading to the implication that he, de novo, had originated every detail.

Furthermore, the history of the method seems to be utilized as a defense for its promiscuous use. The stretching of the perineum is not new: Karl Braun appreciated the necessity of overcoming the resistance of the tense perineum. Clifton Edgar amplified it, and most teachers of obstetrics have, for ten or fifteen years, taught the necessity of ironing out the perineum as a preliminary to version or to any extraction. Guillemeau, the student of Paré, always used the right hand, being dextral; the author, being left-handed, invariably uses the left hand. Therefore, necessity demanded that the writer should be different. It is so evident that it is appropriate to select the hand which would most conveniently reach the feet, depending on the position of the fetus, that Paré himself practiced it, and the choice of hand has been dictated by this fact ever since. The illustrations (Figs. 36, 38 and 39) clearly show the awkwardness of the technic when one hand is invariably employed. The author advises that the hand shall be insinuated between the membranes and the uterus until the feet are reached: this procedure was first suggested in 1694 by Peu, was advised by Smellie, and was modified by Huter in the middle period of the last century. While the objections to this method of entering the uterus were distinctly valid in preantiseptic days, there is even now more than theoretical objection. Levret's insistence that the membranes should be ruptured at the os is still sustained. The author brings down both legs, according to the real originator of version, Paré, who first brought down one leg, and then the other.

Mme. du Tertre, in 1677, clearly saw the advantages of bringing down only one leg, and was the first to recommend that such be the course in a version: a complete breech is a better dilator than a footling, and much more so than a double footling. A double footling reduces the dilating volume of the breech fully one fourth. Up to the time of J. L. Baudelocque, more than a hundred years ago, either the arms were not brought down at all, as advised by Deventer, or the anterior or posterior arm was disposed of as the exigencies of the case warranted. Baudelocque showed that usually the posterior arm more readily could be brought down first. For some years the Harvard School has advocated the primary delivery of the anterior arm. Here, again, the author has not originated a step.

The text following the three chapters on the history of obstetrics is essentially a reprint of an article appearing in a medical journal a year ago. Certain data are added, including twenty-three illustrations, some of which are not anatomically correct. Figure 15 is such a manifest error of art that one wonder why it is included. The technic, as has been said, offers nothing that is new; yet on page 112 is this sentence: "This merely serves to emphasize the fact that the operation must at all times be done only *in properly selected cases*" (the author's italics). One wonder where the selection is employed, on reading that in the last 2,243 cases in the author's practice, version was done 1,858 times. Moreover, in the total number of women, cesarean sections were done 180 times—1 in 12.4 patients. Indications are not definitely stated—or, better, the indications mentioned were discovered in the course of the version, and therefore were not indications in the usual conception of the term. Indications must be lacking; fundamentally they must be absent when an operator indiscriminately selects two operations which conserve his time—and gives the woman small chance to prove her inherent obstetric prowess. The obtruding thought suggested in the foreword leads to the belief that the author's indications are specious, including possibly conservation of self in a task too arduous for one man. "Therefore, any advance in the practice of obstetrics which will conserve the strength and well being of the attendant, and shorten the amount of time necessary for the completion of a given task, provided that safety and efficiency are in no way lessened or sacrificed," he says, "is worthy of consideration, even upon this ground alone." Nothing concrete is presented, but the inference is that the author never breaks a bone or organically injures the child, though in the original article he states that he never broke a bone, and in another place that he never looks for such injuries, as they do not occur. "Seek, and ye shall find," sayeth the prophet. This is especially worthy in view of Runge's findings that in more than 90 per cent. of babies dying after breech extraction (twice as frequent in secondary as primary breech cases) there are gross lesions which caused the deaths.

A small book like this, primarily a reprint of journal papers, deserves small recognition; but the teachings inculcated are so extreme that it is highly important that comment be made. The word that artificial delivery by version, and cesarean sections done in 8 per cent. of women, is safer than normal labor is entirely foreign to fact. The teaching, as given in this book, is dangerous and reprehensible; a rational, sane, obstetric thought is imperatively needed if conservation of mother and child are to be realized.

Étude sur le Traitement de la Tuberculose Pulmonaire. Par le Docteur C.-M. Desvernine, Docteur en Médecine des Facultés de Paris, de New York et de Madrid. Paper. Price, 5 francs. Pp. 78. Paris: "L'Expansion Scientifique Française."

The pages of this work are devoted, when not otherwise occupied by the rather numerous quotations, to a report on an experiment and on a clinical study. In the experiment mentioned, a donkey was confined in a pneumatic chamber for a period of seven months. The air pressure maintained in the chamber corresponded to that of 6,000 feet altitude. At the end of the seven months a study of the blood elements was made; a comparison of the findings with those of the animal's blood before the experiment was begun disclosed a large increase in the number of erythrocytes, leukocytes and hemoglobin, a result in line with the reports of other observers. The material of the clinical study consists of a number of cases treated by an emulsion of sputum. The results were not particularly noteworthy, and offer nothing new.

Chirurgische Operationslehre für Studierende und Ärzte. Von Prof. Dr. Friedrich Pels Leusden, ord. Prof. der Chirurgie und Direktor der Chirurgischen Universitätsklinik und Poliklinik zu Griefswald, Geh. Med.-Rat. Third edition. Paper. Price, 200 marks. Pp. 800, with 778 illustrations. Berlin: Urban & Schwarzenberg, 1921.

The compilation of a work on operative surgery is a difficult and commonly an unsatisfactory task, chiefly because operative technic cannot successfully be taught from a book. This work is open to the criticism of being unnecessarily voluminous, and of containing much obsolete material. The illustrations are mostly pen and ink drawings of poor quality, and the majority fall short of the purpose for which they were intended. The book could serve the single function of a catalogue of surgical procedures. To the inexperienced it would be of some help; a well-trained surgeon could find little in it to interest him.

Medicolegal

Ignorance No Defense Under Narcotic Law—Purpose of the Law

(United States v. Balint et al. (U. S.), 42 Sup. Ct. R. 301)

The Supreme Court of the United States, in reversing a judgment that sustained a demurrer to the indictment in this case, says that the indictment charged the defendants with unlawfully selling to another a certain amount of a derivative of opium and a certain amount of a derivative of coca leaves, not in pursuance of any written order on a form issued in blank for that purpose by the commissioner of internal revenue, contrary to the provisions of Section 2 of the act. The defendants demurred to the indictment on the ground that it failed to charge that they had sold the inhibited drugs knowing them to be such. But the statute does not make such knowledge an element of the offense; and this court has held that, in the prohibition or punishment of particular acts, the state may, in the maintenance of a public policy, provide that he who commits these acts shall do so at his peril and will not be heard to plead in defense good faith or ignorance. Many instances of this are to be found in regularity measures in the exercise of what is called the police power, in which the emphasis of the statute is evidently on achievement of some social betterment rather than the punishment of the crimes. Again, when one deals with others and his mere negligence may be dangerous to them, as in selling diseased food or poison, the policy of the law may, in order to stimulate proper care, require the punishment of the negligent person, though he is ignorant of the noxious character of what he sells.

It is evident from a reading of Section 2 that its emphasis is in securing a close supervision of the business of dealing in these dangerous drugs by the taxing officers of the government, and that it merely uses a criminal penalty to secure recorded evidence of the disposition of such drugs, as a means of taxing and restraining the traffic. Its manifest purpose is to require every person dealing in drugs to ascertain at his peril whether that which he sells comes within the inhibition of the statute, and if he sells the inhibited drug in ignorance of its character, to penalize him. Congress weighed the possible injustice of subjecting an innocent seller to a penalty against the evil of exposing innocent purchasers to danger from the drug, and concluded that the latter was the result preferably to be avoided. Doubtless, considerations as to the opportunity of the seller to find out the fact and the difficulty of proof of knowledge contributed to this conclusion.

Time of Origination of Disease Under Insurance

(Cohen v. North American Life & Casualty Co. (Minn.), 185 N. W. R. 939)

The Supreme Court of Minnesota, in affirming an order denying the defendant a new trial after the plaintiff obtained a verdict on a policy of insurance, says that the policy promised indemnity for a disability coming "solely as the result of disease which shall originate and begin after this policy shall have been in continuous force for 30 days." The policy was issued on November 15. December 19, the insured became ill and called a physician. December 25, he went to a hospital, and, December 28, an operation was performed. One of the surgeons who assisted at the operation gave the cause as postoperative adhesions, and said that the insured was also afflicted with cholecystitis. Recovery was made. Six years before, the insured had had an operation for appendicitis. Thereafter he was well. Until his attack of December 19, he had not been sick. There was medical testimony that would justify, if not require, a finding that the trouble came at least in part from postoperative adhesions existing prior to the policy.

The rule of construction was the usual one. It must be favorable to the insured. The insurer intended to give and the insured expected to get indemnity if illness or sickness came after the policy had been in force for 30 days. They were not concerned with the latent or remote cause of it. The cause of the disease insured against was not mentioned in the policy as a condition of liability. The time when the disease should "originate and begin" was made important. The parties had in mind, as the subject of indemnity, disability from illness or sickness or disease first manifesting itself or becoming active after the 30-day period. For this the policy promised indemnity. It did not exempt the company from liability because the medical cause of the disease causing disability antedated the expiration of the period. A construction making the time of the medical cause of the outbreak of the disease determinative of liability, irrespective of actual illness, sickness or disease, as commonly understood, would make health insurance subject to uncertainty, unattractive to those wanting reasonable health insurance protection, and less marketable. The policy issued by the defendant was fair to the insurer and the insured. As the court construes it, the defendant was liable, though the medical cause of the disease existed prior to the policy, if the disease or sickness did not manifest itself until afterward. So the ordinary man wanting health protection would understand it. In other words, the court holds that a policy of health insurance giving indemnity for disability resulting from a "disease which shall originate and begin after this policy shall have been in continuous force for 30 days" covers a disease first manifesting itself after such time, although the medical cause antedated it.

Suing Physician and Employer and Releasing Latter

(Staehlin v. Hochdoerfer (Mo.), 235 S. W. R. 1060)

The Supreme Court of Missouri, Division No. 1, says that the plaintiff, while in the employ of a manufacturing company, suffered a fall in which his right leg was broken near the ankle, the flesh being mangled and crushed; after which blood poisoning set in, and the leg had to be amputated. He thereafter sued the defendant for alleged malpractice in the treatment of the leg. On the same day, he sued the manufacturing company for damages for the personal injuries which he sustained, including the loss of the limb. About four months later, he instituted a second suit against the company, in which he sought a recovery on account, among other things, of the alleged unskilful and careless acts and omissions of the company and the surgeons selected by it in the treatment of the injured leg. Subsequently, for a recited consideration of $1,300, he released the company from all claims growing out of or in any wise connected with his injury. His first suit against the company was dismissed. On the same day his second suit against the company was dismissed, on the execution by him of a paper which stated that, in consideration of $50 paid to him, he released the company from, among other things, any claim growing out of any treatment which the company caused, or failed to cause, to be rendered to him, reserving the right to proceed against the physicians to recover any amount which he may have suffered from their negligence in attending him.

At the beginning of the trial against the defendant physician, the plaintiff admitted the execution of the two papers on which his two suits against the manufacturing company had been disposed of, and the defendant offered in evidence the two papers and the petitions in the suits to which they respectively referred. Thereupon, at the request of the defendant, the trial court directed a verdict in his favor, the court announcing that it did so because the plaintiff had accepted a sum of money from the manufacturing company in full satisfaction of all injuries resulting from the accident, including the loss of his leg. But the judgment rendered on the verdict in the defendant's favor is reversed by the supreme court, which goes on to say that, if the trial court's construction was the proper one, no fault could be found with its conclusion that the plaintiff was not entitled to receive compensation again for the same injury. But while, under the allegations severally of the petitions, in the first suit against the company and that against the defendant physician, the company and the physician was each liable to the plaintiff for the loss of his leg, they were not joint wrongdoers; they were acting independently of each other; their several wrongs were committed at different times; and the wrongful act of each, being several when committed did not become joint because its consequences united with the consequences of the other. Each was liable, therefore, only to the extent of the injury done by himself. Still, the receipt of full satisfaction from either for the injury for which both were liable would bar the plaintiff from recovering from the other for the same injury.

The two papers executed by the plaintiff, when read together, clearly indicated that he and the manufacturing company considered and treated the suit first filed against the company as one for the original injury only, and the second suit as one for the loss of the leg. The second suit against the company was based on the theory that the physicians who treated the plaintiff's broken leg were its agents or employees, for whose negligence or unskilfulness it was liable. Under this view, the company and its physicians, so far as there was negligence in that respect, were joint wrongdoers, and an acknowledgment of satisfaction from one for the injury inflicted by them both would release the other. But a reading of the paper disposing of that suit made it manifest that it was a covenant not to sue, and nothing more. In other words, the supreme court holds that the papers executed by the plaintiff, when properly construed, operated as an acknowledgment of satisfaction for the original injury and a covenant not to sue the manufacturing company for the loss of the leg. Therefore, the judgment for the defendant physician should be reversed, and the cause remanded.

Quarantining of Place and Tearing Down of Placard

(Ex parte Culver (Calif.), 202 Pac. R. 661)

The Supreme Court of California, in discharging a writ of habeas corpus and remanding to custody the petitioner for the writ, says that she had been convicted of the commission of a misdemeanor, and fined, with the alternative of imprisonment, for tearing down a "diphtheria contact" placard which had been affixed to her premises declaring them to be in a state of quarantine. The complaint against her alleged that the state board of health had issued an order directing the quarantine of the petitioner's niece, who was a minor child residing at the petitioner's home, for the reason that the child had come in contact with diphtheria patients and carriers of the disease; the affixing of the placard to the premises, by a police officer; and the removal of the placard from the premises in the presence of the officer. If the tearing down of the placard under the circumstances alleged constituted a misdemeanor under any statute of the state, the complaint must be held to charge the commission of a public offense. And if the quarantining of these premises was a proper act in pursuance of the order received from the state board of health, then the petitioner's act in tearing down the placard was punishable as a misdemeanor under the Public Health Act.

There can be no doubt that, by virtue of the broad power conferred by Sections 2979 and 2979a of the Political Code of California and by the Public Health Act, the state board of health has power to order the quarantine of persons who have come in contact with patients suffering from, and with carriers of, contagious diseases, whenever in the judgment of the board such action shall be deemed necessary to protect and preserve the public health. But the petitioner pointed out the distinction between quarantining a place and quarantining a person; and there may be cases in which buildings are quarantined, as distinguished from persons. For instance, when smallpox patients have been removed from a building to a pesthouse, the building itself should be quarantined until disinfected; but this does not alter the fact that the ordinary method of quarantining persons is by confining them to their residences and by giving notice to the people outside and inside that there is to be no going out nor coming in. Moreover, it is perfectly apparent, from a consideration of the quarantine rules incorporated in the Public Health Act that this statute recognizes that the method of quarantining a person is to quarantine the place in which he lives. Otherwise, the quarantine is spoken of as an arrest of the person.

Section 2979 of the Political Code provides that the state board of health may establish and maintain places of quarantine or isolation; but how can it be seriously contended that a mere order directing that a person be quarantined is intended to mean that that person shall be arrested and placed in such an isolation hospital, rather than quarantined by being confined to his residence? Of course, taking possession of the person in the exercise of the powers of the state over health matters would be a method of quarantine, but obviously that cannot be said to be the only method of quarantining a person, when the statute clearly indicates that when a place is quarantined the people therein are confined thereto and cannot leave. For instance, in the case at bar, if the state board of health had ordered the quarantining of the place of residence of the petitioner, it would thereby have subjected the proceedings to the very absurdity which the petitioner contended for, namely, that the place was quarantined and the person was not. The order of the state board of health to quarantine the person of the petitioner's niece meant that she must be confined to a given place and kept out of the community. This was obviously accomplished by putting the appropriate notice on the house which she occupied, as required by statute.

An Adequate Remedy at Law Without Injunction

(People v. Universal Chiropractors' Ass'n et al. (Ill.), 134 N. E. R. 4)

The Supreme Court of Illinois, in affirming a decree dissolving a temporary injunction and dismissing the bill, holds that there was an adequate remedy at law. The court says that fifty-two defendants were named, all of whom, it was alleged, were chiropractors, treating human ailments without a license, and belonging to what was known as the Universal Chiropractors' Association; that some of them had been convicted of treating human ailments without a license, and sentenced to pay fines or to imprisonment, but, after paying their fines or serving their terms of imprisonment, had returned to and continued their practice; that the association collected dues from which fines and costs assessed against members were paid; that, by reason of a conspiracy of defendants to defy the laws and continue their unlawful practice of treating human ailments without a license, which is prohibited by law, and is a business subversive of the public health and morals, the defendants had brought about a condition, throughout the state, of disrespect and contempt for law, and threatened to, and would, continue in such conduct unless enjoined. The theory of the bill was that the conduct of the defendants amounted to a nuisance, which a court of equity would enjoin; that the defendants were maintaining an organization for the aid of those belonging to it who were violating the law, and proposed to continue such violation. Since the bill was filed, the case of People v. Love, 298 Ill. 304, 131 N. E. 809, has been decided by this court, and provisions of the Medicine and Surgery Act of 1917 relative to the qualifications and licensing of chiropractors have been held invalid. But, even if the entire act of 1917 was rendered invalid by that decision, and the act of 1899 is still in force, all the bill alleged the defendants proposed to do was to continue to practice without a license, which would be a misdemeanor for which punishment is provided and an adequate remedy at law exists. The possibility that many persons will violate the law and many suits will be required to enforce it does not warrant relief by injunction. The jurisdiction of a court of equity to issue an injunction in some cases to prevent a multiplicity of suits is not determined by the number of suits. Multiplicity is not synonymous with multitude, and there must be some other ground of jurisdiction besides mere number. The circumstances must be such that the remedy at law will be regarded as inadequate. If the defendants, or any of them, are arrested and charged with committing a criminal offense, they have a constitutional right to a trial by jury in determining their guilt, and to sustain the injunction here sought would deny them that right.

Society Proceedings

COMING MEETINGS

Colorado Congress of Ophthalmology and Oto-Laryngology, Denver, July 28-29. Drs. M. D. Brown and J. M. Shields, Metropolitan Bldg., Denver, Secretary.
Idaho State Medical Association, Wallace, July 10-11. Dr. E. E. Laubaugh, Overland Bldg., Boise, Secretary.
Montana, Medical Association of, Great Falls, July 12-13. Dr. E. G. Balsam, 222 Hart-Albin Bldg., Billings, Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS

Thirty-Seventh Annual Meeting, held in Washington, D. C., May 2-4, 1922

(Concluded from page 1990)

Roentgen-Ray Treatment of Toxic Goiter

Drs. J. H. Means and G. W. Holmes, Boston: Of forty-four cases of exophthalmic goiter, definite improvement was secured by roentgenotherapy in twenty-eight. Sixteen showed little or no improvement; eight of these patients later came to operation and were apparently cured. Of the twenty-eight in which there was improvement, there were thirteen who were apparently cured, and fifteen who were improved but not rendered entirely free from hyperthyroidism. No patients seemed to be made worse by the treatment. Two patients improved but not cured were operated on later. One of these died after operation. Of the twelve toxic adenoma cases treated by roentgen rays, all showed improvement and five patients were apparently cured. Two of the exophthalmic and one of the toxic adenoma cases developed myxedema during roentgen-ray treatment, which was promptly relieved by thyroid administration, and in the two exophthalmic patients the depression was only temporary, as thyroid was later discontinued without a return of myxedema. In those cases of exophthalmic goiter which respond to roentgen rays there is a rapid fall in pulse (average from 115 to 89) and in basal metabolism (average from + 55 to + 21 per cent.), and a corresponding gain in weight (average of 9 per cent.) in the first four months of treatment, during which time they receive on an average five treatments. In some cases the curves come to a normal level; in others they do not. In the latter further roentgen-ray treatment is not strikingly satisfactory except in the cases which show a definite relapse; in these a second course of treatment may act as did the first. We have as yet found no method of predicting which cases will respond to roentgen rays. The results in toxic adenoma are similar to those in exophthalmic goiter. In general, we feel that roentgen rays may cure certain cases, that it may improve others; that for this reason it has its place in the treatment of toxic goiter. If it does not secure good results in a few months, surgery should be employed. Some patients who are not cured by roentgen rays are rendered better operative risks. A combination of roentgen rays and surgery will sometimes accomplish more good than either form of treatment alone. To make a proper use of the roentgen rays in the management of toxic goiter, its limitations must be recognized and, when necessary, it should be combined intelligently with surgical procedures.

Irradiation Treatment of Leukemia

Dr. Francis Carter Wood, New York: The study of the results of irradiation of patients with leukemia has shown that myelogenous cases yielded easily and rapidly to either radium or the roentgen ray, and some lymphatic cases responded well. This is contrary to experience recorded in the literature. Patients with good red cell counts did better than anemic persons. Children did badly, tended to develop hemorrhagic conditions, and died early, even though the spleen, nodules and lymph cell count were brought down. In some adult cases the blood picture was brought to approximately normal by irradiation, but the case progressed rapidly to a fatal ending. No relation was found between the blood count of the patient when first seen and the course of the disease. Some myelogenous patients showed white cells from 500,000 to 700,000 per cubic millimeter; yet with irradiation remained alive and in working condition for three or four years. Transfusions from young, robust adults are often helpful. There is no difference between the effects of radium and the roentgen ray, as at present used. A high voltage roentgen ray is now used. In the early stages of myelogenous leukemia, irradiation is confined to the spleen, but in advanced stages life is sometimes prolonged by irradiation of the spleen, long bones, vertebral column and ribs. The terminal stages of the disease are marked by hemorrhagic conditions in the viscera, and sometimes intradurally. Often death follows extraction of teeth with accompanying hemorrhage.

Treatment of Tonsils by Radiation from Radium Salts

Dr. Francis H. Williams, Boston: Radium irradiations have a selective action on lymphoid tissue, of which the tonsils are largely made up. Fifty milligrams of pure radium bromid was applied in a suitable container, directly first to one tonsil, then the other, for from ten to twenty minutes to each tonsil, according to the filter used, and the condition of the tonsil and of the patient. The method of carrying out the treatment is based on measurements, made with a fluorometer. The method has a remarkable degree of safety, if properly carried out, as the action of the remedy is largely exerted only where it is needed. Therefore, this remedy can be used without causing any harmful effects, either immediately or remotely. No patient was required to modify his usual diet or lose time from work.

DISCUSSION ON PAPERS OF DRS. MEANS AND HOLMES, WOOD AND WILLIAMS

Dr. Thomas McCrae, Philadelphia: I wish to ask Dr. Means his opinion as to operation on the thyroid gland which has received roentgen-ray treatment. Some surgeons are very emphatic in stating that operation after irradiation is sometimes very difficult. If this is true, it is very important for us to decide which patients are likely to be helped by the roentgen rays and which ones should be operated on without irradiation. The communication of Dr. Williams is a very important one. We are apt to think of the tonsil removal as a minor operation, but the total number of accidents is large, although small relatively to the number of patients operated on. The number of cases of pulmonary abscess following tonsillectomy is surprisingly large. If we have treatment which obviates the need of operation, it is certainly a great advantage.

Dr. H. S. Plummer, Rochester, Minn.: About twenty years ago I saw cases treated by the roentgen ray and was enthusiastic about the results. After a while I lost my early enthusiasm, and ever since then I have been trying to interpret the results of treatment of these cases. Dr. Means has presented some work which points to the fact that the roentgen ray is of benefit in these cases. He has the same trouble I had—he has no controls for his results. Would the case not have run the same course if he had never used the roentgen ray? Let us see what happens in exophthalmic goiter. These cases follow a definitely normal course. I recorded in months the length of time from the onset of the trouble to the time the patient came under observation. I divided the year into periods of three months: first, second, third and fourth three-month period. Sixty-two per cent. of the patients came under observation within the first period; in the next period 1 per cent. came under observation; 20 per cent. at the fifth month, and 1 per cent. in the last period. There is only one interpretation. People with exophthalmic goiter are going to have a pronounced curve for the better, and they come under observation about that time. The course of exophthalmic goiter up to the end of the first twelve months is up, then down. If one gives them cold water at this stage, one will get the first shot down. Whatever is given will get results. No man knows the normal average course for exophthalmic goiter.

Dr. Frank Billings, Chicago: Many years ago I had a large experience in the treatment of leukemia with the roentgen ray. My study showed among other things that, applied to any local cutaneous surface, it produced a leukolytic substance in the blood. The serum of the treated patient dissolved the white blood cells in vitro, while the serum of an untreated patient had no such effect. The resolution of the spleen occurred more rapidly when the rays were applied to the skin over the spleen. I found that a combination of roentgen ray and benzene was of greater effect than either one alone. Approximately 100 patients with acute and chronic leukemia were treated between 1905 and 1914. There is no doubt that the life of many of these patients was prolonged by the treatment, but the final end-result was death. For twelve years the clinic kept in touch with a laundress who suffered from chronic lymphoid leukemia. She would not submit to roentgen-ray treatment, and the medication consisted of small doses of arsenic with iron. Her health remained good enough to enable her to carry on her work. This is an example of the long duration of this disease in some patients, and indicates that meddlesome treatment may do more harm than good.

Dr. J. H. Means, Boston: In answer to Dr. McCrae's question, I should say that it depends on what surgeon you ask. Drs. Porter and Richardson say that in their experience previous irradiation does not make operation more difficult. Dr. Plummer's objection to our conclusions cannot be met directly. In a sense he is perfectly justified in making it. We cannot get data on untreated cases to serve as controls, because it is not legitimate to refuse treatment to patients with exophthalmic goiter for the mere purpose of studying the course of the disease. The absolute proof of the effect of therapeutic agents will come only when the disease has been produced experimentally. By clinical studies such as ours, then, we cannot expect proof positive; nevertheless, they are worth making. They give evidence as to the beneficial effect of the roentgen ray, which is highly suggestive if not absolute proof. Spontaneous recovery occurs in exophthalmic goiter, but it would be very unlikely that two out of three cases should be started on roentgen-ray treatment at the precise moment they were starting a rapid spontaneous improvement. It is possible, but distinctly improbable.

Dr. F. C. Wood, New York: I have never secured leukotoxin. We have worked on normal blood, giving thirty or forty erythema doses in the extremity employed, and we never got destruction of the normal cells. Leukotoxin cells are extremely sensitive, even if no roentgen ray is used, and it would be hard to demonstrate their production by the roentgen ray. In laboratory experiments we did find lipase ferments brought out by exposure to the roentgen ray. The roentgen raying of bones in some of our cases has not produced as rapid a fall as in the spleen. We should irradiate a definite area where hyperplasia is going on. I have not noted benefit in the long bones as much as in the spleen. I have seen bad results from the use of benzene. The leukocytes begin to fall, but the patients die. One patient, abandoned as moribund, with only 50,000 blood plates, and hemorrhage from the mouth, uterus and skin, and really on the ragged edge, was subjected to irradiation, and she recovered to the extent that she lived three years and did hard farm work. She died later following the extraction of some teeth. I have the impression that these people do better if they are given sodium cacodylate subcutaneously, but I cannot prove it. We know that arsenic has an effect on the leukemias. The course of the disease is variable. I have two cases of myelogenous leukemia which have lasted seven and eight years, respectively. A chronic lymphatic leukemia has lasted six years. The roentgen ray improves patients in an extremely bad condition, and brings them back into active working life. I do not know that we give them longer life than in the slower, more chronic cases of leukemia. I have never had a case treated that lasted seven years.

Aneurysm of the Hepatic Artery

Drs. Julius Friedenwald and Karl H. Tannenbaum, Baltimore: Sixty-five cases of this exceedingly uncommon affection are recorded in the literature. We had one case. A man, aged 48, became aware of a slight jaundice eight weeks before admission, which gradually increased; there was no pain, nor was anything else abnormal noted with the exception of a marked pruritus, loss of appetite and weight. A carcinoma was suspected, and the patient was admitted to the hospital for operation. He had several collapses preceded by violent abdominal pains, and finally died suddenly before an operation was undertaken. At the necropsy, 3 or 4 liters (quarts) of blood was found in the abdominal cavity, and an aneurysm of the hepatic artery the size of a small orange was discovered.

Characterization of Various Forms of Endocarditis

Dr. Emanuel Libman, New York: The types of endocarditis are rheumatic, syphilitic, acute bacterial, subacute bacterial and indeterminate. The last named group includes cases usually having a history of true rheumatic fever, and is characterized by having very peculiar lesions on the valves and by the absence of Aschoff bodies from the heart muscle. The so-called cases of terminal endocarditis also belong in this group. These involve the left side of the heart, in the main, the mitral valve. There are no characteristic lesions in the heart muscle. The cause is unknown. The cause of rheumatic fever has not yet been discovered. The specific lesion is the Aschoff body, but this lesion is found in only about one third of the cases that are clinically recognized as belonging to this group. The Aschoff body is a perivascular lesion. In rheumatic fever, a secondary infection by anhemolytic streptococci is found in 20 per cent. of the cases. The groups called bacterial are so designated because they are due to known bacteria. The cases with an acute course are due, in the main, to hemolytic streptococci, pneumococci, staphylococci, the gonococcus and other organisms. The subacute group is due, in more than 95 per cent. of the cases, to anhemolytic streptococci (so-called *Streptococcus viridans)*. The remaining cases are nearly all caused by the influenza bacillus. Other organisms, especially the gonococcus, can produce a subacute picture, and on the other hand, the organisms found in the subacute cases may, rarely, be the cause of an acute type of disease. The portal of infection in the acute cases is usually an evident purulent focus; in subacute cases a focal infection or possibly the intestinal tract cultivates the disease. The acute cases should be named according to the etiologic agent that is found. Subacute cases are best termed subacute *Streptococcus anhemolyticus* and *Bacillus influenzae* endocarditis. One could shorten the terms and talk of subacute streptococcus and influenzal endocarditis.

Gonorrheal Endocarditis

Dr. W. S. Thayer, Baltimore: Three hundred and twenty-seven cases of acute endocarditis, which came to necropsy, were studied. In 133 of these the lesion was determined bacteriologically. In forty-three cases blood culture during life was positive, making a total of 176. Twenty-two of these, or 11.3 per cent., were gonococcal. Age incidence was from 9 to 42 years. The relation of the onset of endocarditis to the period of acute infection was not often clear. Of the twenty-two cases, in seven, or 31 per cent., there was arthritis. The symptoms were those of grave septicemia: fever, chills, sweats in irregular recurrence. The blood showed rapidly increasing anemia and high leukocytosis. The duration of the disease was from three weeks to eight months, the average being 9.7 weeks. From a clinical study of the cases it would seem that gonococcal endocarditis has a malignancy between that of malignant streptococcus, staphylococcus and pneumococcus, on the one hand, and that of the slower viridans and influenzal infections on the other. The anatomic lesions were in the form of large, yellow or white, crumbly vegetations, the left side of the heart being more frequently involved. Right sided lesions, however, were more frequent than usually reported. The aortic valve was most commonly affected. The gonococcus infection usually involves healthy, previously undiseased valves. The disease is generally a progressive infection tending toward a fatal termination, but milder cases may occur with progress to recovery. The latter, however, are relatively rare.

Clinical Observations on Heart Block

Dr. Paul D. White, Boston: Intraventricular block is almost as frequently seen in a large medical clinic as is auriculoventricular block, 4 per cent. having been found in 3,219 cases observed at the Massachusetts General Hospital, as compared with 4.8 per cent. Complete auriculoventricular block showed one-fifth the frequency of unquestionable partial auriculoventricular block. Bundle branch block of high grade made up slightly less than one third of the total number of cases of intraventricular block. Sino-auricular block was rarely found, less than half as often as complete auriculoventricular heart block. Arteriosclerosis was apparently responsible for the majority of the cases of complete auriculoventricular block and of intraventricular block of all degrees, but especially of bundle branch type, in which it figured as the chief factor in more than 80 per cent. Syphilis was a probable factor in sixteen of 156 cases of auriculoventricular block, and in eleven of 130 cases of intraventricular block. Antisyphilitic treatment in a number of the cases followed has not abolished the block, although disappearance of heart block under treatment has been reported, and I have seen one such case. In the series of partial auriculoventricular block cases, digitalis seemed to be chiefly responsible in more than half, on a background of rheumatic heart disease more often than arteriosclerotic heart disease. Digitalis was also largely responsible for six of the eleven cases of "sino-auricular block." The characteristic flattening or inversion of the T wave of the electrocardiogram was here very helpful in analysis of digitalis effect. Less than one quarter of the cases of complete auriculoventricular block showed heart failure, either anginal or congestive, at the time of discovery, and also less than a quarter gave a history of Stokes-Adams attacks. The mortality from heart failure in the last seven and one-half years has been slightly higher in the group with intraventricualr block than in the group with auriculoventricular block. Several of the patients with complete heart block were in fairly good condition some years after the discovery of the block, in fact, nine being in "good or in fair health" from one to seven years after the first electrocardiographic evidence of complete heart block. Four of the five patients surviving in fairly good health over five years after the discovery of the block were the four patients under 40 years of age. Heart failure was found more often in the patients with intraventricular block than in those with auriculoventricular block, especially of the anginal type. Angina pectoris was found about four times more often in intraventricular block than in auriculoventricular block. It appears from this study that intraventricular block is of greater significance than auriculoventricular block. For its detection, the electrocardiograph is essential.

Digitalis Effects in Cardiac Cases with Regular Rhythm

Dr. Henry A. Christian, Boston: Mackenzie and others have so emphasized digitalis effects as occurring almost solely in cases with auricular fibrillation that there is a growing feeling that, unless the pulse is absolutely irregular and rapid, little is to be gained from digitalis therapy. My own view is that digitalis therapy, as a rule, has a striking effect on those changes in the patient which are brought about by cardiac insufficiency irrespective of whether the pulse is fast or slow, irregular or regular. In ninety-seven consecutive cardiac cases, forty had regular rhythm and fifty-seven auricular fibrillation. In those with regular rhythm there was a considerable digitalis effect obtained in 72.5 per cent. and in those with fibrillation in 75.4 per cent. There seemed to be little difference dependent on rhythm. A considerable digitalis effect was taken as a decrease of at least thirty beats a minute, a loss of 4 kg. (8⅘ pounds) in weight or a definite diuresis. In this group numerous patients with a slow cardiac rate showed excellent and some striking effects from digitalis therapy. Of those with slow rate some had a regular rhythm, while others were fibrillating. Loss of edema, as shown by drop in body weight and diuresis, are just as striking and fully as satisfactory results of digitalis therapy as decrease in heart rate, and both occur irrespective of the presence or absence of auricular fibrillation. In fact, loss of edema adds more to the patient's comfort than change in rate. This report demonstrates that striking improvement in symptoms and signs in cardiac patients occur irrespective of rhythm and rate, and consequently regular rhythm or slow rate is no reason for withholding digitalis from patients with cardiac insufficiency with the idea that digitalis therapy will cause little or no improvement.

Quinidin in Auricular Fibrillation

Dr. T. Stuart Hart, New York: Of seventeen cases of auricular fibrillation treated with quinidin, fifteen were continuous fibrillation cases; two were cases of paroxysmal fibrillation. These were not selected cases. They were treated according to the ordinary hospital routine and were followed very closely by frequent electrocardiographic studies. The method of administering quinidin was the one usually employed. The patients were given two preliminary doses of 0.2 gm. each, twenty-four hours being allowed for evidence of susceptibility to develop. After this, 0.4 gm. was given three times a day. As soon as sinus rhythm had been reestablished, the drug was immediately discontinued. Of the fifteen cases of persistent fibrillation, five recovered to normal rhythm. In both paroxysmal cases sinus rhythm promptly followed the quinidin administration. In my experience, if quinidin was effective in producing sinus rhythm, this occurred within a few hours or, at least, not longer than sixty hours after beginning the drug. In reviewing the electrocardiographic curves, I have been impressed by the fact that those patients who in their control curves showed relatively large auricular waves were more likely to regain a normal rhythm. I have seen no dangerous results following the administration of quinidin. I gave quinidin only to those patients who had never received digitalis, or I withheld it for two or three weeks until I was sure that the heart was free from digitalis influences. The use of quinidin in combination with digitalis has been opposed on the ground that their pharmacologic activities are antagonistic. I have some electrocardiographic evidence which supports this view. Quinidin slows the auricle and increases the rate of the ventricle, while digitalis makes the auricle more rapid and slows the ventricle. These effects were observed in most of my cases. The clinical evidence of the antagonism of these two drugs is less evident.

Arsenical Treatment of Chronic Infectious Endocarditis

Dr. Joseph A. Capps, Chicago: This group of cases is to be differentiated from rheumatic endocarditis and the acute ulcerative endocarditis. Eight cases with characteristic clinical symptoms showed positive blood cultures. All were given sodium cacodylate daily over a long period. Two patients died; four are well after intervals of from twenty-two months to eleven years; two are improved after an interval of three and six months, respectively. These results, along with certain experimental evidence, encourage the hope that the long continued use of arsenic has an inhibiting, if not a germicidal, influence on the causative organisms.

DISCUSSION ON PAPERS OF DRS. FRIEDENWALD AND TANNENBAUM, LIBMAN, THAYER, WHITE, CHRISTIAN, HART AND CAPPS

Dr. Joseph L. Miller, Chicago: It is difficult to determine just what should be included in this group known as subacute endocarditis. It should include, no doubt, cases which show very wide variations in intensity of symptoms—from the relatively low grade infections to a form which merges into acute septic endocarditis. There is one form of considerable interest: patients who enter the hospital with a history of an old endocardial lesion years previously and have gone along comfortably with good compensation; then without known cause their compensation is disturbed. They might pass as having a broken compensation due to an old lesion. Many will go for days without fever, and only at infrequent intervals have 99.2 or 99.6 F.—just enough to excite suspicion that an acute process may be present. I have followed several of these cases to necropsy and have been surprised to find a subacute form of endocarditis. In this group of cases the blood cultures are practically always negative. There is no enlargement of the spleen, and there are no emboli, and consequently no glomerular nephritis. At present we are very suspicious when a patient enters the hospital with a history of an old lesion, but who has had good compensation for a time and has recently developed decompensation, that we are dealing with an acute process, and the presence of even a very moderate degree of fever helps to sustain this view.

Dr. Morris White, Minneapolis: I have been using small amounts of digitalis in auricular fibrillation, with fair success, but not so much as Dr. Christian reports. The margin between good digitalis effects and partial block is a narrow one. Dr. Hart did not state whether he had used quinidin after treatment with digitalis. Has he used it when the digitalis effects were wearing off?

Dr. Frank Billings, Chicago: Richard Pearce found that sodium cacodylate in the animal is excreted in the urine as arsenous oxid. It appeared to be nontoxic. I began to use the drug in the treatment of chorea with good results. In 1905 I saw in consultation a boy, aged 10, who had acute rheumatic fever associated with a severe type of chorea and pancarditis, including pericarditis with serofibrinous effusion. The boy's condition was very serious. The first twenty-four hours 8 grains of sodium cacodylate was given subcutaneously in divided doses. Within thirty-six hours there was a marvelous change manifested by subsidence of the chorea, the disappearance of the fever and swollen joints and a practical resolution of the effusion within the pericardium. The drug was discontinued, and within another thirty-six hours there was a complete recurrence of all the symptoms, including a renewal of the effusion within the pericardium. The drug was again given in the same dosage, and after the subsidence of the acute manifestation, which occurred again within forty-eight hours, it was continued in somewhat smaller dosage for a week or longer. Since that time I have continued to use the drug with the same positive good results in acute rheumatic pericarditis with effusion. Since then I have not found it necessary to perform paracentesis of the pericardium. This experience with the drug justified the belief that it had some specific effect in certain infections, notably acute chorea and acute rheumatic pericarditis. This experience also led to the use of the drug in chronic infectious endocarditis with *Streptococcus viridans* bacteremia. The drug is apparently nontoxic even when used in relatively large doses, either subcutaneously or intravenously. I have given as high as 1 gm. intravenously every two or three days. No unfavorable toxic effect has been observed. I believe that a lesser dosage is quite as effective, and would advise those who use it to make the daily dose not greater than 0.6 or 0.7 gm., given either subcutaneously or intravenously in one dose.

Dr. E. P. Carter, Baltimore: I have long made use of Eggleston's dictum that "the indication for digitalis is the degree of cardiac failure and not the cause." We have been studying the effect of digitalis in the presence of a normal mechanism with particular reference to its effect on the cardiac rate and the blood pressure. Patients showing evidences of marked cardiac failure have been put to bed and kept at rest without digitalis until the heart reached and maintained a rate at a constant level for each individual case. We then digitalized them and found in a large percentage of the cases, in addition to the marked clinical improvement, a very striking slowing in the cardiac rate and even in some instances an actual shortening in the conduction interval and improvement in other phases of the galvanometric record, in addition to the fall in blood pressure. With the suggestion as to the possibility of digitalis being equally as dangerous as quinidin as a cause of sudden death, I cannot agree. Before the introduction of quinidin I attempted to see in how many cases of fibrillation I could, if possible, bring about a complete auriculoventricular dissociation by digitalis. I was successful in producing a complete dissociation in only three cases. Surely in these instances, were the danger from digitalis at all a real one, as suggested, I should have met with a catastrophe. One other point which should be brought out in connection with the action of digitalis in the presence of a normal mechanism is that following the administration of digitalis the greatest shortening of the cardiac muscle fibers coincides with the maximum degree of change in the T wave, and that the actual output of the heart per beat was increased in a large percentage of their observations. In reference to the use of quinidin, in our series of sixteen cases we have had two catastrophes of sudden death occurring shortly after the return to normal mechanism. In one case the postmortem disclosed the presence of auricular thrombi and numerous emboli; in the other a necropsy was not allowed.

Dr. Solomon Solis-Cohen, Philadelphia: May I ask Dr. Christian whether he has any data concerning the relative numbers of cases of valve disease and cases of muscle disease without valve lesion among the cases in which he observed positive effects from digitalis? Also, whether he observed any difference in effect that seemed to be dependent on the presence of any special lesion of the valves? In chronic cases, at least, and whether or not there is fibrillation or flutter, I expect better results from long continued moderate dosage than from the newer method of enormous initial doses with lessening or omission later. Of course, I am not speaking of emergencies—they are a law unto themselves. Also, it is hardly needful to say that in the continued use of digitalis there must be periods of intermission, and that the drug must be stopped when the indications for it no longer exist. Irrespective of the lesions and considering only the mechanics or dynamics of the circulation the indications or contraindications for digitalis are to be found in the advisability or inadvisability of slowing the heart, increasing the ventricular force, and improving the nutrition of the organ. To get this result, there must, of course, remain a sufficient quantity of muscle substance capable of response to the influence of the drug. It will not revive the dead, and it will not be useful in cases of advanced muscular degeneration, and it will do harm when there are certain forms of lesion in the atrioventricular bundles; but to look on fibrillation or disturbance of rhythm as the only or chief indication for its use is to ignore not only the clinical lessons of generations, but also pharmacologic studies which cannot be set aside lightly.

Dr. L. A. Conner, New York: I would like to ask Dr. Libman whether he can give some idea of the proportion of his cases of *Streptococcus viridans* endocarditis that occurred in hearts with normal valves. I cannot recall ever having seen a case of viridans endocarditis which had not developed in a heart already the seat of some form of valvular damage. I have gradually gained the very definite impression that the chances of successful restoration and maintenance of a sinus rhythm is much greater, when heart failure is present, if the patients have been thoroughly digitalized before quinidin is begun.

Dr. Alfred Stengel, Philadelphia: I have not had the same experience with sodium cacodylate as mentioned by Drs. Capps and Billings. I think there might be danger in the heavy doses. Not all cases of endocarditis end fatally. I can refer to many cases in children up to the age of 12, in which there was an intermittent fever for three or four months, and ultimately the patient recovered.

Dr. Emanuel Libman, New York: The studies made by Oppenheimer and Rothschild agree with those made by Dr. White, as regards the infrequency of auriculoventricular block as compared with intraventricular (or arborization) block. Dr. White has well emphasized the value of electrocardiographic examinations for the diagnosis of intraventricular block. Occasional exceptions should not deter us from using a diagnostic method. It is necessary, of course, carefully to check up the electrocardiographic results by the clinical findings. Dr. Capps' results were obtained mainly in patients that had but little fever. It will be necessary to contrast the results in such cases with cases with the same grade of fever which have not been subjected to any but hygienic and dietetic methods of treatment. Arsenical preparations have been used quite extensively. The results cannot yet be analyzed.

Dr. W. S. Thayer, Baltimore: There is a sharp line of distinction between the bacteria seen in ordinary endocarditis and those of the severe forms. There were four streptococcus cases in which the fever lasted thirteen weeks, and one pneumococcus case lasting for the same length of time. In sixty cases of *Streptococcus viridans* endocarditis there was no history of preexisting cardiac disease as far as we could judge in thirty-two patients.

Dr. Henry A. Christian, Boston: As to whether patients had rest in bed for several days prior to digitalis therapy this has often been done so that we know that digitalis produces a marked effect beyond that produced by rest. As to dosage, some had the large single, so-called physiologic dose, some had a modified large dosage, while others had a smaller dosage, such as 0.1 gm. of powdered leaves of digitalis, three times a day. The results were much the same by all methods; only, the larger the doses the sooner they became effective. With regard to heart block, in patients with regular rhythm I observed no clinical evidence of such. I think that, if Dr. White had continued digitalis in his patients without reference to the occurrence of electrocardiographic evidence of slighter degrees of heart block, he would have obtained better results from digitalis in his cases. As to whether these patients had valvular lesions, about two thirds were cases of chronic myocarditis without evidence of any organic valve lesion; but good effects also were obtained with digitalis in cases in which there were organic mitral and aortic lesions.

Dr. T. Stuart Hart, New York: I have had no opportunity to study the cases in which the digitalis effects were passing off. Our studies indicate a method which may furnish a means of finding out how digitalis and quinidin can be used together. We saw no bad effects from the administration of quinidin. At present, however, I feel that a drug so spectacular in its effects as quinidin should be used with the greatest caution.

Dr. J. A. Capps, Chicago: The dosage of sodium cacodylate in my cases was never very large, from 2 to 4 grains a day over a long period, in preference to giving a very large dosage for a short period.

Dr. Emanuel Libman, New York: It is very difficult to differentiate between the severe and the mild cases. I do not believe that the temperature is always reliable, as we have often had patients die without high temperature.

Dr. Paul D. White, Boston: It has been my experience that digitalis is much more effective in heart failure with auricular fibrillation (previously untreated) than in heart failure with normal rhythm (previously untreated).

Clinical Aspect of Studies on the Metabolism of Diabetes

Dr. Elliot P. Joslin, Boston: Prior to the introduction of treatment by undernutrition, the average urinary nitrogen excreted per kilogram of body weight for twenty-four hours was 0.265 gm. After that time, for a considerably larger series of cases, the average urinary nitrogen excretion was 0.185 gm. per kilogram of body weight for the twenty-four hours. The average metabolism for the early series was + 12 per cent. and for the later series — 11 per cent. Comparison of the urinary nitrogen determinations with loss in body weight with metabolism and with the respiratory quotient suggest that protein metabolism alone does not control the total metabolism; that exogenous protein may be more stimulating to the metabolism than endogenous protein; that a very high nitrogen excretion in a severe diabetic may represent the prelethal rise, and that even such a diabetic may have the power to oxidize carbohydrate to a degree which is often not appreciated, but obviously should be utilized.

Effects Produced on Diabetes by Extracts of Pancreas

Drs. J. J. R. Macleod, F. G. Banting, O. H. Best, J. B. Callip, W. R. Campbell, A. A. Fletcher and E. C. Noble, Toronto: Researches on the action of pancreatic extracts have hitherto failed to take into account that there might be a powerful proteolytic enzyme which could destroy or digest any internal secretion also present. We have sought to obtain the pancreatic secretion isolated from such a proteolytic ferment, and to study its independent action. A highly potent product was obtained in small quantities from cattle fetus pancreas, which was termed "insulin." This is harmless to man and to laboratory animals when given in proper dosage, but toxic in large proportions. In seven cases of human diabetes mellitus, subcutaneous injection of insulin reduced the blood sugar to normal level with disappearance of sugar and ketone bodies from the urine. The improved carbohydrate metabolism was evidenced by improvement in the respiratory quotient, which rose decidedly within two hours, while the patients felt a marked improvement in symptoms and in general well being. Laboratory experiments indicate that the pancreatic extract employed contained properties controlling carbohydrate and fat metabolism, yet its clinical results cannot be estimated. Probably the dietetic treatment will still be foremost, but the extract promises to be of value in tiding the patient over those crises which are frequently uncontrollable by other means.

Pathology of Human Botulism

Dr. A. S. Warthin, Ann Arbor, Mich.: Six cases of human botulism were studied, five arising from eating canned spinach and one from canned ripe olives. The pathologic condition in all was the same. The brains were removed shortly after death and showed a marked perivascular infiltration, hemorrhage in the vessels of the cortex and vascular edema. Evidences of defensive reaction were rare in the cortex, and chiefly seen in the meninges. The cases all presented a similar feature of antemortem gas production within the brain, and the formation of small gas cysts containing bacilli, morphologically resembling those of *B. botulinus.* These cases present evidence that human botulism may be an infection as well as an intoxication.

Diagnosis and Treatment of Intestinal Tuberculosis

Dr. Lawrason Brown, Saranac Lake, N. Y.: We studied 1,036 cases with regard to the presence or absence of intestinal tuberculosis, and found 146 cases positive. Five per cent. of these occurred early in pulmonary tuberculosis. The cases were studied both fluoroscopically and roentgenographically. Segmentation and dilatation of the small intestine is suggestive of tuberculous enteritis, in contradistinction to tuberculous colitis. As operative results in these cases are rather poor, we looked for other methods of treatment. We tried the ultraviolet lamp. The roentgen ray has no effect on uncomplicated pulmonary tuberculosis, but it has considerable effect in clearing up the colon in tuberculous colitis, and after the colon has cleared up the lungs tend to clear up and the patient is much better.

Experiences in the Treatment of Lobar Pneumonia by a Serum Free Solution of Pneumococcus Antibodies

Dr. Lewis A. Conner, New York: The treatment is based on the capacity of bacteria to absorb their antibodies from the specific serum. Pneumococci were exposed to human polyvalent serum, and the sensitized bacteria were then treated with mild alkaline salt solution. The bacteria were washed to remove the serum, and, after being standardized, were centrifuged and used therapeutically. The intravenous injection of antibody solution was given as soon as the diagnosis was established, without waiting for typing. One hundred and fifteen cases were treated. There was the usual foreign protein reaction—a severe chill and rapid rise of temperature, the patient became cyanotic and the pulse rapid and small, then the temperature fell rapidly and the patient began to improve. The thermal response is very severe. There is a striking fall in leukocytosis, which sometimes rises again. The physical signs did not follow the course of the temperature. In one case of hyperpyrexia, death was probably due to the injection. Three other fatalities occurred: one in a morphin addict, one with uremia, and one with pulmonary embolus. The advantages are the absence of anaphylaxis, and the avoidance of waiting to type the sputum. The drawback is the extremely sharp reaction.

Comparative Study of Treatment of Lobar Pneumonia With and Without Antibody Solution

Drs. R. L. Cecil and N. P. Larsen, New York: One thousand cases of pneumonia were studied bacteriologically and clinically. Half were treated with antibody solution, and half were used as controls. The injection was usually followed by definite improvement and relief of pain. It is difficult to estimate the therapeutic value of this agent. The reactions were severe, and in three cases probably caused death. In favorable cases it appears to shorten the disease and eliminate complications.

Experimental Botulism, with Special Reference to Serum Therapy

DR. M. J. ROSENAU, Boston: Experiments have been worked out with the idea of procuring drugs to prevent the absorption of botulinus toxin and thus saving the patient until such time as the antitoxin can be procured. Ether prevented the absorption of toxin until antitoxin could be procured. Morphin had the same effect.

Hemoglobinuria in Hemolytic Jaundice and Pernicious Anemia

DR. H. Z. GIFFIN, Rochester, Minn.: In a case of hemolytic jaundice there occurred seven severe crises with hemoglobinuria. Syphilis was excluded. Cold and exposure did not produce attacks. Hemoglobinuria recurred whenever the red cell count reached approximately 2,500,000 cells. Three similar cases were found in the literature.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

May 15, 1922, **30**, No. 3

*Terminals of Human Bronchiole. H. G. Willson, Toronto.—p. 267.
Oestrous Cycle in Mouse. E. Allen, St. Louis.—p. 297.
Formation of Cardiac Loop in Chick. B. M. Patten, Cleveland.—p. 373.

Terminals of Human Bronchiole.—The material used by Willson in this study consisted of portions of the lungs of two subjects obtained at necropsies performed soon after death. One was a woman, aged 30, who had died of mitral stenosis, while the other was a child whose age could not be ascertained definitely, but was certainly less than 13. Serial sections and wax reconstructions were studied and as a result Willson is convinced that in the branching of the respiratory bronchioles there is far greater complexity, irregularity and a greater degree of interlocking than is usually described. There is no spherical space, or 'atrium,' such as has been described by Miller. The method of branching of the bronchioles is dichotomous until the terminals are approached, and then the branching becomes irregular. Counting as the first branch a respiratory bronchiole arising from a nonrespiratory one, the air sac is usually reached from the fifth to the seventh branch. There are normally no direct communications between adjacent alveoli. The bronchioles do not decrease in diameter as the periphery is approached, but remain of fairly uniform size until the air sacs are reached, and the air sacs are, as a rule, of greater diameter than the tubes from which they arise. Waters' rule that the planes of successive dichotomies cut one another at right angles is only exceptionally confirmed. The lung of the child is just as complex in structure as that of the adult. It is calculated that during ordinary deep inspiration the total area of respiratory and nonrespiratory epithelium in the adult lung is not greater than 70 square meters.

American Journal of Medical Sciences, Philadelphia

May, 1922, **163**, No. 5

Impending and Real Gangrene Associated with Diabetes; Correlation of Medical and Surgical Effort. B. M. Bernheim, Baltimore.—p. 625.
*Prevention of Simple Goiter in Man. O. P. Kimball, Cleveland.—p. 634.
*Occurrence of Physical Signs Suggestive of Aortic Defects. F. A. Craig, Philadelphia.—p. 649.
*Heart Muscle Changes in Pneumonia; Remarks on Digitalis Therapy. W. J. Stone, Pasadena, Calif.—p. 659.
*Immediate Recovery from Early Diabetes Insipidus After Lumbar Puncture. J. Tucker, Cleveland.—p. 668.
*Clinical, Bacteriologic and Pathologic Findings in Case of Influenzal Meningitis. E. R. Templeton, D. S. King and R. McKean, Boston.—p. 675.
Experimental Polyuria. McM. Hanchett, Chicago.—p. 685.
Correlation of Clinical and Pathologic Findings in Nephritis. P. F. Morse, Detroit.—p. 697.
*Lowered Vital Capacity of Lungs in Case of Primary Hepatic Tumor with Pulmonary Metastases. R. M. McKean, Detroit.—p. 710.
Early Manifestations and Rational Treatment of Tabes Dorsalis. H. F. Stoll, Hartford, Conn.—p. 723.
Question of Use of Anesthesia in Lumbar Puncture. J. C. Regan, Brooklyn.—p. 738.
Two Cases of Agenesis (Congenital Paralysis) of Cranial Nerves. W. B. Cadwalader, Philadelphia.—p. 744.

Prevention of Goiter.—Kimball urges that the prevention of goiter in the adolescent period should be a public health measure under state, county or municipal control. The existing systems of organization of the schools, both public and private, are sufficient to handle all the details without additional aid or expense. Education of the pupils could be combined with the actual administration of iodin, so that after leaving school they could continue the treatment if necessary. In industrial medicine physicians could render an important service in this direction. As thyroid enlargement is approximately six times as frequent in girls as in boys, each community must decide whether it will include both sexes in prophylactic measures, as it must also decide regarding the ages when the use of iodin should begin and end. In this climate probably the maximum of prevention, coupled with the minimum of effort, would be obtained by the administration of iodin between the ages of 11 and 17 years. As applied to schools this would mean beginning with the fifth grade.

Physical Signs Suggesting Aortic Defects.—In the examination of large bodies of men Craig urges that more attention should be directed to the study of the upper anterior chest than is usually devoted to this region, especially, but by no means exclusively, in those over 40. In a study of 5,706 men with an average age of from 45 to 49 years, signs were found suggesting changes in the aorta in about 0.85 per cent. The large proportion of cases were associated with some degree of hypertension. Nonsyphilitic cases are encountered with relative frequency in which the physical signs strongly suggest the presence of aortic changes, which may or may not be appreciable by roentgen-ray examination.

Heart Muscle Changes in Pneumonia.—An analysis was made by Stone of the data secured by the study of 1,205 patients with lobar and bronchopneumonia with reference to the digitalis therapy. Two hundred and seventy-nine patients with pneumonia did not receive routine digitalis therapy while 926 patients received full dosage of a potent tincture standardized by the cat method of Hatcher. The gross heart muscle changes as shown in 259 pneumonia necropsies are described, together with the microscopic study of seventy-one heart muscle sections. The influence of these changes on the probable cause of death is discussed together with the benefit believed to have been secured in treatment by the use of digitalis. Sepsis in pneumonia was the most serious complication and the most frequent cause of death in the subacute or chronic forms of the disease; that is, among those who died as late as the fourteenth day of illness or subsequently. Among 283 patients in whom sepsis occurred there were 161 deaths, a mortality rate of 56.8 per cent., while among 922 pneumonia patients without sepsis there were 131 deaths, a mortality rate of 14.2 per cent. Among the causes other than sepsis responsible for death in many acute forms of the disease, cardiac muscle failure appeared to have been a prominent factor. Right ventricle dilatation was found to have occurred in 39.4 per cent. of eighty-nine lobar pneumonia necropsies and in 36.6 per cent. of 112 bronchopneumonia necropsies. Parenchymatous, fatty and hyaline degeneration or evidence of inflammatory reaction in the heart muscle were found in 79.3 per cent. of the sections from thirty-four lobar pneumonia necropsies and in 59.4 per cent. of the sections from thirty-seven bronchopneumonia necropsies. The extent of these changes when considered with the right ventricle dilatation was believed in many instances to have been responsible for the circulatory failure which had occurred. The mechanical obstruction to the pulmonary circulation in extensive or massive consolidation was apparently a factor of great importance in producing right ventricle dilatation. Among 213 patients without sepsis in pneumonia who were not treated by the early routine administration of a standardized tincture of digitalis the percentage of deaths believed to have been associated with cardiac failure was 25.8. Among 709 patients without sepsis in pneumonia who were treated by the early routine administration of a standardized tincture of digitalis the percentage of deaths believed to have been associated with cardiac failure was 10.7.

Lumbar Puncture Cures Diabetes Insipidus.—In the case reported by Tucker there was a sudden onset of diabetes insipidus without any immediate preceding illness. The subjective symptoms were a sense of discomfort behind the glabella, increased thirst, a disquieting volume in urine output and marked sweating of the body and extremities. Physical examination confirmed the subjective symptoms, and, in addition, revealed involvement of the first (?), second, fifth and eighth cranial nerves on the left side. Within twenty-four hours after lumbar puncture the great thirst was relieved, the urinary output was reduced to normal and the sweating ceased. Examination five and a half months after the onset of the diabetes insipidus gave negative findings with the exception of laboratory evidence for hypopituitarism, revealed by the very high sugar tolerance. It is suggested that the disturbance was due to a serous meningitis with edema of the infundibulum cerebri and involvement of certain cranial nerves on the left side. The removal of 8 c.c. of subarachnoid fluid, even though this was under normal pressure, was adequate to restore proper circulatory equilibrium.

Influenzal Meningitis.—The clinical picture in this case was that of an acute meningeal infection with a positive Kernig, Brudzinski, neck rigidity, retraction of the head, fever and leukocytosis. The exact diagnosis was of necessity made through the bacteriologic findings in the laboratory. The bacillus obtained was gram-negative, hemoglobinophilic, pleomorphic, aerobic, nonhemolytic and nonmotile. In a guinea-pig intraperitoneal injection was followed by peritonitis, septicemia and death in twenty-six hours. In its morphologic and cultural characteristics the organism so described corresponds with forms isolated from meningitis cases by Slawyk, Wollstein and others.

Primary Carcinoma of Liver with Lung and Kidney Metastases.—A case of primary carcinoma of the right lobe of the liver, originating from the epithelium of the intrahepatic bile ducts, is reported by McKean. Metastases were demonstrated in the liver substance, in glands at the lung hila, in the kidney and seeded throughout the parenchyma, pleurae and blood vessels of both lungs. Numerous thrombi were found in the hepatic veins. Many of the classical features of tumors of this type, i. e., the right upper abdominal quadrant pain, jaundice, ascites and edema, were lacking. The pulmonary symptoms, thoracic pain, dyspnea and hemoptysis dominated the picture throughout, producing the most interesting phase of the case, the marked reduction in vital capacity as compared with the relative insignificance of the pulmonary signs. The change in vital capacity furnished the first real evidence of the extent of progress of the intrathoracic process, which was later demonstrated in the necropsy room.

American Journal of Obstetrics and Gynecology, St. Louis

May, 1922, 3, No. 5

*Diffuse Adenomyoma of Uterus: Conditions Influencing Its Development. O. H. Schwarz and F. P. McNalley, St. Louis.—p. 457.
*Neoplasia of Kidney. J. E. Davis, Detroit.—p. 478.
Transperitoneal Nephropexy. T. B. Noble, Indianapolis.—p. 493.
Transuterine Insufflation, Diagnostic Aid in Sterility. A. J. Rongy and S. S. Rosenfeld, New York.—p. 496.
End Results in Obstetrics. C. J. Andrews, Norfolk, Va.—p. 502.
*Indications for Management of Cord Stump Afforded by Study of Physiology of Navel in Newborn. P. Willson, Washington, D. C.—p. 506.
*Use of Lutein Solution Hypodermically for Control of Nausea and Vomiting of Pregnancy. T. Coffey, Los Angeles.—p. 513.
*Primary Carcinoma of Female Bladder; Report of Case. I. S. Stone, Washington, D. C.—p. 517.
Hemorrhage During Early Months of Pregnancy. R. Y. Sullivan, Washington, D. C.—p. 520.
Coincident Ruptured Ectopic Gestation and Acute Suppurative Appendicitis. C. E. Ruth, Des Moines, Ia.—p. 525.
Double Uterus and Vagina. D. Hadden, Oakland, Calif.—p. 526.
Hernia of Ileum Through a Rent in Mesentery. F. H. Jackson, Houlton, Me.—p. 527.
Four Cesarean Operations on One Patient. H. Thoms, New Haven, Conn.—p. 529.

Diffuse Adenomyoma of Uterus.—The study made by Schwarz and McNalley of forty-nine cases of diffuse adenomyoma of the uterus shows that in almost every instance this condition is present coincidently with one or more other lesions which are fundamental in influencing the development of the adenomyoma. The inflammation in the uterine cases is a definite factor in the production of the lesion as in the cases of tubal adenomyoma cannot be substantiated.

Neoplasia of Kidney.—Davis reports five primary cases: (1) papillary epithelioma; (2) hypernephroma; (3) malignant teratoma; (4) squamous cell carcinoma; (5) lymphoblastoma.

Management of Cord Stump.—The technic employed by Willson in the management of the cord stump and navel appeals to him as being based on sound physiologic principles. When the respiratory function has been normally established, and pulsation in the cord has ceased or become limited to the fetal end, traction is made on the cord perpendicularly to the body surface, in order to draw the skin cuff out to its full extent, and, after painting with 50 per cent. tincture of iodin, a clamp is placed immediately adjacent to the skin margin and locked in place. Care is exercised to avoid catching the skin edge in the bite of the forceps. The cord is then cut through as close to the distal side of the forceps as possible and a few turns of a sterile gauze bandage are thrown around the clamp and stump in the ordinary figure-of-eight applications. After having been left in place for one hour the clamp is gently and carefully removed by the nurse. At this time the cord stump is represented by a narrow zone of congested cord tissue about one-eighth inch in thickness, surmounted by a transversely compressed translucent zone, of paper thickness, the width of the jaws of the clamp. The stump is again touched with 50 per cent. tincture of iodin and covered with a dressing of sterile gauze, held in place by a binder. Unless soiled this is not disturbed until the fourth or fifth day. The baby is not tubbed. Twenty-four hours after birth inspection of the navel discloses the remnant of the cord as a small, dry scab which separates and comes away when the dressing is changed on the fourth or fifth day.

Lutein Solution to Control Vomiting of Pregnancy.—Coffey endorses the hypodermic injection of lutein in the treatment of the vomiting of pregnancy. Of sixty-two cases so treated fifty-five, or 88.6 per cent. were improved. The earlier the injections are begun the more gratifying the results. The drug is apparently harmless, easily administered and leaves no unpleasant after effects. There seems to be no increased tendency to abortion if the patient remains quiet following the injections.

Primary Carcinoma of Bladder.—Stone reports a case in which early excision of a supposedly malignant bladder tumor, by combined vaginal and abdominal operation, has resulted in an apparent cure.

American Journal of Ophthalmology, Chicago

May, 1922, 5, No. 5

Retinitis Proliferans. H. V. Würdemann, Seattle.—p. 337.
Speed of Accommodation as Practicable Test for Fliers. L. E. Tefft and E. K. Stark, Mitchel Field, L. I., New York.—p. 339.
Monocular and Binocular Judgment of Distance. B. V. Deyo, Mitchel Field, L. I., New York.—p. 343.
Causation of Simple Glaucoma. J. Dunn, Richmond, Va.—p. 348.
Increased Intraocular Tension. T. Faith, Chicago.—p. 352.
Angle Alpha. E. Landolt, Paris, France.—p. 355.
Errors in Ophthalmic Literature. J. M. Ball, St. Louis.—p. 357.
Eye Glasses Versus Spectacles. F. G. Murphy, Mason City, Ia.—p. 360.
Glioma of Retina. M. J. Keys, Victoria, B. C., Can.—p. 362.
Glaucoma a Ciliary Neuritis. O. Wipper, Chicago.—p. 368.
Bilateral Persistent Pupillary Membranes. G. N. Brazeau, Milwaukee.—p. 370.
Gonorrheal Ophthalmia in Child of Two Years. J. A. McCaw, Denver.—p. 371.

Corneal Ulcer Following Application of Tonometer. W. J. Gilbert, Calais, Me.—p. 371.
Detachment of Retina Following Intracapsular Cataract Extraction. W. Ralston and E. L. Goar, Houston, Tex.—p. 372.
Amulets for Cure of Diseases of Eyes. H. Friedenwald, Baltimore, Baltimore.—p. 372.

American Journal of Psychiatry, Baltimore

April, 1922, **1**, No. 4

*Preliminary Study of Precipitating Situation in Two Hundred Cases of Mental Disease. E. A. Strecker.—p. 503.
Nature of Thinking Disorder. F. L. Wells, Boston.—p. 537.
Rating Scheme for Conduct. J. S. Plant, Waverly, Mass.—p. 547.
Reversible Schizophrenia. Study of Implications of Delirium Schizophrenoides and Other Post-Influenzal Syndromes. K. A. Menninger, Topeka, Kan.—p. 573.
Emotional States and Illegal Acts in Connection with Schizophrenia. J. R. Oliver.—p. 589.
Blood Constituents and Mental State. H. S. Newcomer, West Philadelphia.—p. 609.
*Epilepsy in Offspring of Epileptics. D. A. Thom and G. S. Walker, Boston.—p. 613.
Environment as It Influences Development of Juvenile Delinquent. P. L. Dodge, Boston.—p. 629.
Magnesium as Sedative. P. G. Weston, Warren, Pa. 637.
Industrial Psychiatry. J. D. Ball, Berkeley, Calif.—p. 639.
Report of Case of Epidemic Encephalitis with Cord Changes Suggestive of Possibility of Early Syringomyelia. A. F. Harris, Worcester, Mass.—p. 679.

Precipitating Situation of Manic Depressive Psychosis and Dementia Praecox.—Strecker's study embraces a comparison between 100 manic-depressive psychoses and 100 cases of dementia praecox from the standpoint of the significance of the precipitating situations and a further comparison as to whether the organic or the psychogenic aspects were more emphatic. A significant or important precipitating situation occurred in fifty-two, or more than 25 per cent., of the patients. Influenza, overwork and exhaustion, the climacteric and complicated childbirth, were the most frequent somatic factors; the most common psychic problems were cruelty, poverty, illness and death of relatives, and unhappy love affairs. Significant and important exciting factors were more frequent by 12 per cent. in manic depressive psychosis; there was little difference between the two forms of mental disease in the doubtful and insignificant groups, but the absence of favoring circumstances was six times more frequent in schizophrenia. The proportion of somatic and psychic features was practically the same for manic depressive and dementia praecox; the somatic predominating in the significant and important situations; the psychic in the doubtful and insignificant ones. An abnormal personality occurred with greater frequency in those patients whose mental illness came on without adequate exciting factors. The percentage difference was 13 per cent. for manic depressive psychosis and 24 per cent. for schizophrenia.

Heredity in Epilepsy.—In view of past experience and present knowledge, Thom and Walter are quite convinced that epilepsy, as such, does not exist and is by no means entitled to the classification of a disease entity. The syndrome which goes to make up the condition which has borne the name of epilepsy is neither constant nor characteristic. The convulsions caused by lesions of the kidney are quite indistinguishable from those produced by an acute infection. In neither case, may they differ from the group called idiopathic epilepsy. An extremely high percentage of the cases which come to necropsy have gross brain lesions and many of these cases during life have been diagnosed as idiopathic epilepsy. One hundred and seventeen cases were selected for review. The diagnosis of epilepsy had been determined in all these cases. The subjects had all been married and had borne one or more living children. The total number of children resulting from these 117 matings was 431, of which 280 are still living. Of the parents seventy-six were females; forty-one males. Ninety-nine cases were idiopathic; eighteen organic. The onset of the convulsions began in fifty-nine cases prior to marriage and in fifty-eight cases after marriage. Of the total of 117 epileptic parents only twenty-two gave birth to epileptic children. Thom and Walker believe that epilepsy as a disease is not transmitted directly from parent to offspring, but rather that it is the nervous system lacking in the normal stability that is inherited, and the manifestations of this instability may be mental deficiency of all degrees, insanity of various types, neurologic and psychopathic disorders, convulsions from various exciting causes, which would have little or no effect on a normally developed nervous system. These mental and nervous disorders are less frequently found in the offspring of the so-called epileptic than has heretofore been believed and the future of the offspring borne of epileptic parents is not as hopeless as the pessimistic authorities on heredity record. Maternal defects are more frequently manifested in some form or other in the offspring than are the paternal defects and, when present, are more likely to appear at an earlier age.

American Journal of Physiology, Baltimore

May, 1922, **60**, No. 3

Adaptation of Albino Mice to an Artificially Produced Tropical Climate. I. Effect of Various Factors Composing a Tropical Climate on Growth and Fertility of Mice. E. S. Sundstroem, Berkeley, Calif.—p. 397.
Id. II. Relations of Body Form and Especially Surface Area to Reactions Released by and Resistance to Tropical Climate. E. S. Sundstroem, Berkeley, Calif.—p. 416.
Id. III. Effect of Tropical Climate on Growth and Pigmentation of Hair and Dependence of These Integumental Functions on Temperature Coefficient Law. E. S. Sundstroem, Berkeley, Calif.—p. 425.
Id. IV. Effect of Light and Heat on Resistance of Mice to Acetonitrile. E. S. Sundstroem, Berkeley, Calif.—p. 434.
Id. V. Effect of Humid Heat on Blood Morphology of Mice. E. S. Sundstroem, Berkeley, Calif.—p. 443.
Placental Permeability. II. Localization of Certain Physiologic Activities in Chorionic Ectoderm in Cat. R. S. Cunningham, Baltimore. —p. 448.
*Experimental Traumatic Shock. VI. Liberation of Epinephrin in Traumatic Shock. D. Rapport, Boston.—p. 461.
Conditions of Activity in Endocrine Glands. IX. Further Evidence of Nervous Control of Thyroid Secretion. W. B. Cannon and P. E. Smith, Boston.—p. 476.
Effect of Some Polyhydric Alcohols on Behavior of Rats in Circular Maze. D. I. Macht and G. C. Ting, Baltimore.—p. 496.
*Comparison of Waves of Blood Pressure Produced by Slow and Rapid Breathing. R. T. Trotter, P. Edson and R. Gesell, Berkeley, Calif. —p. 500.
*Alkaligenesis in Tissues. I. Ammonia Production in Nerve Fiber During Excitation. S. Tashiro, Cincinnati.—p. 519.
Conditions of Activity of Endocrine Glands. X. Cardio-Accelerator Substance Produced by Hepatic Stimulation. W. B. Cannon and F. R. Griffith, Boston.—p. 544.
Vasomotor Responses Obtained by Slowly Interrupted Faradic Stimulation of Thoracic Sympathetic Nerve. L. E. Davis, Chicago.—p. 560.
*Isolation of Substance from Urine Having Properties of Citric Acid: Description of an Apparatus Facilitating Working with Small Volumes of Gas. S. Amberg and M. E. Mayer, Rochester, Minn.—p. 564.
*Influence of Meat on Physical Efficiency. S. H. Bassett, E. Holt and F. O. Santos, New York.—p. 574.
Gastrin Theory Put to Physiologic Test. A. C. Ivy and J. E. Whitlow, Chicago.—p. 578.

Experimental Traumatic Shock.—In six out of nine cases reported by Rapport there is evidence of hyperactivity of the suprarenal glands during the development of traumatic shock. There is no sufficient reason to believe that either oversecretion of the suprarenals, or their exhaustion, is a factor in the production of shock. The probability is suggested that overactivity of the glands is a conserving factor in the development of shock.

Effect of Breathing on Blood Pressure.—The effects of rapid breathing were compared by Trotter et al. with those of more normal breathing upon the systolic blood pressure in man. Supplementary data were also obtained on the dog and cat. For the well known changes of blood pressure that occur during a single respiration, and which are more or less synchronous with the changing respiratory phases, the authors have proposed the name of simple cardiorespiratory waves to distinguish them from those waves produced by rapid breathing. The oscillations of pressure elicited during rapid breathing by the interference method they have designated as cardiorespiratory interference waves. The most striking difference in the respiratory relations of the simple and interference waves is that in the simple waves the blood pressure changes are complete within the period of a single respiration, while in the interference waves the gamut of the blood pressure changes is run through in the interval of several respirations. The production of interference waves of blood pressure is dependent on the establishment of cardiorespiratory cycles, in which the number of respirations is greater by one or less by one than the number of heart beats making up the waves and occurring in the same time interval.

Ammonia Production in Nerve Fiber.—Evidence is given by Tashiro to show that resting nerves give off exceedingly minute quantities of a volatile base-forming substance which during stimulation is greatly increased, and that this substance is probably ammonia. Methods are described by which as little as 0.0000001 gm. ammonia can be measured.

Substance in Urine with Properties of Citric Acid.—The substance isolated by Amberg and Mayer from urine in the form of an impure barium compound had certain properties in common with citric acid. These results support a previously made contention that citric acid occurs in the urine of normal human beings, but still they do not convey absolute proof, which rests solely on the isolation of the acid or its salts in a form pure enough for identification.

Influence of Meat on Physical Efficiency.—The results obtained by Bassett et al. show that the presence or absence of meat from the dietary, during periods as long as one week, has no demonstrable effect on the capacity of doing an amount of work so graded as to reach the limit of the physical capacity during a short period of time. This accords with the doctrine of Chittenden. There was a distinct and uniformly present sense of sleepiness for two or three hours during the afternoon period following the ingestion of 300 gm. meat. Removal of meat from the dietary for a period of one week did not diminish the sense of well being in the persons investigated. The well nigh universal opinion that meat ingestion is important for the maintenance of physical strength is not to be disregarded, but the experimental evidence in favor of this conception has yet to be produced.

American Journal of Public Health, Chicago

May, 1922, **12**, No. 5

Occupational Therapy. J. W. Brannan, New York.—p. 367.
Anemia in Professional Donors: Study in New Phase of Public Health. L. W. Famulener.—p. 376.
Mortality of Two Sexes in First Year of Life, with Special Reference to Whooping Cough. S. J. Holmes.—p. 378.
Cremation Versus Burial—Plea for More Sanitary and More Economical Disposition of Our Dead. S. A. Knopf, New York.—p. 389.
How Can We Best Solve Midwifery Problem. C. E. Ziegler, Pittsburgh.—p. 405.
Public Health Work in Ceylon. S. T. Gunasekara, Ceylon.—p. 414.
Industrial Wastes in Relation to Water Supplies. W. Donaldson, New York.—p. 420.

Archives of Diagnosis, New York

April, 1922, **14**, No. 4

Pituitary Disorders in Their Relation to Acromegaly (Hyper-Pre-Pituitarism); Suggestions for Use of More Precise Terminology. E. B. Krumbhaar.—p. 213.
Diagnosis and Prognosis of Nephritis. E. C. Reifenstein, Syracuse, N. Y.—p. 240.

Archives of Neurology and Psychiatry, Chicago

June, 1922, **7**, No. 6

Essay on Shaking Palsy, by James Parkinson, M.D., Member of the Royal College of Surgeons; with a Bibliographic Note Thereon by Alfred J. Ostheimer, Philadelphia.—p. 681.
*Parkinson's Disease: Clinical Study of One Hundred and Forty-Six Cases. H. T. Patrick and D. M. Levy, Chicago.—p. 711.
*Heredity in Epilepsy. Study of One Thousand Four Hundred and Forty-Nine Cases. C. W. Burr, Philadelphia.—p. 721.
*Intravenous Administration of Iodids. F. J. Farnell, Providence, R. I.—p. 729.
*Serologic Changes in Neurosyphilitic Patients During a Period of Nontreatment. H. Omar and P. H. Carroll, Mendota, Wis.—p. 733.
Epidemic Encephalitis with Myelitis. W. G. Spiller, Philadelphia.—p. 739.
*Actinomycosis of Central Nervous System. F. P. Moersch, Rochester, Minn.—p. 745.

Study of Parkinson's Disease.—One hundred and forty-six private cases of "classical" paralysis agitans were used by Patrick and Levy for studies in age and sex distribution; 140 for clinical studies. Frequency by decades was found to be greatest in the fifties and next in the forties; 80 per cent. of the patients were between 40 and 70 and 55 per cent. were over 50 years of age. These findings agree with other statistics. Considered in relation to the age incidence of the general population, the vast majority of patients are over 50 when the disease begins, and the onset is relatively more frequent in the seventies than in the thirties. The ratio of males to females was 3 to 2. Trauma occurred in twenty-two cases, and in these as in the histories of infected parts it was shown that the symptoms of paralysis agitans tend to start in a traumatized or diseased part. Since in this series there was a history of trauma in only 15 per cent. of all cases, it cannot be concluded that trauma is predisposing in any sense except as to the site of the initial symptom. A large number of mental symptoms were shown by forty-eight patients, or in 34 per cent. of the cases. In contrast with the findings in other studies, mental symptoms were found to occur as frequently before as after the onset of the disease. These symptoms were largely in the form of depressive reaction. Menstrual disturbances were found to be of no special significance. Heredity findings were not significant except in the form of "neuropathic heredity" in about 25 per cent. of the cases. Direct heredity of the disease was traced in six cases. The complications were: tabes, one; hemiplegia, two; trifacial neuralgia, two; hyperthyroidism, one, and diabetes, one. Fifteen patients had hemiparalysis agitans; eighteen cases were accompanied by intention tremor; five patients had one-sided facial involvement; four had paralysis agitans sine agitatione, two paralysis agitans sine rigiditate, and three had "bulbar symptoms."

Heredity in Epilepsy.—Burr's statistics do not show that direct inheritance is important, since only thirty-four parents were known to be affected. On the other hand, the frequency of insanity, crime, chorea, alcoholism and epilepsy in relatives points toward congenital instability resulting from abnormality in the germ cell or sperm cell. Considering all the data, it is safe to assume, Burr says, that the effect of heredity is rarely direct; that usually it is indirect and general, not specific. In other words, a predisposition to nervous or mental disease is inherited; the resulting specific disease depends on external causes—it is environmental in the broadest meaning of the word.

Intravenous Administration of Iodids.—Recognizing the value of intravenous hypertonic iodids in the treatment of oidiomycosis, at least 400 intravenous injections of hypertonic iodids have been given by Farnell and observations have been made on the value of this iodid therapy. He has used sodium iodid exclusively. The preparation is made in from 8 to 15 per cent. (10 per cent. is the usual rate) solutions in distilled water, which is also autoclaved—amount, 100 c.c. This is then boiled and cooled and given by gravity intravenously (made fresh for each treatment). A distinctly hypertonic solution of high concentration is thus produced. In no case has there been any irritation of the digestive tract. Skin eruptions were observed in one case. Coryza was observed in one case. Farnell is convinced that iodin injected into the blood stream in hypertonic form has a tendency to reduce the idiosyncrasy toward iodism. Iodids introduced into the blood stream appear to readjust systemic fungus disturbances (oidiomycosis) very rapidly. Iodids injected intravenously in concentrated form appear to help materially the action of arsphenamin on the diseased tissues and cells. Iodids introduced into the blood stream in hypertonic solutions probably have some influence on reducing the edema, hyperemia, etc., of the brain in increased brain bulk disorders.

Serology of Neurosyphilis During Nontreatment Period.—A selected group of nine paretic patients was studied by Omar and Carroll during a period of over six months, during which time no specific medication was administered. Eight of the nine gave findings which were uniformly positive in both the blood and cerebrospinal fluid. The laboratory findings remained practically unchanged during a seven month period of nontreatment.

Actinomycosis of Central Nervous System.—Moersch presents the clinical history of two cases which terminated fatally and in which the necropsy showed extension of the disease to the membranes of the brain and cord and in one case the brain substance showed some cell degeneration and slight blood vessel infiltration, and the cord substance showed some swelling of the nerve cells with displaced nuclei and moderate blood vessel infiltration, but no abscesses or foci were discovered and no fungi were found in the membranes of the cord.

Boston Medical and Surgical Journal

May 25, 1922, **186**, No. 21

Dispensary Development, with Especial Reference to Outpatient Department of Massachusetts General Hospital. P. D. White, Boston.—p. 693.
*Acute Intussusception. W. F. Harper, Boston.—p. 700.
*Experience with Radium in Malignant Disease of Esophagus and Upper Respiratory Tract. H. H. Forbes, New York.—p. 705.

Acute Intussusception.—In the cases reported by Harper from the Children's Hospital, the following symptoms were present in the following order: (1) Recurring attacks of pain associated with pallor, cold sweat and reflex nausea. (2) Mucus, blood stained mucus, and blood in movements. (3) Obstructive vomiting. (4) Toxemia due to obstruction. In 112 cases there were forty-four deaths, a percentage death rate of 39.2. The mortality depends less on the skill of the operator than on the length of history prior to operation. Therefore, it lies in the hands of the practitioner to reduce the mortality.

Radium Therapy of Esophagus Cancer.—Forbes states that the results of the use of radium in cases of esophageal cancer have been nil. In the pharyngeal and the laryngeal cases of cancer the results are not quite so bad. The earliest recognition of malignancy in the larynx and early operation will give the greatest benefit to the patient. Radium may be applied before the operation or later. Forbes does not feel that radium is a powerful therapeutic agent. Cooperation must exist between the radiologist and the specialist, both for diagnosis and for treatment. Failures of today may be successes of tomorrow, as knowledge of the more scientific application of this element increases.

June 1, 1922, **186**, No. 22

*Avulsion of Scalp. Review of Literature and Report of Case. C. A. Porter and W. M. Shedden, Boston.—p. 727.
*Traumatic Osteitis of Wrist. M. H. Rogers, Boston.—p. 730.
*Transperitoneal Cervical Cesarean Section. Report of Cases. L. E. Phaneuf and J. G. Hegarty, Boston.—p. 733.
*Glioma of Lumbar Cord: Case Report. D. S. Adams, Worcester, Mass. —p. 738.

Avulsion of Scalp.—Porter and Shedden relate the case of a woman, aged 58, who was caught by the hair in the revolving wheel of a shoe-stitching machine and her entire scalp was torn off, as was also the upper part of both upper lids and the left ear, excepting the tragus, antitragus and lobule. This left upper ear remained attached by a narrow pedicle posteriorly. After nine weeks of wet dressings, a heterogenous Thiersch graft was transplanted to the patient's vertex. This did not take. Reverdin autogenous grafts were then applied. This procedure was repeated about every ten days during the next three months, and most of these grafts took. It was noted during the time she was under observation that the scalp tended to intermittently lose considerable portions of skin from pressure or microbic invasion. The patient complained of a constant dull ache in her "eyeballs." An attempt was made to get better vascularization of the scalp by drilling through the calvarium to the dura through five of the ulcerated areas in the front region. She improved slightly for a while as regards the ulcerations, but entered the hospital again six months later, showing six large and ten small ulcerations. She now complained of a constant dull generalized headache and of a feeling of pressure so intense that she could not even bear to have her wig one. Eighteen holes about 1 cm. in diameter were drilled through the calvarium to the dura. One week after operation the headache had disappeared. From that time the scalp gradually healed. Each drill hole continued to suppurate until it discharged a bit of necrotic bone, the necrosis resulting from the trauma of the drill used in the trephining. These pieces were sometimes complete bony rings. The patient now feels perfectly well. The scalp is almost completely healed and shows no tendency to break down.

Traumatic Osteitis of Wrist.—Rogers reports four cases in which there was an absorption of the bone structure of the scaphoid or the semilunar with a "crinkled" appearance of the contour probably secondary to trauma.

Transperitoneal Cervical Cesarean Section.—Of thirty-three transperitoneal operations analyzed by Phaneuf and Hegarty there were nine septic, twenty-one clean cases, and three deaths. The puerperium in the clean cases was as near ideal as it can be following an abdominal section. These patients were free from peritoneal shock and paralytic ileus, and the bowels, as well as the bladder, functioned normally. The convalescence, as a whole, resembled more closely that of a normal delivery than that of a cesarean section. The authors state that the transperitoneal cesarean section seems to afford protection against septic peritonitis. There is less shock, as the intestines are not handled. There is less bleeding. The mother has a much easier puerperium. There is better healing since the incision is in the cervix, the noncontractile part of the uterus. There is less danger of rupture in subsequent pregnancies. It does not contraindicate the test of labor.

Glioma of Lumbar Cord.—The case cited by Adams is of interest because, although a fatality, it was complete. The neoplasm was irremovable. Involving the cord from the second lumbar segment down, it invaded the anterior horns, giving chiefly motor symptoms. The posterior horns being less involved, few sensory disturbances were elicited. The fluid obtained at lumbar puncture gave an example of Froin's syndrome.

Journal of Laboratory and Clinical Medicine, St. Louis

May, 1922, **7**, No. 8

*Blood Flow in Man as Estimated by Calorimetric Method of Stewart. N. B. Taylor, Toronto, Can.—p. 439.
*Pancreatic Extracts. F. G. Banting and C. H. Best, Toronto, Can.—p. 464.
*Yeast Therapy and Uric Acid Excretion. A. H. Smith, with Collaboration of H. J. Deuel, Jr., L. Ascham and F. B. Seibert, New Haven, Conn.—p. 473.
New Laboratory Apparatus. J. L. Laird, Philadelphia.—p. 477.
Sources of Error in Epstein Method for Blood Sugar Determination and Modified Technic. C. M. Wilhelmj, St. Louis.—p. 489.
*Blood Sugar Content of Capillary Blood as Compared with That of Venous Blood. I. Neuwirth and I. S. Kleiner.—p. 495.

Estimation of Blood Flow.—From a large number of blood flow determinations on normal persons Taylor found that the amplitude of the flow differs widely in different persons; that the flow fluctuates spontaneously to the extent of several grams per 100 c.c. per minute in the same individual during the course of an experiment; and that marked alterations in the flow are effected by changes in the temperature of the atmosphere. The flow in the hand may be influenced reflexly by applications of heat or cold to either hand or foot. Thus, immersion of the hand in hot or cold water produces a rise or fall respectively in both hands. The response to draughts is similar in nature to the response following the immersion of the hand in cold water. Heat applied to the feet produces in some individuals a rise and in others a fall in the blood flow through the hands; the particular effect produced is constant for the same individuals. Local exercise produces a drop in flow of the opposite hand. The flow in the exercised hand is increased in some cases and reduced in others, the effect being unpredictable.

Extract of Fetal Pancreas.—The possibility that the fetal pancreas might prove a source of an extract rich in internal secretion and yet free from the destructive enzymes of pancreatic juice led Banting and Best to experiment with fetal calf pancreas. By intravenous and subcutaneous injections of neutral saline extracts prepared from the pancreas of the bovine fetus at about the fifth month, the percentage of blood sugar and the daily urinary excretion of sugar were markedly reduced in depancreated dogs. Daily injections of extract of pancreas enabled a depancreatized dog to live for seventy days. The active (antidiabetic) principle of such extracts is destroyed by boiling in strongly acid reaction, but it is not affected by the presence of tricresol, which may, therefore, be used as a preservative. The depressor action of the extract is shortlived.

Yeast Does Not Increase Uric Acid Excretion.—The data obtained by Smith et al. show that the ingestion of therapeutic doses of live bakery yeast is not attended with such an increase in metabolism as would augment the excretion of endogenous uric acid.

Blood Sugar Content.—In twenty individuals the capillary blood sugar was found by Neuwirth and Kleiner to closely parallel the venous blood sugar. For clinical purposes the two values may be considered identical.

Kentucky Medical Journal, Bowling Green

May, 1922, **20**, No. 5

Differential Diagnosis of Acute Abdominal Pain. F. T. Fort, Louisville.—p. 339.
Extensive Injury to Urinary Bladder During Operation for Uterine Fibroid. C. Farmer, Louisville.—p. 340.

Paralysis of Leg Following Labor. F. C. Simpson, Louisville.—p. 342.
Ligation Treatment of Diseases of Thyroid. W. I. Hume, Louisville.—p. 344.
Two Cases of Ectopic Gestation, One of Chronic Pyloric Ulcer. L. W. Frank, Louisville.—p. 349.
Modern Treatment of Obesity. S. Rose, Winchester.—p. 354.
Laboratory in Diagnosis. L. K. Baldauf, Louisville.—p. 357.
Continuous Uterine Hemorrhage of Three Years' Duration in Girl of Seventeen Cured by One Application of Radium. D. Y. Keith, Louisville.—p. 365.
Epithelioma of Face and Ear. W. J. Young, Louisville.—p. 367.
Complicated Anorectal Fistula. G. S. Hanes, Louisville.—p. 368.
Glioma of Cerebrum in Child. H. H. Hagan and S. Graves, Louisville.—p. 371.
Offending Tonsil. W. T. Bruner, Louisville.—p. 373.

Maine Medical Association Journal, Portland

May, 1922, **12**, No. 10

Empyema. P. P. Thompson.—p. 275.

Military Surgeon, Washington, D. C.

May, 1922, **50**, No. 5

Plan for Conservation of Health of Males Within Second Decade of Life in Relation to Military Defense. J. R. Church.—p. 487.
Some Notes on Medical Service of Army, 1812-1839. C. W. Ayars.—p. 505.
Control and Prevention of Diphtheria in U. S. Army. P. F. McGuire, E. S. Linthicum, G. J. Schirch and J. D. Nourse.—p. 525.
Etiology of Scurvy. IV. Observations Concerning Physiologic Action of Antiscorbutic Vitaliment. E. B. Vedder.—p. 534.
Idiopathic Tropical Pyrexia with Special Reference to Intermittent Non-Malarial Fever. R. W. Mendelson.—p. 547.
Diphtheria as Seen in American Forces in Germany. H. C. Michie, Jr.—p. 551.
Experiences with Hookworm. H. A. Patterson.—p. 562.
Managing Things. W. L. Pyles.—p. 570.

Northwest Medicine Seattle

May, 1922, **21**, No. 5

Modification of Indications for Operative Interference in Gynecology Imposed by Present Day Radium Therapy. R. E. Skeel, Los Angeles.—p. 131.
Roentgen Rays as Aid in Diagnosis of Diseases of Mastoids and Nasal Sinuses. J. Aspray, Spokane, Wash.—p. 136.
Report of Radium Cases of Head and Neck. A. C. Jones, Boise, Idaho.—p. 140.
Indications and Contraindications for Tonsillectomy from an Internist's Point of View. K. Winslow, Seattle.—p. 143.
Teeth and Tonsils as Source of Disease. F. St. Sure, Colfax, Wash.—p. 146.
Dental Infections from Medical Point of View. C. H. Sprague, Pocatello, Idaho.—p. 150.
Pupil in Health and Disease. H. V. Wurdemann, Seattle.—p. 154.

Southwestern Medicine, Phoenix, Ariz.

May, 1922, **6**, No. 5

Relation of Chemical Research to Medicine. H. A. Miller, Clovis, N. M.—p. 175.
Why? W. Smith, Phoenix, Ariz.—p. 177.
Acute Intestinal Intoxications in Infancy and Early Childhood. J. A. Rawlings and H. Leigh, El Paso, Tex.—p. 180.
Common Infections of Kidneys. R. V. Day, Los Angeles.—p. 185.
Practical Application of Tests of Vestibular Apparatus. S. A. and F. P. Schuster, El Paso, Tex.—p. 190.
Case of Leprosy. A. Wallace, Nogales, Ariz.—p. 193.
Action of Radiation on Tonsillar and Hypertrophied Lymphoid Tissues. A. Soiland, Los Angeles.—p. 196.
New and Advanced Surgical Treatment of Breast Cancer. J. F. Percy, San Diego, Calif.—p. 198.
Is Diagnosis of Neurasthenia Ever Justifiable? M. K. Wylder, Albuquerque, N. M.—p. 206.
Phenol Petrolatum Treatment for Tuberculosis. S. S. Warren, Deming, N. M.—p. 207.
Advance in Diagnosis and Treatment of Diseases of Billiary Tract. F. D. Garrett, El Paso, Texas.—p. 212.

U. S. Naval Medical Bulletin, Washington, D. C.

May, 1922, **16**, No. 5

Endocrine Glands. M. Kojima.—p. 821.
Aviation Medicine in United States Navy. J. F. Neuberger.—p. 834.
Pyelonephritis: Critical Review of One Hundred Cases. O. C. Foote.—p. 844.
Recurrent Hernia. L. W. Johnson.—p. 849.
Meningococcus Septicemia. W. A. Bloedorn.—p. 855.
Peter St. Medard, Surgeon in Navy of United States, 1756-1822. W. M. Kerr.—p. 867.
Study of Medicine in Strassburg. J. S. Taylor.—p. 874.
Report of Case of Shark Bite. C. R. Baker.—p. 881.
Practical Treatment of Acute Ulcerative Gingivitis. C. R. Wells.—p. 883.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

May 13, 1922, No. 3202

Humoral Syndrome of Gout. A. Chauffard.—p. 745.
Pyelography. F. Kidd.—p. 748.
Influence of Industrial Employment on General Health. Major Greenwood.—p. 752.
*Aneurysms of Thoracic Aorta Involving Lung. J. Fanning.—p. 758.
Radical Cure of Hemorrhoids: Modified Whitehead Operation. Sir J. O'Conor.—p. 759.

Aneurysm of Thoracic Aorta.—In the two cases of aneurysm of the thoracic aorta described by Fanning, both aneurysms ruptured within a fortnight of each other while the patients were under observation in the hospital, and in each case the aneurysmal sac produced extensive changes in the lung. The second case was particularly interesting in its close simulation of chronic pulmonary tuberculosis.

May 20, 1922, **1**, No. 3203

*Symptomless Hematuria. A. H. Burgess.—p. 787.
*Pernicious Vomiting of Pregnancy. C. Oldfield.—p. 789.
Some Common Defects of Diet and Their Pathologic Significance. E. Mellanby.—p. 790.
*Calcium Deficiencies: Their Treatment by Parathyroid. W. R. Grove and H. W. C. Vines.—p. 791.
Cardiac Disease and Occupation. R. O. Moon.—p. 795.
Further Researches on Detoxicated Vaccines. D. Thomson and R. Thomson.—p. 796.
Strangulated Direct Inguinal Hernia. E. E. Hughes.—p. 798.

Symptomless Hematuria.—Of 100 cases of symptomless hematuria investigated by Burgess the hematuria was of vesical origin in 65 cases; villous papilloma, 41 cases; malignant growth, 18 cases; enlargement of prostate, 3 cases; ulceration from suture left after colporrhaphy, simple "solitary" or "mucous" ulcer, calculus fixed in postprostatic pouch, one case each. The hematuria was of renal origin in 35 cases: bleeding not seen at the time of examination; cause unknown, 14 cases; malignant growths (including hypernephroma), 9 cases; papilloma of the renal pelvis, 2 cases; angioma of renal papilla, 1 case; renal calculus, 3 cases; congenital cystic disease, 1 case; chronic nephritis, with small cysts, 1 case; mobile kidney, 2 cases; "essential" hematuria, 2 cases. Burgess emphasizes the great importance, when called to a case of symptomless hematuria, of treating the patient rather than the hemorrhage, and of not attempting to arrest the bleeding until, by means of cystoscopy, it has been traced to its source.

Treatment of Vomiting of Pregnancy.—Oldfield claims that vomiting of pregnancy can be cured quickly, as a rule, and with a high degree of certainty by the removal of the patient to a hospital or nursing home and by feeding on ordinary diet. Induction of abortion is seldom or never necessary. The so-called toxemic cases are usually, if not always, a later stage of neurotic vomiting.

Parathyroid Treatment of Calcium Deficiencies.—Though the cases described by Grove and Vines are representative of a variety of conditions, they were all due to some chronic toxic state, and all had a deficiency in the ionic calcium of the serum, due, perhaps, to a combination of calcium and toxin. In the majority of cases it was possible to find a primary septic focus, and sometimes the administration of parathyroid caused a hidden focus to become apparent by increasing the leukocytic reaction to the attacking organism. An examination of the literature tends to establish the proposition that the parathyroid glands have a double function; first, a regulation of calcium metabolism, and secondly, the power to render a certain toxic substance harmless. Further, it may be noted that in animals whose parathyroid function has been interfered with, either by removal or ligation of the glands, if tetany does not supervene shortly and so cause death, there is a very strong tendency for the animals to die from an infective process. It is possible that the continued absorption of toxic substances from some primary septic focus may eventually lead to partial parathyroid insufficiency and a disturbance of calcium metabolism.

These two conditions will cause a decrease in the resistance of the tissues, so that they are rendered more liable to a secondary septic process. The locality of the latter lesion will depend on local conditions of nutrition, blood supply and so forth.

Edinburgh Medical Journal

May, 1922, **28**, No. 5

Gonorrheal Rheumatism; New Method of Treatment with Colloidal Silver and Vaccines. A. O. Ross.—p. 185.

Unsolved Physiologic Problems in Gynecology and Obstetrics. R. W. Johnstone.—p. 198.

*Complement Fixation Reaction in Tuberculosis. A. N. Smith.—p. 212.

Complement Fixation Reaction in Tuberculosis.—The position as regards the value of the complement fixation test as a diagnostic procedure in tuberculosis is summed up by Smith as follows: In a clinically suspicious case, when the Wassermann is negative, a positive complement fixation reaction is strong presumptive evidence of tuberculosis. In a clinically tuberculous patient a positive reaction denotes activity of the lesion. Repeated negative reactions may be taken to indicate either the absence of tuberculosis or that a lesion previously active has become inactive. A single negative is of little or no value in a clinically suspicious case. The reaction may be negative in far advanced cases in which death is imminent. A positive reaction is most likely to be found when the presence of tubercle bacilli in the sputum, or the clinical signs and symptoms render the test unnecessary for diagnosis. Nonspecific fixations may occur, notably when the serum gives a positive Wassermann reaction. The intensity of the reaction seems to bear no relation to the patient's power of resistance or to the degree of severity of the infection.

Lancet, London

May 20, 1922, **1**, No. 5151

*Rôle of Three Types of Tubercle Bacilli in Human and Animal Tuberculosis. L. Cobbett.—p. 979.

*Case of Intermittent Complete Heart Block. S. Russell-Wells and H. W. Wiltshire.—p. 984.

*Eight Examples of Bundle Branch Lesion in Heart. L. F. Bishop.—p. 987.

Cardiospasm. G. L. Scott.—p. 988.

*Method of Treating Abscesses. T. H. Kellock.—p. 990.

Case of Latent Intracranial Abscess. M. Vlasto and S. A. Owen.—p. 992.

*Neuritis Produced by a Wrist Watch. J. S. B. Stopford.—p. 993.

*Case of Giant Urticaria Treated by Autogenous Streptococcus Vaccine. W. E. M. Armstrong.—p. 994.

Colloidal Antimony in Leishmania Infantum. R. Smut.—p. 995.

Case of Acute Ascariasis. C. R. Corfield.—p. 995.

Rôle of Human and Bovine Types of Tubercle Bacilli.—The rôle of human and bovine types of tubercle bacilli in various kinds of human tuberculosis in England and other countries was investigated by Corbett and he found that in the pulmonary and bronchial gland cases the proportion of bovine infections is negligible—little more than 1 per cent. in primary pulmonary tuberculosis, and in bronchial gland tuberculosis out of seventeen cases examined only one yielded bovine bacilli—a case with no visible tuberculosis in these glands or elsewhere. In the group, including abdominal tuberculosis and tuberculosis of cervical glands, the proportion of infections with tubercle bacilli of bovine type is much higher—in round numbers, 50 per cent. at all ages. From these facts several inferences are drawn by Corbett. The frequent occurrence of bovine tubercle bacilli in cervical glands and their rarity in bronchial glands is strongly opposed to the view that tubercle bacillus tracks downward from gland to gland, extending in this way from the neck to the thorax and so to the lungs. In order to hold this view it would have to be assumed that only tubercle bacilli of human type can track in this way. Again, the fact that bovine tubercle bacilli are so frequent in mesenteric glands and so rare in the lungs is in opposition to Calmette's view that pulmonary tuberculosis is commonly caused by tubercle bacilli, absorbed through the intestinal mucous membrane, and carried by the thoracic duct and the innominate vein to the right side of the heart, and so to the lungs. If this were the common channel of infection one would expect to find the same proportion of bovine infections in pulmonary as in abdominal tuberculosis. Lastly, the fact that bovine tubercle bacilli have frequently been found in abdominal and cervical tuberculosis (that is, in cases arising from infection through some part of the alimentary canal) and seldom in the lungs, is easily explained on the ground that human tubercle bacilli alone are sprayed into the air, therefore alone have a chance of entering the lungs directly, while bovine tubercle bacilli, being limited to food substances, can only infect man through the alimentary canal. The inhalation theory of the origin of pulmonary tuberculosis thus receives strong support. In cases of general tuberculosis, meningitis, tuberculosis of bones and joints, and genito-urinary tuberculosis, the proportion of cases in which bovine bacilli have been found is nearly the same. Probably both aerial and food infections contribute to this group in the same proportion as they occur in the form of primary infections. Twenty per cent. of bovine infections may, therefore, seem high for these blood borne infections, but the majority of these cases occur in early life when infections through the abdominal route with its large proportion of bovine bacilli are far commoner than they are later. In lupus the proportion of bovine infections was 50 per cent. of the deaths attributed to tuberculosis of all kinds; about 6.5 per cent. are attributable to bovine bacilli, and therefore to infection coming from the cow, probably in the immense majority of cases through milk.

Intermittent Complete Heart Block.—The case recorded by Wells and Wiltshire shows how remarkably chronic and latent and infective nonsyphilitic endocarditis can be. During the twelve years the patient was under frequent observation, sometimes with complete block, sometimes free from block, he was never actually found to be in the transitional stage of partial block. Considerable variation in the pulse rate was found at different times, but irregularity was never noted subsequent to the occasion when he first sought medical advice about his heart thirteen years before death. Further, the ventricular rates observed at times when complete block was present are noteworthy. Two electrocardiograms taken in 1915 show ventricular rates of 51 and 49 per minute, respectively, with complete block. In 1920, after auricular fibrillation had set in, three electrocardiograms show ventricular rates of 60 per minute, although the perfect regularity of the ventricle proves that all impulses from the auricle were completely blocked; and the clinical records at this time show that an average ventricular rate of 73 per minute was maintained for three weeks, a maximum of 88 being attained on three occasions. These rates are so high for an idioventricular rhythm that they compel speculation concerning the site of origin of the stimuli to which the ventricle was responding. It was conjectured, during life, that the lesion must have produced functional section of the conducting tissues across the A-V node, leaving sufficient intact nodal tissue below it to serve as the pacemaker to the ventricle. Postmortem the changes in the conducting tissues were found to be diffuse, and no particular level can be selected as the most severely affected. The A-V node and bundle, lying as they did quite at the periphery of the main septal inflammatory focus, have suffered very much less than the tissue immediately subjacent to them. Their conducting function must have been interfered with in two ways—namely, (1) by transmitted pressure due to inflammatory tension in the underlying focus, and (2) by direct implication in the inflammatory process. Of these two factors the authors think that transmitted pressure was the more important in producing the clinical events of the case.

Bundle Branch Lesions.—From about 500 consecutive patients a frequency of 1.6 per cent. is given by Bishop for this lesion. Some patients had a very definite history of severe attacks of pain, lasting several hours, followed by gradual recovery; in others the onset of pain did not appear so clearly in the history. The records of these eight people fall into two groups. In the first group of four cases the records show the typical characteristics necessary to diagnose a disease of one bundle branch which completely destroys the function. The *R* waves or *S* waves are large and wide and show notches, and the *T* waves are large and downward in Lead 1. The four remaining records are not so typical of this condition. However, they all show marked abnormality in the notching or in the width of the *R* waves, so that the lesion must be considered a serious one, if not complete. The four patients with typical records complained of severe pain over the heart, and also showed greatly increased blood pressure. In the other four there was no increase in blood pressure of any extent, and there was a history of pain in only one person. The orthodiagrams of the hearts of those with typical records all revealed markedly enlarged hearts of the aortic type. Only two of the patients with less typical histories showed this enlargement, the other two having enlarged hearts of the vertical type. There was no uniformity in duration of disease, one man having a normal tracing two and a half years prior to the appearance of a typical bundle branch lesion. Dyspnea and precordial pain were present in each record, the precordial pain being most marked in those with definite bundle branch tracings. These attacks, which were intermittent, came on usually by exertion. In one person it was the chief complaint which brought him for examination. Only two of the typical bundle branch cases were bothered with cough—brought on, no doubt, by some congestion in the lungs. The heart valves were not primarily involved in one half of the patients.

Treatment of Abscess.—The principle of the method advocated by Kellock is this: The abscess is opened at its highest point, the cavity is at intervals filled to its utmost capacity from the bottom upward with an antiseptic fluid, which remains partially distending it and continually soaking the walls until they are rendered sterile. In streptococcus or staphylococcus infections Kellock prefers flavine, 1:1,000. It is of little or no use in cases of *Bacillus coli* infection or against the tubercle bacillus. The use of flavine should also be limited in time; it will be found to delay healing if kept in contact with normal tissues more than six or seven days. When the interior of the cavity has been rendered comparatively sterile, and the injection of flavine has been discontinued, it may be advisable to make a puncture in the most dependent position, and put in a small drainage tube in order that the closing up of the cavity may be as rapid as possible. In the case of cysts, such as hydroceles which are lined by a single layer of endothelium, a very brief application of an irritating fluid is sufficient; if a sufficient quantity of iodin solution or phenol be introduced and withdrawn again in ten minutes it will generally be found to have accomplished its object; the treatment, however, is very painful and a general anesthetic will be necessary. A previous injection of a local anesthetic is not sufficient.

Wrist Watch Neuritis.—Two cases are recorded by Stopford in which neuritis was caused by the band of a wrist watch making pressure on the dorsal cutaneous branch of the ulnar nerve, on the dorsal surface of the styloid process of the ulna. On discarding the wristlet the discomfort gradually disappeared.

Vaccine Therapy of Urticaria.—The urticaria in Armstrong's case was of ten years' duration and began after having eaten a dish of mushrooms. Every four or five days a red rash appeared, rapidly reached a maximum degree of intensity and extent, and usually subsided almost completely within forty-eight hours of the first onset. The rash was accompanied by a temperature which often rose as high as 102.5 F., and by a considerable amount of headache and general malaise. The eruption followed no definite plan of distribution, but developed on any part of the face, body, or limbs. A light blow or the exertion of pressure on any part of the patient's body produced an urticarial swelling of greater or less degree according to the amount of violence exerted. The patient suffered from rheumatism and from sore throat. The history suggested that an organism of streptococcal type might be the cause of the trouble. A catheter specimen of urine was obtained when the patient was in the middle of an attack. From this a small badly staining short streptococcus was isolated. This was grown with some difficulty aerobically on trypsin-agar and a vaccine prepared. Its use was followed by a complete cure.

South African Medical Record, Cape Town

April 22, 1922, **20**, No. 8

*Syphilis and Mental Deficiency. G. J. Key and A. Pijper.—p. 142.
Place of Disease in Nature. R. Drennan.—p. 149.
*Case of Resection of Stomach. R. Daly.—p. 154.
Anaphylaxis Following Subcutaneous Injection of Two Drops of Normal Horse Serum. K. Bremer.—p. 155.
Puerperal Thrombophlebitis: Case Treated by Ligation of Pelvic Veins; Recovery. J. W. G. Phillips.—p. 155.
Psoriasis and Pregnancy. S. P. Impey.—p. 156.

Syphilis and Mental Deficiency.—In 217 cases of amentia Key and Pijper have, by means of the Wassermann reaction, demonstrated the presence of syphilis in 120, or 55.2 per cent. They have not been successful in observing any symptom, or group of symptoms, common to the cases giving a positive reaction. It is their opinion that the syphilitic virus cannot alone be responsible for the amentia in all these cases. The chances are that some other predisposing cause is also present in most cases.

Resection of Stomach for Cardiac Ulcer.—Daly narrates the case of a woman, aged 39, who had been suffering from periodical attacks of pain in the region of the stomach for six years—sometimes followed by vomiting, which usually relieved the pain. The attacks came on from half to an hour after eating. The abdomen was opened and an ulcer found near the cardiac orifice of the stomach extending on the anterior surface from the lesser nearly to the greater curvature, and at the upper part also onto the posterior surface of the organ. A sleeve resection was done, removing the whole of the affected parts, joining the cut ends in the usual way, and a gastro-enterostomy performed distal to the anastomosis. The patient made an uneventful recovery and has been able to eat without discomfort since the operation, has put on weight, and has been confined of a healthy child.

Bulletin de l'Académie de Médecine, Paris

May 9, 1922, **87**, No. 19

*Vaccine Therapy of Typhoid Bone Disease. H. Vincent.—p. 517.
*Roentgen Epithelioma Cured by Diathermy. H. Bordier.—p. 526.

Typhoid and Paratyphoid Osteopathies.—Vincent has compiled thirty cases of this kind treated by vaccine therapy, and adds another convincing example of the remarkable efficacy of this treatment in certain cases. His patient was a young woman who developed a series of abscesses during convalescence from what was supposed to be typhoid. Various joints swelled, and there were foci of osteomyelitis in the fibula, ulna and scapula and, finally, multiple foci of osteitis in the bones of the pelvis. The intense pain from this had suggested psoitis, appendicitis or encapsulated peritonitis at first. The blood agglutinated the paratyphoid B, and under vaccine therapy the pains subsided in eight hours, and all the symptoms from the osteitis rapidly disappeared, and with them those of mucomembranous enteritis. The vaccine was not administered until the bone lesions had been under way for three months and the cachexia was extreme. She was given four injections of vaccine in all, representing a total of 2.5 thousand millions of the bacilli. Vincent advises inquiry for typhoid in all cases of bone lesions, and, if syphilis and tuberculosis can be excluded, he urges vaccine therapy without further ado. Smears from the pus or secretions may disclose typhoid or paratyphoid bacilli, and vaccine therapy may prove an effectual adjuvant to surgical measures, and to specific treatment of concomitant syphilis. His experimental research has demonstrated that while the blood after disease of the typhoid group may be strongly bactericidal and abound in antibodies, yet the bile and the urine are not bactericidal and do not contain antibodies. Hence the bacilli may lurk for years in the gallbladder, bladder or bone marrow, and they may set up a focus of osteitis even many years later.

Roentgen Cancer Cured by Diathermy.—Bordier had charge of the roentgen tubes used at Lyons during the war, and in the course of nearly three years supervised 10,755 therapeutic applications of the rays. Twenty epitheliomatous patches developed on his fingers, and the largest patch began to ulcerate and to pain after two or three years. Amputation of the finger was advised, but he applied diathermy himself with his other hand. The severe pain was arrested immediately, and healing was complete in less than two months, and there has been no recurrence during the five or six months since.

Bulletin Médical, Paris

April 29, 1922, **36**, No. 18

Classification of Chronic Rheumatism. Teissier and Mayet.—p. 335.
The Nodosities of the Hand. A. Léri.—p. 337.
*Chronic Rheumatic Arthritis. A. Léri and Longjumeau.—p. 344.
Thorium X in Chronic Rheumatism. A. Léri and M. Thomas.—p. 348.

Chronic Rheumatic Arthritis of the Hip-Joint.—Léri and Longjumeau say that rheumatic arthritis of the hip-joint is frequently found at various ages, but especially in adolescence and adult age. This knowledge will prevent many errors in diagnosis. It is important to know how to examine the hip-joint, what movements are first modified, and what lesions can be detected from radiography. Chronic rheumatic arthritis of the hip-joint as well as other varieties of chronic rheumatism has the same characteristics in young and old subjects. It is frequently found in persons between 20 and 40 years, and thus it is erroneous to call it "morbus coxae senilis."

Bulletins de la Société Médicale des Hôpitaux, Paris

April 28, 1922, **46**, No. 14

*Contraindications of Ouabain. P. Ribierre and R. Giroux.—p. 643.
Parkinsonian Symptoms from Concussion. D. E. Paulian.—p. 648.
Parkinsonism in Epidemic Encephalitis. C. I. Urechia.—p. 651.
Gastric Crises as Only Symptom of Tabes. Urechia and Rusdea.—p. 655.
*Suppurating Parotitis. P. Emile-Weil.—p. 657.
Progressive Myoclonus-Epilepsy. Desage.—p. 658.
Syphilitic Diabetes. F. Rathery and Fernet.—p. 661.
*Consonance in Mouth of Intrathoracic Sounds. A. Ricaldoni.—p. 667.
*Bronchiectasis in Adults. S. I. de Jong and J. Hutinel.—p. 675.
*Progressive Muscular Atrophy. Souques and Alajouanine.—p. 691.
*Ear and Brain Lesions in Fatal Measles. M. Renaud.—p. 693.
*Compression of Pulmonary Artery. C. Laubry and D. Routier.—p. 700.
*Cancer of the Esophagus. R. Bensaude and P. Hillemand.—p. 703.
Spontaneous Rupture of Heart. L. Ramond et al.—p. 705.
Serotherapy of Poliomyelitis. R. Debré.—p. 708.

Indications for Ouabain.—Ribierre reproduces some tracings which demonstrate that ouabain can be given to advantage even when there is high albuminuria and insufficiency of the kidneys, and even azotemia, if the ouabain is called for by insufficiency of the heart from lack of tone in the myocardium, especially of the left ventricle. The drug has to be given tentatively and cautiously under these conditions, the subject in bed, and on a salt-poor diet. He recalls that ouabain should not be given until after an interval of at least eight days after digitalis has been administered. On the other hand, digitalis can follow the ouabain with favorable results, especially from the standpoint of the diuresis.

Suppurating Parotitis.—Weil extols the advantages of thread drainage. Two silk threads are passed through the lobes of the parotid gland with a Reverdin needle. The threads are drawn along each morning to start the flow of pus. In one of the two cases a vaccine was made from the staphylococci on the threads.

Consonance in the Mouth of Intrathoracic Sounds.—Ricaldoni devotes eight pages to discussion of sounds heard in the mouth, synchronous with the pulse, or the second pulmonary sound heard at the mouth as plainly as in precordial auscultation.

Bronchiectasis in Adults.—De Jong and Hutinel remark that the diagnosis is almost impossible unless the sputum is collected in a graduated glass which will reveal its exceptional quantity. The paroxysmal course is also instructive. This has long been emphasized in bronchiectasis in children, as also the tendency to a spontaneous cure in the young. In adults, bronchiectasia is generally mistaken for pulmonary tuberculosis. In one case febrile hemoptysis and signs of a cavity seemed to render tuberculosis certain, but during repose the symptoms subsided for a time and then returned. The expectoration was like a vomica. No benefit was derived from artificial pneumothorax nor an autogenous vaccine. The bronchi had enlarged so generally that the parenchyma of the lung had been almost completely crowded out, and the aspect resembled that sometimes seen in still-born syphilitic children.

Progressive Muscular Atrophy.—The young man died eight months after the onset of the afebrile disease. Inoculation of two rabbits and six guinea-pigs resulted in pseudoparetic amyotrophy, with tachycardia in one rabbit. It developed six months after it had been inoculated with an emulsion of the cervical spinal cord from the clinical case.

Fatal Measles.—Renaud found ear and brain complications in several cases of fatal measles. In three cases the grave ear disease found at necropsy had not been suspected during life. In all the cases of fatal measles, the otitis was evidently entirely or partially responsible for the fatal outcome. The otitis formed part of the clinical picture from the start, but secondary purulent infection was responsible for its gravity. "Grave measles is thus aggravated measles. . . . The pathology of the infectious diseases is changing from what it used to be. Cleanliness, in the surgical sense of the word, usually wards off the secondary aggravation of measles, for example, and the resulting disease is so mild that it does not fit the classical description of measles." On the other hand, he adds, when secondary infection aggravates the case, the disease is too grave to fit the classical description.

Compression of Pulmonary Artery.—Laubry here reports a second case of insufficiency of the right ventricle from pressure on the pulmonary artery; in this case, from an aneurysm.

Radium Treatment of Cancer of the Esophagus.—A thread, swallowed, always finds its way through the stenosis and into the stomach and bowel. The sound containing the radium has two holes near the tip and the thread is passed through them. The 6 meter thread thus serves as a guide and aid for the introduction of the radium.

Journal de Médecine de Bordeaux

April 25, 1922, **94**, No. 8

*Irradiation of Spleen in Tuberculosis. P. Mauriac.—p. 231.
Four Cases of Othematoma. L. Verdelet and J. Chavannaz.—p. 233.
Paraffinoma. H. Lefèvre, A. Bonnard and P. Piéchaud.—p. 234.
*Lipoma of the Stomach. H. Verger and C. Massias.—p. 236.
Technic of Duodenal Intubation. L. Damada.—p. 237.

Irradiation of the Spleen in Treatment of Tuberculosis.—Mauriac urges caution in irradiation of the spleen in treatment of tuberculosis, and says that many objections can be made to Manoukhin's assumption that leukocytolysis is a defensive reaction, and the fragility of leukocytes the therapeutic aim to be reached. Complex phenomena occur in irradiation of the spleen, and research should be made on the modifications of the spleen and the blood during treatment. Manoukhin considers only the effect produced on the leukocytes. Mauriac says that, before treatment, the blood count and the fragility index of the corpuscles should be determined. After each application the blood should be examined by the differential count; merely counting the total leukocytes is not very instructive. A patient with abnormally fragile white corpuscles should not be subjected to induced leukolysis. Scientific study should be made of the blood reactions, the effect on the red corpuscles and the leukocytes of various methods of irradiation of the spleen, bone marrow, and glands, and their indications, as this new treatment of tuberculosis deserves to be considered from a scientific standpoint. (The Manoukhin method was described further in these columns, May 27, 1922, p. 1671.)

Lipoma of the Stomach.—Verger and Massias report a case of submucous lipoma of the stomach, which they state is exceedingly rare, as they know of only seven cases of submucosa lipoma of the stomach that have been previously published.

Médecine, Paris

May, 1922, **3**, No. 8

How to Determine Efficacy of a Remedy. L. Rénon.—p. 565.
*Pregnancy in Pulmonary Tuberculosis. P. Bar.—p. 569.
*Sputum Examination. F. Bezançon.—p. 575.
International Antituberculosis Union. L. Bernard.—p. 582.
*Vaccine Therapy in Tuberculosis. F. Arloing.—p. 587.
The Healing Process in Tuberculous Lungs. Jaquerod.—p. **593.**
*Tuberculosis in the Dog and the Cat. G. Petit.—p. 598.
Work and Exercise in Treatment of Tuberculosis. L. Guinard.—p. 603.
*Serodiagnosis of Tuberculosis. L. Guinard and C. Botkine.—p. 606.
Tuberculosis Dispensaries in France. G. Poix.—p. 611.

Bacillary Pneumonia. E. Géraudel.—p. 616.
*Transformations of Tubercle Bacilli. A. Vaudremer.—p. 622.
Treatment of Asthma. P. Minvielle.—p. 627.

Pregnancy Complicating Pulmonary Tuberculosis.—Bar places great reliance on a lively reaction to tuberculin early in the pregnancy as a sign that the woman has resisting powers enough to stand the strain of childbirth. If the reaction is weak, he interrupts the pregnancy before the close of the fourth month, preferably by hysterectomy, unless the woman is young and there is hope of recovery. In his extensive experience he has induced abortion only in nine cases in the last fifteen years. One patient died three years later, but the others regained their health and three have had normal pregnancies since. Hysterectomy in fifteen cases was always followed by marked improvement, and only one in this group died a few months later. The dire effects of involution of the uterus can be obviated by hysterectomy at term. This gave good results in the one case managed in this way.

Sputum Examination.—How to avoid being misled by secondary infection is the subject discussed by Bezançon. The sputum should be fresh, not more than two or four hours old. He stirs the sputum around in physiologic saline in a Petri dish until no more bubbles form; rinsing through two to four dishes is generally enough. Two smears are made with the sputum and one is stained with the Gram, the other with the Ziehl-Nielsen. In 23 of 29 cases thus examined nothing but tubercle bacilli were found, and they were thus responsible for the hectic fever. Pneumococci were numerous in most of the 6 other cases, and they probably were responsible for the flaring up of the latent tuberculosis.

Vaccine Prophylaxis and Therapy of Tuberculosis.—Arloing relates that the S. Arloing method of preventive vaccination of cattle has proved a practical, harmless and certain method of protecting cattle against tuberculosis in from 75 to 80 per cent. The protection conferred lasts from fifteen to eighteen months; at this time the vaccination should be repeated. Maragliano's preventive vaccination of human beings has now been applied for twenty years and has proved harmless and effectual. He has a record now of 3,702 persons thus vaccinated, children and adults, in tuberculous families. Of 1,893 traced for ten years, only eleven have developed tuberculosis. Agglutination, the opsonins, precipitins, etc., acquire all the characteristics of immunity. The Rappin method has been applied to man and cattle since 1917. Dried and crushed human tubercle bacilli are emulsified for seven days in a 3 per cent. solution of sodium fluorid, then rinsed and added to a very active antituberculosis serum. In three days this serovaccine is ready. In 400 guinea-pigs with grave tuberculous infection, this serovaccine aborted the disease, the manifestations being restricted to the local gland, and the process did not reach the cheesy stage. Children and adults vaccinated with it by scarifications seem to be protected against the disease, and local and general improvement has followed its use with established infection. Professor Rappin has been studying vaccine therapy of tuberculosis for twenty years at the Pasteur Institute at Nantes.

Tuberculosis in the Dog and the Cat.—From 10 to 15 per cent. of the cats and dogs examined postmortem by Petit showed tuberculous lesions analogous to those in man. These animals acquire tuberculosis readily from man, and are liable to prove sources of contagion.

The Complement Fixation Test for Tuberculosis.—Guinard and Botkine have compiled 2,513 instances of serodiagnosis in absolutely certain cases of pulmonary tuberculosis, with positive fixation of complement in only 84.27 per cent. The proportion is still less with other forms of tuberculosis: 66 per cent. in tuberculous peritonitis; 33.46 and 50 per cent. in serofibrinous pleurisy; 70 per cent. with active bone and joint lesions, and 23 per cent. with inactive. In 530 personally observed cases, the reaction was negative in from 7.89 per cent. to 16.66 per cent. in the groups of active tuberculosis, and in 67.56 per cent. of the healed cases, while it was positive in 67.35 of 98 others who seemed to be free from tuberculosis. Parallel tests were made with Besredka's egg culture antigen, Calmette's peptone antigen, and Nègre and Boquet's methyl alcohol antigen.

Pleomorphism of Tubercle Bacilli.—Vaudremer presents evidence that the resistance to acids of the tubercle bacillus is an acquired property, as tubercle bacilli cultures grown deep in potato bouillon are not acid resistant, and they pass through the Chamberland filter. They are pathogenic and are agglutinated by tuberculous serum. Resown on glycerined potato, they return to the classic, acid resistant type. They present evidence further that the production of tuberculin is not a constant phenomenon, but occurs only when the medium contains albuminoid substances. Both acid resistance and tuberculin production can be done away with by macerating the tubercle bacilli in an extract of *Aspergillus fumigatus* or of *Penicillium glaucum*. They can then be taken up by the phagocytes without killing the latter.

Paris Médical

April 22, 1922, **12**, No. 16

Examination of Insane Subject. J. Lévy-Valensi.—p. 329.
*Tracheofistulization. G. Rosenthal.—p. 335.
Vocational Training of Disabled Veterans. C. Rœderer.—p. 339.

Tracheofistulization.—Rosenthal's method of introducing a fine cannula through the skin into the trachea has recently won him the Bellion prize at the Académie des Sciences. The cannula is so small that there is no mutilation, while it allows direct medication of the lower air passages with fluids or gas or an antiserum. It can also be used for introducing oxygen, and to supplement other measures in resuscitating the drowned. He says that the procedure is extremely simple, does not elicit reflex action, and is borne with absolute tolerance, while it answers its purpose perfectly. He adds that the use of gaseous nontoxic antiseptics is a promising field just opening.

Presse Médicale, Paris

May 3, 1922, **30**, No. 35

*Obstruction of Cystic Duct. C. Daniel and A. Babès.—p. 377.
*Treatment of Pott's Disease. E. Sorrel.—p. 378.

The Gallbladder with Obstructed Outlet.—Daniel and Babès found profuse mucous secretion in the gallbladder with a calculus plugging the cystic duct. There was no trace of bile. The catarrhal inflammation of the gallbladder probably yields to sclerosis at a later stage.

Pott's Disease.—Sorrel is surgeon in chief at the Berck seashore hospital, and his extensive experience teaches that children with vertebral caries should always be kept horizontal. They can lie on the back with a pad to raise the lumbar region, or they can lie prone when the lesion is in the lumbar region. In the dorsal region a corset must be worn besides. He has the corset strapped to the light spring on which the child lies, and with which it is moved about. With the lesion in the neck, a minerva has to be applied. This treatment should be kept up until the anatomic cure is complete. This anatomic cure, the soldering together of the diseased vertebrae, requires at least three years from the beginning of the disease, and, as it is impossible to determine this with precision, extreme caution is necessary when the child is allowed to get up. A plaster corset should be worn for a time and a celluloid or leather corset for years afterward. A spontaneous cure is almost invariable in children, but is very rare in adults. Reclining during the active stage is as important for adults as for children, but after the acute phase is past, operative means to insure ankylosis is a valuable aid. Before this, it is dangerous.

May 6, 1922, **30**, No. 36

*Colloidoclasis and the Endocrine Glands. F. Widal, P. Abrami and L. de Gennes.—p. 385.
Radicular Distribution of Nevus and Vitiligo. M. Klippel and M-P. Weil.—p. 388.
Present Status of Iron in Therapeutics. L. Cheinisse.—p. 390.

Colloidoclasis and the Endocrine Glands.—Widal and his co-workers report a further instructive example of instability of the colloids, and treatment of this colloidoclastic diathesis. The asthma was traced to ovarian disturbance, followed by thyroid malfunctioning, and on the basis of this endocrine derangement an anaphylaxis to various substances, especially rose pollen, developed, entailing asthma. It began at puberty. Treatment was begun after twenty-six years and the effect of thyroid treatment and of desensitization has been most remarkable. The symptoms can be banished and brought on again at will by treatment and by suspension of treatment.

Progrès Médical, Paris

April 22, 1922, **37**, No. 16

Pepsin in Gastric Juice. M. Loeper and J. Baumann.—p. 181.
Variations of Pepsinemia with Stomach Affections. Loeper et al.—p. 181.
*Psychanalysis in Treatment of Tic. C. Trepsat.—p. 182.
Experimental Subcutaneous and Intravenous Injections of Benzoic Acid and Guaiacol in Man and Animals. L. Mencière.—p. 184.
Evolution and Treatment of Infantile Paralysis. Nobécourt.—p. 185.

Psychanalysis in Treatment of Tic.—Trepsat reports the complete cure in a few days, with Freud's method, of a man of 27 with an intense tic of remarkable frequency—a spasm of almost the entire body. He says that the sentimental complex which is the origin of the tic should be looked for. "A tic, at the onset, is always an indication of suppressed impulses." We must look for vasomotor and secretory disturbances also, inducing motor disturbances. The will and especially the motor functions should be reeducated, and psychanalysis is the best method to use for the purpose. Trepsat regrets the diffusion given today to this principle and method, as he believes that psychanalysis should be applied without the patient's knowledge, and remarks in conclusion: "We should always bear this therapeutic procedure in mind; use it sometimes, and never speak of it."

Revue Franç. de Gynécologie et d'Obstét., Paris

April, 1922, **17**, No. 4

Present Status of Puerperal Cholecystitis. A. Laurentie.—p. 193.
*Pituitary Extract in Obstetrics. J. Audebert.—p. 257.

Cumulative Action of Pituitary Extract.—Audebert reports a case of *accouchement en avalanche*, tearing the anterior commissure of the vulva, after a second injection of pituitary extract an hour after the first. The tempest of contractions, induced by the cumulative action, cast off the placenta prematurely, and tore the fetal membranes, and most of them were retained, but were gradually expelled later. There were also severe cramps in the uterus for some time afterward. It is the only disagreeable experience he has had in the 100 cases in which he has given pituitary treatment, and he thinks that it might be better to heed Pouliot's advice to wait for two hours before giving a second injection.

Pediatria, Naples

March 1, 1922, **30**, No. 9

*Splenic Anemia in Children. S. de Stefano.—p. 385.
*Hemoclastic Crisis in Children. M. Misasi and G. Aiello.—p. 408.

Splenic Anemia in Children.—De Stefano gives the details of 13 cases in which there was inherited syphilis, and 6 in which there was a history of both syphilis and tuberculosis in the family. These inherited taints entail dystrophia of the blood-producing system, and this is responsible for the splenic anemia, and explains the inefficacy of specific treatment. It also explains the development of the splenic anemia in older children as some superposed occasional factor aggravates the abnormal condition. In 2 of these cases tuberculosis alone could be incriminated, and in 2 others no special cause could be detected. There was irregular fever in 19 of the total 23 cases, but it was never so severe or characteristic as in the splenic anemia of leishmaniasis, kala azar, in which there may be two attacks during the day.

The Hemoclastic Crisis in Children.—Misasi and Aiello confirm that leukopenia after ingestion of milk is a physiologic phenomenon in children under 10. The drop in the leukocyte count is more pronounced, the younger the child. With digestive derangement in infants, and with congenital syphilis, leukocytosis may be observed instead. With signs of liver disease, the leukopenia was often intense. The research was done on 6 normal children, 9 with dyspepsia, 4 with insufficiency of the liver, and 2 other sick children.

Policlinico, Rome

April 24, 1922, **29**, No. 17

*Protein Products in Spinal Fluid. G. Aiello.—p. 537.
Tendon Sheath Cysts and Tuberculosis. G. B. Antongiovanni.—p. 541.
Suppurating Gonococcus Arthritis. M. Basilio.—p. 544.
Colloidal Metals in Treatment of Cancer. G. Carisi.—p. 547.
Prophylaxis of Malaria. M. Gioseffi.—p. 549.

Products of Disintegration of Protein in the Cerebrospinal Fluid.—Aiello tested the lumbar puncture fluid for tryptophan and tyrosin. The response was negative in all except in a case of disseminated sclerosis and in nine cases of tuberculous meningitis. The reaction to both tryptophan and tyrosin was strongly positive in this latter group.

Rivista Critica di Clinica Medica, Florence

Feb. 15, 1922, **23**, No. 5

*Study of Gastric Functioning. V. Scimone.—p. 49. Conc'n No. 6.

Study of Gastric Functioning.—Scimone used the Gross' duodenal tube for his research, and gives the minute details in forty-two patients with various diseases.

March 5, 1922, **23**, No. 7

*Bárány's Pointing Test. P. Bastai.—p. 73. Conc'n No. 8, p. 85.
Monosymptomatic Glandular Dystrophia. D. Campanacci.—p. 79. Conc'n No. 8, p. 92.

Bárány's Pointing Test.—The case reported by Bastai testifies that certain symptoms supposed to be characteristic of cerebellar disturbance alone, may be encountered with injury of the zone of Rolando. There was severe jacksonian epilepsy of the left side, of traumatic origin. The past pointing tests gave a crossed response. With cerebellar lesions it is usually homolateral. The literature on cortical and cerebellar symptoms is reviewed in connection with this case.

Archivos Españoles de Pediatría, Madrid

March, 1922, **6**, No. 3

Epidemic Encephalitis and Chorea in Children. G. Aráoz Alfaro.—p. 129.
Hypernephroma in Boy of 7. V. Juaristi and D. Arruza.—p. 142.
*Tolerance of Child for Epinephrin. Blanco Soler.—p. 146.

Tolerance of Child for Epinephrin.—The father of the child had Addison's disease, and took epinephrin regularly before meals, and gave some to his little daughter. The child at 4 had been taking from 12 to 15 drops twice a day for over two years. The child seemed normal in every respect except that the blood pressure was a trifle above normal. The case seems to teach that epinephrin by the mouth has little action, at least in children, although the father apparently benefited constantly from the medication.

Brazil-Medico, Rio de Janeiro

April 1, 1922, **1**, No. 13

Treatment of Epilepsy. Renato de Souza Lopes.—p. 151.
Toxicity of Chenopodium. Areobaldo Lellis.—p. 157.
General Versus Local Anesthesia. J. Juingbluth.—p. 159.

April 8, 1922, **1**, No. 14

*Research on Typhoid. Marques Lisboa.—p. 171.
Surgery in France 1920-1921. Guelfucci.—p. 173.

Research on Typhoid.—Marquez Lisboa reports another series of instances of intentional ingestion of typhoid or paratyphoid A or B bacilli by three adult volunteers. None has shown the least sign of infection during the months since, the same as in his first series. He compares with these seventeen clinical experiments with cultures from the blood, the absence of infection in a number of cases of laboratory accidents in which bacilli of this group were inoculated, without infection developing. He argues that hog cholera and cattle plague form with typhoid a group of diseases characterized by septicemia, involvement of lymphatics, tendency to foci of pneumonia, etc., similar lesions being encountered in man, in cattle, in the horse, the dog, the hog, etc. He is convinced that the day is coming when a filtrable virus will be accepted as the causal agent of this group.

Medicina Contemporanea, Lisbon

Dec. 25, 1921, **39**, No. 52

*Benzene in Treatment of Leukemia. J. J. Martins Pereira.—p. 411.

Benzene in Treatment of Leukemia.—Martins Pereira relates that during a recent six months' period only eight cases of chronic leukemia were seen in the hospitals of Lisbon. They were all given systematic treatment with benzene (benzol). The benefit equaled and in some instances surpassed that of radiotherapy. The effectual daily dose seemed to be 150 drops, as a rule. If no improvement is apparent when this dose is progressively reached, it is useless and dangerous to continue this treatment. A permanent cure was never realized with it. The blood count warns when a recurrence is impending. The benzene is more effectual in the granulocytic forms than in the lymphocytic, and in the chronic than in the acute.

Semana Médica, Buenos Aires

April 6, 1922, **1**, No. 14

Myeloid Leukemia. I. Allende.—p. 533.
*Ileus from Tuberculous Peritonitis. A. G. Gallo.—p. 541.
*Diathermy for Chronic Urethritis. Martin Mackintosh.—p. 552.
Importance of Proper Classifying of Abnormal, Delinquent and Abandoned Children. L. Ciampi.—p. 558.

Ileus from Tuberculous Peritonitis.—Gallo gives details of 12 cases, all adults except 2 girls of 15, both of whom died, as also one young man. In the others the obstruction in the intestines yielded to medical or surgical measures. One had several attacks of obstruction. The obstruction was mechanical in 4 from retraction of the fibrous mesentery. In 4 cases paralysis of the bowel was responsible for the ileus. In this paralytic form, operative measures are useless and do harm. There is less pain than with mechanical ileus, and no peristalsis, and auscultation is negative. After recovery from the ileus, in several the peritonitis improved under heliotherapy, etc. In one little girl, several loops of intestines were found welded together, and the aspect suggested tuberculous peritonitis until the discovery of a ruptured ovarian abscess. Complete recovery followed.

Electrode for Diathermy in Chronic Urethritis.—As the electric current always follows the shortest path between the two electrodes, it is difficult to insure an even action throughout the entire length of the urethra. Mackintosh gives illustrations of the device which he has been using for two years with constant satisfaction. A large plate slips under the sacrum; another lies on the pubis, both strapped to the table, and a standard in the crotch connects both, the whole forming the negative electrode. There is no narrow path between the electrodes but a broad field for the current to spread on all sides from the positive electrode in the urethra. The heat can be graduated; from 43 to 45 C. was found most effectual, the sittings from one half to an hour long, to a total of from ten to twenty.

Archiv für klinische Chirurgie, Berlin

April 27, 1922, **119**, No. 3

*Occult Spina Bifida. A. Hintze.—p. 409.
*Plastic Operation on Pericardium. H. Klose.—p. 455.
*Surgery of the Pericardium. H. Klose and H. Strauss.—p. 467.
*Pseudarthrosis. E. Lexer.—p. 520.
*Regeneration of Tendons. A. Salomon.—p. 608.

Occult Spina Bifida.—Hintze summarizes the literature on this subject from Virchow, in 1875, to date, and discusses the difference between the normal sacral fontanel and the pathologic spina bifida. No traces of the lumbar sacral fontanel or skull fontanels were found in 150 skeletons of anthropoid apes examined, and nothing like human fontanels was found in a new-born chimpanzee. He discusses further the findings in 400 human sacrums, and the roentgenograms of 700 others, and in cases of lumbosacral hypertrichosis and neuroparalytic disturbance of one or both legs, with or without bladder disturbances—all traceable to some anomaly in the lower spine.

Plastic Operations on the Pericardium.—Klose's experimental research in this line was described, Jan. 21, 1922, p. 253. This article analyzes the healing process.

Operative Treatment of Suppurative Pericarditis.—Klose and Strauss tabulate from the literature 29 cases of suppurative pericarditis treated by puncture alone, all fatal but 4; 27 treated by an intercostal incision, with recovery of 10; 37 treated by exposing the pericardium extensively, curing all but 16 of the 37. They describe the differential diagnosis, saying that it is difficult, and emphasizing the importance of clearing out the exudate from the pericardium at the earliest possible moment. For this, the bony wall has to be resected and the pericardium has to be effectually rinsed out with physiologic saline and amply drained, as they describe. If adhesions develop, a plastic operation with omentum or fat is justified, and they report a case of the kind in a man of 41. The mediastinopericarditis and pleural empyema had entailed extreme insufficiency of the heart, but the patient bore well the transplantation of a flap of fat to fill the gap left by the retraction of the pericardium after it had been incised. The heart functioning progressively improved, evident especially in the diuresis. The fourth day the man died suddenly. As purulent pericarditis is often preceded by a nonsuppurating phase, this justifies early operative intervention when pyogenic bacteria are involved, even when the effusion is not purulent. The diagnosis can be confirmed by exploratory puncture in the left rib-xiphoid angle. Recovery has been observed in 10.4 per cent. of the cases treated by multiple puncture, in 37 per cent. after intercostal incision, and in 56.7 per cent. after extensively opening up and draining the pericardium. Treatment must aim to prevent adhesion. The operation can be done under local anesthesia, treating the pericardium itself with a 10 per cent. solution of cocain. The opening of the pericardium and change of dressing should be done under overpressure. Pneumocardium can be warded off later with rubber tissue by E. Rehn's method. Intake of fluids should be restricted. Chloral should be avoided. The combination of surgical and conservative measures, heart stimulants, etc., will save many a patient who fifty years ago would certainly have died. A bibliography of 230 titles is appended.

Origin of Pseudarthrosis.—Lexer ascribes great importance to the injury of the vessels at the time of the fracture or transplantation of bone.

Restitution of Tendons.—Salomon resected part of the Achilles tendon in dogs and a few cats and studied the regeneration process under various conditions. The fact that regeneration occurred even when the corresponding muscle had been resected, teaches that functional stimulation is not necessary for regeneration of a tendon. In the dogs, the gap in the muscle grew up with tendon tissue. Regeneration of a tendon cannot proceed from muscle alone. During the first phase of regeneration, functional stimulation is futile or directly injurious, but during the second stage of the regeneration it is a factor of constantly increasing importance for perfect regeneration in man and animals.

Beiträge zur klinischen Chirurgie, Tübingen

1922, **125**, No. 2

*Technic for Goiter Operations. H. Schloffer.—p. 249.
Mediastinotomy with Aneurysm of Arch of Aorta. N. Guleke.—p. 270.
Research on Disinfection of Wounds. Brünner and v. Gonzenbach.—p. 277.
*Suprarenalectomy in Epilepsy. O. Specht.—p. 347.
Congenital Stenosis Mistaken for Hypertrophied Prostate. G. Düttmann.—p. 368.
*Bacteria Content of Bile Passages. K. Scheele.—p. 377.
*Action of Cells Destroyed by Radiotherapy. W. Müller.—p. 414.
Acute Glanders in War Prisoner. A. Lessing.—p. 433.
*Reconstruction of Palate. H. Biedermann.—p. 444.
Differential Diagnosis of Saliva Calculi. W. Boss.—p. 451.
Surgical Treatment of Mercuric Chlorid Kidney. H. Klose.—p. 459.
Hemorrhagic Cystic Suprarenal Tumor. C. H. Lasch.—p. 467.
Operative Evacuation of Intestine in Ileus. H. Boit.—p. 476.

Goiter Operations.—Schloffer discusses in particular the technic when the patient is being suffocated by the goiter. Sometimes the most benign goiters may start to induce suffocation from various reasons, as he explains, with instructive examples.

Suprarenalectomy in Epilepsy.—Specht concludes from his experimental research that there is no justification for suprarenalectomy in treatment of epilepsy.

Bacteriology of Bile Passages.—Scheele found bacteria in the gallbladder and bile ducts in 63 per cent. of his gallbladder operations. This has a bearing on the suture question.

Protein Shock After Roentgen-Ray Exposures.—Müller ascribes to an actual protein shock action the disturbing effect liable to follow roentgen treatment. The cells devitalized by the rays exert a shock action like that of parenteral protein therapy.

Reconstruction of Palate.—In the two cases illustrated, Biedermann reconstructed the palate after a destructive war wound by drawing through a hole in the cheek a long pedunculated flap twisted around from the side of the head and brow. The defect on the head was covered with a flap of epidermis from the thigh. The flap drawn into the mouth was doubled lengthwise so that epithelium faced toward the nose as well as toward the mouth. The artery nourishing the flap was the temporal artery, and the flap was severed the tenth day.

Deutsche medizinische Wochenschrift, Berlin

March 24, 1922, **48**, No. 12

*Serodiagnosis of Tuberculosis. Lydia Rabinowitsch-Kempner.—p. 379.
Comparative Tests of Various Strains of Tubercle Bacilli. W. Dietrich.—p. 381.
Stain Differentiation of False Tubercle Bacilli. W. Bender.—p. 381.
Character of d'Herelle Bacteriophagum. Otto and Winkler.—p. 383.
A New Turbidity Reaction for Syphilis. E. Meinicke.—p. 384.
Roentgen Irradiation of Cancer. O. Strauss.—p. 385. Conc'n No. 13, p. 416.
Treatment of Brain Abscess. Boenninghaus.—p. 387.
*Precipitation Velocity of Blood Corpuscles. W. Löhr.—p. 388.
Insomnia. A. Hoche.—p. 389.
Course in Dermatologic Technic. II. M. Joseph.—p. 391.

Reliable Serodiagnosis of Tuberculosis.—Kempner confirms that in the extract of tubercle bacilli grown on an egg culture medium—Besredka's antigen—we have a means for certain and specific fixation of complement in the diagnosis of tuberculosis. She gives the details of 275 of the 350 persons tested, including positive findings in 82 per cent. of the 131 supposed tuberculous and only 3.5 per cent. in fifty-seven supposedly healthy persons. Repetitions of the test elicited the same response each time. A positive reaction is almost invariably a sign of an active tuberculous focus, but a negative reaction does not exclude a healed or latent focus. She found further that the Sachs test elicited a positive reaction at the second hour in the tuberculous, but it had veered to negative by the eighteenth. In the syphilitic, on the other hand, the reaction was negative at the second hour but became positive by the eighteenth.

Precipitation Velocity of Blood Corpuscles in the Diagnosis of Surgical Affections.—Löhr found in a group of 100 uncomplicated fractures an increased rate of precipitation of blood corpuscles in all cases. In the most severe fractures the increase was noted twelve hours after the accident at the earliest, but always after twenty-four hours. In hundreds of other surgical cases it was observed that the rate of precipitation paralleled the size of the area affected by the inflammation or the amount of degeneration in a tumor. This finding has practical diagnostic value in abdominal surgery, in order to form a judgment in regard to the size of the affected area; especially in appendicitis, for during the intervals in which the inflammation dies down there is no increase in the precipitation rate.

Klinische Wochenschrift, Berlin

Feb. 18, 1922, **1**, No. 8

Aims and Methods of Chemotherapeutic Antisepsis. J. Morgenroth.—p. 353.
*Blood Sugar in Addison's Disease. Rosenow and Jaguttis.—p. 358.
*Practical Import of Alimentary Hyperglycemia Curve. Rosenberg.—p. 360.
*The Atropin Test of the Pylorus. E. Otvös.—p. 362.
Ulcerative Colitis. M. Einhorn (New York).—p. 366.
*Observations of Untreated Cases of Syphilis. Spiethoff.—p. 367.
The Grubal-Widal Test in Infancy. P. Grosser.—p. 370.
Camphorated Oil by the Vein. Urtel.—p. 371.
Inhibition of Sodium Oleate Hemolysis by the Serum in Various Diseases. Kahn and Potthoff.—p. 372.
Researches on Intravital Hemolysis. Bieling and Isaac.—p. 373.
Researches on Tendon Reflexes. H. Schäffer.—p. 373.
*Endocrine Glands in Mental Disease. Fauser and Heddaeus.—p. 374.
Note on Gonorrheal Affections of the Skin. A. Weill.—p. 374.
Theory and Practice of Digitalis Treatment. E. Edens.—p. 375.
*Mortality of Infants During the War. Rott.—p. 381.

Blood Sugar in Addison's Disease; Action of Epinephrin.—Rosenow and Jaguttis refer to Porges' view that a reduction of blood sugar values, which he found in three patients with Addison's disease and also in animal experimentation after removal of the suprarenals, is a characteristic finding associated with the suspension of suprarenal functioning. On the basis of a critical survey of the cases previously reported and researches on a patient, the writers conclude that hypoglycemia is not a constant symptom of Addison's disease. The discrepancy in the reports of various authors is doubtless due to the fact that only one blood sugar test was made. They find that in Addison patients, as in normal persons, the blood sugar values fluctuate greatly from day to day. Therefore, before a given case of Addison's disease can be said to present low blood sugar values, several tests (fasting) should be made on different days. The intramuscular injection of epinephrin causes in an Addison patient a hyperglycemia, the maximum one hour after the injection. The larger the quantity of epinephrin employed, the more marked is the hyperglycemia. But, whereas in a normal person, when large doses of epinephrin are used, the blood sugar curve after reaching the maximal value quickly drops below the initial record, this secondary hypoglycemia is not recorded in the Addison patient. After the injection of 2 mg. of epinephrin the normal control excreted sugar in the urine, whereas the Addison patient presented no glycosuria.

The Practical Importance of the Alimentary Hyperglycemia Curve.—Rosenberg points out that examination of the blood and the urinary sugar following ingestion of 100 gm. of glucose makes it possible to clear up many, though not all, obscure cases of glycosuria. He has seen some cases in which even this test failed to discover the cause of the glycosuria, which usually appeared only intermittently. He recommends the method for the recognition of a latent diabetes, and in endosecretory affections for the discovery of disturbances of carbohydrate metabolism, which otherwise elude the investigator. Following the ingestion of 100 gm. of glucose, in a normal person, the blood sugar reaches the apex in from one-half to one hour, and after two hours the blood sugar has become normal or virtually normal. In a diabetic the reaction is essentially different. The blood sugar curve rises higher, the apex is not reached under an hour and a half and usually only after more than two hours. In the urine of otherwise aglycosuric patients glycosuria appears. There is a certain parallelism between the gravity of the diabetic disturbances of metabolism and the slope and duration of the blood sugar curve. We are thus able to discover a threatening diabetes before glycosuria is regularly present, and by instituting appropriate therapeutic measures influence the course of the disease with greater chances of success.

The Diagnostic Value of the Atropin Test Applied to the Pylorus.—Otvös has found the atropin sulphate test of diagnostic value in internal medicine. It is independent of the chemical reaction of the gastric juice. A positive reaction usually points to organic disease, mainly to a hard duodenal or gastric ulcer. The test will often establish the cause of peripyloric adhesions. The test is more often positive with callous duodenal ulcer than in affections of the bile ducts, which usually present a characteristic syndrome. In simple cholecystitis without adhesions, the atropin reaction is usually negative. In the presence of ptosis and atonia a positive atropin reaction has no diagnostic value. While it is true that the atropin test does not furnish a direct diagnosis, it has its place in the objective consideration of every case, and may be regarded as pointing to an "indirect ulcer symptom."

The Course of Syphilis Without Treatment.—Spiethoff states, as the result of his observations on the strength of the Wassermann reaction in untreated cases of syphilis, that such experience is valuable in throwing light on the course of cases under treatment. Also on many peculiar manifestations that arise during treatment; for example, the positive fluctuations in the strength of the Wassermann reaction and the sudden appearance of manifest clinical symptoms. Such manifestations may be interpreted as provocation symptoms of treatment, as the expression of inadequate therapeutics, as the result of a quantitative or qualitative error in the selection of a remedy, or as evidence of a recurrent strain in a certain stage of development that rendered it immune to attack. In observing untreated cases, the Wassermann test should be applied frequently, at the same time that all other manifestations are carefully studied, for thus the therapeutist becomes familiar with the fundamental type of case.

Histologic Researches on the Endosecretory Glands in Psychic Affections.—In 25 patients with mental disease Fauser and Heddaeus examined the thyroid, the suprarenals, the hypophysis, the genital glands, and in some instances, also the thymus and the epiphysis. Seven patients belonged to the dementia praecox class; 12 were epileptics; 5 were imbeciles, and there was one case of senile dementia. In the thyroids of such patients goitrous degeneration was frequent; other changes were occasioned by concomitant affections (tuberculosis). The suprarenals showed, in part, senile changes and, in part, findings due to tuberculosis. In the hypophysis, there was found, in various psychoses, a predominance of the basophiles over the eosinophiles in the anterior lobe, which is exactly opposed to the findings in healthy persons of corresponding age, and may possibly be regarded as a sort of retardation of function of the hypophysis. The genital glands, the thymus and the epiphysis showed no typical changes. If we may be allowed to generalize on these findings, it may be stated that only in exophthalmic goiter could infantilism of the endocrine glands be demonstrated histologically—not in psychoses such as they investigated. More extensive investigations may bring to light characteristic changes.

Infant Mortality and Causes of Death in Infants During the War.—Rott endorses the view that the significant decrease in the percentage of deaths in infants from gastro-intestinal catarrh and from cholera nostras is due to the fact that, during the war, more infants were breast fed.

Medizinische Klinik, Berlin

April 23, 1922, **18**, No. 17

*Gastro-Intestinal Spasms. J. Pal.—p. 521.
*Acute Tonsillitis. R. Imhofer.—p. 526.
*Treatment of Paralysis Agitans. F. Franke.—p. 528.
Experiences with Pneumoradiography of Kidney Region. P. Rosenstein. —p. 529.
*Spirochetal Jaundice and Workmen's Compensation. J. Schürer.—p. 533.
*Septic Abortion. Grube.—p. 534.
*Test for Specific Gravity of Urine. A. Kirch.—p. 535.
Transportable Apparatus for Over and Under Pressure. M. Wassermann.—p. 536.
Estimation of the Wassermann Reaction. H. Hecht.—p. 537.
Practical Questions in Obstetrics. E. Runge.—p. 538. Cont'n.
Present Status of Epilepsy. K. Singer.—p. 540.
Present Status of Tartar Emetic. M. Mayer.—p. 541.

Treatment of Muscular Spasms.—Pal explains how treatment must differ according as the spasm is the result of hypertonia or hyperkinesia or is a permanent contracture. Psychic and reflex causes must be combated, and the stimulus to the hyperkinesia modified. He warns against a drug to deaden the pain as merely a convenient makeshift. We can act on the spasm by checking the action of the nerve innervating the muscle; the vagus and pelvic nerves are inhibited peripherally by atropin. The muscle itself can be influenced by papaverin, emetin, camphor or benzyl compounds. The third factor, the sympathetic nerve, might also be acted on; epinephrin may be useful for this but is not reliable by the mouth, especially with spasm in the lower bowel. Local heat reduces the movements and excitability of the bowel. With permanent contracture, internal medication is futile, but spasm in esophagus and rectum may be accessible to local medication.

Anginosis.—Imhofer agrees with those who regard angina —infectious sore throat—as more than mere tonsillitis. It is a general infection, and the tonsils are only one link in the chain. The kidney and joint disturbances that have been observed after anginas form part of the original syndrome. It only comes to an earlier manifestation in the tonsils, and tonsillectomy removes a particularly favorable field for its manifestations to develop. Hence the term "anginosis" is descriptive. He urges all who encounter cases of actual angina after tonsillectomy to study them with special care. He also emphasizes that this conception of anginosis calls for general treatment, not merely spraying the tonsils. General treatment by parenteral injection of milk seems promising, and the one case in which he tried it seemed to stamp this anginosis as a particularly favorable field for protein therapy.

Treatment of Paralysis Agitans.—Franke reports improvement in a case of grave paralysis agitans under calcium chlorid which seems to have something of a causal action in this disease. It had the drawback of increasing immeasurably the output of urine. This may have been a bladder neurosis in the woman of 65, as it yielded to phenobarbital. This improved conditions materially, and was kept up for the three years of her life, relieving her of cramps and tremor although the disease progressed otherwise. She took 0.05 gm. of phenobarbital three times a day. He cites also a case of rotary tic of the head which yielded in five months to a solution of 100 parts calcium chlorid in 500 parts distilled water. An eight months' course cured likewise a case of convulsive tic of the neck muscles.

Spirochetal Jaundice as Result of Industrial Accident.—The man of 62 developed fatal spirochetal jaundice two weeks after a fall into a cesspool. An analogous case was published by Stirl. The right to workmen's compensation was recognized in both cases.

Septic Abortion.—Grube relates that he always evacuates the uterus with septic abortion, and in twenty years has never had a death from this cause. This is also the practice of the practitioners he has consulted. He thinks it is much the lesser evil, outside of institutions.

Specific Gravity of Small Amounts of Urine.—When the amount is too small for the ureometer, Kirch adds more urine with known specific gravity. He gives the formula with which the calculation can be easily done.

Monatsschrift für Geb. und Gynäkologie, Berlin

February, 1922, **57**, No. 1-2

*The Placenta. K. de Snoo.—p. 1.
Endocarditis and Pregnancy. H. Eufinger.—p. 26.
Histologic Findings in Ovum Retained Eleven Months. M. Trancu-Rainer.—p. 31.
*Axial Torsion of Uterus at Term. E. Vogt.—p. 35.
Unreliability of Wassermann Reaction in Parturients. K. Brünner.—p. 42.
Opsonogen in Treatment of Mastitis. Bodin.—p. 52.
Origin of Blood Moles. A. Greil.—p. 55.
Histology of Pedicle of Villi of Hydatidiform Mole. H. Hillebrand.—p. 67.
Primary Tubal Carcinoma. L. Hillebrand.—p. 72.
The Time Question in Deep Roentgenotherapy. A. Haupt.—p. 75.

Importance of Placenta for Duration of Pregnancy.—De Snoo argues that the placenta has an inhibiting influence on the uterus musculature. As the placenta grows old, this influence grows less. The logical inference that a tendency to habitual abortion can be combated by administering placenta extract has proved its correctness in many instances in his experience, abortion or miscarriage thus being warded off. He ascribes this action to the trophoblast which, he says, has its separate existence and life course. It loses its vitality after the ninth month, and this starts the birth process. This trophoblast in powder form seems to pass through the digestive tract without loss of its special features. A normal placenta yields about 20 gm. of powder, and he gives from 3 to 6 gm. by the mouth daily. By this means patients have been tided along to term who under all other measures had regularly aborted or miscarried. He regards the placenta powder as indicated further in all cases when the contracting forces of the uterus are working too vigorously.

Torsion of the Uterus.—In Vogt's case the uterus in labor had twisted at least 180 degrees. After cesarean section it righted itself.

Münchener medizinische Wochenschrift, Munich

March 31, 1922, **69**, No. 13

Percutaneous Treatment of Tuberculosis. E. Moro.—p. 457. Idem. Gottlieb.—p. 459.
Conjunctivitis as Early Symptom of Tuberculosis. L. Saathoff.—p. 460.
Hemianopic Pupil Reaction. Oloff.—p. 462.
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Discutient Phenomenon in Diagnosis of Scarlet Fever. J. Blum.—p. 466.
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A Simple Finger Splint. F. Franke.—p. 468.
Sodium Iodid in Inflammatory Processes. R. Oppenheimer.—p. 468.
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Cutaneous and Mucosal Hemorrhages Associated with Bone-Marrow Injuries; Fatal Result Following Treatment with Arsphenamin, Mercury and Collargol. J. Voigt.—p. 474.
Treatment of Exophthalmic Goiter. A. Krecke.—p. 476.

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Revised Method for the Demonstration of the Herelle Virus. Pfreimbter, Sell and Pistorius.—p. 495.
*Spinal Fluid in Experimental Syphilis. F. Plaut and P. Mulzer.—p. 496.
Anatomic Changes in Experimental Syphilis in Rabbits. F. Plaut, P. Mulzer and K. Neubürger.—p. 498.
Differentiation of El Tor and True Cholera Vibrio. R. Kraus.—p. 499.
*Ether Therapy and Prophylaxis of Peritonitis. Sigwart.—p. 500.
Constructive Surgery. J. F. S. Esser.—p. 502.
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Diagnosis of Cancer of the Lung. R. Nussbaum.—p. 507.
Spread of Tuberculosis in Rural Districts. E. Nehring.—p. 508.
Intensifying of Tissue Stains. K. Post.—p. 509.
Chorio-Epithelioma Bleeding into Abdominal Cavity. Nägelsbach.—p. 510.
Retrosternal Luxation of the Clavicle. A. Schlegel.—p. 511.
Hemorrhage in Cerebellum. G. Hofmann.—p. 511.
Morbid Desire to Clip Golden Locks. Petersen.—p. 512.
Technic of Metreurysis. E. Schöning.—p. 513.
Appendicitis and Situs Inversus. Landgraf.—p. 513.
Roentgenologic Diagnosis of Pulmonary Tuberculosis. Kästle.—p. 513.
Tuberculin Treatment in General Practice. Bacmeister.—p. 514.

Diagnostic Importance of Behavior of Cerebrospinal Fluid in Experimental Syphilis in Rabbits.—Plaut and Mulzer report that pleocytosis is frequently the first symptom of syphilis in rabbits following experimental inoculation with the disease. Through examination of the spinal fluid one can assure oneself that the inoculation has been successful before any other evidence is forthcoming; and more particularly, before the site of the inoculation shows any reaction whatever. Often, orchitis or the primary effect appeared only weeks or months after a number of positive tests of the cerebrospinal fluid had been made. In one rabbit, syphilis of the testicle developed six months after the inoculation, whereas pleocytosis was noted in the spinal fluid as early as five weeks after inoculation. In fact, in some animals, pleocytosis remained the only symptom and, during a long period of observation, no external signs of the infection were recognizable. It is thus evident that changes in the spinal fluid may be not only the first but for a considerable period of time (possibly throughout the whole course of disease) the only sign of syphilis in the rabbit.

Ether Therapy and Prophylaxis of Peritonitis.—Sigwart reported four years ago his experiences with the injection of ether into the abdominal cavity in diffuse peritonitis. The results at that time had been very favorable; of 11 cases of diffuse peritonitis only one resulted fatally, and here death occurred eighteen days after the operation, from gangrene of lung. In his first trials of ether therapy he counted on some severe manifestations of shock but was surprised to note nothing more serious than retarded respiration and cessation of respiratory movements for short periods. However, in the present series of cases in which prophylactic injections of ether were employed, he witnessed several severe manifestations of shock, and in one instance he feared for a time a fatal outcome, and it took several hours before the woman was out of danger. He thinks these accidents were due to lack of drainage or ventilation, and that they can be avoided in the future by not closing the abdomen so soon after the injection of the ether. He still ascribes to ether great therapeutic value as a means of warding off peritonitis in an infected pelvic cavity. He uses as high as 250 c.c. of ether.

Zeitschrift für Geburtshülfe und Gynäk., Stuttgart

March 4, 1922, **84**, No. 3

*Placenta Accreta. H. A. Dietrich.—p. 579.
Cesarean Section in Fatal Eclampsia. B. Bauch.—p. 596.
Conservative Operations on Adnexa. Nürnberger.—p. 606.
*Treatment of Gonorrhea in the Female. G. V. Frank.—p. 638.
*Toxic Degeneration of Liver in the Pregnant. Schultheiss.—p. 644.
*Pregnancy Angiospasms. H. Hinselmann et al.—p. 673.
*Fruits and Seeds. F. Ahlfeld.—p. 698.
Menstruation and the Biologic Waves. Labhardt and Hüssy.—p. 715.
*Differential Diagnosis of Uterine Changes. A. M. Marx.—p. 742.
White Necrosis of the Placenta. E. Clemenz.—p. 758.
Bacteriology of Umbilical Cord. H. Küstner.—p. 771.

Placenta Accreta.—When the placenta has grown into the wall of the uterus, it is impossible to separate it, and the only recourse is prompt hysterectomy. Dietrich had a case of the kind, and has found records of nineteen similar cases in which the basal decidua was lacking, and the villi grew directly into the muscular wall. Death from hemorrhage is the rule in these cases.

Heat in Treatment of Gonorrhea in Women.—Frank has used in fifty cases a flexible metal sound which is heated by electricity to a temperature up to 55 C. This applies heat to the mucous membrane of the urethra and cervix, and thus induces a healing hyperemia while reducing the vitality of micro-organisms. He regards the results as very encouraging in old refractory cases.

Pregnancy Toxic Degeneration of Liver.—A case of acute yellow atrophy of the liver in an otherwise healthy young woman in the second or third month of pregnancy is described, with the necropsy findings.

Pregnancy Angiospasms.—Tests of forty-six nonpregnant women and 150 tracings from a large number of the pregnant have apparently confirmed the great importance of recording the spasmodic contractions of the blood vessels, the capillaries in particular. It allows insight into pathologic conditions from an entirely different standpoint. The circulation of the blood in the pregnant is altered even at points remote from any mechanical influence. The angiospasms are affected remarkably by the labor contractions; this tends to refute the assumption that toxic factors are responsible for the angiospasms. The vascular tonus in the pregnant will repay further study.

Fruits and Seeds.—Ahlfeld here reviews his long life work as a gynecologist and obstetrician, and lingers on certain features which he regards as achievements, and others which he hopes will prove fruitful seed. One of his "fruits" is the examination of the woman near term, the abdomen exposed, the patient placed high enough so the observer does not have to stoop. Simple prolonged, quiet inspection of the abdominal wall, when the wall is thin, will reveal conditions in the uterus, showing congested vessels to be avoided in section, and other data. Direct auscultation of the uterus he has always found more instructive than with a stethoscope. Fetal singultus seems to be a physiologic process, as also the rhythmic movements of the fetal respiratory muscles to which he first called attention. He is convinced that alcohol destroys the bacteria dangerous for puerperal infection; the alcohol makes its way into the skin. One of Ahlfeld's precautions is to use a glass tube in the vagina for the preliminary cleansing. The fluid thus hits the cervix first and flows out, instead of washing the bacteria already in the vagina back to the cervix.

Differential Diagnosis of the Uterus.—Marx discusses how to distinguish in dubious cases between abortion, pregnancy and disease. In a case encountered, the sepsis after abortion had been complicated with a gas-forming infectious process in the uterus, and the blood in the urine and pouch of Douglas showed only methemoglobin, evidently from bacterial action.

Casopsis Lekaruv Ceskych, Prague

Feb. 4, 1922, **61**, No. 5

Experimental Transient Astigmatism from Strain of Ciliary Muscle of the Human Eye. J. Belehradek.—p. 81.
Abnormities of the Ear. J. Javurek.—p. 83.

Feb. 11, 1922, **61**, No. 6

Complications During and After Laryngectomy and Their Prophylaxis. A. Precechtel.—p. 105.
*Treatment of Tuberculosis of the Nose. B. Dedek.—p. 109.
Importance of Yeast as Food. T. Hegner.—p. 111.
Anemia Infantum Pseudoleukemica. L. Kucera.—p. 112.
New Type of Pipet for Serologic Reactions. J. Pirc.—p. 115.

Treatment of Tuberculosis of the Nose.—Dedek recommends ultraviolet rays (Kromayer's lamp) after a thorough surgical cleaning of the field.

Feb. 18, 1922, **61**, No. 7

Technic for Complete Extirpation of Larynx. A. Jirasek.—p. 129.
Cystic Dilatation of Lower End of Ureter. K. Neuwirt.—p. 132.
Operative Treatment of Tuberculous Spondylitis. O. E. Schulz.—p. 137.

Feb. 25, 1922, **61**, No. 8

Protein Treatment. J. Urbanek.—p. 153.
*Refractometric Analysis. J. Becka.—p. 161.
Terminology of Influenza and Epidemic Encephalitis. K. Henner.—p. 164.

Refractometric Analysis.—By using a general formula Becka enlarges the field of this method, especially for the determination of sulphates and chlorids.

Rivista di Clinica Pediatrica, Florence

March, 1922, **20**, No. 3

*Sodium Lactate in Treatment of Acetonemia. E. Modigliani.—p. 129.
Congenital Ptosis of Eyelids; Two Cases. G. Squarti.—p. 146.
*Invagination of Colon. P. Iacchia.—p. 159.

Sodium Lactate in Treatment of Acetonemia.—Modigliani advocates this treatment as effectual and harmless; it is a normal constituent of the blood that probably is lacking in acid intoxication. It does not cause symptoms of intolerance even given to infants up to 30 gm. per day. It is easily oxidized, being rapidly transformed into sodium carbonate in the blood, and this is eliminated in the urine. It has a strongly alkaline action on the blood and urine, neutralizing the excess of acid, and promoting oxidations which aid in the transformation of the acetone bodies and thus ward off production of acetone. He has used it in thirteen cases, giving from 12 to 30 gm. at first and then less in the following three or four days. The urine became alkaline by the second day in all, and the tests for acetone were negative by the third or fourth day, and the headache, vomiting, fever, dyspnea and the odor on the breath promptly subsided. The sodium lactate can be generated at the time by mixing in 30 c.c. of hot water 2 tablespoonfuls of 10 per cent. solution of lactic acid in distilled water, and 2 tablespoonfuls of 7.5 per cent. solution of sodium bicarbonate. In four of five cases there has been no return of the acetonemia in the fourteen to sixteen months since.

Invagination of the Colon.—Iacchi manipulated the invaginatum through the rectum of the infant of 9 months. The invaginated portion protruded into the rectum, and he succeeded in reducing it by taxis in this way.

Zeitschrift für Urologie, Leipzig

1922, **16**, No. 3

Bactericidal Action of Tellurium. G. Joachimoglu.—p. 97.
Gunshot Wounds of Lower Urinary Organs. E. Pfister.—p. 101.
Chemistry of the Colloids in the Urine. E. Joël.—p. 124.

1922, **16**, No. 4

*Function of the Kidney Calix. H. Haebler.—p. 145.
The Bladder in Colon Bacillus Sepsis. S. Werboff.—p. 151.
*Calculi in Bladder. A. Nakajima.—p. 155.
*Actinomycosis of Kidney. H. Pinner.—p. 187.

Function of Kidney Calix.—Haebler confirms Wassink's statements in regard to the peristalsis of the normal kidney pelvis and calices of living mammals. There is not only a circular contraction, but lengthwise, "milking" movements.

Calculi in Bladder.—Nakajima's long study of bladder stones, their varieties, almost universal geographical distribution, and origin, incriminates uric acid and calcium as indispensable for the formation of calculi in the bladder. The calculus requires further some organic albuminoid substance, and for this some pathologic change in the kidneys is responsible.

Actinomycosis of the Kidney.—The kidney lesion accompanied actinomycosis of the lungs and pleura in the case described with an illustration. There had been an interval of two years before the kidney symptoms had developed. Only 7 instances are known of primary actinomycosis of the kidney, but in 460 cases of actinomycosis of chest or abdomen, secondary infection of the kidney occurred in 16. Pinner's patient was a previously healthy man who used to chew grain stalks as he unloaded barley in working for a brewery. He had apparently recovered after an operation on the chest, and recovery was smooth after the nephrectomy.

Zentralblatt für Chirurgie, Leipzig

Feb. 18, 1922, **49**, No. 7

*Fatality in Treatment of Varicose Veins. J. Hohlbaum.—p. 218.
Correction of Nose Deformities at Operations for Harelip. Meyer.—p. 220.
Plastic Operation Corrects Tabetic Paralysis of Bladder. Oppenheimer.—p. 221.

Fatal Embolism Following Treatment of Varicose Veins with Pregl Solution.—Hohlbaum tells of a fatality resulting from the Wittek procedure for the treatment of varicose veins with Pregl solution. In the 54 year old patient, the veins were very extensive and about the size of a finger, spread over the whole area of the great saphenous vein. In view of the extraordinary size and extent of the varices, 80 c.c. of Pregl solution were injected into the vein from a puncture just below the knee joint, a compressing bandage having been applied at about the middle of the thigh. The bandage was loosened ten minutes after the injection; a tricot bandage and a splint were applied to the leg, and the patient was put to bed. Two days later, the tricot bandage was removed, and it was found that from the site of the injection distally the vein was thrombosed throughout its whole extent. The temperature was 37.4 C., with slight pains at the site of the injection. The splint was not removed and three days later the thrombosis had extended to the groin. The patient complained of slight, shooting pains in the left chest on breathing and on movement of the trunk. Slight crepitation was noted posteriorly in the lower left lung. A week later, while the patient was still in bed, the splint not having been removed, he died suddenly, with signs of embolism of the lungs (just two weeks after the injection). It is evident that the procedure is not as harmless as reported. Hohlbaum does not wish to discredit the method; in fact, if used with caution, he regards it as an extremely simple and reliable means of ridding a patient of even extensive varicose veins.

Zentralblatt für Gynäkologie, Leipzig

March 11, 1922, **46**, No. 10

Proposed Basis for Carcinoma Statistics. L. Seitz.—p. 369.
*Operability of Cancer of the Uterus. R. Hinrichs.—p. 373.
The Glycogen Content with Reference to the Reaction of the Vaginal Secretion in Women and Certain Domestic Animals. C. Pasch.—p. 375.
External Hydrocephalus and Management of Childbirth. Fink.—p. 377.
Construction of Vagina (Schubert Method). Keyserlingk.—p. 380.
Construction of Vagina from Small Intestine. Neugebauer.—p. 381.

Operability of Cancer of the Uterus.—Hinrichs reports on the operability of cancer of the uterus in the period from 1910 to 1921 in Stoeckel's service, a total of 547 cases. Following Winter's standard, it was only natural that misconceptions in regard to the true extent of the tumor were comparatively frequent. Many a case which, from the macroscopic palpation findings, is judged to be "barely operable" and which, owing to the confidence in the high standard of the technic, is actually operated on is found, on applying the abdominal radical operation, to be in reality inoperable, although it may prove possible to finish the operation by evacuating, with difficulty, certain glands or by resection or injury of the ureters or bladder. Many a carcinoma thought to be operable breaks down at once when traction is applied to the uterus; many a carcinoma proves to be no longer radically operable owing to gelatinous infiltrations around the large vessels. On the other hand, cases regarded as unfavorable may appear in a much better light when viewed and judged after the abdominal cavity is opened. Krönig emphasizes the diagnostic, exploratory value of the abdominal operation and advises opening the abdomen in all inoperable cases in order to reach an unequivocal decision in every case. Hinrichs found the average operability to be 67 per cent., and the inoperability, 33 per cent. Carcinoma of the body of the uterus remained operable for a long time, as is known. Comparing the inoperable cases of 1913 with those of 1918, there was found to be an increase of 6.4 per cent. A comparison of the inoperable cases of 1910 with those of 1920 showed an increase of nearly 18 per cent.

Acta Medica Scandinavica, Stockholm

April 22, 1922, **56**, No. 4. Schauman Festskrift

The Individual Reacting Capacity. F. Martius.—p. 330.
*The Mental Technical Aspect of Piano Playing. R. Tigerstedt.—p. 334.
*Renal Arteries and Blood Pressure. A. Wallgren.—p. 356.
The Swedish State Institute of Race Biology. H. Lundborg.—p. 371.
*The Mendelian Laws. H. Federley.—p. 393.
*Heredity in Pernicious Anemia. O. Mustelin.—p. 411.
*Long Remission in Pernicious Anemia. E. A. von Willebrand.—p. 419.
*Stenosis of Intestine and Pernicious Anemia. E. Meulengracht.—p. 432.
*Capillary Circulation in Pernicious Anemia. Hisinger-Jägerskiöld.—p. 443.
The Sachs-Georgi Reaction in Bothriocephalus Carriers. G. Becker.—p. 453.
*Chronic Stomach Disease. R. Ehrström.—p. 461.
*The Sexes in Relation to Appendicitis. W. Backman.—p. 478.
*Renal Diabetes. A. Johnsson.—p. 485.
Transient Reduction of Refracting Power in Diabetes. Enroth.—p. 500.
*Lack of Water in the Tissues and Acetone Excretion. R. Ehrström.—p. 507.
The Heart Rate and Minute Volume. C. Tigerstedt.—p. 510.
Acromegaly; Two Cases. F. Saltzman and J. Olin.—p. 523.

The Schauman Festskrift.—The seventeen articles in this number of 217 pages form a memorial tribute, as Schauman died a few weeks before his sixtieth birthday for which the *Festskrift* was planned. All the articles are in German except one in English on page 371.

The Psychotechnic of Piano Playing.—For this study Tigerstedt had an electric recording drum connected with the keys of the piano.

The Arteries of the Kidney and High Blood Pressure.—Wallgren declares that the evidence to date is inconclusive as to whether the changes in the renal arterioles precede or follow the high blood pressure.

The Mendelian Laws in Human Heredity.—Federley discusses how best to study the mendelian laws as they affect human beings, remarking on the many difficulties encountered in study of human heredity. The main thing now, he reiterates, is to compile data, collecting material and tracing family strains through generations. When sufficient data have been accumulated, research on heredity can proceed on a reliable basis, whereas now it is mostly mere surmise.

Heredity and Pernicious Anemia.—Mustelin refers to Schauman's series of twenty-four families with two or more cases of pernicious anemia, and he adds a new family to the list. It is the first on record in which pernicious anemia was known in three generations, mother, daughter and granddaughter. Meulengracht has published an instance of five cases in one Danish family. The disease grew more severe and developed earlier in each succeeding generation.

Remissions in Pernicious Anemia.—Willebrand's patient presented the signs and symptoms of pernicious anemia ten years ago, but they have subsided during the last few years. The findings now are merely those of ordinary anemia; gastric secretion has been approximately normal throughout.

Stenosis in Small Intestine and Pernicious Anemia.—Meulengracht reports another case of pernicious anemia developing in a woman of 64 with three strictures in a certain segment of the small intestine.

Capillary Circulation in Pernicious Anemia.—The research on fourteen cases showed characteristic findings in the capillaries in this disease.

Chronic Stomach Disease.—Ehrström comments on the paucity of our knowledge of this subject.

The Sex in Relation to Appendicitis.—Backman relates that the male cases only slightly predominated in his 274 cases of destructive appendicitis, while women formed 70.6 per cent. of the 659 cases of the catarrhal type of the disease.

Renal Diabetes.—Johnsson found sugar in the urine on repeated examination during ten and sixteen years in his two cases. The sugar content of the blood was found normal always, fasting. The father of one of the patients is a diabetic, and two brothers show symptoms of slight diabetes. The sugar test was followed by a subnormal and a normal response in his two cases.

Water Deficit and Acetone Excretion.—Ehrström queries whether relative water deficit plus carbohydrate starvation provides the conditions for abnormal acetone excretion. His experience testifies to this assumption.

Acta Paediatrica, Stockholm

April 15, 1922, **1**, No. 4

*Rachitis. I. Jundell.—p. 355.
*Acid in Infants' Blood and Urine. T. Stenström.—p. 381.
*Hydrochloric Acid in Infants. I. Chievitz.—p. 416.
Aregenerative Aplastic Anemia in Boy of 4. N. Malmberg.—p. 438.
Index of Nutrition. E. Nobel.—p. 449. Idem. U. Hjärne.—p. 452.

Pathogenesis and Treatment of Rachitis.—Jundell treats rachitis systematically and consistently with relative inanition, and his excellent results with this method have been already recorded in these columns. This alone cures in the mild cases, and when supplemented with cod liver oil and phosphorus, even the severest cases have always yielded to it in a month or two. The calories are reduced to 65 or 70 per kilogram; the milk to 60 or 75 c.c. per kilogram. The rest of the calories are obtained from sugar and flour, and, as soon as practicable, potatoes and grits, vegetables and fruit are given. Tea, beef tea, cocoa or fruit syrup are also given, the total intake of fluid not surpassing 1 liter a day during the first year of life. The rapid recovery from rickets during this relative inanition, and the fact that rachitis does not develop in children with pylorospasm or other condition entailing protracted inanition sustain his view that overstrain of the general nutritive functions of certain endocrine glands seems the most plausible explanation of rickets. By reducing the intake of food we ward off and reduce this overstrain. (In English.)

Acid Content of Blood and Urine of Infants with Nutritional Disturbance.—Stenström gives the tabulated data from eleven male infants, three of them healthy. The metabolic findings showed actual acidosis after the fat element in the food had been increased for the eight infants with dystrophia, and this was possible also in the one healthy infant tested. The production of acid was not increased by augmenting the carbohydrate content of breast milk, but with cow's milk the acid increased in one dystrophic infant. As the acid increased the excretion of nitrogen decreased.

Hydrochloric Acid Secretion in Infants.—Chievitz classifies fifty-three infants in various groups, and tabulates the details of the findings after the barley gruel test meal. No instance of congenital achylia was discovered, but there was achylia or hypochylia in about half the cases of essential digestive disease. In the healthy, the values of the free hydrochloric acid averaged Günzberg 8, Congo 11, and phenolphthalein 14.

Hospitalstidende, Copenhagen

March 18, 1922, **65**, No. 8

*Vaccine Treatment of Urinary Infections. O. Wulff.—p. 17. Conc'n No. 10, p. 157.

Vaccine Treatment of Urinary Infections.—This communication summarizes what has been published in this line and the experiences with 108 patients in Rovsing's service in the last ten years, including 8 under 15 years of age. There were only 20 men to 88 women. The colon bacillus was responsible in 92 and the staphylococcus alone in 8. A spontaneous cure of infection of the urinary passages is of extremely rare occurrence. The acute symptoms subside but the infection persists; it always bears the chronic imprint. Vaccine therapy aided in eradicating it in many of the cases recorded. Those reporting favorable results with it were always those with the longest series of cases. All are agreed on the necessity for autogenous vaccines and for beginning with small doses. Wulff gave up to 10,000 millions and over. The tolerance and the clinical action are the guide; estimation of the opsonins is too tedious. The tolerance varies widely, and slight by-effects are liable to be observed. The duration of the immunization is a question; the intervals since without recurrence have been up to twelve years. In the experience of large numbers of clinicians, 20 per cent. of the patients seem to be refractory. Vaccine treatment as a preliminary to operations on infected urinary passages seems promising, but has not been tried on a large scale yet.

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ENDOCRINOLOGY *

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BALTIMORE

This symposium on internal secretions includes several papers that deal chiefly with the physiologic, the pathologic and the therapeutic effects of endocrine substances. I have been asked to make, by way of introduction, some general remarks on the subject of endocrinology as a whole. A discussion of the topic is timely and should be of value to workers in every branch of medicine. The profession in general is evincing a lively interest in the internal secretions, as is shown by the titles of papers read at medical meetings. An association for the study of the internal secretions already has a large membership, and its special journal, *Endocrinology,* is widely read.

THE ENDOCRINE ORGANS

Organs of the body that yield to the blood, in addition to the common metabolites resulting from the general life processes of cells, certain specific products that influence distant parts have been designated "endocrine organs," and the special substances thus yielded are known as "internal secretions." These endocrine organs have sometimes been called the "glands of internal secretion" because their products are distributed to the circulating fluids of the body itself rather than to the world outside or to tubular canals that communicate with the external world. They have sometimes been called "ductless glands," to distinguish them from glands whose products emerge through epithelial lined channels; though it should be remembered that in some organs, like the pancreas, we have some parts producing an external secretion discharged through a duct, and other parts producing an internal secretion that is discharged directly into the lymph or blood without the intermediation of a duct. Recently, the endocrine organs have been spoken of as "incretory organs," the specific substances they produce being known as "incretions," to distinguish them from the "secretions" and the "excretions" of other glands.

The principal endocrine organs are the thyroid, the parathyroids, the thymus gland, the lymph glands, the suprarenal glands, the gonads, the hypophysis cerebri (or pituitary gland), the epiphysis cerebri (or pineal gland), and the insular tissue of the pancreas (islands of Langerhans), though it is quite possible that other organs, as the spleen, the kidneys, the liver, the salivary glands and the prostate, also perform endocrine functions in addition to their other physiologic activities.

In agreement with the idea that the specific substances produced by the endocrine organs are carried by the blood or lymph to distant parts, modifying the activity of the cells there, the term hormone was suggested for these substances by Bayliss and Starling. It is quite possible, however, that some of these incretions, instead of acting as excitants or depressants of distant cells, as the hormones are supposed to do, perform the function of neutralizing poisonous substances circulating in the blood. Such hypothetic detoxicants have been designated "negative incretions," to distinguish them from true hormones, or "positive recrementitious incretions."

FUNCTIONS OF THE ENDOCRINE ORGANS

The ways in which the specific products of the endocrine organs influence the rest of the body are gradually being found out. Progress has been especially rapid since the more exact chemical nature of some of the specific substances produced has been discovered, making it possible to apply more extensively experimental methods to the study of hormonal activities. Epinephrin, isolated from the chromaffin tissues, thyroxin from the thyroid, pituitary extract from the hypophysis cerebri, and, very recently, insulin from the islands of Langerhans of the pancreas, are notable instances of incretory substances, or extracts, useful for experimental work. Physiologic investigators, as well as pharmacologists, have been busily engaged in determining by animal experiment the influences of these substances, or extracts, when introduced by various routes, on the physiologic processes in the different organs and tissues. Clinicians are comparing, in diseased human beings, the effects of these purer substances or extracts with the effects producible by administration of the fresh, or dried, organ substance as a whole. It is scarcely conceivable that an endocrine organ produces only a single important substance, as thyroxin in the case of the thyroid or epinephrin in the case of the chromaffin tissue; it would seem probable that each gland may produce at least several substances, even though our attention may at present be focused on only one.

Many of our ideas concerning the functions of the individual endocrine organs have been derived from extirpation experiments in which the effects on the animal operated on have been noted and the curative influences of substitutive therapy (organ transplantation; dried gland administration) have been observed. Even more important, perhaps, have been the clinical-pathologic studies that have correlated either anomalies of constitution or disease syndromes with demonstrable pathologic-histologic alterations in the endocrine organs and with demonstrable physiologic or chemical evidences of overfunction or underfunction of those organs.

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* Address of the chairman of the Section on Practice of Medicine, read before the joint meeting of the Section on Practice of Medicine, the Section on Pharmacology and Therapeutics, and the Section on Pathology and Physiology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

Sufficient knowledge has been gained by these and other methods to make it seem clear that the incretions may act on distant cells in a modifying way either directly through transport through the blood to them, or indirectly through the intermediation of the autonomic nervous system. When they act directly, they may determine the way in which the energies and substances in the terminal cells are utilized (functional correlation), or they may supply substances that are actually made a part of the distant cells that receive them and use them for their nutrition or for structural change (formative influence). When they act indirectly through the intermediation of the autonomic nervous system, they may, by stimulating, favoring or inhibiting the fibers of that system, greatly modify the functions of the secretory and excretory organs of the body and of the involuntary musculature of the vascular, digestive, respiratory and urogenital systems.

Furthermore, either by direct stimulation of the nerve mechanisms concerned or by indirect influences on these mechanisms through the autonomic nervous system, endocrine products undoubtedly play an important rôle in the physiologic processes that are conceived of as running parallel to certain of the psychic functions, especially those that we designate as the affective and the conative. This relationship of the incretions to the psychic mechanisms would seem clear from clinical observation of pathologic emotivity and of pathologic behavior observable in various endocrine disorders, notably in exophthalmic goiter and in myxedema.

It is known, further, that profound effects are produced by certain of the incretions, especially those of the thyroid, the hypophysis and the gonads, through the regulation of the metabolic processes. Whether these effects, in turn, result from influences exerted directly by the hormones on the body cells or indirectly through the mediation of the autonomic nervous system must be left to further investigations to reveal. It would seem probable, however, that an acceleration of the general metabolism, such as can be induced by an excessive thyroxin production by the thyroid gland, may be due to a direct hormonal influence on the processes of combustion within the body cells, though it is conceivable that the same effects might be produced indirectly through hormonal action on a hypothetic metabolism-regulating center; located, say, in the interbrain. Similarly, one might speculate regarding localized morphogenic effects, such as the growth of the acra in acromegaly, which could be due either to selective hormonal influences on local groups of distal cells concerned in the growth processes, or to selective hormonal influences on local groups of trophic neurons of the autonomic nervous system.

THE SO-CALLED HORMONOPOIETIC SYSTEM

The conception that the endocrine organs are linked together so as to form a system of reciprocally dependent organs (hormonopoietic system) has gradually gained general credence, not only among clinicians, but also among physiologists and pathologists. And it must be admitted that there is considerable evidence in favor of the existence of such a correlative interdependence among the several incretory glands. Physiologists, through their experiments, have adduced many facts that point to manifold interrelationships between the glands of internal secretion. And clinical-pathologic studies have shown that uniglandular endocrinopathies are rare, whereas pluriglandular endocrinopathies are common. In exophthalmic goiter, for example, we see not only diffuse hyperplasia of the thyroid gland but also, not infrequently, hyperplasia of the thymus as well as signs of insufficiency of the gonads. In Froehlich's syndrome, to cite another instance, we see not only the signs of a disorder of the hypophysis cerebri but also evidences of hypogenitalism. It seems very probable, therefore, that in the chemical integration of the bodily activities a certain cooperation among the endocrine organs is essential. The hormonopoietic system is concerned as a whole. It, like the nervous system, helps to correlate the partial systems of the body into a harmonious unity.

EVOLUTIVE SIGNIFICANCE OF THE INCRETIONS

That the substances produced by the incretory organs are of great importance in the development of the individual, not only during embryonic life but also during the further evolution of the organism to the acme of its development, is now a generally accepted view. The ontogeny of the single organism depends on reactions that occur between the germ plasm of the fertilized egg cell, on the one hand, and the environment (prenatal and postnatal) on the other. The fertilized germ plasm, consisting of a complex of "gens," constitutes the so-called "genotype," which determines the modes of reaction that are manifested during development. Environmental influences (at first chemical and physical, later on also psychic and social) are the other factors that are concerned in the development of the single creature. The resultant of the interaction of these environmental influences on the one hand, and the inherited influences on the other, is the "realized organism," or, in the case of human beings, the "realized person." This realized person is sometimes spoken of as the "phenotype." The inherited or constitutional factors (genotype) are known as the "determination factors" in development, whereas the conditioning influences of the environment are known as the "realization factors" (Roux). The part contributed by the germ plasm to the phenotype is known as the "constitution" of the individual, whereas the part contributed by the environment to the same phenotype is known as his "condition."

Students of heredity have long been interested in tracing the mode of development of the realized qualities or traits from their potentialities in the gens. It now seems clear that, in this evolutive process, hormonal substances derived from the endocrine organs are of prime importance. The functioning of the endocrine glands during development depends in part on their genotypic origin and in part on the modifying influences exerted on these glands at different stages of development from the environmental side. It seems probable that a more exact understanding of racial peculiarities, of normal constitutional types or personal variants, and of pathologic anomalies of constitution will depend on our acquiring a more precise knowledge of endocrine activities during development.

The general dimensions as well as the relative proportioning of the body are certainly in large part dependent on the incretions acting as morphogenic stimuli. These stimuli determine not only the development of the skeleton and the closure of the epiphyseal lines but also the development of the soft parts. In a word, both the form relations and the functional manifestations of the phenotype are largely the result of endocrine activities. The origin of the bodily features and a whole series of local and temporal maturations depend in the developing individual on a correlative differentiation that is largely determined by the functioning of the endocrine glands. The special species characters, the special age characters, and the special sex characters of the realized person find their explanation here. So, too, the strange faults of composition of the human body, the various bizarre anomalies of constitution that we see, apparently owe their origin to endocrine disharmonies of the earlier developmental periods, disharmonies that are usually of genotypic origin, though they may sometimes, perhaps, be due to extraconstitutional, or so-called conditional, abnormalities.

The task of the endocrinologist in unraveling the specific influences of the single endocrine glands on growth and development is one of extreme complexity, but nevertheless one in the solution of which gratifying progress is being made. How far during intra-uterine life incretions derived from the mother (so-called "harmozones" of Gley) may reach the fetus and participate in morphogenesis (normal or pathologic) is a further task in which students of constitution and condition must sooner or later become interested.

INVOLUTION AND ITS ENDOCRINE RELATIONSHIPS

After the body and the psyche reach their acme of development as the result of a long series of evolutive processes, a reverse process gradually sets in, both body and mind being subject, no matter how good the constitution or how favorable the environment, to gradual but progressive involution. Physical and mental endurance lessen; the hairs grow gray or fall out; the skin becomes wrinkled; the teeth fall out; the stature lessens; the metabolic processes become retarded; interests change; desires begin to fail, and memory becomes uncertain. In other words, the person "grows old." Coincident with the appearance of these involutive phenomena there seem to be changes not only in the endocrine glands themselves but also in the terminal organs on which their products operate. In pathologic constitutions, in which the complex of gens in the genotype has been deficient, one or more of the involutive phenomena may prematurely appear. Doubtless, too, persons of normal constitution who have been exposed over a prolonged period to very unfavorable environmental influences may become the victims of a precocious senium. Some of the so-called heredofamilial diseases of the nervous system are probably examples of premature involutive processes affecting partial constituents of the organism, though how far, if at all, abnormal endocrine functions are responsible, we do not yet know. Exact studies of the various processes of involution and their relations to the incretions will provide an abundance of work in the future for investigators of normal and pathologic physiology.

CLINICAL RECOGNITION OF ENDOCRINE ABNORMALITIES

The clinical recognition of the endocrinopathies has been greatly aided by the observation of human beings in whom single glands have been removed surgically, have been severely traumatized, or have suffered destruction by disease. The findings in human beings have been manifoldly corroborated by experiments on animals. The studies of myxedema due to loss of the thyroid, of tetany due to loss of the parathyroids, of dystrophia adiposogenitalis due to injuries of the hypophysis, eunuchism due to loss of the gonads, of Addison's disease due to destruction of the suprarenals, and of diabetes mellitus due to injury to the islands of Langerhans, have thrown a flood of light on endocrine domains. Studies of overfunction and of dysfunction have been similarly rewarding. But various permutations and combinations of symptoms and signs that are possible in complex endocrinopathies make their study exceptionally difficult. We are only on the threshold of that knowledge that we hope ultimately to possess.

THERAPY OF THE ENDOCRINOPATHIES

Though the principles of therapy for the endocrine diseases are not hard to grasp, the application of these principles in practice is compulsorily restricted, owing to the fragmentary character of existing knowledge. When, through constitutional deficits, or through unfavorable conditional influences, disharmonies of the hormonopoietic system arise, and evidences of hyperfunction, of hypofunction or of dysfunction, of one or more of the single endocrine organs appear, therapeutic intervention may become desirable. Thus, in the various constitutional anomalies that seem to be dependent on endocrine imbalance, prophylactic measures may be undertaken with the object of maintaining the subjects of these anomalies within the limits of normal responsivity. We attempt by adequate measures to counteract in such persons the special disposition to disease that the constitutional anomaly entails. When a disease process has already developed, in other words, when an endocrinopathic personal variant has become incapable of satisfactory adaptation (state of irresponsivity), the physician may attempt to decrease function here, to increase function there, or to modify function elsewhere, in the hope of restoring balance, and of bringing the powers of personal adaptation again within the limits of normal responsivity. Thus, in hyperfunction of an endocrine organ it may be desirable to excise a portion of it, or to curtail its activity by diminishing its blood supply (ice-bag; arterial ligation); or, by means of a depressive radiotherapy or chemotherapy. On the other hand, in the case of hypofunction, it may become desirable to resort to organ transplantation, or to a substitution therapy (administration of gland substance, or of gland extracts, or of isolated hormones), or to attempt to revive a failing function by a dietetic hygienic regimen, or by mild stimulative radiotherapy.

The field for endocrine therapy is undoubtedly a large one, but how most effectively to work in it, we must slowly and painstakingly ascertain. Relatively little is gained, and much harm can be done, by reckless, ill-planned, fumbling attempts at incretory therapy. Much better is it to proceed patiently, cautiously and methodically, rigidly controlling every step, and faithfully recording our failures as well as our successes. Only slowly will it be possible to acquire the knowledge and the technic that will permit a physician properly to help the single endocrinopathic patient. As yet we are far from being able satisfactorily to disentangle in a given person the complex, interacting determination factors and conditioning factors that account for a given endocrinopathy. Adequate disentanglement of these factors is, however, the goal toward which we must strive.

SOME CONDITIONS CONTROLLING INTERNAL SECRETION *

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No one may now question the great influence of the glands of internal secretion on important physiologic processes. The growth of the body, the proper development of the nervous system, the appearance of secondary sex characters, the orderly sequences in the reproductive cycle, the nature and rate of chemical changes in the body—all these fundamental processes seem to be in the grip of the endocrine organs. Agents which can determine whether an individual shall be a giant or a dwarf, an idiot or a normally intelligent person, a "sissy" or a real male, a bearded lady or a woman; agents which are essential to normal metabolism—indeed, whose destruction may lead promptly to death—must evidently be respected.

There appears to be a tendency just now, however, to pay these glands not only respect, but reverence and homage and a blind worship. The endocrine organs are referred to as "regulators of metabolism" and as "regulators of personality," as if they occupied an imperious position in our internal economy, and the other organs were mere servants to do their bidding. This is a concept which is largely based, I believe, on the marked effects of either the destruction of endocrine glands or the development of tumors and other pathologic states within them. When a gland is destroyed it is gone forever, and its absence tells us nothing about how it worked or the modulations of activity it may have had. On the other hand, tumors *are* dictators in relation to the rest of the body, living riotously outside the law.

Thus, two extreme conditions, neither of them normal nor even remotely physiologic, have led to the assumption of an endocrine almightiness. Is that the mode of organization of the body? Is our internal government autocratically ruled by a czar or a kaiser or by groups of kings and princes, represented by the ductless glands, or is there a more democratic arrangement whereby influences pass to and fro among the various parts of the organization and, after many mutual adjustments, finally express themselves in function?

The physiologist regards the body in the latter sense—as a system of organs, each performing its service, each influenced by other organs and capable in turn of influencing other organs, and each having a use and a value only in relation to the others.

Questions now arise regarding the real status of the glands of internal secretion. If they have not the dominant position commonly assumed for them, how may they be subordinated? What influences can be brought to bear on them in such a way as to modify their activity? These are important questions to have answered—important because of the profound effects which the ductless glands themselves are capable of exerting. In a brief survey I propose to present some of the evidence for physiologic control of the internal secretions.

EVIDENCE FOR NERVOUS CONTROL

We now have evidence that at least the suprarenal medulla, the liver and the thyroid gland are subject to sympathetic nerve impulses. Stimulation of the splanchnic nerves causes a discharge of epinephrin from the suprarenal glands into the blood stream in an amount which markedly affects other organs. Such stimulation also liberates sugar from the liver. Uridil and I [1] have shown that under stimulation the liver yields another substance which raises blood pressure and causes an acceleration of the denervated heart. Furthermore, Smith and I [2] recently described experiments that confirm earlier work and testify to the efficacy of cervical sympathetic stimulation in calling forth a secretion from the thyroid gland.

It is well known that the sympathetic division of the autonomic system is brought into action by pain, asphyxia and great emotional excitement. That the three endocrine organs mentioned above may be strongly influenced by such conditions has been proved by numerous observations made both on experimental animals and in clinical cases. Extra epinephrin circulating in the blood when a sensory nerve is stimulated or signs of rage are evoked can be demonstrated by a faster beat of the denervated heart.[3] Emotional hyperglycemia or glycosuria, due doubtless to extra sugar freed from the liver, has been observed in cats disturbed by barking dogs, in students undergoing severe examination,[4] in aviators,[5] and in citizens terrorized by bombardments and air raids.[6] The thyroid likewise may be stimulated by painful and asphyxial conditions. Smith and I were able to obtain quite as striking results by such stimuli as we obtained by direct excitation of the cervical sympathetic strand. The considerable number of cases of exophthalmic goiter reported as occurring in consequence of stressful circumstances during the war [7] may perhaps be taken as additional indication of an influence on the thyroid gland exercised by the sympathetic nervous system.

Another gland which may be affected by nerve impulses is the posterior lobe of the pituitary. Weed, Cushing and Jacobson [8] have reported that stimulation of the superior cervical sympathetic ganglion induces glycosuria (even though all nervous connections with the abdominal viscera have been severed), and that the result fails to occur if the posterior lobe of the pituitary has previously been removed. In harmony with this result is Shamoff's testimony that the same stimulation induces, besides glycosuria, such diuresis as is induced by pituitary extract.[9] The inference that a hormone is discharged from the pituitary as a result of stimulation has been somewhat invalidated by Rabens and Lifschitz,[10] who were unable to produce glycosuria by stimulating under physiologic conditions or to modify the glycosuria due to ether. Furthermore, though Keeton and Becht [11] did augment the reducing substance in the blood by direct excitation of the pituitary, the effect was abolished by severance of the splanchnic nerves. A nervous control of secretion from the posterior lobe of the pituitary is therefore in question.

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* From the Laboratories of Physiology of the Harvard Medical School.

* Read before the joint meeting of the Section on Practice of Medicine, the Section on Pharmacology and Therapeutics, and the Section on Pathology and Physiology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Cannon, W. B., and Uridil, J. E.: Am. J. Physiol. **58**: 353 (Dec.) 1921.
[2] Cannon and Smith: Am. J. Physiol. **60**: 476, 1922.
[3] Cannon, W. B.: Am. J. Physiol. **50**: 399 (Dec.) 1919.
[4] Folin, Denis and Smillie: J. Biol. Chem. **17**: 519, 1914.
[5] Marañon, G.: Siglo. méd. **66**: 573 (July 19) 1919.
[6] Etienne and Richard: Revue méd., Oct. 12, 1918.
[7] Marañon, G.: Ann. de méd. **9**: 81 (Feb.) 1921.
[8] Weed, Cushing and Jacobson: Bull. Johns Hopkins Hosp. **24**: 40, 1913.
[9] Shamoff, V. N.: Am. J. Physiol. **39**: 279 (Jan.) 1916.
[10] Rabens and Lifschitz: Am. J. Physiol. **36**: 47, 1914.
[11] Keeton and Becht: Am. J. Physiol. **39**: 109, 1915.

Thus far, attempts to prove that internal secretion of the pancreas is subject to sympathetic impulses have proved futile. Allen[12] has testified to his inability to secure any indication of such nervous control, and von Noorden[13] has declared that he has not seen any influence of the excitements of war in producing true diabetes. Indeed, in the Central Empires, where the food shortage was marked, the deaths from diabetes were fewer toward the end of the war, despite the increasing nervous stress, than they had been at the beginning.[14] According to de Corral,[15] however, stimulation of vagus fibers below the branches to the heart results in a reduction of the sugar content of the blood. This research, not yet confirmed, offers the only hint of which I am aware that the islet cells may be governed by nerves.

Nervous control of ductless glands involves the idea that they, like other structures governed by nerves, have their activities adapted to the needs of the body at different times. That the organism survives and lives normally when nerves to the suprarenal[16] or thyroid[17] gland are severed is not proof that the nerves are useless, any more than the continued service of the denervated heart as a pump is proof that the vagus and accelerator nerves are useless. The nerves may have, in relation to the glands, just as in relation to the heart, a tonic action for routine purposes; and at times of critical need they may have a special, or what I have called an "emergency" function, capable of rapidly mobilizing the bodily forces, internal secretions included, for the welfare of the organism as a whole.

No better illustration could be given of the tendency to regard the internal secretions as supreme and the nervous system as quite subordinate than in the theory underlying the clinical conceptions of vagotonia and sympathicotonia. Indeed, Eppinger and Hess,[18] the authors of the theory, have concluded that "the entire vegetative nervous system is under the control of the glands of internal secretion." Epinephrin is, indeed, able to reproduce almost all the changes that occur when sympathetic impulses are discharged. It has been supposed, therefore, to exercise a tonic action on sympathetic endings. For example, the height of arterial pressure is assumed to depend on the constant discharge of epinephrin into the blood stream, and a low blood pressure is ascribed to "hypo-adrenia." In order to have an antagonist for epinephrin—some substance which would take command of the opposing forces—Eppinger and Hess have conjured up a hypothetic hormone, "autonomin," acting like pilocarpin and physostigmin on the nerve endings of the cranial division of the automatic system. This assumed entity, first predicated in 1910, has never had the fortune of a real existence. Nevertheless, clinical literature has been rife with descriptions of cases with vagotonic and sympathicotonic dispositions.

It is well to recognize that there is no good evidence that epinephrin has any tonic effect in maintaining blood pressure. Aub[19] has measured the pressure four or five days after removal of both suprarenal glands and found it normal. Since epinephrin disappears from the blood a few minutes after it is injected or secreted, the continued normal pressure cannot be due to persistence of that substance in the blood. Stewart and Rogoff[16] have severed the nerves to one suprarenal gland and removed the other. Practically no demonstrable amount of epinephrin is secreted under such circumstances, and yet the animals remained for months in quite good condition. Gley and Quinquaud[20] have shown that vascular reflexes occur fully as effectively with the suprarenal glands absent as they do when the glands are present. Furthermore, Hoskins and McClure[21] pointed out, years ago, that an amount of epinephrin required to cause a rise of blood pressure is sufficient to stop all motions of the stomach and intestine. A ridiculous mechanism it would be that would stop digestion in order to provide a few extra millimeters of arterial tension! There is no satisfactory evidence that, in natural quiet existence, the suprarenal medulla gives off any secretion whatever. In times of stress it is brought into action by nerve impulses and may, indeed, then support the influence of the sympathetic system, and have besides special functions of its own.[22]

The general arrangement of the sympathetic division is favorable to diffuse and widespread action in which a distributed chemical agent could participate. The vagus endings and the endings of the other parts of the cranial autonomic division lie in or near the organs innervated, and are therefore favorable to separate and discriminating action. By means of the general diffuse action of the sympathetic, and the opposite particular action of the parts of the cranial autonomic supply, every variety of change is provided for. All the viscera can be affected simultaneously in one way or the other through increased or decreased tone of the sympathetic division. And any special organ can be separately affected one way or the other through increased or decreased tone in the special nerve of the opposed cranial division that is supplied directly to the organ. The sympathetic is like the soft and loud pedals, modulating all the notes together; the cranial autonomic is like the separate keys.

A dilated pupil, for example, due to increased sympathetic activity attending excitement, should be accompanied by a rapid heart rate, vasoconstriction, stoppage of the motions of the stomach and intestine, and other evidences of widespread sympathetic influences. Epinephrin secreted at the same time would act synergistically with the nerve impulses. On the other hand, constriction of the iris by action of the motor oculi when the light is strong may not be accompanied by disturbance of any other part of the cranial autonomic supply to the viscera. Indeed, there is no conceivable advantage in having a mechanism in which strong light would result not only in a smaller pupil, but also in a slower heart rate and an increased tone of the gastro-intestinal tract. As one can readily perceive, a single substance, "autonomin," acting extensively, like pilocarpin, on cranial autonomic endings, might have most disorderly effects in forcing to operate coincidently and in an unadapted manner organs whose functions in calm existence are not importantly related to one another.

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[12] Allen, F. M.: J. Metabol. Res. **1**: 53 (Jan.) 1922.

[13] Von Noorden, C.: Med. Klin. **12**: 991 (Sept.) 1916.

[14] Magnus-Levy: Deutsch. med. Wchnschr. **56**: 1150, 1919.

[15] De Corral: Ztschr. f. Biol. **58**: 395, 1918.

[16] Stewart, G. N., and Rogoff, J. M.: J. Pharmacol. & Exper. Therap. **10**: 1 (July) 1917.

[17] Manley and Marine: Proc. Soc. Exper. Biol. & Med. **12**: 202, 1915.

[18] Eppinger and Hess: Vagotonia, English translation, New York, 1915, p. 9.

[19] Aub: Am. J. Physiol., to be published.

[20] Gley and Quinquaud: J. de physiol. et de path. gén. **17**: 807, 1918.

[21] Hoskins, R. G., and McClure, C. W.: The Adrenal Glands and Blood Pressure, Arch. Int. Med. **10**: 343 (Oct.) 1912.

[22] Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage, New York, 1915, p. 184.

The ill-based theory of vagotonia has almost no respectable evidence to support it. Not only the criticism of laboratory workers but also the testimony of clinical observers has done much to discredit it. Cases are cited in which patients are equally hypersensitive to epinephrin and pilocarpin,[23] in which pilocarpin, atropin and epinephrin produce practically identical effects on the blood,[24] in which both atropin and epinephrin will stop auricular fibrillation,[25] and in which careful studies on various bodily functions showed no consistent sensitization to either the "sympathicotonic" or the "vagotonic" drugs. In the presence of the foregoing evidence, "vagotonia" becomes merely a name—a name which, as applied to the entire cranial autonomic division and presupposing a general reinforcing and vagotonic hormone, is wholly without meaning.

Reference was made above to the fact that activity of the sympathetic system may be varied up or down. Strong stimulation of an afferent nerve will cause vasoconstriction and other indications of diffuse sympathetic discharge, including suprarenal secretion. On the other hand, stimulation of the central end of the depressor nerve will cause vasodilation and a checking of any suprarenal secretion which may be going on.[26] Quite possibly, therefore, conditions may exist in the body, characterized by either greater or less sympathetic tone than normal; but such states would not be determined by independent dominance of suprarenal secretion, for, as shown above, lack of any secretion at all does not lessen the efficacy of sympathetic impulses, and extra secretion is ordinarily dependent on the effect of nerve impulses. The condition of the nervous system, not of the suprarenal medulla, therefore, is of primary moment.

In the foregoing review, evidence has been adduced to show the subjection of certain endocrine glands to nervous government. This emphasis, however, should not be interpreted as implying an independent dominance of the nervous system, for it, like other systems, is conditioned in its activities. Again I wish to lay stress on the fact that the body is an organism, and that the parts collaborate and exercise mutual influences on one another.

EVIDENCE FOR HUMORAL CONTROL

Nerves have been described as present in other of the endocrine glands than those mentioned above—for example, in the anterior lobe of the pituitary body[27] and in the parathyroid bodies.[28] On the other hand, it is reported that no nerve fibers are distributed to the interstitial cells of the testis, and very few to the suprarenal cortex. Nevertheless, both these structures may undergo hyperplasia, associated, at least in the case of the interstitial tissue, with seasonal depression at times of sex activity.[29] Evidently some other mode of control besides nerve impulses must prevail in such conditions. And since the blood stream alone brings the glands into relation with other parts, it is naturally assumed that the influences affecting the glands and passing away from them are conveyed in the circulating blood. In other words, the influences are of the humoral type.

The presence of a nervous control of internal secretion does not preclude a humoral control. Thus, the heart and the stomach and intestine are readily influenced by nerve impulses. But they are likewise affected by epinephrin discharged by the suprarenals, i. e., by a humoral agent. Also the thyroid, though subject to nerve stimulation, is responsive to chemical factors brought by the blood. For example, Cattell and I[30] found some years ago that stimulation of a discharge from the suprarenal medulla would cause an electrical action current in the thyroid.

When we begin to consider the evidence for interrelation of the ductless glands, we find ourselves in a maze of complex possibilities, contradictory reports and uncertain inferences. Much of the evidence is derived from distant effects of ablation or destruction of one or more of the glands, or from changes due to tumor growth, or to feeding gland substance. None of these circumstances can be regarded as physiologic. The results may be suggestive of *some* relation between the gland removed, or abnormal, or fed, and the other gland or glands which are altered thereby. But it is hazardous to draw inferences from pathologic states relative to physiologic processes. And even if there is *some* relation, we have not made satisfactory progress until we know what the relation is, the way it works and its full significance. If we knew nothing of the function of the heart and as much as we now know about the endocrine organs, we might be led to infer that the semilunar valves exercise an inhibitory influence on the growth of the heart; for does not destruction or injury of the valves result in an enlargement of that organ? Do we reason any better than this in many of our inferences from the effects of experimental removal of the endocrine organs? We know almost nothing, for example, about the normal functioning of the suprarenal cortex. Several observers have confirmed Hoskins'[31] observation that feeding thyroid gland enlarges the suprarenal body, especially the cortical portion, according to Herring.[32] It is reported to be enlarged also by starvation[33] or by a diet deficient in vitamins.[34] And Gley[35] and also Carlson[36] have found enlargement of the suprarenal bodies after removing the thyroid glands. Is the enlargement due to stimulation by the thyroid, or is it compensatory to increased metabolism, or is it a biologic response conservative of important bodily material when the supply is low or is being rapidly consumed? These are some of the possibilities. Certainly, in the presence of these complexities one has no clear idea of thyroid influence on suprarenal function.

Possibly too much emphasis has been laid on mere changes of size. More than thirty years ago, Rogowitsch[37] first noted that thyroidectomy is followed by hypertrophy of the pituitary body. This observation has been confirmed by numerous investigators. Kamo,[38] who removed the thyroid from young dogs, found, after a few months, marked pituitary enlargement, even to more than twice the normal size, manifested chiefly in the anterior lobe. We commonly associate hypertrophy with extra activity, and we have evidence that extra activity of the anterior lobe of the pituitary body is attended by an overgrowth of the skeleton. Animals deprived of the thyroid, however, are stunted in growth. Here we have an instance of hypertrophic change in one gland induced by removal of another, but with no corresponding hyperfunctional effect.

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[23] Lehmann: Berl. klin. Wchnschr. **56**: 772, 1919.
[24] Friedbery: Deutsch. med. Wchnschr. **46**: 480, 1920.
[25] Loeffler: Schweiz Arch. f. Neurol. u. Psychiat. **8**: 177, 1921.
[26] Cannon, W. B., and Rapport, D.: Am. J. Physiol. **58**: 338 (Dec.) 1921.
[27] Berkeley: Brain **17**: 515, 1894.
[28] Schäfer: The Endocrine Organs, London, 1916, p. 24.
[29] Tandler and Grosz: Arch. f. Entwicklungsm. **33**: 297, 1911.
[30] Cannon, W. B., and Cattell, M.: Am. J. Physiol. **41**: 74 (July) 1916.
[31] Hoskins: Am. J. Physiol. **26**: 426, 1910.
[32] Herring: Quart. J. Exper. Physiol. **11**: 47, 231, 1917.
[33] Byrne, C. H. C.: Brit. M. Jour. **2**: 135 (Aug. 2) 1919.
[34] McCarrison, R.: Brit. M. J. **2**: 236 (Aug. 14) 1920.
[35] Gley: Arch. internat. de physiol. **14**: 175, 1914.
[36] Carlson, A. J., in discussing Cannon, W. B.: Results of Recent Studies on Ductless Glands, J. A. M. A. **67**: 1483 (Nov. 18) 1916.
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[38] Kamo: Jap. Med. Lit. **3**: 33, 1918.

Perhaps we shall have clearer signs of the cooperation of the endocrine organs if we consider briefly the influence of various representative glands on a common function. For illustrative purposes I propose to call attention to some of the effects of the glands on certain bodily processes, which were mentioned earlier —growth, reproduction and metabolism.

The relation between overgrowth of the skeleton, as in gigantism and acromegaly, and hyperplasia of the anterior lobe of the pituitary, is now fairly well established. Extra skeletal growth is also associated with early castration. On the other hand, both clinical and experimental studies point to early pituitary deficiency as causing failure of bony development. This form of dwarfism is characterized by both short and slender bones. A third gland whose function is essential to growth is the thyroid, for in its absence the stature is stunted. Here are three endocrine organs, all having marked influence on the attainment of normal size. One could readily speculate as to how they influence one another—the pituitary and thyroid appearing to work cooperatively and the gonads acting as a check on them—but we need facts rather than speculation.

Reproduction depends on the gonads, of course, but it also depends on the thyroid and the pituitary glands. If the young animal is deprived of either the thyroid or the pituitary, the generative organs are only slowly or imperfectly developed, so that a condition of sexual infantilism persists. Hyperplasia of the pituitary, and also of the suprarenal cortex, in the young, is sometimes associated with precocious sexual maturity and activity. Both the thyroid and the suprarenal cortex become enlarged during pregnancy. Thus, the evidence seems to point to the thyroid and the pituitary glands and to the suprarenal cortex as factors essential to proper establishment of the reproductive function, and also possibly collaborating, in the female, in the performance of that function.

The pancreas, the suprarenals and the liver primarily, and likewise the thyroid and the pituitary, are all concerned with carbohydrate metabolism. As is well known, excision of the pancreas results in diabetes, stimulation of the liver or injection of epinephrin increases the sugar in the blood, and removal of either the thyroid or the pituitary raises the assimilation limit of sugar. Diabetes is occasionally associated with acromegaly and with exophthalmic goiter. Probably all five of the glands mentioned above either cooperate or form a fairly stable combination of opposed influences. But, again, how these organs are interrelated in their effects on metabolic processes is not at all clear.

In the foregoing paragraphs I have merely hinted at some of the signs of cooperation among certain endocrine glands. My purpose in doing so was to make the point that here, just as in the nervous government of internal secretion, there are indications that we are dealing with arrangements which are normally well ordered and subject to automatic control. Bodily functions are managed by a system of checks and balances—by mutual adjustments such as those between antagonistic muscles, and by maintained equilibria, such as those between material income and outgo, and between acid and base in the blood. We are justified by what we already know of bodily organization in looking for similar modes of restraining and releasing the internal secretions. If the endocrine glands are regarded as the regulators of important physiologic processes, normally they are well regulated regulators. Much work must still be done, however, before we shall know the mechanisms whereby the control of these agents is exercised. But the work is highly important because of the potency of the endocrine organs when they are deficient or when they escape control and through pathologic activity play havoc with our internal adjustments.

THE RELATION OF THE INTERNAL SECRETIONS TO METABOLISM *

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Among the various functions ascribed to the glands of internal secretion, the regulation of metabolism ranks high. Not only is it a very important part of their activity, but it is also the function about which the greatest and most accurate knowledge has been accumulated. Of course, the general regulation of metabolism is not wholly controlled by the glands of internal secretion, for there are many other factors which exert influences which cannot now be ascribed to the activity of these glands. Examples are found in the effect of exercise, the specific dynamic action of foodstuffs, fasting, sleep, etc., and it therefore cannot be assumed that these endocrine glands absolutely control the rate of metabolism. But there can be no doubt that their general influence is great.

As far as our knowledge goes, this influence is largely exercised on the heat production as a whole rather than on individual components of metabolism, such as the carbohydrates or salt. This is not true of all of the glands. The pancreas has a differential action and exerts its regulatory effect largely upon the utilization of carbohydrate. It is also possible that the parathyroids have some isolated influence on the metabolism of inorganic salts.[1] It is also true that the metabolic effects of other glands may be developed predominantly from one foodstuff, as in the combustion of carbohydrate after the administration of epinephrin;[2] but, in general, apart from the action of the pancreas and the parathyroids, the effect on the total rate is a fairly good index of the general influence of the glands on the body metabolism, at least as far as we know.

The effect of each gland on the metabolic rate has been the subject of considerable recent investigation, so that a short summary of the work is difficult. It is probably true that many glands credited with various effects produce these effects by indirect reactions on other glands, so that they are really merely indications of interrelationships. The problem of interrelationships among these endocrine glands is difficult and

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* From the Laboratories of Physiology of the Harvard University School of Medicine.

* Read before the joint meeting of the Section on Practice of Medicine, the Section on Pharmacology and Therapeutics, and the Section on Pathology and Physiology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

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[2] Boothby, W. M. ,and Sandiford, I.: The Relationship of the Increase in Blood Sugar Concentration to the Specific Dynamic Action of Glucose and to the Specific Dynamic Action of Adrenalin, Am. J. Physiol. **55**: 293-294, 1921.

should be discussed only when based on careful experimental data. It is with this point of view in mind that I shall undertake, first, to show that probably only two glands, the thyroid and the suprarenals, are fundamentally and chiefly involved in the regulation of the total metabolic equilibrium; and, second, to suggest the mechanism of their action as fully as present knowledge will permit.

A summary of the literature discloses the fact that there are four glands to which are attributed an influence on the rate of metabolism.[3] Of these, the thyroid gland stands preeminent, and its stimulating action is so well known that further discussion is not essential here. The gonads are also a factor, although a minor one. Their removal is followed, after a period of about three weeks, by a fall in metabolism, as has been shown by Loewy and Richter,[4] Luethje,[5] Murlin[6] and others. Korenchevski,[7] taking the data of his pupil Rovinski,[8] showed that this fall of metabolism after castration largely disappeared if the thyroid gland was first removed. He therefore concluded that the effect of the gonads on metabolism was accomplished through an interrelation with the thyroid gland, and that the lowered metabolism following castration was due to a depression of thyroid secretion rather than directly to absence of the gonads.

The influence exerted by the anterior pituitary is similar to that of the gonads, in that, after extirpation, there is a gradual reduction of the basal metabolic rate. This was first shown by Benedict and Homans.[9] Sometimes one finds, clinically, changes in the rate of metabolism of patients with active disease of the pituitary; but this is not a constant finding. Boothby has recently stated (at the Society of Clinical Investigation) that, in his experience, these changes in acromegalias were always found in those patients who also showed some thyroid involvement. It is therefore possible, although it has not been finally proved, that the metabolic effects of the pituitary are accomplished through the thyroid just as, probably, in the case of the gonads. Administration of the glandular products of these two, however, has not affected the metabolism consistently, and further work needs to be done along these lines.

The fourth organ which regulates the metabolism is the suprarenal. This is a recent discovery. Most of the work on this subject has been of a pharmacologic nature, by the subcutaneous and intravenous injection of large doses of epinephrin, as in the experiments of Tompkins, Sturgis and Wearn,[10] Sandiford[11] and others. Their results have shown that there is an invariable rise of metabolism, which develops and disappears within a period of minutes. Boothby and Sandiford showed that this could not be explained by a mere mobilization of glucose.[2] These pharmacologic observations suggested that the secretions of the suprarenal glands, as they occur physiologically, might play a rôle in the regulation of metabolism; and Miss Bright, Dr. Forman, Dr. Uridil and I[12] have studied this possibility. We found that removal under ether anesthesia of the suprarenal glands of cats was followed by a rapid reduction of the metabolic rate. This occurred while the animal was still in good condition, and persisted until the final collapse.

At the meeting at which these experiments were reported, Marine[13] announced his results with rabbits: he laid stress on a belated and temporary increase in metabolism, which he has subsequently[14] interpreted as due to secondary thyroid activity. We have not investigated the transient rise in metabolism which he reports; but we have studied the fall of metabolism obtained so definitely in cats. It was found that if the suprarenal glands were removed under urethane anesthesia, the fall in metabolism appeared shortly and tended to progress. In these experiments, the cat remained in an anesthetized condition throughout the entire observation. The observed fall in metabolism was not affected by injections of extracts of the suprarenal cortex, but could be eliminated by intravenous injection of epinephrin administered at a rate which is said to be physiologically probable in life, according to Stewart and Rogoff,[15] and Cannon.[16] This has recently been confirmed by Boothby and Sandiford[17] in the dog with intact suprarenals. Such results are certainly good evidence that the suprarenal glands may play a part in the variation of the metabolic rate by means of the normal secretion of epinephrin. Clinical evidence for this is not so readily found, but it is probably seen in the high metabolic rates often found in the first observations made on excited patients. It is not rare to find an untrained nervous subject who is emotionally disturbed by the procedure of the test. Such patients may then show a higher metabolic rate than they display later, even though they remain quiet. According to the emergency theory of Cannon,[18] it is during such excitement that epinephrin would be secreted. In the few cases of Addison's disease reported with metabolic studies, evidence of reduced metabolism has been shown either by the nitrogen elimination or by the basal metabolic rate; but these cases are still too few to generalize about.

Are the metabolic effects of thyroxin and epinephrin independent? Marine[19] has shown that the increase

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of metabolism which follows the injection of epinephrin may be obtained in animals which have been previously deprived of their thyroid glands. Similarly, we have shown that the reduced metabolic rate following suprarenalectomy under urethane and the stimulating effects of epinephrin when it is injected at a physiologic rate are demonstrable in animals either with or without the thyroid gland. It is therefore clear that the thyroid gland is not an essential factor in the action of epinephrin on metabolism. That the converse of this is true, that the suprarenal glands are not essential for the continued stimulation of metabolism by thyroxin, may be shown in the following manner: The metabolic rate is raised above normal by the injection of thyroxin. If the suprarenal glands are now removed, the metabolic rate does not fall to normal but is maintained at a high level for many hours, so that the high metabolic rate in hyperthyroidism is not dependent on the presence of the suprarenal gland or its secretions. It is therefore fair to assume that the calorigenetic effects of thyroxin and epinephrin are distinct and not interdependent. The time relations of their actions also differ distinctly. Studies at the Mayo Clinic first revealed that the metabolic effects of the injection of thyroxin are manifest only after many hours and last for days. Epinephrin, on the contrary, produces effects within minutes, not hours, and likewise loses its influence after a brief period. All these facts have led me to the theory that there is a double endocrine mechanism for regulating the metabolic rate; that some of the acute fluctuations of basal metabolism may be ascribed to the influence of the suprarenal glands, and that the thyroid is more sluggish, but probably more important in its regulatory action.[12] Such a mechanism would be analogous to the control of the acid-base equilibrium of the blood, as demonstrated by L. J. Henderson, in which the lungs and kidneys share the burden, the lungs making the necessary immediate adjustments by the excretion of carbon dioxid, the kidneys, acting more sluggishly, by the excretion of phosphates.

What is known about the way in which these hormones accomplish their metabolic effects? This is a field in which further investigation is needed. Most work has been directed to determining the nature of the metabolic effects rather than to determining how they are accomplished. But we do know some facts. Thus it has been found by Lovatt Evans [20] that epinephrin will stimulate the isolated heart to more rapid contractions and to a markedly increased metabolism. Recently, Martin and Armitstead have shown [21] that an isolated resting muscle has a higher metabolism, as denoted by acid production, when in the presence of epinephrin than when no epinephrin is present. These two experiments point to the action of epinephrin as a direct one, capable of influencing metabolism by affecting peripheral muscle tissue directly, as Boothby suggested. There is apparently no need of the central nervous system or of other internal secretions as accessories to its stimulating action, but it must work as a direct metabolic stimulant either on the nerve end plates or on the muscle cells themselves.

No such clear evidence exists, however, in support of the theory that the thyroid acts on cells by stimulating them directly to increased heat production. It is, of course, a more difficult problem because there is so long a latent period before thyroxin manifests its effects, so that no rapid experiments can be made. One might determine the metabolism of an isolated muscle, then make the animal thyrotoxic and determine the metabolism of the opposite corresponding muscle. This has not yet been done, so far as I know, so that the actual method by which the thyroid secretion stimulates metabolism is not yet known.

The acute effects of a thyroid preparation on the isolated heart were studied by Richardson,[22] and later by Kakehi [22] in Asher's laboratory. They could see no prompt effect from the presence of the thyroid alone on either the amplitude or the rate of the heart beat, but they did not study the metabolism. It is probable that no immediate effect would be elicited, however, because of the latent period in the metabolic action of the thyroid. Therefore, the theory of the general action of thyroxin directly on cells still needs an experimental basis. We have, however, been able to study the metabolic effects of hyperthyroidism, particularly in regard to the rôles played by activity, tremor and muscle tonus.

Marie Krogh,[23] in a preliminary report published some years ago, suggested that muscle tonus might be the factor in the increased metabolism, and many have often thought, I am sure, that the stiking evidences of muscular activity might explain the high metabolism in thyroid disease. We studied animals rendered thyrotoxic by the injection of thyroxin. Their metabolism rose in a few days to a level usually more than 50 per cent. above their previous basal values. When urethane anesthesia was then induced, and the metabolic rate again determined, it was found that the level remained high in spite of the fact that there was no muscle tremor and no activity other than cardiorespiratory movements. If now the nerves to the limbs were cut, the possibility of any tonus arising from either myelinated or sympathetic nerves was practically eliminated. Even this procedure did not cause the metabolism to return to its original level. It is therefore quite clear that neither activity nor muscle tremors nor muscle tonus explains the high metabolism found in hyperthyroidism.

To show how fundamental are the metabolic effects of these two internal secretions, it is interesting to note, here, that they may still be found under urethane anesthesia, although the metabolic stimulation from caffein or amino-acids has then disappeared.[24] What the significance of this difference is, however, cannot be analyzed at present. And so we return to the conclusion, often suggested, that the effects of both epinephrin and thyroxin on the metabolism are probably similar to that of increasing the draft under a fire. This is fairly clearly established for epinephrin, but needs further evidence for the action of thyroxin. It is true that the evidence brought forward in this paper has related largely to the two active substances which have been isolated from the thyroid and the suprarenals. They probably have at least one more secretion: that derived from the suprarenal cortex. Extracts from it have had no acute effects on metabolism in our hands, and its function remains mysterious, although essential to life. Whether it, too, has a metabolic function remains to be proved.

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CONCLUSIONS

1. Apparently, the two glands which most influence the total metabolism are the thyroid and the suprarenal (probably by epinephrin).

2. The mechanism of their actions are independent. Collected evidence shows that the calorigenetic action of thyroxin is manifest without the suprarenals; that of epinephrin is present without the thyroids.

3. The theory is advanced that the suprarenals exert acute effects, while the thyroid is the more sluggish regulator of the metabolic rate.

4. The method of action of thyroxin and epinephrin on the body tissues has been discussed.

HYPOFUNCTION AND HYPERFUNCTION OF THE DUCTLESS GLANDS *

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It is difficult, if not impossible, to present the subject of endocrine dysfunction in a brief article, without appearing to be both ignorant and dogmatic; ignorant of many alleged facts, because time does not permit giving the reasons for their rejection, and dogmatic because practically every statement made in regard to the ductless glands today requires qualification, which is, for the most part, ruled out by the time limit. Furthermore, I take part in this discussion with the diffidence of a man whose personal experience is limited largely to the experimental side of the subject. However, I have a fair acquaintance with the entire endocrine literature, in both the field of science and the field of fiction, and I take for granted that we all subscribe to the principle that the rules of evidence or criteria for facts are the same in the experimental and in the clinical fields.

HYPOFUNCTION

When the ductless glands are so situated that they can be surgically extirpated, in whole or in part, without injury to important adjacent organs, the extirpation of these glands in the healthy animal gives us the most reliable information regarding the results of hypofunction of each specific system. The hypofunction syndrome may be complex and may gradually involve endocrine organs other than those extirpated, but the initial cause can with certainty be referred to absence of the function normally carried out by the organ which has been removed. This ideal anatomic condition obtains in the case of the thyroids, the parathyroids, the pancreas, the thymus, the ovaries and the testes. In most animals, the cortex and medulla of the suprarenal glands are so closely fused that it is difficult to extirpate the one without grave injury to the other. This applies also to the two (or three) systems that make up the pituitary gland. Furthermore, the location of the pituitary and the pineal glands within the cranial cavity and close to the midbrain renders it difficult to extirpate these organs without injury to the base of the brain, and tumors or cysts in these glands practically always involve brain injury by pressure.

Extirpation experiments in healthy animals have thus established the following general facts:

Loss of the thyroid is followed by cretinism in the young and myxedema in the adult. But it should be noted that some of the myxedema symptoms following hypothyroidism in man are not readily produced even by complete thyroidectomy in the healthy adult animal.

Loss of the parathyroids induces depression, tetany and death in a few days, unless the animal is subjected to special dietary and diuretic control.

Loss of the pancreas leads to absolute diabetes and death from diabetes (in the dog) in from four to seven weeks.

Loss of the testes is followed by persistent sexual infantilism in the young, and in the adult by loss of the sex urge and sex functions, and by gradual atrophy of most of the secondary sex characters.

Loss of the ovaries results in persistent sex infantilism in the young and in premature menopause and gradual atrophy of most of the secondary sex characters in the adult.

Loss of the suprarenal medulla induces no symptoms and no disease, according to the most reliable observations.

Loss of the suprarenal cortex causes profound prostration and death within a few days, in what appears to be acute Addison's disease.

Loss of the posterior lobe of the pituitary gland appears to produce no definite symptoms. There are competent investigators claiming that this lesion induces diabetes insipidus and disturbance of metabolism, while equally good workers hold that diabetes insipidus is caused by injuries to the base of the brain outside the hypophysis. The question is not settled.

Loss of the anterior lobe of the pituitary gland appears to produce impairment of growth and infantilism in the young, and in the adult a tendency to adiposity and somnolence, with atrophy of the gonads and failure of sex functions. According to one group of investigators, complete extirpation of the anterior lobe leads to death, in profound depression, in a few days; while another group of equally competent men claim that such deaths are due, not to the loss of the gland, but to injury to the base of the brain. This question is open. But all workers are agreed that almost complete loss of the anterior lobe (including unavoidable injuries to the base of the brain) leads to hypopituitary infantilism, at least in a percentage of the animals so operated on.

Extirpation of the pineal gland causes no symptoms. The loss of the spleen or the duodenum is also without endocrine effects. Extirpation of the thymus produces no effect, except perhaps slight hastening of adolescence in the young.

Time does not permit a further analysis of the hypofunction syndromes just outlined. The hypothyroid and the hypopituitary syndromes are particularly difficult to evaluate or diagnose because of the variability of some of their major elements. We must, therefore, clearly recognize that while the terms cretinism, myxedema or hypopituitary infantilism are permissible and useful in relation to primary etiology, these terms cannot be used as formulas representing facts established, and hence as a certain basis for therapy. A cynical judge once asked, "What is truth?" but did not tarry for an answer. The question, What is hypothyroidism or hypopituitarism may be laughed out of

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* Read before the joint meeting of the Section on Practice of Medicine, the Section on Pharmacology and Therapeutics, and the Section on Pathology and Physiology, at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

court as "academic," or as already settled by this audience of "practical men"; but I raise it nevertheless as a challenge to those who would sacrifice honesty for short cuts to commercial success, and those who would practice the trade of the quack under the protecting cloak of membership in an honorable profession.

These extirpation experiments on healthy animals, from embryos to adults, permit the following generalizations:

1. Each system of ductless glands appears to be essentially identical in function in all classes of vertebrates. This fact renders it highly probable that corresponding glandular hypofunctions in man will induce similar syndromes. We know that this is the case in regard to the gonads, from the effects of gonadectomy in healthy men and women.

2. None of the ductless glands appear to work to full capacity under normal conditions, since from three quarters to seven eighths of each gland system may be removed in the healthy animal without producing any deficiency symptoms. This is a very disturbing factor in the clinical field when we attempt to relate the histopathology of the ductless glands to the patient's disease.

3. No matter what changes in the way of atrophy or hypertrophy may be induced in the remaining ductless glands on extirpation of any one gland system, the essential effects following distinct hypofunction of each gland system appears to be specific for that system. In other words, extirpation experiments on healthy animals afford little or no evidence of substitution or vicarious functioning by the ductless glands that remain in the animal.

4. The symptoms produced by the extirpation of the ductless glands in healthy animals can be interpreted either on the hormone theory or on the detoxication theory.

5. No chemical methods are at present available by which we can demonstrate the presence of hormones and their quantitative variations in the blood and tissues, or even in the glands themselves. The iodin in the thyroid appears to be somewhat of an index of the thyroid secretion. We can make iodin determinations of the blood, the lymph, and the other tissues of the body, but we cannot conclude that the iodin found represents thyroidin and this only. We have chemical tests for epinephrin, but epinephrin is probably not a hormone.

In regard to the possibility that some, if not all, of the ductless glands may work on the principle of detoxication, it is equally true that we have no chemical tests for the toxins in the blood and tissues that may be responsible for the hypofunction syndromes, except possibly in the case of the parathyroids. Recent work seems to demonstrate that the tetany and death following extirpation of the parathyroids are due to toxic protein derivatives produced by the action of the colon group of organisms on the animal proteins of the food. Some of these toxic protein derivatives can be chemically isolated. The foregoing facts may be stated positively by saying that, so far, the tests for hypofunction of the ductless glands are indirect or biologic.

6. The relative immunity of some individuals to complete or nearly complete extirpation of some of the ductless glands is usually explained by the age factor (the young being less immune) and by abberrant or accessory glandules. That accessory glandules of some of the systems frequently occur is well known, but we question the adequacy of these explanations for all the exceptions.

In the clinical field, results fairly comparable to those following extirpation of endocrine systems in healthy animals are produced by clearly destructive lesions in single gland systems. Such lesions as tuberculosis, cystic degeneration, fibrosis, or atrophy, when including all or nearly all of the glands, are practically equivalent to extirpation with the knife, provided the lesions are strictly localized. Such strict limitations of destructive lesions are rarely found in postmortems, especially in persons past from 30 to 40 years; but when they are established, we have what may be called frank hypofunction, and the etiology of the syndrome is just as clear as in total or partial extirpation of a one gland system in healthy animals. In this way, the combination of careful clinical observations and postmortem studies have proved that hypothyroidosis and athyroidosis lead to cretinism and myxedema; that total or nearly total destruction of the suprarenal cortex leads to Addison's disease and death; that sufficient cystic degeneration of the hypophysis is followed by infantilism, and that marked destruction of the pancreas induces diabetes. Castration and spaying produces the same effects in man as in experimental animals, with the additional factors of nervous disturbances of the menopause and, probably, in some males, purely subjective effects in the way of feelings of regret or melancholia.

There is no reliable evidence that hypofunction of the suprarenal medulla induces deficiency symptoms. The theory of "suprarenalemia" as a clinical entity or disease is an illustration of where mere logic may lead us, when the major premise is an error.

The foregoing clinical conditions may be designated as frank hypofunctions of the ductless glands; and when the gland lesions approach complete destruction or atrophy, diagnosis can usually be made with a fair degree of certainty. I make this statement with a good deal of hesitation, particularly in connection with the thyroid and the hypophysis. Most of us have accepted as demonstrated facts the view that the thyroid secretion has a direct stimulating action on the basal metabolism, and that increase or decrease of the thyroid secretion in the body can be demonstrated by changes in the metabolic rate, at least as early and as clearly as any of the other changes in body functions that are supposed to be due to quantitative changes in the thyroid secretion. But now come apparently reliable clinical reports to the effect that: (1) so-called hyperthyroidism or toxic goiter may be present with a normal metabolic rate, and (2) hypothyroidism or myxedema may be present and parallel with a high, a low or a normal basal metabolism. If these are facts, it is clear that the present basal conceptions of thyroid physiology must be revised. But first let us make sure that these new observations are really facts. And, in the meantime, let us be still more careful in the diagnosis of clinical hypothyroidism and hyperthyroidism.

If our foundation is so shaky in clinical cases of what appears to be frank hypofunction of the ductless glands, what can we expect in only slight degrees of hypofunction? Here we have no aid from the macroscopic and microscopic conditions or chemical analysis of the glands, as such conditions are chronic rather than speedily fatal; and even when the glands or part of a gland is available for study, the interpretation of the histologic findings is mostly conjecture.

The other serious difficulty in the recognition of slight degrees of endocrine hypofunction is the fact that, in the case of some of the endocrine systems, the hypofunction must be considerable before the syndrome becomes clearly specific. This applies particularly to most of the nervous manifestations of endocrine hypofunction. Slight nervous disorders, slight gastro-intestinal disorders, slight disorders of metabolism, slight disorders of the sex life, seem to be produced by conditions in which evidence for primary endocrine etiology is lacking.

ALLEGED ENDOCRINE HYPERFUNCTION

The question of endocrine hyperfunction is not of as great importance in medicine as that of hypofunction, in view of our present knowledge. Hyperfunction must, of course, be considered in connection with the alternative theory of dysfunction or toxic secretion. The question of hyperfunction has no meaning or application in glands that work by detoxication.

1. Spontaneous endocrine hyperfunction is unknown in experimental animals. Much work has been done in the attempt to produce experimental hyperthyroidism in animals by thyroid feeding. Large doses of thyroid extract produce some of the symptoms of toxic goiter, such as increased metabolism, tachycardia, emaciation and gastro-intestinal disturbances. The nervous and ocular manifestations of toxic goiter are not produced.

2. In man, endocrine hyperfunction is assumed by many people as a causative factor in:

(1) Toxic goiter (the thyroids); (2) acromegaly (the hypophysis, anterior lobe); (3) hypertension (the suprarenal medulla and the thyroids); (4) precocious puberty (the suprarenal cortex, the hypophysis and the pineal gland); (5) diabetes (the thyroid); (6) excessive sex urge (the gonads); (7) excessive menstruation (the ovaries or the corpus luteum).

Now, what are the facts? In the first place, mere increase in the size of glands, mere hyperplasia, does not mean more gland activity or more secretion. We have thyroid hyperplasia and thyroid adenomas without physiologic disturbances, yet the size, structure and chemistry of the thyroid appear identical to these facts in toxic goiter. Biologic and chemical tests of the blood at present are not delicate enough to detect the thyroid secretion or quantitative variations of the secretion. The colloid and iodin of the thyroid is usually reduced in toxic goiter, but this is also the case in thyroid hyperplasia associated with no toxic symptoms. Furthermore, the reduced quantity of iodin, thyroglobulin or thyroxin in the gland may mean that the gland is producing more secretion; it may also mean that the gland produces less secretion. It is a fact that excessive thyroid feeding induces in man some of the symptoms of toxic goiter. Apart from this, the results of medical and surgical management of toxic goiter can be equally well explained on the basis of a toxic or perverted secretion. This theory, moreover, is not inconsistent with the existence of myxedema and toxic goiter symptoms in one person at the same time. This condition is difficult, if not impossible, to explain on the theory of hypersecretion. The primary relation of exophthalmic goiter to the thyroid may not be cleared up until complete thyroidectomy is made in a well controlled series of patients having toxic goiter. I believe this can be done without harm to the patient, if one or two parathyroids are spared or the parathyroprival symptoms are controlled by diet and diuresis and possible myxedema controlled by thyroid feeding. There are plenty of patients with toxic goiter showing little or no improvement on either surgical, roentgen-ray or medical therapy. Such patients would probably be better off with some myxedema than with severe exophthalmic goiter, and the medical profession would have taken a step forward through knowing with certainty the primary relation of the thyroid to toxic goiter.

We encounter similar difficulties in the relation of pituitary hyperplasias and tumors to acromegaly. We know for a fact that hypophysial adenomas or hyperplasias are associated with acromegaly, just as thyroid hyperplasias are associated with exophthalmic goiter. But the causal connection between the gland enlargement and the disease is obscured by the fact that we have hypophysial hyperplasias and tumors with acromegaly, and acromegaly without tumors of the hypophysis. Nothing resembling acromegaly has so far been produced experimentally by administration of hypophysial preparations. And the final difficulty is the condition of unilateral acromegaly, a fact that appears irreconcilable with the simple excess hormone theory of causation.

We may now ask whether any of the disorders of the sex life have been found to be due to hyperfunction of the gonads? If we could uncover the processes of life by logic alone, we might conclude that, since gonadectomy or frank gonad hypofunction decreases or abolishes nearly all manifestations of sex, excessive manifestation of the sex urge, of menstruation and of the nervous activities more or less specific for sex life are due to hyperfunction of the gonads. There is little or no support for such a conclusion from either the clinic or the laboratory. It is true that ovariectomy will stop menorrhagia, just as it will stop normal menstruation. Does that prove that menorrhagia is caused by ovarian hypersecretion? Not at all. The menstrual disturbance is just as readily explained by the action of qualitatively and quantitatively normal ovarian hormones on mechanism rendered hypersensitive by other factors. Given otherwise normal men and women, a hundred ovaries and a hundred testes instead of two would probably not increase the menstruation or the sex urge above the normal.

The question of toxic ovarian secretion has been raised in connection with osteomalacia. We have reports of cure of this malady by ovariectomy, also reports of failure of cure by ovariectomy. It is an open question. There is no evidence that the normal ovarian hormones have any special influence on the health of the bones.

The question of hyperfunction has also come up in connection with hyperplasia of the thymus, and with tumors of the pineal gland. Since extirpation of these glands produces no effect, it is difficult to conceive just how hyperactivity of the glands might cause disease, especially if the thymus gland works by the method of detoxication. Pineal tumors might cause far reaching effects by mechanical pressure on the midbrain.

ALLEGED HYPO-ACTIVITY AND HYPERACTIVITY OF THE DUCTLESS GLANDS THROUGH DISTURBANCE OF THE NERVOUS SYSTEM

We have the following possibilities: 1. The endocrine glands may be under complete control of secretory nerves, like the salivary and the lacrimal glands, in which case we would expect hypofunction and atrophy to follow denervation. 2. They may have no secretory nerves, but may be controlled by the composition of the blood, as the kidneys are. In this case, the effect of denervation cannot be predicted. There may be hyperactivity, hypo-activity or no change in activity. 3. They may be controlled in part by secretory nerves, in part by the composition of the blood like the glands of the stomach. In this case also the effects of denervation might be zero. These appear to be the facts:

1. Sectioning of all the nerves to the ductless glands produces no demonstrable effect on the body functions, and no significant changes in the glands. The suprarenal medulla seems to constitute an exception to the second part of this statement. Denervation of the suprarenals induces no disturbance of body functions, except in the output of epinephrin. This is decreased or completely stopped. This shows that the output of epinephrin is under the control of vasomotor or true secretory nerves. It also shows that epinephrin is of little or no importance as a hormone.

2. Vasomotor nerves appear to be present in all the endocrine glands, and by histologic methods nerve filaments have been traced to or in close proximity to the gland cells themselves. In some of the glands, notably the pancreas, numerous ganglion cells are present in the peripheral nerve net. The suprarenal medulla, the posterior lobe of the pituitary and the pineal glands are modified nervous tissues, and these glands may retain some of their original nervous connections.

3. What effects are produced by artificial stimulation of the nerves that go to the endocrine glands? Direct stimulation of the peripheral end of the splanchnic nerves augments the output of epinephrin, and ultimately exhausts the suprarenal medulla of epinephrin. The question of reflex and central control of this suprarenal nervous mechanism is unsettled. Competent investigators have reported absolutely contradictory results, and clinical opinions bearing on the question are mere guessing. This is the only securely established instance of nervous control of a possible endocrine gland, but the output controlled by the suprarenal nerves has yet to prove its right to be classed as a hormone.

The methods used in the attempts to demonstrate nervous control of the hypophysis have been shown to be unreliable. We have a mass of data, most of it contradictory, and the remainder not yet confirmed, on the nervous control of the thyroid activity. We may disregard the histologic reports and the alleged surgical cure of toxic goiter by section of the thyroid nerves (the cervical sympathetic). The change of iodin content of the gland on stimulation of the thyroid nerves is questioned, and even if such change should be conclusively established, the interpretation of the fact is uncertain. But there are two lines of experimental evidence that require serious attention. It seems to be a fact that stimulation of the thyroid nerves induces changes in the electrical potential in the gland (usually increased negativity but sometimes positivity). Similar experiments (pituitary injections) on the mammary glands have been reported as proving that pituitary extract causes secretion of milk. The electrical change following administration of pituitary extract is due to contraction of the smooth musculature of the mammary glands. Before the electrical variations in the thyroid gland on stimulation of the thyroid nerves can be accepted as proving the nervous control of thyroid activity, it must be shown that the electrical change is not induced by the contraction (or relaxation) of the arteries, capillaries and veins in the gland. It is further reported that stimulation of thyroid nerves and mechanical massage of the thyroid gland in cats under light ether anesthesia accelerates the denervated heart. Massage of the thyroids for two minutes is reported to accelerate the heart for from thirty to ninety minutes after a latent period of from fifteen to twenty minutes. The investigators state that the experiment does not succeed in the months of March and April. The experiment, when successful, is interpreted as showing that mechanical massage and nerve stimulation increase the output of the thyroid hormone, which in turn accelerates the heart indirectly by increasing the body metabolism. It is pointed out as supporting evidence that mechanical massage of the suprarenals increases the output of epinephrin. We may note as equally true that mechanical massage of the kidneys, the pancreas, and the salivary and gastric glands, does not stimulate these glands to increased activity. The failure of the experiment in March and April is puzzling, as no one has shown any seasonal variations in the thyroid hormone of the cat. If the cat's thyroids are shy of iodin in March and April, such deficiency can easily be remedied by feeding iodids. But the most serious difficulty in accepting the positive findings as evidence of nervous control of thyroid activity is the prompt appearance and rapid cessation of the cardiac acceleration, the whole reaction being over within one to two hours, while it appears that a single intravenous injection of large or small doses of Kendall's thyroxin (a product assumed to be pure thyroid hormone) is reported to have no effect on the metabolism during the first twelve to twenty-four hours; then the increase in basal metabolic rate begins, reaches its maximum increase in from three to seven days, and slowly subsides to normal in from three to six weeks. This, if true, is surely a different reaction from that described as following the massage of the thyroid or stimulation of the thyroid nerves.

The question of endocrine hypofunction and hyperfunction through direct nervous control is of great practical and theoretical importance. But despite the great amount of painstaking work in this field (and disregarding the still greater amount of speculation), it must be recognized that the entire question is an open one, except for the suprarenal medulla. Let us hope that the future will record better controlled observations and less speculation. But it seems to me that this statement is permissible: Endocrine secretory nerves, if present, play a minor or negligible rôle in the normal and pathologic activity of the glands, otherwise demonstrable disturbances should be produced by denervation of the glands. It should, of course, be recognized that extreme changes in nervous activity may induce endocrine hypofunction or hyperfunction indirectly or by way of the blood through changes in metabolism.

ENDOCRINE HYPOFUNCTION AND HYPERFUNCTION THROUGH MUTUAL STIMULATION OR INHIBITION OF DIFFERENT ENDOCRINE GLANDS

In this field appears the maximum of fiction and the minimum of established facts. The principal facts are these:

1. It appears that the ovaries and testes (at least in mammals) cannot develop or maintain their normal function in marked hypothyroidism or marked hypopituitarism.

2. Thyroidectomy and, in some species at least, gonadectomy induces some hyperplasia of the hypophysis.

3. Thyroid feeding in experimental animals over long periods appears to induce some hyperplasia of the suprarenals (and the hypophysis), but this has probably no direct endocrine significance, because the thyroid feeding causes at the same time hyperplasia of the heart, the liver, the spleen and the kidneys.

4. Hypertrophy of the parathyroids has been described in thyroidectomized tadpoles.

5. In some cases, tumors of the suprarenal cortex seem to hasten maturation of the gonads, and gonadectomy may be followed by hyperplasia of the suprarenal cortex.

6. Castration retards the involution of the thymus. This may mean that hormones from a mature gonad are directly or indirectly responsible for the post-adolescence involution of the thymus. It has no further endocrine significance, since evidence is lacking for any endocrine activity of the thymus itself.

7. It is reported that crushing the suprarenal cortex induces a temporary fever, and that the latter is aborted by thyroidectomy. Assuming this to be a fact, it might indicate a stimulating action of the suprarenal cortex on the thyroid, inasmuch as complete suprarenalectomy does not induce hyperpyrexia. But crushing the suprarenals is not a simple experiment, and we must await further work before the results can be clearly interpreted in the sense of mutual endocrine control. It may be noted in this connection that the feeding of suprarenal, that is, cortical residue or extract, is reported as a cure of toxic goiter. If toxic goiter means thyroid hyperactivity, this may indicate inhibitory action of the suprarenal cortex on the thyroid. But all of us know that the "cures" for mild cases of toxic goiter are legion, and severe cases may resist all available therapy, including rest and diet.

If the foregoing facts are restated in terms of endocrine interdependence, the situation is this: The failure of gonad function in hyperthyroidism is probably due to the profound distribution of metabolism. In cretinism and myxedema, there is evidence of degeneration or atrophic changes in most of the organs of the body. It is well known that depression of the gonads is a frequent effect of metabolic disturbances from faulty diets, as well as from chronic maladies resulting in cachexia. The failure of gonad function in frank hypopituitarism may also be due to the general impairment of growth and metabolism; but this is less certain, because the disturbance of metabolism in hypopituitarism appears to be less profound than in hypothyroidism. But we are not justified in interpreting the fact in the sense of a direct stimulation of the gonads by pituitary hormones, since pituitary feeding seems to have no influence on gonad development, and acromegaly itself may be accompanied by gonad depression rather than the reverse. The possible significance of the hyperplasia in some ductless glands following hypo-activity or hyperactivity in another gland system will be considered in a later section. At present, there is no evidence that hypo-activity or hyperactivity of any endocrine system, outside of the specific gland involved, can produce or prevent diabetes, myxedema, Addison's disease, infantilism or acromegaly. Despite this fact, the thyroid-pituitary-pancreas-suprarenal-gonad group will probably continue to be a favorite exercise ground for speculative physiology and therapy in regard to mutual hormone control.

THE QUESTION OF HYPERFUNCTION IN CASES OF GLANDULAR HYPERPLASIAS

There is a tendency among both laboratory workers and clinicians to interpret glandular hyperplasias, that is, increase in gland volume by increase in the number of apparently normal cells, as evidence of glandular hyperfunction. This interpretation is also applied to adenomatous hyperplasias, especially of the thyroid, the pituitary gland and the suprarenal cortex. We must recognize that on the anatomic and histologic basis alone this interpretation is a theory that may be 100 per cent. correct or 100 per cent. wrong. We have some reliable histologic criteria of the state of secretory rest and secretory exhaustion in the case of the digestive glands, and previous degrees of activity of the digestive glands can be inferred by the degree of depletion of so-called secretion granules; but it must be recognized that this correlation of histologic changes with the state of activity would have been purely theoretical even for the digestive glands, except for the fact that we have a direct measure of the activity of the digestive glands in the output of the digestive juices. As previously stated, we have no certain means of directly measuring the rate of output or concentration of the hormones in the blood, except epinephrin, and this is not an important hormone, if it belongs in that group at all. Hence, we are limited to attempts to correlate gland histology with body symptoms that may or may not be specific effects of hyperactivity or hypo-activity of the gland in question. We have microchemical tests for iron, glycogen, fat, etc., in the cells, but none for the hormones.

It appears that thyroid colloids can be stained inside the thyroid cells, but we do not know the relation of thyroid colloid in the cells or in the lumen of the gland to the rate of output of thyroid hormone. Diagnosis of toxic goiter from the structure of the thyroid or the thyroid adenoma alone is, at present, merely guesswork.

In the same way, variations in kinds and numbers of cells or granules in the cells in tumors and hyperplasias of the hypophysis, particularly if the studies are made on ordinary postmortem material, permit no conclusion as to hyperfunction. And the situation is scarcely better in regard to the relation of the pancreas to clinical diabetes. Postmortem examination reveals a high percentage of pancreatic lesions in persons having no diabetes. The hydropic degeneration of island cells usually found in the pancreas of diabetic patients is regarded by some as one of the *effects* of the diabetes. It is generally agreed that many cases of fatal diabetes could not have been diagnosed by the histology of the pancreas alone. It is probable that increase or decrease in some cell functions antedates structural changes in the cells as revealed by present methods.

In recent years, much attention has been given to the endocrine glands as related to various types of nervous disorders. The difficulties in this field are increased by the fact that we have as yet no reliable method of studying functional nervous disorders in animals under experimental interference with the ductless glands. By the law of chance, some endocrine disturbance will be present in a certain percentage of insane persons, even if there is no causal relationship between the two phenomena. The literature records a high percentage of what appears, microscopically, to be pathologic endocrine changes in necropsies of such patients. The significance of such pathologic endocrine changes (mostly hypoplasia or atrophy), in the cause and course of the nervous disease, is most uncertain, especially when physical or physiologic signs of specific endocrine dysfunction are lacking. Such endocrine changes may have no more significance than the high percentage of destruction in the pancreas in persons past middle life, dying from diseases other than diabetes.

We have examples of endocrine therapy in nervous disorders that display the courage of ignorance. I do not know what you think of suprarenalectomy as a cure for idiopathic epilepsy, but for the present I would leave the suprarenals alone and operate on the patient's pocketbook by some other route.

Has, then, the microscope ceased to be a useful tool in biologic investigation? On the contrary, let the tribe of microbiologists increase. But I plead for greater discernment in the physiologic interpretations of microscopic findings.

THE EVIDENCE FOR ENDOCRINE HYPOFUNCTION AND HYPERFUNCTION FROM THE FIELD OF ORGANOTHERAPY

Except for the condition of hypothyroidism, the extensive literature on clinical and experimental organotherapy has so far yielded little or nothing conclusive touching endocrine dysfunctions. This should cause no surprise. Organotherapy can have no effect in maladies due to dysfunction of ductless glands that function on the principle of detoxication. And in the case of glands that function by producing hormones, organotherapy may fail now and forever, (1) if the hormones are not stored up in the gland; (2) if they are too unstable for the necessary chemical processes of isolation for intravenous or hypodermic administration, or (3) if, on oral administration, they are destroyed in the processes of digestion and absorption.

With the exception of the thyroid hormone, and the drugs epinephrin and pituitary extracts, we literally do not know what we are feeding when hypophysis, suprarenal, testes, ovaries, pancreas or parathyroid preparations are administered to patients. Moreover, the specific endocrine factor in the malady in which organotherapy is tried is often a matter of conjecture. That is to say, we are administering "unknowns" to cure diseases of unknown origin.

Organotherapy has been tried in literally every disease known to man. Except for the thyroid, the results are so conflicting that they seem to depend, not on drugs, but on the physician who prescribes them. Fifteen years ago, Pohl's spermin or testicle extract was a cure-all in Russia; today, pluriglandular proprietaries are doing even greater wonders in our country, according to the testimonials. Let us keep a few things clearly in mind in this connection:

1. So far, it has not been possible by organotherapy to appreciably influence the impaired functions due to gonadectomy, ovariectomy, parathyroidectomy, pancreatectomy[1] or hypophysectomy in animals. In these cases, we know at least the initial pathology, even if we do not know what we are feeding in the gland extracts.

2. The history of medicine and of quackery teaches honest men to be slow in ascribing specific values to any therapeutic measure that seems to improve subjective symptoms, or to cure in the field of the functional nervous diseases.

3. The trial-and-error method, or empiric organotherapy, is a legitimate path to follow. But I think you will agree with me that it is not a path of progress when the trials are so made that nothing but error can result from them. The trial frequently consists in: improved diet, rest, and gland extracts; the error is the conclusion that the gland extract is responsible for the improvement of the patient. Let us not forget that thyroid administration, even in frank hypothyroidism, is in many cases not a complete substitute for the normal thyroid. And thyroid therapy is our best, if not our only case.

It is scarcely necessary to refer to the ease and assurance with which alleged endocrine disorders are diagnosed and treated with gland extracts by men of good standing in the medical profession. Some aspects of the literature on glandular extract therapy today remind one of the age of demonology in medicine. Following are four typical citations, not from Alexander Dowie, Louis Berman or Mary Baker Eddy, but from our respectable medical journals:

> Clinical studies have proved that certain physiologic and structural markings are constant to certain glandular types, and by physical objective examination alone without other information we can make an accurate diagnosis.
>
> The alert, aggressive attitude of the healthy young man, and the similar, though feminized, pose of the healthy young woman, are in large part an evidence of thyroid activity. The tremors, and blushes, the sentiment of the young woman, the nervous apprehension of the young man under emotional stimulation are also largely evidences of thyroid activity. The blushing of the sensitive young girl or boy is but a neurocirculatory reflex exaggerated by thyroid overactivity into the neurocirculatory instability of the definitely hyperthyroid patient.
>
> Periods of great emotional output, such as courtship, early months of marriage, and the more active phases of an artist's career, are accompanied by enlargement of the thyroid.
>
> There is also something closely allied to a diminished action of the thyroid gland that renders the old maid less generous and less spiritually beautiful than the pregnant woman.

EVIDENCE OF ENDOCRINE HYPOFUNCTION AND HYPERFUNCTION FROM THE FIELD OF ROENTGEN-RAY THERAPY

The destructive action of the radium and the roentgen rays on tissues is well established; and it is well known that atrophy and hypofunction of such organs as the thyroid, the ovaries and the testes can be induced by these agencies. On the theory that doses of roentgen rays, too slight to destroy, will stimulate and thus increase the normal functions of glands, the pancreas has been roentgen rayed in diabetes; the hypophysis, in Fröhlich's syndrome, etc. Positive results have been reported, despite the fact that careful experiments on glands, where the activity can be measured with quantitative and qualitative accuracy, have shown only destructive actions by the roentgen ray. An almost miraculous result is reported in the case of a 15 year old boy with some Fröhlich's syndrome signs. "After four roentgen-ray irradiations of the hypophysial region, the penis grew 8.5 cm. in three months." Evidently, we are witnessing the beginning of a race between roentgenologists and surgeons as harbingers of virilism.

The possible stimulating action of radiant energy on the ductless glands should be tried, but tried under conditions that permit the evaluation of the results. At present, we do not possess any certain means of stimulating any ductless gland, "gently" or otherwise, except possibly through the food, and this is probably not specific. Those who speak with such ease and assurance of "stimulating" this, that or the other endocrine gland are merely giving a demonstration of their ignorance.

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[1] Work in progress at the University of Toronto seems to promise more positive results from the pancreas hormone in experimental diabetes.

THE ETIOLOGY OF ENDOCRINE APLASIA AND HYPERPLASIA IN MAN

Destructive lesions of the endocrine glands, such as tumors, tuberculosis, cystic degeneration and fibrosis, are not peculiar to these organs, and consideration of the etiology of these lesions would take us too far afield.

Factors that may be primary in other aplasias and hyperplasias are: heredity, undernutrition, intoxication from deranged metabolism (qualitative and quantitative) and infections (specific and general).

The possible hereditary factors have not yet been seriously investigated.

Some of the ductless glands appear to be readily disturbed by undernutrition, or unbalanced diets. It is fairly certain that some iodin in the food is necessary for the normal activity of the thyroids. There is considerable literature pointing toward infection as the primary factor in certain types of thyroid hyperplasia. But the question is still open. It is possible that endocrine aplasias and hyperplasias are induced by a variety of factors. Research in this important and difficult field is being neglected in comparison with the amount of attention devoted to the less difficult and more spectacular (and remunerative) administration of gland products.

CONCLUSION

No single phase of endocrine dysfunction is satisfactorily worked out today, either clinically or experimentally. I have endeavored to present the established facts and what appear to be obstacles to progress in baseless speculations and uncritical practice. I am not foolish enough to believe that the former is free from flaws, and some of you may feel that my strictures on the latter are too severe, especially coming from an experimental physiologist. But I have not spoken as a pharisee or as a mere arm-chair iconoclast. The credit for progress made and the blame for errors committed are shared by the clinical and laboratory groups. I leave out of consideration the hopelessly ignorant and the actually dishonest who, no matter what their position and training, belong to the genus *quack*. One sure way of inviting defeat is to underestimate the resourcefulness of the enemy. Failure to recognize the complexity of every endocrine problem is an equally serious obstacle to victory. In following the hormone theory alone, we may, in the case of some of the ductless glands, even be way off the main road.

I believe that much of the glandular therapy of today, however harmless to the patient, injures the good name of the medical profession with intelligent laymen. We cannot practice quack methods and escape the just censure of society.

The quack diagnoses every ailment with ease, and offers remedies for every disease with assurance. The good physician knows that he is neither omniscient nor omnipotent in the field of disease; and the educated layman knows this as well as the physician. Then, why pretend? Bluff may succeed for a time, but honesty is better for society; and what is best for society is best for the medical profession. It is related, in the most ancient medical record now known, the Smith Papyrus, that the good physician in Egypt 5,000 years ago practiced medicine with the same honesty and the same quality of intelligence as that of the good physician of today. When physicians of that age knew, or thought they knew, that no available remedy would help the patient, they did nothing, while the quack worked his "cures" with the hookums of that age.

SOME PRINCIPLES OF ENDOCRINOLOGY APPLICABLE TO ORGANOTHERAPY *

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In a field of biology the bibliography of which runs to 500 pages, the need for the formulation of principles might be expected long since to have passed.[1] To any one conversant, however, with the endocrine literature, it is obvious that no general agreement on principles—and hence on practice—has yet been reached.

Endocrinology is to an unusual degree an empiric field. Our fundamental conceptions have been attained largely by clinical observations of end-results rather than by rational induction from basic facts determined, after the approved fashion, by controlled experimentation. Empiricism has deserved much of the odium that it carries. That it has a legitimate place in medicine, however, is tacitly conceded by every one who prescribes any medicament the pharmacology of which is not fully known. Indeed, it has often been said that the value of any procedure in medicine must finally be determined empirically in the crucible of the clinic. The figure is apt; but let us recognize that a crucible is not an open hearth into which junk may promiscuously be thrown, nor is the result of a crucible test determined by the amount of smoke and spluttering produced. The only empiricism that is of value is that which results in well substantiated facts. When these facts can be adequately systematized they become science; but as facts, they are no more true than they were before.

Much of the existing confusion in the endocrine field would appear to be due to overanxiety to escape the reproach of empiricism—to force rationalization when no genuine rationalization is possible. In such attempts, one class of writers habitually misuses the form of inductive logic, selecting from the vast accumulation of data such as appeal to them, and ignoring such as are inconvenient. Thus, their basic "principles" are derived. Any writer adopting this method has no grounds for complaint that his dishonesty in dealing with the data of others leads to the conviction that he is equally dishonest in dealing with his own. The device of attempting to escape the necessity of patience and thoroughness by dubious theorizing should be discarded. It has brought contempt upon much that passes as endocrine literature.

ENDOCRINE ORGANS AND THEIR FUNCTIONS

So far are we from accepted principles that it is not amiss, even at this late day, to inquire, What is an endocrine organ? Gley has formulated three determining conditions. The gland must show the histologic picture and the cytologic polarity of a secreting structure. This principle at once excludes from the endocrine congeries the thymus gland and the neural lobe of the hypophysis; but these in many circles are still in good and regular standing. A second principle is that from the organ in question an active substance must be obtained. Such a substance may be, but probably is not, a hormone. Final logical proof demands that the peculiar principle be detected in the effluent blood or lymph. In case of nearly all the assumed endocrine structures, this last step remains yet to be taken.

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* Read before the joint meeting of the Section on Practice of Medicine, the Section on Pharmacology and Therapeutics, and the Section on Pathology and Physiology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] The bibliography of the fourth edition of Biedl's Innere Sekretion comprises 474 pages, and many articles have appeared since the published list was completed.

It is widely assumed that perturbed function in any one gland is characteristically followed by changes in others. It is presumed that any endocrine gland may show a condition of normality, hyperfunction, hypofunction, dysfunction, dysfunction plus hypofunction, or dysfunction plus hyperfunction; that is, one normal and five abnormal states. Theoretically there exist, therefore, five uniglandular syndromes for each endocrine organ. The more enthusiastic endocrinologists assert the existence of at least nine endocrine organs, each of which presumably can assume any one of the six states. The possible number of basic combinations, then, is six to the ninth power, or 10,077,696. One of these combinations is normality of all glands; hence the theoretical number of endocrinopathies is 10,077,695. If one is more modest and assumes the existence of only six glands, there are but a paltry 46,655 possible endocrinopathies.[2] To what extent these may be modified by relationships of vicarious function, interstimulation and interinhibition of varying degrees, one cannot offer even an intelligent guess. In any case, however, few of the theoretically possible endocrinopathies have ever been recognized clinically, and of these, still fewer have been reproduced experimentally. When each factor in each syndrome can be recognized and appraised, clinical endocrinology will have become a science. By that time even medicine as a whole may conceivably have become a science.

SOURCE AND VALUE OF GLANDULAR PRODUCTS

Perhaps the most interesting immediate question to the practical endocrine therapist is, From what glands can active hormone products be derived? Judged by the "therapeutic test" in the hands of credulous impressionists, the number is extensive. The number for which there is adequate proof is much smaller. The proverbial "crucible" is still spluttering. The most convincing evidence on this point is being obtained by investigators on tadpoles. Seemingly, a healthy tadpole is vastly different from a sick woman. Practically, the tadpole is a very delicate physicochemical indicator of the operation of factors that modify vital processes; and the determination of such factors is the primary problem of the endocrinologist.

As to the clinical value of glandular products now available, much uncertainty exists. There is great need of standardization of methods of manufacture and of assaying. Even granted an endocrine function for a given gland, the quantity of hormone present at any one time may be very minute. Moreover, even if it exists in relatively large quantities in the fresh gland, there is no certainty that it will not all be lost in the manufacture of gland products. Furthermore, we know little as to the extent to which hormones are absorbed or destroyed in the alimentary tract. It would seem wise for the present for the individual observer in practical work to adopt some one preparation of each gland and use that exclusively for considerable periods. This would help to eliminate one of the variables that render the therapeutic literature so difficult to evaluate. It would also be desirable, until the actual value of each product is determined, to use fresh gland substance; but this is usually impracticable. It would be practicable, however, to obtain, in many cases, desiccated material that has not been subjected to any process of extraction or chemical treatment. From the standpoint of the pharmaceutical manufacturer, such a suggestion is not attractive; but a large body of evidence regarding the efficacy of the unaltered gland substance is needed as a basis from which to determine the relative value of special products. The ideal state will, of course, be reached when each active principle has been isolated and synthesized. If organotherapy ever takes the place that its more enthusiastic proponents prophesy, the available supply of natural products will be vastly inadequate. It is said, for instance, to require 5,000 calves to produce a pound of desiccated pineal substance.

REACTIONS

Another question of major importance has scarcely as yet been even considered, namely, What conditions modify the reactions to any given hormone? In case of epinephrin, it has been shown that the vasomotor reactions are diametrically opposite, depending on initial blood pressure, bodily vitality and temperature, dosage, reaction of the menstruum, and depth of anesthesia. In case of the thyroid there is evidence that change of dosage may reverse the reaction from anabolic to catabolic. Pituitary extract causes or checks diuresis, depending on attendant conditions. It is not unlikely that similar reversals of reaction will be found in the case of other gland products.

In the case of products that influence growth, the normal occurrence of proliferative cycles is of considerable importance. A given hormone might materially influence developmental processes at one time and be quite without influence at another.

A principle worthy of particular stress is that a given endocrinopathy may be readily amenable to treatment in its earlier stages, but quite intractable, later. Skeletal growth, for example, can no longer be influenced after closure of the epiphyseal junctures. Early diagnosis and early treatment are therefore of the utmost importance.

OBJECT OF ORGANOTHERAPY

Endocrine products may be prescribed with several purposes in view. The most definite is merely to compensate additively for a deficient hormone. Thyroid gland is thus administered for myxedema. The possibilities of even this type of therapy, however, remain yet largely to be determined. Hallion has suggested that gland products often act by stimulating the homologous gland. This statement has been accepted by some writers as a biologic law. There is some definite evidence in its support, but the extent of its applicability remains for future determination. As to the usefulness of gland products to inhibit antagonistic glands, we have little significant information. Desiccated pancreas is said to depress the activity of the suprarenal glands, but what is apparently meant is that it is a slowly acting vasodepressant. If it be such, the substance may be of practical value; but there is little rational basis for regarding it as a suprarenal antagonist.

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[2] I am indebted to my colleague Prof. W. M. Barrows for this mathematical formulation of the situation.

The use of endocrine products for their purely nonspecific pharmacologic properties offers a promising field for further investigation. The use of epinephrin and pituitary extract has been especially stressed. As regards pituitary extract, the prevailing opinion of recent years has tended toward conservatism. There are even extremists who would banish it from the field of obstetrics on the ground that the reactivity of patients varies so widely as to render it always potentially dangerous. The sublingual administration of the drug, however, would seem largely to eliminate danger and to widen materially the indications for its use in any condition wherein a general smooth muscle stimulant is indicated. Another promising field for therapeutic investigation is the utility of thyroid as a nonspecific drug. The thyroid hormone appears to be a general cell stimulant, and hence to be widely indicated in conditions in which depressed functional activity is a predominant feature.

DOSAGE

One of the most troublesome problems in organotherapy is that of dosage. In addition to variability of products, the variability of patients is striking. In current practice a given substance may be administered in quantities varying from a fraction of a grain to a hundred grains. In case of the thyroid, basal metabolism affords a control. It has been suggested that the dosage of desiccated hypophysis can be determined by the administration of increasing amounts to the point of producing headache, and then dropping to about half of this dosage. Empirically, it seems to be fairly clear that alternate periods of administration and of rest give best results.

At present there is much difference of opinion as to whether endocrine products should be prescribed singly or in combination. Looking to the interest of humanity at large, present and future, single products should be employed whenever there is a reasonable chance of their proving helpful. In this way only can we hope within any reasonable time to determine the independent value of each product. Whatever be the intricacy of organ involvement in the various endocrinopathies, it is to be supposed that ordinarily some one gland is primarily at fault. Biedl has stressed the fact that, with correct diagnosis on this point, uniglandular therapy may give brilliant results.

On *a priori* grounds, however, if endocrine syndromes are, as many maintain, always, or even commonly, pluriglandular, more rapid amelioration might be expected if a suitable pluriglandular formula were used. Practically, rational pluriglandular therapy would seem to demand a large number of different combinations, and these in differing proportions in each case, as indicated by the degree of involvement of each gland and the susceptibility of the patient.

It has been suggested that the free use of pluriglandular formulas is desirable on the supposition that the body cells will select those hormones needed and discard the rest. This theory apparently embodies a half truth. That the various body cells do select from the blood stream the substances necessary for their metabolism is obvious: the sphenoid bone and the vermiform appendix are fashioned from the same pabulum. That the body cells are able to reject any hormone, however, I know of no evidence; whereas, it is known that hormones are often assimulated by body cells to their own detriment or even death. In any unanalyzed syndrome, it would seem that a random hormone would be potentially harmful to the same extent that it would be potentially helpful.

CONCLUSION

It seems desirable again to emphasize the complicated nature of the problems with which the endocrine therapeutist is confronted. Little is to be expected from nonchalant attempts to solve these problems by superficial observations. Nor can a thoughtful clinician take seriously the claim that overenthusiastic use of gland products is to the best interest of the patient. The arguments adduced are precisely the stock arguments of the cultists and nostrum venders. Ultimately, practical organotherapy will have to be reduced to a statistical basis. This will require the accumulation of a much greater fund of well established observations, both positive and negative. There is need for many more careful studies of individual cases as well as extensive series of cases. Almost any endocrine case presents a research problem worthy of exacting study.

Individual endeavor by volunteer investigators is making some headway, but progress is necessarily slow. There is need for the founding of one or more well equipped and well financed institutions devoted specifically and in a large way to endocrine research. Such an institution should include a hospital with personnel and equipment for bringing to bear the best modern diagnostic and therapeutic technic, and especially for careful metabolic studies. In association with this hospital there should be provided adequate facilities for coordinated animal experimentation.

Endocrinology in some form is going to flourish indefinitely. Parlor endocrinology is even displacing parlor Freudism. For better or for worse, endocrinology has acquired a recognized place in the field of medicine. For two decades practitioners have been avidly seeking enlightenment regarding the practical, everyday problems with which they are confronted. As to how their needs have been met, let the present state of organotherapy testify. The problems offered are such as to tax the best efforts of the best trained therapeutists. Shall these gather their robes about them and pass by on the other side? To the extent that enlightened, critical leadership fails, to that extent will cheap, commercialized endocrinology have a large following, and medicine be cheapened to the same degree.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BARKER, CANNON, AUB, CARLSON AND HOSKINS

Dr. William Engelbach, St. Louis: As a whole, the symposium impresses one with the hypercriticism of those men who are seriously taking up the study of internal secretions. It gives a good general perspective of the relative importance of the internal secretions. The disorders of the ductless glands are only a small part of internal medicine, but this small, yet important, field has been greatly neglected. The most dangerous thing that confronts clinicians is the early misinterpretation of pathologic endocrine signs present in many normal persons. We each belong to a certain endocrine type, and we have to go farther than the establishing of a type picture to make a diagnosis of a ductless gland disorder. For instance, if a person has headache and he happens to be of the acromegalic type, it does not follow that the headache is of hypophysial origin. There has to be more evidence of pituitary disorder before that relation can be proved. The relation of the sympathetic nervous system to the ductless glands and the body as a whole must be given more consideration. As pointed out by Dr. Cannon, the clinical experiments on vagotonia have been of value in excluding the positive basis on which this complex was introduced. I regret that Dr. Aub did not say more about those peculiar adiposities related to pituitary disease with a low basal metabolic rate. The most recent literature credits the pituitary gland with diminishing metabolism. As that metabolic rate is taken today, based on the oxygen exchange in the lungs, comparatively all these patients having pituitary adiposity experience no change in their basal metabolic rate, yet they gain weight rapidly. It will be necessary to have other tests—fat metabolism must be investigated, with other estimations of metabolism before this is explained. The cooperation of the best men in their various experimental departments will promote a better understanding of this complex subject. Dr. Hoskins' paper is timely in that it draws attention to the varied terminology and nomenclature prevalent at this time. Terms such as dystrophy and dyspituitarism, used as a cloak for ignorance, should be abandoned. The physiologists have not proved that we have a specific substance from some of these glands. There is no question that there is overenthusiasm in the treatment of ductless gland disorders. Undoubtedly, we can accomplish more by uniglandular treatment, even if we have a pluriglandular disorder. Make the test with one gland substance for a long time to determine whether you get a therapeutic reaction, and then, if you think there is another gland involved, give the other substance singly, noting results. Stock prescriptions of pluriglandular substances are difficult to control or estimate. For instance, a preparation containing one-half grain of thyroid, combined with epinephrin and spermin, given to a person who needs 5 grains of thyroid substance would be insufficient to meet indications. We have to know how to give each glandular substance up to the physiologic effect, and this varies in each individual patient.

Dr. Leonard G. Rowntree, Rochester, Minn.: Endocrinology is still young. It is far from a science. Facts are being pried from nature, and these facts are being scrutinized, systematized and correlated. Science will eventually evolve. The need in endocrinology today is, as it always has been, well planned and carefully executed clinical and experimental investigations, accompanied by analytic and critical judgment. Dr. Cannon has dealt largely with matters pertaining to the control of the activity of the endocrine glands, considerations which led Bayliss and Starling years ago to the discovery of hormones. To this field, Dr. Cannon himself has contributed much. He demands facts and not speculation, and it was extremely interesting to hear him say that he hints at correlation of function, but needs more evidence before accepting these correlations. Dr. Aub reports the results of studies where, happily, objective control is possible. He has furnished a model in the differentiation of facts from hypotheses and theories and he has made contributions to our knowledge of the factors involved in the control of metabolism and the mechanism involved in this control. Dr. Carlson has directed a searching inquiry into many of our physiologic and clinical beliefs, and has emphasized particularly the shortcomings of clinicians and also of physiologists. As a physiologist, he has subjected to critical judgment our claims concerning the qualitative and quantitative changes resulting from manipulative procedures or from processes of disease. He has attempted correlations of clinical, physiologic and pathologic data which, in part, have puzzled and baffled clinicians and which apparently are also somewhat puzzling and baffling to him. Dr. Hoskins has emphasized the magnitude of the therapeutic problem and has called on the leaders of the profession to exercise leadership in therapy as well as in diagnosis. There are certain needs in endocrinology: (1) postulates in endocrinology analogous to Koch's postulates in bacteriology; (2) a common basis among workers in the same field, and between workers in the various fields concerned in endocrinology, from the standpoint, first, of a common point of view, and, second, of nomenclature (Does hyperplasia, for instance, mean the same thing to all workers in all fields? Does it mean the same to all pathologists?); (3) clinical classifications and (4) objective control of therapy, such as we have in basal metabolism, urine output under the action of posterior lobe of the pituitary and blood pressure in Addison's disease. Progress in endocrinology will come slowly through thoroughly correlated, adequately controlled investigations, in which the findings are subjected to interpretation based on analytic and critical judgment.

Dr. Walter M. Boothby, Rochester, Minn.: In a myxedematous patient, 10 mg. of thyroxin, injected intravenously, elevates the basal metabolic rate on the average 28 points. The height of the curve comes from the fifth to the tenth day after injection; it remains at this level for several days, and then gradually declines, reaching the original level from fifty to sixty days later. In the clinical administration of thyroxin or thyroid extract this delayed and long continued action of thyroxin must be taken into account in the determination of the size of the dose; also the fact that any change in the dose will not produce its main effect for five or ten days. Failure to appreciate this delayed effect has made it difficult to regulate properly the amount of thyroid extract required, and has led to the custom of intermittent administration. It is better, however, to establish a correct dose that can be given indefinitely; and it has been found that 1.6 mg. of thyroxin is usually the correct daily dose. The curve of the calorigenic effect of epinephrin is similar in form to that of thyroxin, provided that the time element is changed to minutes in the former case from that of days for thyroxin. In confirmation of Dr. Aub's work, we have been able to show in dogs that it is possible to obtain a calorigenic effect from such doses of epinephrin as Cannon and Stewart and Rogoff have shown to be within the powers of the suprarenal glands to secrete.

Dr. H. T. Hyman, New York: I was glad that Dr. Cannon called attention to the work that renders untenable the tonicity theory of the regulation of the involuntary nervous system. Dr. Cannon presented again his emergency theory and the evidence favoring it, but did not refer to the work at Western Reserve University which refutes many of the experiments on which the theory rests. With reference to the nervous influences on the thyroid, two facts are contrary to the evidence on which the supposition rests: 1. Thyroxin effects do not occur for hours, even days, after injection, while the supposed increased output of thyroxin following nerve stimulation is manifested in a few moments in the experiments quoted. 2. The supposed effect of the increased thyroxin output in the experiments of Levy we have produced weeks after thyroidectomy and have shown to be due to changes in the involuntary nervous system. We are indebted to Drs. Carlson and Hoskins for their interpretation of clinical results. We know that it is necessary to ablate about 90 per cent. of a gland in order to produce evidences of insufficiency in the laboratory; that even with a fragment of active glandular tissue remaining, normal function is maintained. Under these circumstances, where is the evidence for the much discussed formes frustes? So far as we know, no gland can function for another. Where, then, are the evidences for vicarious functioning? How can endocrinologists refer to results following endocrine therapy as "specific results" when we have no means of assaying glandular preparations and when we know nothing of the absorption? We speak of hyperfunction. When we are unaware of the output into the veins of the glands under normal conditions, how can we postulate a hyperfunction? Most of the symptoms attributed to disturbance of the ductless glands can be produced only through the involuntary nervous system. Consequently, no more important step in our knowledge must be sought than the mechanism by which the ductless glands affect the involuntary nervous system.

Dr. Walter Timme, New York: Dr. Hoskins' mathematics are very simple algebra—on the basis of permutations and computations. As a matter of fact, that principle of mathematics depends on constant quantities. The endocrine system has no constant quantities, only variables, and that needs a higher type of mathematics—a calculus which furnishes information about differentials—but the end-result has to be integrated by integral calculus. So we are still further along than we were before and at the same time more deeply involved. The answer to any integral calculus problem dealing with variables is never one term or absolute quantity. It is always represented in a series of terms combined in a formula of functions of the factors involved. To illustrate: A middle aged woman gives the clinical aspects of myxedema.

her basal metabolic rate was determined by three investigations made by two investigators, and varied from plus 80 per per cent. to plus 100 per cent. Hence, the men who saw her refused to believe it was myxedema and refused to give her thyroid. Examining the case further, we found that she had intense headache, and roentgenographic examination showed she had an enlarged sella turcica and a bitemporal hemianopsia with a diminution of vision. Therefore, it was a case of hypophysial mass, plus myxedema. She was given small doses of thyroid. Within two or three days she began to improve; her headaches began to diminish in severity, and the basal metabolic rate became lower, on no other treatment than the administration of thyroid! It does not mean that the deficiency of the thyroid produced a high metabolic rate; that the hypophysial mass produced the high metabolic rate; the high rate may be due to pressure of the hypophysial mass on parts of the brain. In any event, it means that the integration of the syndrome is a formula, and that is what we have to consider in all the innumerable problems which confront us, and the formula is one which involves all the varying activities of the glandular elements.

Dr. A. S. Blumgarten, New York: I can discuss the subject only from its clinical aspect, and there are two phases to that: one is the importance of endocrine study in clinical medicine, and the other is the question of therapy. The study of the patient from an endocrine point of view is a valuable adjunct to the ordinary routine physical examination, especially when it is impossible to recognize a pathologic change by present methods of examination. Clinically, endocrine disturbances that are presented for treatment are usually disturbances in growth and development, and in physiology. In the majority of instances, the disturbances in development are not amenable to treatment by organotherapy, although the endocrine basis for the condition is apparent. The dried extracts of various ductless glands have a limited value, but it is hoped that we shall be able to get better results when we can better recognize the conditions amenable to treatment and have products which can give definite reliable effects. The basis of organotherapy is substitution therapy. One must be guarded, however, in drawing conclusions, as frequently spontaneous cures and improvements take place. For example: In the Froelich syndrome of pituitary disturbance, the improvement in genital development following pituitary therapy is often not the result of therapy at all. Many of the genital symptoms are merely a retarded puberty, which gets well spontaneously, even without therapy. The dosage is another important point in organotherapy. Since we are supplying a deficient substance and we have no way of determining the quantitative deficiency, we have no way of determining the dosage. I think we can summarize the present status of organotherapy in reference to dried extracts by stating that thyroid extract is curative in cases of thyroid deficiency, such as myxedema and cretinism. Pituitary extracts are valuable in relieving many of the symptoms of pituitary deficiency, largely of a subjective nature; and more valuable in females than in males. Objective results with pituitary extracts are rather rare. The other dried extracts are still in the experimental stage. Epinephrin and pituitary extract are useful for the production of their specific pharmacologic effects. The problem of the future consists in recognizing specific states of glandular deficiency and obtaining preparations that will produce definite results.

Dr. Harry A. Baker, Minneapolis: There is a gland of which no mention has ever been made, important in the arrangement and, etiologically, a factor in the derangement of this system, i. e., the brain. Indeed, the brain ought to be included among the endocrines, for though, perhaps, through its subsidiary glands it is occupied in other activities, its chief function is the assimilation of matters sensate into sense and understanding. By regarding the brain as the head and front, and the sympathetic nervous system as the equilibrator, it then becomes easy to comprehend how disturbances primarily of the head result in functional derangements, faulty equilibration in metabolic disorders, and the reverse, faulty equilibration continued over a long period of time, resulting in minor or even grave functional disturbances, the relationship being almost as close as the cardiorenal to the organic system.

Dr. Louis B. Wilson, Rochester, Minn.: In this congeries of clinicians, physiologists, biochemists and mathematicians I, an old time pathologist and morphologist, feel like one of the slow going high wheeled ox carts of my adopted state in a flock of aeroplanes. But I wish to say one word of suggestion to the aeronauts: Keep close to the ground when you start, remembering that almost all that we know of the actual facts of disease has been learned at the necropsy table. Let us not forget that there is, after all, something in morphology which we cannot ignore in our experimental or physiologic or biochemical work on disease. One of the essayists doubted somewhat the correlation of the morphologic evidence of increased activity in the thyroid in relation to hyperthyroidism, because there is an occasional instance in which hypertrophy and hyperplasia of the cells of the thyroid are not coincident with what the clinician says as they appear in the patient. Clinical evidence, you know, is not always absolutely true. Neither is experimental evidence always true. I do not find absolute agreement in the pathology and in the diagnoses that have been made. There is just a suspicion that the patient did not have what the eminent clinician thought she had. When one essayist says he doubts the relationship between parenchymal overgrowth and overfunction in the gland, I think back over the seventeen years that I have spent in examining more than 16,000 thyroids—minutely, not in a single section, but going over them piecemeal by the hundreds of sections—and when I look at my photographs, I ask myself, "Have I been mistaken? Is it after all true that there is not any difference between the histologic evidence, and the facts as shown by the clinician, or as thought to be present by the clinician?" We must keep our feet on the ground.

Dr. W. B. Cannon, Boston: I understood Dr. Carlson to express himself as not being committed to morphologic change as indicative of disturbed physiologic function. And yet when he came to consider the relation of nerves and nerve supply to the glands of internal secretion, he used, as part of his evidence regarding these nerves of minor importance, the fact that after severance of the nerve little morphologic change in the gland is demonstrable. It seems to me that we should not expect more morphologic changes under these circumstances. If the glands of internal secretion to which the nerves go are also subject to humoral control, I would agree with him that so far as morphologic evidence is concerned it is of minor importance as bearing on the question of nervous control of the endocrine glands. Both he and Dr. Hyman were inclined to throw doubt on the evidence we had obtained that the thyroid is subject to nervous control, when we used the denervated heart as an evidence of activity. And the reason we threw doubt on that is that following the administration of thyroxin, no effect is noted for from twelve to sixteen hours, whereas in the stimulation of the nerve in the heart, it was determined that the effect began in fifteen minutes and reached its acme in about three quarters of an hour or an hour. Why that discepancy should throw doubt on the experiments I have called attention to is difficult for me to see. There is a discrepancy there, we see that; but why is the doubt thrown altogether in one direction? Here is a substance which has been removed from the thyroid, which has been put through complicated chemical processes, processes which we suppose have not left the substance in the original state. We are dealing with what is quite possibly a drug, a substance which, to be sure, is capable of affecting metabolism; but to assume that it is the physiologic substance in thyroid activity goes beyond any reason we are justified in taking. It is quite possible that thyroxin has to undergo a chemical change before it is capable of acting at all. In the experiments I described in which the animal was anesthetized and asphyxia was produced, the effects observed could properly be determined as physiologic in character. The discrepancy, exists, but the doubt is not to be thrown wholly in one direction. Dr. Hyman asked why I had not called attention to observations made at the Western Reserve University which are contradictory to observations reported today. I hope Dr. Hyman did not intend to imply that I was suppressing the truth. I have so recently called attention to the defects in the evidence that was presented by the workers at the Western Reserve University that it did not seem necessary to present that today. I have called attention to evidence published in papers lately that the explanation brought forth by those workers does not explain the results, that the amount of epinephrin set free is more than ten times the constant secretion of the suprarenal glands, and, furthermore, they used quantitative amounts, and an unknown amount was lost in preparing it for quantitation. Another paper in press tells of experiments which were performed on animals in which the only abdominal structures connected with the inferior vena cava were the suprarenal glands. When an afferent nerve was stimulated, the denervated heart showed characteristic effects due to these circumstances. If a clamp is placed above the suprarenal veins, the heart no longer increases its rate. When the clamp is removed, the heart promptly increases its rate. And, again, on stimulation the heart resumes its effect. If there is any other way of accounting for this than increased secretion of the suprarenal medulla and asphyxial stimulation, I would be pleased to have some one give me the explanation. So far as Dr. Levy's experiments are concerned, I wrote him about his control. He said he had five controls, animals whose thyroid had been removed previous to the experiment, and neither stimulation of the cervial sympathetic by electricity nor stimulation by large doses of epinephrin had any of the effects under these circumstances which they had when the thyroid is in the body.

Dr. J. C. Aub, Boston: As to the metabolism in Addison's disease, I was careful to avoid going into the subject. In the first place, I do not think Addison's disease shows an abnormal metabolism; in the second place, the thyroid may well maintain a normal metabolism although the suprarenal may be disturbed. I have been able to find four cases recorded in the literature. These cases, however, have shown a lowered metabolism. I do not think that proves the situation, and I do not think an abnormal metabolism would be found in the disease.

Dr. A. J. Carlson, Chicago: If time had permitted me to read the complete paper, I think Dr. Wilson would have agreed that my feet were on the ground and that I in no wise deny the histologic findings of Wilson and others on toxic goiter thyroids. I merely question the usual interpretation of the facts. A slide of a toxic goiter thyroid is today no scientific evidence of hypersecretion. I am pleading for care in the interpretation of the histologic findings. The actual facts we all accept, but some of us cannot accept interpretations as facts. We have no intracellular microchemical tests for any secretion of the ductless glands, except, possibly, the suprarenal medulla. We can stain the thyroid colloid in the cells, but we do not know the relation of the thyroid colloid to the secretion. I have my feet on the ground, I think, in this subject, but I was trying to induce others to descend from the clouds. I agree with Dr. Cannon in regard to thyroxin. I did doubt Dr. Cannon's facts—he reports what he finds under the conditions of his experiments. No matter how stupid or uncritical we physiologists sometimes are, we are at least honest, and there would be less folly and no fakes in the field of endocrinology if there was simple honesty all around, coupled with a more general recognition of the "post hoc" policy. Most people seem to have accepted Kendall's thyroxin as being the true thyroid hormone. In my judgment, the case is not proved. Several of the speakers considered untenable the prevalent view that endocrine physiology and glandular extract action are identical with sympathetic nerve action. That is one of the generalizations that have led us astray. I am sorry that neither Dr. Hoskins nor Dr. Rowntree discussed what to me seems the real crux in the practical application of endocrine material in the treatment of disease; that is, when are organ extracts indicated? The question whether one should use the pluriglandular "dope" obtained in commerce, do one's own mixing, or employ single substances is of minor importance. But when the most extensive and carefully controlled organotherapy, experimental and clinical, is without effect, should we not stop this therapy, at least until we know more about the content of the organ extracts, and the etiology of the maladies we are trying to cure by them? Is it not time to say: "Physician, heal thyself"—of endocrinitis?

Dr. L. F. Barker, Baltimore: The difficulty seems to be in distinguishing between facts and interpretations of facts. It has been hinted that physiologic facts are all right and that histopathologic facts are all right; and there has been a suggestion that clinical facts are not all right. But accurate clinical observations are just as truly facts as are physiologic or histologic observations. Clinicians see signs and symptoms that occur together, and we call these groups "syndromes." The "aeroplane flight" occurs when we try to interpret what these syndromes mean. Thus, we should sharply distinguish between "Graves' syndrome" and "hyperfunction of the thyroid." The one may really explain the other, or it may not. We ought, therefore, to have clearly in mind precisely what we mean when we make use of terms. When we say "Graves' syndrome" we mean a group of clinical signs and symptoms, and when we say that "hyperthyroidism" is responsible for "Graves' syndrome," we are propounding a physiologic theory of interpretation of the clinical syndrome. If medical men would keep these things in mind, there would be less acrimonious discussion and fewer oblique hints of dishonest work!

Dr. R. G. Hoskins, Columbus, Ohio: The point I had intended to mention finally is the one Dr. Barker brought out: that there are many problems in this field that the physiologists cannot deal with. There are syndromes which involve endocrine glands that we cannot reproduce. The physiologist is responsible for the things he can do with the technic available to him. Also, there is responsibility on the clinicians to contribute from their point of view the phenomena which they see, and to put these contributions in a form and carry them out sufficiently, that they can ultimately be used in determining the important fundamental facts. While the problems are complex, it is not wise to be unduly impatient or pessimistic, but each one, clinician or laboratory investigator, with whatever technic is best suited to his problems, should press forward toward their solution.

LOW CERVICAL CESAREAN SECTION (LAPAROTRACHELOTOMY)

RESULTS IN ONE HUNDRED AND FORTY-FIVE CASES *

J. B. DE LEE, M.D.
AND
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CHICAGO

The majority of the cesarean sections of the United States are being performed by general surgeons who have little knowledge of the mechanism of labor or of obstetric indications and the safe time for the operation. Therefore, the mortality is very high.

The mortality of the classic section is greater than is generally known, because statistics are hard to get. Twenty-one women died after cesarean section in Chicago last year, according to Dr. M. O. Heckard of the Vital Statistics Bureau. E. Holland and Munro Kerr compiled 3,314 cesarean sections performed for contracted pelvis in Great Britain in the years 1911 to 1920 inclusive, and found an average mortality of 4 per cent., the extremes being 1.6 per cent. in the early, clean cases, and 27 per cent. in those operated on late, or after delivery had been attempted.

At the Chicago Lying-in Hospital, in the last eight years, we had 122 classic sections. Six mothers died, two from peritonitis, three from the toxemia of pregnancy, and one from abruptio placentae. This is a good

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

showing, and, with improved technic, postoperative complications have been diminished, but not as much as desirable; furthermore, the clean and early cases were the ones reserved for the classic cesarean section.

The operation (laparotrachelotomy) here proposed is intended to place in the hands of the surgeon a method which may be used when the conditions are not the best for the classic cesarean section. We have tried for centuries to bring the classic cesarean section to perfection, but have failed, as is evidenced by (1) the too high maternal mortality; (2) the high primary morbidity; (3) the late morbidity; (4) adhesions, and (5) rupture of the uterus in subsequent pregnancy and labor.

One of its most striking delinquencies is its limitation to clean and early cases. Otherwise it is unsafe, and since, in the majority of instances in which the abdominal delivery is required, the patient cannot be considered aseptic, one must expose her to unjustified risk, or choose delivery from below.

To circumvent these faults of the classic cesarean section, in recent years several new forms of abdominal delivery have been introduced. Frank of Bonn, in 1906, called attention to the operation of Joerg. Joerg, in 1809, had suggested that access to the parturient canal be gained from the flank in a manner similar to the ligation of the internal iliac artery; i. e., entirely extraperitoneally. Frank, however, opened the peritoneal cavity just above the pubis, and united the parietal to the peritoneum of the lower uterine segment, thus shutting off the peritoneal cavity, after which delivery was effected. Sellheim tried to push the peritoneum off the bladder in front; Latkzo pushes the bladder to one side and the peritoneum upward from off the lower uterine segment, gaining access to the uterus entirely extraperitoneally. More than twenty different modifications of the low operation have been proposed. All have the object, in common, to avoid manipulation in the general peritoneal cavity as much as possible, and to place the incision in the uterus entirely in the lower uterine segment. The idea is that the greatest dangers of immediate and remote complications come from opening the peritoneal cavity, and that an incision in the lower uterine segment will obviate rupture of the uterus in subsequent labor.

All the methods depend on certain anatomic changes which occur in the lower uterine segment and the overlying peritoneum and bladder during pregnancy. Owing to the softening and the loosening of the peritoneum and pelvic connective tissues, and to the development of the lower uterine segment in the latter months of pregnancy, and particularly during labor, the cervix is dilated and drawn away from the pelvis and from its relations to the vagina and the bladder. The vesico-uterine culdesac is usually obliterated. The peritoneum is easily moved on the subjacent structures. It is therefore possible, after incising this portion of the peritoneum, to push the bladder off its cervical attachments with great ease, and to expose an area of the cervix and lower uterine segment large enough for the delivery of the child without encroaching on that portion of the peritoneum which is opened in the classic cesarean section.

At the Chicago Lying-in Hospital we have recognized the theoretical value of the two main principles of the low cervical operation—the avoidance or limitation of peritoneal exposure, and the location of the uterine scar in the neck of the uterus—and we have devised a method of cesarean section which is considered by us standard. We reserve the old classic operation for special indications. The technic is based on Sellheim's third method, and we have added several features which protect the peritoneal cavity from seepage of lochia, and strengthen the scar in the lower uterine segment. We have given the name laparotrachelotomy to the operation, as this expresses exactly what it is—an incision in the neck of the uterus through the abdomen. Vaginal cesarean section would be called colpotrachelotomy.

TECHNIC

The operation is much simpler if the patient has been in strong labor for a long time. Uterine action stretches the lower uterine segment, and draws the cervix away from the bladder. We have done laparotrachelotomy in the eighth month of pregnancy before pains had started, but it is technically more difficult. A Pfannenstiel incision may be used, but we usually make the cut in the middle line, and it need be only 14 cm. long, beginning at the pubis. We make the fascial incision 1.5 cm. to the left of the linea alba, and then draw the rectus muscle from its sheath at the middle line and open the peritoneum extramedially again. Thus, the rectus muscle is mortised into the fascia when the wound is closed, preventing hernia. The bladder is usually high on the abdominal wall. It is pushed down and to the right. The lower uterine segment is exposed with retractors, and a cross cut made in the peritoneum, about 2 cm. below its firm attachment to the uterus. The cut extends in a slightly curvilinear direction, 5 cm. on each side of the middle. The lower flap of the peritoneum is reflected downward, carrying with it the bladder. The upper flap is pushed upward to a point which delimits the upper end of the intended uterine opening.

This method of technic was used by us several years before Beck published his description of the operation. After the bladder has been pushed down far enough to expose a surface sufficient for the child's delivery, the upper and lower poles of the area of incision are steadied by Allis forceps, and the hook knife is passed into the uterus, alongside the upper Allis forceps, and brought out at the lower end just at the edge of the bladder. With a slow, gentle, sawing motion, the thin uterine wall is cut. The blood and liquor amnii are sucked out of the field by means of a vacuum pump. The face of the child is now pulled into the wound by means of a finger introduced into its mouth, and forceps are applied, or the head may sometimes be expressed by means of pressure applied in the flanks. Hurry should always be avoided. There is no occasion for it. Pituitary extract is given hypodermically. Ergot was given just after the anesthetic was started.

The placenta usually separates and appears in the wound if one waits long enough, but we wait only three or four minutes, employing this time in grasping the edges of the uterine wound with tongue forceps, to stop the bleeding from the uterine sinuses (which is usually not disturbing) and to lift them up for suture. The placenta may be expressed by the method of Credé or removed manually. Then the uterus is carefully wiped smooth with a dry lap sponge, packed temporarily with a long narrow lap sponge, and now the lower uterine segment is carefully sewed up. We use No. 2 twenty day catgut, beginning near the bladder, taking in half the thickness of the wall in the first row, going down to but not through the mucosa. At the upper end of the wound, the suture is locked; then returning, the other half of the wall is sutured, the end being tied to the first knot.

Now the fascia over the lower uterine segment is reunited with a special row of catgut sutures, which are so placed that the edge of one side overlaps that on the other 0.5 cm. This is our second contribution to this operation. Now the upper flap of peritoneum is pulled down over the fascia and fastened down with two or three stitches, and finally the lower flap, carrying the bladder, is pulled up over the upper flap, and closed with a continuous suture. Occasionally a superficial vein bleeds. Before the peritoneum is sewed all bleeding must be stopped. This is easily done by means of an X shaped individual suture.

The peritoneal toilet is very simple, as blood will be found only in the culdesacs below the round ligaments. If the peritoneal cavity has been walled off with lap sponges, even this soiling of the field may be avoided. Usually the intestines and the omentum are not seen at all.

RESULTS

By this method (more or less perfected as we went along) we have performed 145 laparotrachelotomies. The results in these 145 cases are very favorable. Only one woman died:

A primipara, aged 45, weighing 278 pounds, had been in labor four days. The membranes had ruptured forty-eight hours or more before; the blood pressure was systolic 208, diastolic 160, and marked albuminuria, edema, etc., were present. The pelvis was contracted, the occiput posterior. The head was high, even after days of labor. The usual low cervical cesarean section was attended with great technical difficulties because of the obesity. Death occurred the fifth day from peritonitis. She was a bad risk and might not have survived delivery from below.

None of the babies died, except two that were dead before entry to the hospital—both from abruptio placentae.

Of the 144 women who recovered, fifty-four had a temperature of 100.4 F. for not longer than one day, nine had 100.4 or over for three days, and sixteen had 100.4 or over for more than three days. Most of this morbidity cannot be explained, as the course of the wound healing was not often abnormal. As may be seen, in fifty-four out of seventy-nine cases, the elevated temperature lasted less than twenty-four hours, and probably belongs to the class of "fibrin ferment" fevers.

There were three cases of phlegmasia alba dolens, all mild; five cases of pyelitis, and eight of bronchitis and bronchopneumonia—this was during the influenza season. In nine cases the wound broke down, and in only one was the drainage made by the vagina, and through the cervix. Bronchopneumonia was a complication in three of these nine and in one of the phlegmasia cases, and probably causative of the local suppuration. In not one of the cases was ileus present, and tympany was a prominent symptom in only five. Vomiting was also an unimportant complication. In the last thirty-six cases, with improved technic, only seven women vomited, and each only once. We have not heard that any of our patients had ruptured uterus in subsequent labor. One had a low forceps operation after a good test of labor. Four were delivered by a second low cervical section, and the scar could hardly be found. Adhesions were present in one case—one of the two in which suppuration occurred and the patient had pneumonia.

Since many of these women had been in labor hours and days with the bag of waters ruptured, and had had vaginal examinations made, three had forceps attempts and many were poor risks, the results must be called good, and there should be reasons for them. We believe that these advantages accrue from the fact that the incision is made in the lower uterine segment.

ADVANTAGES OF LAPAROTRACHELOTOMY

1. The cervix stands infection better than the fundus because it is used to it—the local immunities are developed. Gynecologic operations bring daily proof of this fact.

2. The lower portion of the abdomen is more resistant to infection: hence the rationale of the Fowler position.

3. The cervical wound is at rest, unaffected by after-pains, and can heal in peace. In the classic cesarean section the uterine muscle contracts frequently and the sides of the wound grind on each other; indeed, the action of the muscle actually pulls the edges apart. This allows blood to fill the gaps, and the blood is readily infected when the bacteria invade the puerperal uterus, as they invariably do on the fifth day. There are fourteen cases on record in which the uterus actually burst itself during the puerperium, regardless of the suture material used. This fact will explain some of the cases of so-called "late shock" after cesarean sections.

4. The healing of the cervix is better than that of the fundus because active involution and the fatty degeneration of the uterine wall defeat the healing power of the tissues (Munro Kerr).

5. There is relatively little danger of leakage of the lochia. First, the wound edges can be perfectly coapted and covered with both tough fascia and peritoneum. The classic section wound is closed by sutures which must at the same time stop hemorrhage. They must be tight, and therefore subject the tissues to necrosis and infection, and, further, they are likely to be torn or untied through the after-pains. Indeed, so great is this danger that even late writers recommend silk and silkworm-gut for suture material! Secondly, should lochial leakage occur, in the low cervical operation the infection takes place under the bladder peritoneum and bladder, where it is most easily reached, if the pus does not, as usual, work its way out (*a*) through the skin, (*b*) through the cervix, or (*c*) by means of anterior colpotomy. We know that lochia frequently seeps through the uterine wound after classic cesarean section, and in such instances the seepage goes into the free peritoneal cavity as high as the liver, if the bladder is full. Bacteria traverse the wound from the infected endometrium in the same manner.

Most operators believe that the danger of infection is not so much from the spill at the time of the operation as from seepage of lochia and passage of bacteria along the line of suture after the delivery. In the trachelotomy, the spill is limited to a very small area of peritoneum, just above the pubis, an area known to resist invasion of bacteria well, and thus the low incision also minimizes even the danger of the spill.

6. The incidence of adhesions is reduced almost to zero when the cut is made in the cervix. The intestines and omentum do not come into view, as a rule, and there remains in the abdomen one short line of suture (not over 3 inches) without even a knot. This line of suture sinks deeply into the pelvis when the uterus

comes forward and when the bladder fills; thus intestine and omentum cannot adhere to it.

7. The possibility of rupture of the scar in subsequent pregnancy and labor is reduced to a minimum. There are only two cases on record of actual rupture of the scar in a later labor, and we know of a third in which the scar would probably have torn, had labor set in. In vaginal trachelotomy we have analogous conditions. No one has reported a rupture after vaginal cesarean section. The reasons for this integrity of the cervical as compared with the fundal incision scar are many: (*a*) The primary wound healing is better, and, too, the muscle suture is covered with a thick fascial layer; (*b*) the stretching of the scar in labor is passive, not the lateral traction, as on a fundal scar; (*c*) the critical time occurs late in labor, which gives us opportunity to anticipate it; (*d*) the placenta located on the fundal scar weakens it most dangerfully—the placenta seldom locates itself in the cervix; (*e*) if rupture does occur, it is in a bloodless portion of the cervix, and is most easily recognized and reached by operation. Holland gives the frequency of uterine rupture after cesarean section as 4 per cent., with a mortality of 30 per cent. Important! See King's paper read at the same meeting.

8. We can give the parturient a real, objective test of labor. Routh and Holland have proved by large statistics, and every one's daily experience confirms the fact, that women who have labored many hours, when the membranes are ruptured, many vaginal examinations have been made, etc., are poor risks for the classic section. In German clinics, the low cervical operation is performed even if the parturient has fever.

9. Abdominal hernia has not yet occurred in any of our cases, even after those that suppurated. Hernia is not rare after the classic operation. The incision above the pubis is in thick muscle and fascia, and union of the structures can be made so as to avoid hernia., We have tried the Pfannenstiel incision in eight cases and have given it up, as also have continental operators.

CONCLUSION

For these nine reasons we prefer the laparotrachelotomy, and employ it in all cases in which abdominal delivery is indicated. In excessively obese women, in pendulous abdomen, the classic operation may be required. We have performed the low cervical operation six times for placenta praevia. It was technically difficult in only two cases. All the mothers and babies lived. It facilitates the Porro operation, and is therefore to be preferred when the uterus is to be removed. When a woman has had a previous classic cesarean section, one may still do the low operation, although one usually wishes to go through the old scar to cure a hernia or for cosmetic reasons.

We feel sure that if the general surgeons will learn this operation, and it is not difficult to a man who can do a cholecystectomy, there will be an appreciable reduction of maternal mortality in the United States.

426 East Fifty-First Street—122 South Michigan Avenue.

Eradication of Venereal Diseases.—The danger of transmitting syphilitic and gonorrheal infection through the marital relation, through illicit sexual intercourse, and, extragenitally, through intimate contact, is generally recognized by all who have any knowledge of venereal diseases; but the importance of early diagnosis and treatment in the eradication of syphilis and gonorrhea is not appreciated so generally. —A. J. Casselman, *Public Health Rep.* 36:851 (April 22) 1921.

THE END-RESULTS OF ABDOMINAL CESAREAN SECTION *

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NEW ORLEANS

The gradual extension of the indications for abdominal cesarean section and the growing popularity of this method of operative delivery justify an occasional review of our cases and an inquiry into the ultimate results. Many studies along these lines have been published, but the question as to the proper care at a subsequent labor of the patient who has had a cesarean section is still open for discussion.

TABLE 1.—RESULTS OF CESAREAN SECTION IN A SERIES OF CASES

		Died		
Year	Recovered	From Operative Causes	From Disease	Later Pregnancy Possible
1909	0	1	0	0
1910	0	0	0	0
1911	1	1	2	1
1912	2	0	1	2
1913	2	2	1	2
1914	4	2	3	4
1915	6	2	0	6
1916	10	2	2	10
1917	6	2	3	6
1918	7	0	2	7
1919*	19	1	3	18
1920	4	1	6	4
1921*	15	2	2	0
Total	76	16	25	60

* One patient sterilized by request at second cesarean section.

TABLE 2.—INDICATIONS

	Multiparas	Primiparas	Not Stated
Placenta praevia	9	4	2
Abruptio placentae	2	..	..
Eclampsia	5	39	17
Contracted pelvis, absolute	..	4	..
Contracted pelvis, relative	8	5	3
Transverse presentation	..	1	..
Face presentation	1	..	1
Decompensated heart	..	2	1
Chancroids of vulva	..	1	..
Toxemia	1	1	..
Previous cesarean section	4	..	..
Not stated	2	2	2
Total	32	59	26

It is generally conceded that the immediate results vary according to the previous handling of the case, and that the chief risk is that of infection following vaginal examinations and manipulations. The mortality and morbidity percentages under ideal conditions should be very low, but these ideal conditions are not encountered in every case. Thus, in 117 abdominal cesarean sections at the Charity Hospital of New Orleans (excluding the Porro cases), there were twelve deaths from peritonitis and two from sepsis; all of these patients had had vaginal examinations or attempts at delivery before operation. The majority of the seventy-six patients recovering had fever, the puerperium being absolutely afebrile in only seventeen. Polak[1] is of the opinion that this high morbidity percentage is due to the fact that the majority of puerperal uteri contain pathogenic organisms by the fifth or sixth day, at which time the suture line often offers a suitable area for infection. He gives the incidence of fever as 28.8 per cent. in uncontaminated cases, with a rise to 50 per cent. in cases in which the patient has been previously examined.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Polak, J. O.: The Present Status of Operative Obstetrics, Referring to the Abuse of Cesarean Section, Surg., Gynec. & Obst. 34:567-573, 1922.

In an endeavor to obtain some light as to the end-results of the operation, I have reviewed the records of 117 patients operated on at the Charity Hospital by twenty-five surgeons, and also the records of thirty-three private cases handled by five surgeons. The mortality, morbidity, causes of death, results as concerns the fetus, end-results in those cases followed up, etc., are shown in the various tables. Of sixty Charity Hospital patients in whom subsequent pregnancy was possible, six have not become pregnant since, six have passed through normal labors, two were delivered by forceps after long second stages (one by the Scanzoni methods for unrotated right occipitoposterior position), one has had a second cesarean operation, two have miscarried, one returned with a ruptured scar, one died eighteen months after operation when six months pregnant, and forty-one could not be located. Of the twenty-seven private patients (on whom thirty-three sections were performed), two were delivered normally, four had a second cesarean section, one had three cesarean sections, four were patients cared for in 1921 (in whom subsequent pregnancy is as yet hardly possible), one sustained a ruptured scar at subsequent labor, five died (one after her second cesarean section), and ten in whom subsequent pregnancy was possible have not been traced.

TABLE 3.—MATERNAL MORTALITY *

Cause	Due to Operation	Due to Disease
Eclampsia (total number of cases, 61)	..	20
Peritonitis	12	..
Sepsis	2	..
Exhaustion (long labor before operation)	..	2
Decompensated heart	..	2
Reopening of abdominal wound and shock	1	..
Placenta praevia and hemorrhage	..	1
Acute dilatation of stomach	1	..
Total	16	25

* Six of the deaths due to infection occurred prior to 1915, out of a total of twenty-two operations. Ten occurred subsequent to 1915, out of a total of ninety-five operations. In one case of supposed exclusion of the peritoneal cavity by suture of visceral (uterine) and parietal layers the patient died of peritonitis. In one case the uterine wound was found partly open at necropsy.

TABLE 4.—CONDITION OF THE INFANTS *

Born living and discharged alive		92
Stillborn, eclampsia cases	9	
Stillborn, placenta praevia cases	3	
Stillborn, contracted pelvis cases	3	
Stillborn, heart cases	1	
Stillborn, premature	3	
	—	19
Premature, died after delivery (in hospital)		6
Full term, died after delivery (in hospital)		2
Total		119

* There were two pairs of twins; one pair, premature, died; one pair lived.

TABLE 5.—MORBIDITY OF PATIENTS RECOVERING

	Fever	No Fever	
Potentially infected *	30	10	
Not infected	4	2	
Not stated (no record as to vaginal examinations)	23	5	
Total	57	17	
No temperature record			2
Total of all cases			76

* In one case, there was fever on admission; in another pyelitis developed during puerperium; in two there were infected wounds.

TABLE 6.—FOLLOW-UP OF CHARITY HOSPITAL CASES

Pregnancy possible		60
Not pregnant since operation	6	
Pregnant, normal delivery once	3	
Pregnant, normal delivery twice	1	
Pregnant, normal delivery three times	1	
Pregnant, normal delivery, also aborted	1	
Pregnant, forceps delivery *	2	
Pregnant, aborted once	1	
Pregnant, aborted three times	1	
Died at sixth month of pregnancy	1	
Pregnant, second cesarean section	1	
Pregnant, ruptured scar	1	
Unable to locate	41	
	60	60

* One of these patients is now near term in her second pregnancy since the cesarean section.

TABLE 7.—PRIVATE CASES

Number of patients		27
Number of sections		33
One section	22	
Two sections (4 patients)	8	
Three sections (1 patient)	3	
Deaths		5
Sterilized at second or third section		3

TABLE 8.—INDICATIONS IN PRIVATE CASES

Heart disease	1
Eclampsia	5
Contracted pelvis, relative	7
Placenta praevia	1
Large baby, long labor, no progress	7
Previous myomectomy	1
Previous cesarean section (most of them performed because of a contracted pelvis)	7
Not stated	4
	33

TABLE 9.—DEATHS IN PRIVATE CASES

Cause	Number
Eclampsia	2
Acute dilatation of stomach (one patient after second cesarean section)	2
Infection (long labor prior to operation)	1
	5

TABLE 10.—SUBSEQUENT HISTORY OF PATIENTS RECOVERING (PRIVATE CASES)

	Number of Patients
Second cesarean section	4
Second and third cesarean sections	1
Normal delivery, once	1
Normal delivery, three times	1
Ruptured scar at second pregnancy	1
Not traced, pregnancy possible	10

The possibility of rupture of the cicatrix at subsequent labor is the chief and most dreaded danger, and unfortunately the condition of the scar is in most instances an absolutely unknown factor. Gamble [2] has shown than an afebrile puerperium does not guarantee a well-healed uterine wound. Findley,[3] in 1916, collected sixty-three cases of rupture of the scar in subsequent labor, with seventeen maternal deaths. Holland,[4] in 1920, brought the total up to ninety-seven, with twenty-eight maternal deaths. Gamble, in 1922, reported a case occurring at the Johns Hopkins Hospital. Doubtless several others could be found scattered through the literature. In our series, subsequent rupture occurred twice in the cases followed up (these two cases are included in Findley's and in Holland's series); and four cases of ruptured scar occur-

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2. Gamble, T. O.: A Clinical and Anatomical Study of Repeated Cesarean Section with Especial Reference to the Healing of the Cicatrix and to the Occurrence of Rupture Through It, Bull. Johns Hopkins Hosp. **33**: 93-106 (March) 1922.

3. Findley, Palmer: Rupture of the Scar of a Previous Cesarean Section, Am. J. Obst. **74**: 411-432 (Sept.) 1916.

4. Holland, E.: Rupture of the Cesarean Section Scar in Subsequent Pregnancy or Labour, Lancet **2**: 591 (Sept. 18) 1920; Proc. Roy. Soc. Med., London, Sect. Obst. & Gynec. **14**: 22 (Nov.) 1920.

ring in patients operated on in other institutions came under our observation.

Many observers have noted at cesarean operations which were the second undergone by the patient thin cicatrices which might have ruptured had labor been permitted. Thus, Harrar,[5] at the New York Lying-In Hospital, in fifty repeated cesarean sections, noted thin scars in four cases, partial rupture in two, and complete rupture in two. Van Leuwen[6] found twenty thin scars reported in 117 collected cases in which the condition of the cicatrix was noted. Gamble states that, of fifteen cases in which the uterus was removed and in which definite information as to the former puerperium was available, the following points were noted: of seven cases with previous febrile puerperal periods, no trace of the scar could be found in six instances, and it was only slightly thinned in one specimen. In eight cases in which there was no fever after the previous operation, the scar could not be located in three specimens; while healing was good in three, fair in one and poor in one. In our series, of ten second cesarean sections, the cicatrix was noted as thin in three cases, and strong in two; while its condition was not noted on the record in five instances. These thin scars are the dangerous ones. It is universally conceded that a well healed scar will stand the strain of subsequent labor. In fact, in this connection, the term "scar" is really a misnomer, as in such cases healing takes place by muscular regeneration across the gap, rather than by the formation of connective tissue.

The chief factor involved in the production of a defective scar is infection of the uterine wound, which we assume to be a probability when the puerperium is febrile. Newell[7] holds that repeated section should be considered obligatory in patients with a history of fever during convalescence. Gamble's[2] observations on fifteen cases, however, tend to show that the character of the convalescence cannot be used as a criterion as to the condition of the uterine cicatrix. Findley holds the same opinion. The suture material has been blamed; and Holland contends that catgut is the least trustworthy, with a rupture incidence two and one-half times as great as is the case when silk is used, and that silkworm gut appears to be best of all. Others feel that the material used in suturing the uterus is a secondary consideration, and that the suture technic is the all important factor. The sutures should not be placed until the uterus has contracted and retracted, unless free bleeding forces one to hurry, and they should be tied tightly in order to allow for subsequent relaxation due to the "unrest" of the uterus. The occasional attachment of the placenta to the scar has been mentioned as a factor in producing rupture, but it seems to play a minor rôle in the etiology. Thus, in our six cases of ruptured scar, the location of the placenta was noted in but one instance, and in this patient it was on the posterior wall of the uterus, and not over the cicatrix. In the ten repeated sections, it was over the thinned-out scar in one case, not over it in one case, and not noted in eight.

The location of the incision is a matter of importance, the transverse fundal type being generally held to be especially weak. Barris,[8] however, takes the contrary view. Only one case of rupture of the scar following transperitoneal cervical section was found by Holland. We must bear in mind, though, that this operation has not been employed nearly so often as the classic section, so that judgment must be suspended until more evidence has been accumulated. Other factors mentioned are: autolysis of the uterine muscle fibers, the "unrest" of the muscle during involution (Kerr[9]), incision over the placental site, and degeneration of the muscle fibers in cases of eclampsia and toxemia. Operative manipulations, excessive distention of the uterus, the use of pituitary extract, etc., are accessory factors, especially when the cicatrix is already weak. It is interesting to note that rupture often occurs in the absence of labor pains, at times several weeks before term. In one of the cases of this series, the uterus ruptured at seven months, while the patient was performing her usual household tasks.

The frequency of this accident has been variously estimated. In our series, of seventy-eight patients in whom subsequent pregnancy was possible, only twenty-three could be traced, in whom twenty-three full term pregnancies occurred; the scar ruptured in two of these cases. Findley concludes that "not more than 2 per cent. of ruptures occur in subsequent labors," but gives no figures to support this contention. Holland collected statistics from twenty-six hospitals and surgeons in England, with the following results: total number of cases, 1,605; followed up, 1,103; no subsequent pregnancy, 613; subsequent pregnancy, 487; outcome of the pregnancies: (1) natural delivery, 78; (2) repeated cesarean section, 352; (3) aborted, 47; (4) patients pregnant when heard from, 86; (5) ruptured scar, 18.

Adding 1, 2 and 5, he gets a total of 448 pregnancies at or near term, with eighteen ruptures, or an incidence of 4 per cent. But Holland apparently failed to note that 352 of these were delivered by cesarean section. Some of them may have had the test of labor and hence a test of the scar, but this point is not mentioned. Eliminating these 352, we have ninety-six patients who were allowed to test out the cicatrix, with eighteen ruptures, or 18.75 per cent. Similarly, Gamble, in a study of sixty-three pregnancies occurring in fifty-one women previously subjected to cesarean section, reports one ruptured scar, an incidence of 1.5 per cent. But only seventeen of these cases terminated in vaginal delivery; the other forty-five patients were again delivered by cesarean section. Hence, the correct figure would be one rupture out of eighteen tests of labor, or 5.5 per cent. This percentage is lower than the one obtained from Holland's larger series; but we must bear in mind that Gamble's report is based on the work of a single well-organized clinic. Holland's figures, covering the work of twenty-six different hospitals and surgeons, certainly present a more accurate picture of the results to be expected in average hands, and serve to emphasize the fact that subsequent rupture is a real menace.

A brief review of the six cases of ruptured cicatrix embraced by this report follows. This accident may occur without occasioning very grave symptoms; this point was noted in three of our cases.

REPORT OF CASES

CASE 1 (Previously reported by C. Jeff Miller to Findley and included in his and in Holland's series).—Cesarean section was performed after long labor with failure of engage-ment of the head. There was febrile convalescence. Labor occurred at full term fifteen months later. The patient was placed on the operating table, as trouble was feared. Rupture of the scar occurred, and the patient died before the abdomen could be opened.

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[5] Harrar: Am. J. Obst. **65**: 808, 1912.

[6] Van Leuwen: Ann. de gynec. et d'obst., October, 1904, p. 577.

[7] Newell, F. S.: Cesarean Section, New York, D. Appleton & Company, 1921, p. 133.

[8] Barris: Discussion of Holland's paper (Footnote 4).

[9] Kerr, J. M. M.: Proc. Royal Soc. Med. London, Sect. Obst. & Gynec. **14**: 121-131, 1920.

Case 2 (Included in the two series mentioned above).—The patient was operated on in the Charity Hospital in 1914, on account of a borderline contracted pelvis. She was admitted in labor, with the membranes ruptured, and a temperature of 101.6 F. There was a rise in temperature during the puerperium; the wound was clean. The patient was readmitted to the same hospital in labor at term eighteen months later. Her general condition was good, but she gradually became worse, and developed severe abdominal pain. Laparotomy was performed by Dr. M. J. Gelpi, and the scar was found to be ruptured. The dead fetus was removed, the cicatrix was excised and the wound was sutured with three layers of catgut. The histology of this scar, as well as of that in Case 5, and of the uterus in Case 6, will be reported in detail by Dr. Gelpi.

Case 3.—The patient, aged 18, was admitted to Charity Hospital, March 26, 1916. She had undergone cesarean section two years before in Chicago. This was a case of borderline contracted pelvis (spines 23 cm., crest 26 cm., trochanters 28 cm., external conjugate 18 cm., internal conjugate 8 cm.). The patient had been in labor two days, and the membranes had ruptured six hours previously. One c.c. of pituitary extract was given by the midwife two hours before admission, after which the pains became very severe, and then stopped. The general condition was fair on admission. At operation, the scar of the previous operation in the lower uterine segment was found ruptured; very little hemorrhage had occurred, and the dead fetus was removed from the uterus by forceps. The uterus was sutured; a stormy, septic convalescence followed. The patient was delivered by cesarean section again, Sept. 7, 1917, at another institution.

Case 4.—The patient had been operated on at another institution about two years previously. Indication for operation was not ascertained. She was admitted to the Charity Hospital with a history of indefinite abdominal pain and slight vaginal bleeding for several days. She was very ill with bronchopneumonia, and died in three days. At necropsy, the dead and macerated fetus was found free in the abdominal cavity, and the cesarean scar was ruptured. This had no doubt occurred before admission.

Case 5.—The patient had been operated on at another hospital two years before for placenta praevia. Dec. 25, 1919, when she was about seven months pregnant, the uterine cicatrix ruptured, with no previous labor pains. Immediate operation, with removal of dead fetus, excision of scar and suture of the uterus, was performed, followed by transfusion. Recovery ensued, following a temperature of from 100 to 101 F. for four days. The wound was clean.

Case 6.—This patient (Case 5) returned to the hospital on Dec. 16, 1920, with symptoms of ruptured scar, but in much better general condition than when previously admitted. At operation, the cicatrix was found to be ruptured, the living child was removed and supravaginal hysterectomy was performed, with recovery. The patient is now in excellent health.

COMMENT

In this connection, I may note that in one of the fatal cases of the Charity Hospital series, an attempt was made to exclude the abdominal cavity by suturing the uterine to the parietal peritoneum. The patient died of peritonitis. Evidently, the suture line was not infection proof, a point which is stressed by Newell. In another fatal case, the upper end of the uterine incision was found to be necrotic and open at necropsy, with free communication between the uterine and abdominal cavities. In a very recent case (not included in this series), peritonitis developed on the eleventh day, and death occurred three days later. Necropsy disclosed the fact that the uterine incision had opened for its entire length and depth, and streptococci were isolated from the uterine and abdominal cavities. Each of these patients had been examined only twice, no attempt at delivery from below having been made. In each case, the indication was a borderline contraction of the pelvis.

CONCLUSIONS

It appears, then, that we should restrict rather than broaden our indications for cesarean section. In our obstetric teaching, we must lay more and more stress on the importance of prenatal care, including especially the importance of careful pelvimetry and of the early detection and proper treatment of toxemia. Craniotomy or embryotomy on the dead baby can be resorted to more frequently, pubiotomy may occasionally be employed, and the use of the Porro operation can be advantageously extended in infected cases. The low extraperitoneal operation, through the lower uterine segment, or partly through this structure and partly through the upper portion of the cervix, is being developed and popularized by the work of De Lee, Polak, Kerr, Blair Bell and others, and bids fair to become the operation of choice in the great majority of cases in which there is infection, especially if its claim to a lower percentage of subsequent rupture of the scar is borne out by experience.

Medical Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. DE LEE AND CORNELL AND OF KING

Dr. Charles E. Paddock, Chicago: Twenty-five years ago when I performed my first cesarean section, the only indications for the operation were contracted pelvis, or tumor obstructing the pelvic canal. Today the indications seem to be multiple; sometimes even the wish of the patient to have her baby in this way is considered an indication. No wonder that cesarean operations are reported by the hundreds. Obstetricians boast of rather than conceal the number of these operations. Up to the present time the classical cesarean section in which the uterus is opened in the upper segment has been the operation of choice. There have been many attempts to make the operation an extraperitoneal one, which has not always had good results. The operation under discussion today, the so-called cervical cesarean section, is new only in a few minor modifications. I should heartily welcome an improvement on the classical cesarean operation, but I cannot feel that the lower segment operation is the better operation. I agree with Heany and Holmes and others of my colleagues in their belief that the classical operation has a lesser mortality and morbidity. Under the worst conditions, my results in the classical cesarean section have been excellent. I have operated under the most insanitary conditions and in infected cases without a maternal or fetal death. One cannot ask better results. True, in two of my cases in which operation was performed many years ago, the uterus ruptured in subsequent pregnancies. But with the present technic I think such a happening impossible. Besides, such misfortunes have happened in the lower operation as well, although its advocates claim the contrary. I wonder in how many of the 144 cases reported on today the incisions extend into the upper segment of the uterus. And why prefer an operation that takes an hour and a half when the classical operation takes half an hour? And why report only things favorable to the operation? The advocates of the lower segment operation claim that by this method the spill does not enter the peritoneal cavity. There is as much danger of the spill getting into the abdominal cavity in this operation as in the classical operation. Not only do statistics prove this to be true, but I have seen it myself. Not long ago I had occasion to perform the classical cesarean operation in several cases in which I had operated previously. I found comparatively no adhesions. And, on the other hand, not long ago, I saw a second cesarean section through the lower route, and found extensive adhesions.

Dr. Rudolph W. Holmes, Chicago: There is nothing to show that any modification of technic of modern cesarean section has improved morbidity and mortality, whether classic or low cervical. All the phenomenal lowering of morbidity and mortality has come from a refinement of individual skill, and the adoption of ultramodern principles of surgical methods. Success of modern cesarean section depends more on the skill of the conscientious operator and his operating room personnel than on any other single factor. As a corollary, success has been obtained by a proper conduct of labor before the section—absence of vaginal examinations, minimum of rectal examinations, and proper supervision during the hours of labor. Conversely, the woman subjected to a cesarean section in advanced labor is jeopardized by the fact that unknown by-products of forced metabolism are developed which undoubtedly lower immunity. Supplementing this, prolonged rupture of membranes is grossly inimical to the woman's welfare. High mortality is due to frequency of vaginal examinations and attempts at delivery. The haphazard methods of the occasional operator doing a section, with inadequate facilities, have made the high mortality in many parts of the country. This is typified by statistics computed from the experience of a number of operators. The unskilled operator, the injudicious placing of indications, all spell disaster. The figures thus obtained are infinitely higher than in the experience of a few operators with considerable numbers of sections. Today, the cesarean section mortality should not be more than 1 or 2 per cent. in safe hands. Kerr, twenty years ago, stated that the one advantage of the Fritsch incision was that it was farthest from the potentially infected cervix. It has not been proved that the same skill and obstetric conscience brought to bear in the classic section offers one whit worse mortality and morbidity than this reintroduced low cervical section. There is only one way to prove the advantage—by having the individual operator do alternate classic and low cervical sections with the same placing of indications. Latzko's method, improved by Beck, which De Lee follows in essential detail, according to Beck, has more marked postoperative reaction than has classic section, owing to the greatly increased traumatism of tissues. I admit a marked difference of tolerance between the peritoneum about the liver and stomach and that of the pelvis. No clinical evidence has yet been adduced which will substantiate the allegation that the corpus peritoneum is more susceptible to bacterial invasion than that on the lower segment. The "spill" of blood and liquor amnii in all types of cesarean section is comparable. Three of my first five sections up to 1906 ended fatally. In the succeeding eighty-five cases of classic operations done on nontoxic women, one woman died of a focal infection emanating from the throat, sequential to a severe cold, pleurisy, etc. Of the first thirty-seven patients up to 1913, 13.5 per cent. had delayed convalescence; of the last fifty-three, this incidence was 7.2 per cent. The lowered mortality of classic and low cervical cesarean sections is almost entirely independent of a selection of cases, since indications for cesarean section these last few years, in many quarters, virtually includes every reason which might obtain before the birth of the child. Indications for cesarean section must be curtailed, not broadened. A section is at least ten times as dangerous as a normal labor.

Dr. George Gellhorn, St. Louis: Six or eight years ago, before Dr. De Lee took up this work, I happened to perform a small series of four low cervical cesarean sections in quick succession, and was very much pleased. Hirst and I published our results about the same time. Then I happened to see Asa Davis do a high incision at the Lying-In Hospital in New York. I was so fascinated by the lightning rapidity of the operation that ever afterward I made this high incision. In virtually every case, however, no matter how much painstaking attention I had paid to asepsis, the selection of the case before the operation and to the most careful surgical technic, I observed slight rises of temperature without any tangible evidence as to the cause of it; and I was forced to the conclusion that either the uterine incision was not healing properly, or more likely, there was a formation of adhesions. In most of my cases and many of those done by others with this high incision, I have found the uterus fixed by adhesions in abnormal position and I could further verify the diagnosis of adhesions on doing a second laparotomy. And yet I had taken special precautions against adhesions. Recently, I have gone back to the low cesarean section and I am much pleased with it. I do not do such operations very often. As a matter of fact, I very much applaud the remark by Dr. King that the indications for cesarean section should be restricted rather than enlarged. There is just one technical detail which will make the operation that Dr. De Lee and Dr. Cornell described today still more attractive. If Dr. De Lee will operate on his patients in the Trendelenburg position, he will be able to incise the cervix alone. The criticism of Dr. Paddock was very true. The incision in this operation was partly in the uterine muscle. We do not need to put it in the muscle. As soon as the incision extends into the muscle, it is subject to all the disadvantages of the constant contraction and that unrest which interferes with perfect wound healing. Somebody claimed that there have been cases of rupture recorded after cervical cesarean section. I am quite sure that that is true. What method is there that will yield perfect success in 100 per cent. of cases? Dr. Holmes' "classical" cesarean section will not do it, nor will any other method ever be proof against such a complications. But I believe that the cervical incision offers greater safety than the other methods. In speaking of the classical operation, I wish Dr. Holmes had defined what he meant. We think of the enormous incision with the whole uterus pulled out of the abdomen as the "classical" section. I cannot imagine that he means that antiquated method. He must mean something like the high incision.

Dr. Holmes: The anterior incision.

Dr. David S. Hillis, Chicago: In the last five years I have had considerable experience with the low cervical cesarean section; about fifteen of the operations included in this series were done by me, and about twice as many at another hospital. There are two important things desirable in cesarean section: the first is to reduce the danger of infection at the time of the operation, when it is not done early or when it is done after the test of labor. The second is to reduce the danger of a rupture of the scar in a subsequent pregnancy. It is not claimed that this operation solves the whole question on these two points; but if it accomplishes either purpose to any extent, it deserves a place in obstetrics. With regard to results: I have observed the work in the Lying-In Hospital during the period covered by the statistics given in this paper, and it is a fact that since the low cervical operation has been done, the field for the operation has been extended quite decidedly in the direction of the suspicious or possibly infected case. During the time the classic operation alone was performed, the indication for classic cesarean section was closely restricted to the clean case. With regard to the scar in the lower uterine segment, that is a point which still permits of some discussion. This operation is best adapted to the cases which have been in labor for some time, in which the lower uterine segment is increased in length so that there is plenty of room to make an incision long enough to permit the passage of a large head. When the operation is done before labor starts, there is at times difficulty in finding room enough in the lower uterine segment to extract the head without invading the contracting portion of the uterus with the incision. I do not believe that this operation should entirely supplant the classic cesarean section, because there are some cases to which it is not so well adapted. There is no question that the low cervical cesarean section has come to stay, and it is certainly a valuable addition to the methods of abdominal delivery.

Dr. Benjamin H. Breakstone, Chicago: I agree absolutely with Dr. Holmes, except that he is somewhat too dogmatic. I do not believe it is criminal if we do not wait, if the indication originally points to a cesarean section. In a case of contracted pelvis, I believe it is criminal to wait.

We have not recognized until recently that the cesarean operation was a last resort operation. After the patient has been in labor 100 hours, and so forth, after she is weakened and lowered in vitality, if a cesarean is made then, why wonder that there is a fatality? This operation is called a trachelolaparotomy. I can also look back over twenty years, and I cannot see from the method as illustrated where the cervix leaves off and the body of the uterus begins. Every cesarean section is a body operation. The indications for cesarean section are largely to gain more room and to get the baby out quickly. But as the method is described there is not enough room, and forceps must be applied to get the baby out. Years ago we were afraid of large incisions. We are going back to that in this operation. If the incision is large enough, the operation can be performed quickly; and if it is a last resort operation, it should be done as quickly as possible. A great deal has been said about a rise in temperature. How many normal deliveries happen without a rise of temperature? They are seen in every hospital. I agree with Dr. Holmes that with any technic, if developed, and if the indications are made out early enough, there is no more danger in doing a cesarean section than there is in doing a laparotomy for anything else.

DR. BERTHA VAN HOOSEN, Chicago: I am particularly interested in the importance that the authors and all of those who have discussed the subject have given to the temperature during convalescence. At the Cook County Hospital we had two patients side by side. On one I had performed a high cesarean section, on one day, and on the next day the resident surgeon performed a high cesarean section on the other patient. The patient on whom I operated had virtually no rise of temperature, and she felt fairly well; but she did not have as smooth a convalescence, as far as subjective symptoms were concerned, as the patient on whom the resident surgeon operated. But the temperature of the patient on whom the resident surgeon operated was 103, 104 and 105 F. virtually every day between the second and the twelfth or fourteenth. However, the sutures were removed the same day. Both wounds were in good condition and the two patients went home the same day, well. Why did one patient have so much fever and the other not? To me, it was very easily explained. Many years ago I learned at the Mayo Clinic that when sutures are put into the uterus when a myomectomy is performed, if they are tightened too much, there is increase of tension, and that will cause, during convalescence, a rise of temperature that will make the operator very uncomfortable but almost no one else. The patient will not be especially ill. I believe that young operators, those who are afraid of rupture of the uterus, and those who are naturally very careful in closing wounds will get so much tension on the uterine tissue that necrosis results. The amount of necrosis will determine the degree of temperature elevation. Although two or three layers of sutures were put into the uterus in the lower segment, I think it is virtually impossible to put in more than one, it is so thin. I regret that Dr. Cornell put in so many sutures because any one trying to follow him will try to put in those three layers. One can hardly put three layers of sutures in a cervix stretched out so that it is almost as thin as a piece of cambric. One can put in one suture very nicely and one probably will not get it quite as tight as if one put in three sutures in the high cesarean section. I have watched very carefully to see who of four of us would get the best results, whether from the high cesarean section, which I do, or the low cesarean section, which Dr. Hillis does, and I have decided that mortality does not prove anything. I think it is too bad to discard a low cesarean section on account of the mortality, or to say that it is superior to a high section. The last cesarean section I did on a patient who had meningitis. She had a general sinusitis which came from an infection of the middle ear. She was brought in unconscious. Just as soon as the diagnosis was made I did a cesarean section, not to save the woman, because I knew she would be dead in twenty-four hours, but as an aid to save the baby. The baby is alive today and in good condition. The mother died in twenty-four hours. The necropsy disclosed evidence of an infection which she could not have withstood. The cesarean section did not lessen her chances. It simply gave the baby a chance.

DR. JOSEPH L. BAER, Chicago: The only objection to classic cesarean section is the risk of peritoneal infection, in the exposed cases. I saw the old Latzko extraperitoneal cesarean section attempted six times in the course of five months in 1907. The operator nicked the peritoneum three times, so that in half his cases he defeated the object of the operation. However, that was at the beginning of his series. We are doing extraperitoneal sections in the infected cases at the Michael Reese Hospital. So far we have opened the peritoneum once in five times. There are various incisions. The skin may be incised along the outer border of the rectus or obliquely, as for inguinal hernia, but on a somewhat higher plane of the abdomen. Then, splitting through the external oblique and transversalis, the previously distended bladder is revealed and dislodged toward the median line, and then emptied. The fat is dislodged downward and laterally. The unopened peritoneal reflection is carried upward, and the lower uterine segment is exposed. The incision in the uterine wall is made as near the midline as the dislodgment of the bladder will permit; the nearer, the less hemorrhage from the lower branches of the uterine artery. The remainder of the operation is identical. Forceps are necessary to deliver the head through this opening. The favorable position for application, face anterior, is procured. To sum up: Extraperitoneal cesarean section is indicated in infected or exposed cases, in which group it affords security that no transperitoneal route can give. Its availability is limited to those cases in which the patient has been in labor long enough to pull the bladder up, and it cannot be used when haste is required, as the dissection and exposure takes time.

DR. E. L. CORNELL, Chicago: The ruptured uterus mentioned by Dr. King was a case in which the lower portion of the body of the uterus was opened, the rupture occurring in that section of the uterus. The incision is limited to the lower uterine segment. If the patient has been in labor, or if lightening has occurred, in the majority of cases, it is not difficult to distinguish between the lower uterine segment and the body of the uterus. The sections that were performed at the Chicago Lying-In Hospital were not performed by myself and Dr. De Lee alone. They were the entire series that have been performed at the hospital, which is an open institution. The cesarean section has been performed by many men. It was performed by us for other men. Most of these patients had vaginal examinations, forceps attempts, etc. The cesarean section then was done under conditions which are ordinarily considered adverse for any cesarean section, and the results that we quote are given with that idea in mind. Dr. Paddock was unfortunate in seeing one of the errors of technic. In our early work, in mine particularly, we did rupture or tear or cut the lower portion of the body of the uterus. This was not intentional. Later we were able to judge better—and practice makes perfect—so that we do not get into difficulties now. In the early cases the incision was not low enough or long enough. Occasionally, with a 10 or 11 pound baby, we do get an extension of the incision. It may tear around the lower end, but in the average case now we do not get any more tears. Dr. Gellhorn spoke about the incision going into the lower portion of the body of the uterus. This is not so as shown by our pictures of the technic. We do put the patients in the Trendelenburg position in most cases. More recently I have been operating in the flat position. I feel that we get equally good results. The forceps are applied because it is rather difficult to lift the head out of the false pelvis without putting the hands into the uterine cavity. This, we wish to avoid. I am under the impression that we do not have a rise of temperature in more than possibly 5 per cent. of the normal cases; that is, cases without vaginal examinations. Dr. Van Hoosen spoke about the three layers of sutures. The lower uterine segment, in the majority of cases, is about 1 cm. thick at the end of delivery. We put the first layer of sutures into the cervix, not including the mucous membrane. It includes only the muscle structure. The second row of sutures goes through the top of the muscle and ties to the lower end. The third row is not in the uterus at all. It is in the uterine fascia, the fascia that lies between the bladder and the uterus. Dr. Baer spoke about the extraperitoneal operation. That is a good operation, but it is limited to a patient who has been in labor. We are doing the low cervical cesarean section in preference to the classical cesarean section at the present time, except in very large obese women. We do not do it then because of the difficulty of working through 4 or 5 inches of fat.

Dr. E. L. King, New Orleans: I want to stress the fact that this is simply a cross section of the work of twenty-five different men, covering the last twenty years. I wish to emphasize the need of teaching obstetrics so as to minimize the dangers of this operation. If we can get the contracted pelvis before it is contaminated, we shall have a lower mortality.

PROPHYLAXIS OF MALIGNANT GROWTHS OF THE MOUTH, FACE AND JAWS *

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Little more is known of the origin and nature of cancer than was known many years ago. Clinical considerations and experimental observations have accumulated which have enriched the literature of this subject, but the incidence of cancer increases. Although this is both appalling and true, there is, nevertheless, reason to believe that, out of the spirit of sacrifice and the genius of persistence of the laborers in this field of research, a solution will come eventually. The united efforts of pathologists, clinicians, statisticians and general practitioners will finally unravel the mystery of cancer, and probably through the study of the four factors of incidence, heredity, agency of transmission and pathology.

It is perhaps to the experiments of the laboratory that we look with the greatest confidence; but the clinical notations of the physician and surgeon who deal with cancer in man must be deemed of interest and importance.

Gully emphasizes the importance of researches outside the laboratories, believing that these may yield information of surprising interest, and perhaps of vital importance. Thus, he directs attention to the circumstance that the naked or almost naked races hardly know the disease, that it is rare in Egypt and India, and that our American Indians do not have it.

Why do not the naked races along the equator have cancer. What relation does vegetarian diet or the effects of the sun's rays or both bear to this apparently established fact? It cannot be denied that cancer abounds in the colder latitudes where the meateaters dwell and where sunshine is less constant and intense.

I have seen but one statement which would tend to destroy suspicion in this direction, and that relates to an observation that cancer is unknown within the arctic circle; and this statement, in view of necessarily meager researches, is perhaps open to doubt.

As a believer in the value of sun therapy, appreciating the bactericidal power of the sunlight and its great usefulness in the treatment of tuberculosis, syphilis, etc., one cannot consistently ignore the possibilities, in the way of beneficent results, of further investigations along this line with respect to cancer.

The long-known value of the sun's rays in the sterilization and healing of wounds and its importance in the prevention and cure of disease are still not sufficiently recognized. What relation the sun bears to the prevention of cancer only earnest unprejudiced study can determine.

Food may conceivably be a factor, and many scientific men have advanced this view. These views based on sporadic personal observations are perhaps indefinite enough to warrant us in refusing adherence to them; but no one who seeks the great truth of cancer prevention can afford to ignore them.

Hoffman says that cancer is more common among the well-to-do and ascribes its frequent incidence in this group to hypernutrition. Here one might fairly make the point that overfeeding among the rich is only one of many factors tending to lower the index of vital resistance. Excessive smoking, lack of physical exercise, worry and many devitalizing indulgences surely enter this consideration.

Ochsner is impressed by observations relating to the importance of raw vegetables in cancer dissemination, noting that the Japanese who eat raw vegetables in abundance suffer much from cancer, and that the inhabitants of India, who are obliged by their religion to boil their food, know little of cancer, especially of the intestinal tract. Cancer, when it occurs in Japan and in India, is largely confined to the chewers of the betel nut and the users of charcoal stoves.

Dr. William Mayo suspects that the more frequent incidence of cancer among inhabitants of the colder regions is due in part to the taking of hot foods, notably hot fluids. By others coal tar and coal smoke have been blamed.

Concerning the question as to whether the low rate of incidence of cancer in hot countries is due to the effect of the sun's rays or to abstinence from meat, it may be said in support of the latter possibility that, in herbivorous animals, when cancer occurs it is usually in the respiratory tract.

Syphilis is apparently established as a precursor of cancer. There is much evidence to justify this assumption, but after all it is merely an assumption. It would be as easy to show by statistics that syphilis provides immunity against cancer as it would be to prove a definite causal relationship between syphilis and cancer. For example, in Egypt cancer is almost unknown, yet syphilis, the "botch of Egypt," of the Bible, is widely prevalent. In the West Indies, where syphilis afflicts more than 90 per cent. of the inhabitants, one might expect to find cancer equally disseminated, but cancer is of only moderately frequent incidence here. One might explain these apparent paradoxes and adhere to the belief in syphilis as an etiologic factor in cancer by assuming that the hot sun and the vegetarianism of the semitropical regions offset the predisposition of the syphilitics to cancer; by assuming that the more frequent incidence of cancer in colder countries, less syphilized, is due to the greater prevalence and activity of other factors predisposing to cancer, such as hypernutrition, overwork and worry, or by assuming that, owing to the high death rate of syphilis in childhood, a comparatively small proportion of syphilitics reach the cancer age. However, there is, of course, no doubt as to the rather frequent development of cancer on the site of syphilitic lesions, as in the

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mouth. The interesting question here is whether the chronic inflammatory area of leukoplakia is more likely to become the site of cancer than is any other chronic sore of the mouth; for example, the granuloma at the tooth root, or the ulceration from pressure and irritation of a tobacco quid or a jagged tooth crown. This question is especially important in view of accumulating evidence that cancer bears a rather constant relation to inflammation.

That cancer is contagious in the ordinary meaning of this word is, I think, considered quite doubtful. However, of the fact of its inoculability there is no doubt, as is proved by animal experiments; and yet practicing surgeons will be disposed to wonder whether cancer is very readily inoculable in the human; for every one of us must have pricked a finger many times without local inoculation in the course of cancer operations, particularly before the day of rubber gloves; which seems strange in view of the high rate of incidence of cancer at the site of inoculation in animals, for example, by Fichera, Nuzum, Slye and others. Certainly, in view of the results of animal inoculation, one would not care to consult a dentist who does not sterilize his instruments and hands, if there be such a dentist.

The occurrence of cancer in plural instances in the same family, "cancer a deux" of married couples, cancer villages, cancer streets, etc., have long been looked on as strongly indicating heredity as a factor in cancer etiology. These observations, of course, do not establish the truth of heredity. Since the same village, street, or home often means the same habits, environment, occupation, etc., it is just as fair to seek the reason for cancer dissemination in the latter group of factors as in the former ones implying familial or other intimate connections. Mice experiments (for example, those of Slye) have given much stronger support to the hypothesis of heredity.

The question as to whether cancer is primarily of a local or constitutional nature is interesting to any one considering the matter of cancer prevention. L. Duncan Bulkley [1] has pointed out that, during the last 100 years, many famous surgeons, among them Abernethy, Sir Astley Cooper and Sir James Paget, have expressed the belief that cancer is a constitutional disease. Bulkley presents a chart setting forth laboratory findings and statistical, biochemical and clinical evidence in support of his contention. He stresses the importance of blood changes in early and late cancer, and of metabolic changes in the system before and after the development of the local cancerous lesion, and states that dozens of hundreds of patients with cancer have been benefited and cured by other than local measures.

Moreover, a recent writer [2] declares that cancer has never been proved to be a local disease at any stage and that it has never been proved not to be a constitutional disease at every stage. Now, if it were true that cancer is from the beginning a constitutional disease, then, of course, all of our efforts to lower the incidence of cancer of the mouth, jaws and face by the removal of jagged teeth, the cure of leukoplakia, or the interdiction of the pipe when, for example, the area of irritation appears on the lip, would be to little purpose; but every surgeon, out of his own experience, can recall at least several instances in which cancer has been ablated completely and permanently; for example, by the amputation of a hand or foot or removal of a lip; and such men will look with little favor on this view, even though it is held by so earnest and distinguished a man as Bulkley. Even those who refuse to admit that "if a man past middle life does not smoke heavily, nor chew tobacco, cares for his teeth and keeps his mouth clean, he is very much less likely to have cancer than one who does not follow the simple laws of mouth hygiene," will admit, at least, that such a man is less likely to have cancer of the mouth; and this is a matter of the greatest importance. Even admitting what is probably not true, that is, that cancer is primarily constitutional, it is, nevertheless, of tremendous importance to prevent its appearance in the mouth, since the history of the results of all forms of treatment of cancer of the buccal cavity constitutes a very dark chapter. This pitiable record shows its extreme malignancy, principally, of course, because of the richness of this zone in blood and lymph vessels and glands, and the intimate relation to vital structures.

That a lesion which is benign in its histologic nature may develop malignant character is no longer open to serious doubt. Paine believes that he has observed all stages and sequences of degeneration, from chronic inflammation of the breast to cancer. McCarthy's classification of chronic mastitis into primary, secondary and tertiary stages sets forth such sequence.

Clarke [3] believes that cancer results from inflammation when the process is prolonged beyond the regenerative power of the tissues; and Dr. C. H. Mayo has expressed the view that cancerous degeneration at the margin of the gastric ulcer may be due to exhaustion of the marginal cells, as a result of a long ineffectual attempt to cover the denuded area. Whatever the explanation, empiric proof is abundant to justify the long recognized principle of cancerous degeneration of benign lesions.

Naturally, in the region of the mouth, the dentist is the "master man in the struggle to combat malignancy." It is to him that we must look to give out the warning against danger of the early lesions of tobacco, alcohol, hot drinks, pyorrhea, syphilis, etc.

It is well established that cancer of the lip, mouth and tongue practically always attacks men who abuse tobacco, have jagged teeth, and ignore the dentist. As to lip cancer, the mere fact that 3,500 in round numbers die annually in this country from carcinoma of the lip, demands that interested attention be given to the matter of smoking. This, at the present time, concerns men as a rule, since lip cancer is six times more common in men than in women, lip cancer in women nearly always developing among pipe smokers. However, if the emancipation of American women in this respect becomes as complete as it is in Scandinavia, where ladies of perfectly apparent refinement smoke black cigars quite publicly, we may expect a higher rate of incidence of lip carcinoma among women.

Bloodgood,[4] speaking of tongue cancer says that there is always a warning sore spot, a white patch, or an area of irritation, and that examination and treatment at once protects from cancer. He further declares that the warnings of cancer of the tongue are definite and that in the beginning the lesions are not cancer. These warnings are white patches, bad teeth, areas of irritation and ulcers. The same is, of course, true of cancer of the lip, gums and mouth generally.

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[1] Bulkley, L. D.: Med. Rec. **114**: 85 (July 20) 1921.
[2] Little, S. W.: Med. Rec. **100**: 407 (Sept. 3) 1921.
[3] Clarke, T. C.: Lancet **2**: 1298 (Dec. 25) 1920.
[4] Bloodgood, J. C.: Cancer of the Tongue: A Preventable Disease, J. A. M. A. **77**: 1381 (Oct. 29) 1921.

As an indication of the excellent results accomplished by the educational campaign of the American Society for the Control of Cancer, it is noted by Bloodgood that one of the large surgical clinics of this country has just completed a study of about 265 cases of areas of the tongue that were cancerous and of areas that were not cancerous. In the first decade, up to 1900, but one person (3 per cent. of the total number) consulted this clinic for a sore on the tongue which was not cancerous. In the third decade, from 1910 to 1920, seventy-one persons, or 48 per cent., came for advice before cancer had started. Since the beginning of the fourth decade, nineteen men, or 55 per cent., have, because of the educational movement, come under observation before cancer had started.

Therefore, of 265 men who thought they had cancer of the tongue, in 105, or 40 per cent., protection from cancer has been accomplished by the dissemination of information only.

Little[4] assumes that cancer is a constitutional disease in the same sense that premature old age is a constitutional disease, and suspects that it may be controlled by the same means; but he does not deny that chronic irritations are the usual sites for the appearance of cancer and concedes, after an interesting review of statistics, that smoking is almost a prerequisite for the appearance of cancer of the lip.

It is, of course, our plain duty to encourage every effort to discover the nature and ultimate cause of cancer; but, in the meantime, no dentist or physician can justify himself in ignoring such an abundantly proven clinical or empiric fact that a man of middle age in whose mouth a quid of scrap tobacco rides habitually on a row of jagged molars, is courting disaster, regardless of theories as to whether cancer is primarily constitutional.

It is the work of such organizations as the Society for the Control of Cancer which is most productive of good results in the battle against this scourge. I believe that if almost any one of the men so actively and earnestly engaged in this field were asked to sum up in a single word everything that relates to our present day knowledge of cancer prevention, the one word would be "education," and although my views may be to some extent influenced by personal bias, I believe that this education should consist largely in teaching all those in middle life to exercise abundantly in the fresh air, to live in the sunshine and to subsist on a diet of fruits and vegetables as nearly as a sensible person can; and, moreover, to be sure that the foods are cooked and not eaten too hot.

That overeating is not only disgusting but dangerous should be taught, and that overwork and worry lower the index of vital resistance against cancer as well as arteriosclerosis. We should keep happy, employing the carefree philosophy of the negro, whose cancer incidence is low. We should not smoke much, or ever use a pipe, or chew tobacco.

Further education is necessary to impress physicians and the laity with the importance of recognizing precancer lesions of the skin and mucous membranes, especially when there is transition of epithelium, and dealing with them promptly. Finally, all must be taught that there is no health measure more important than rigid mouth hygiene, which, after all, means to employ a good dentist and to obey him to the letter.

331 North Delaware Street.

TEACHING THE FUNDAMENTALS OF SURGERY

FROM THE POINT OF VIEW OF THE GRADUATE SCHOOL *

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The Committee on Graduate Instruction in Orthopedic Surgery appointed by the Council on Education of the American Medical Association last year made certain fundamental suggestions concerning the training of orthopedic surgeons. The first paragraph of that report[1] is as follows: "This committee takes the position at the outset that orthopedic surgery is a branch of general surgery and that no preparation for the practice of orthopedic surgery can be considered satisfactory which does not comprise adequate practical training in the principles and technic of general surgery." This wise resolution no doubt explains why the chairman has asked me to talk on "the teaching of surgery" rather than on "the teaching of orthopedic surgery." What I have to say will relate to unorganized graduate medical training, to our experience in organized graduate work in the University of Minnesota, and to the lessons which may be drawn from that experience.

UNORGANIZED TRAINING

Unorganized graduate training in surgery and other special fields of medicine is, of course, no new thing. In this country, until recent years, most of it has been accomplished in internships, residencies, assistantships and apprenticeships, supplemented in some instances by short courses in so-called postgraduate schools either here or abroad, by visits to other clinics, and so forth. We must not forget that this unorganized, somewhat hit-or-miss system has been the chief factor in the development of the present-day leaders in all the special fields of medicine. It has many advantages, especially in that it permits the greatest freedom of choice on the part of the graduate student who desires to fit himself for practice in a special branch. Some of its disadvantages are:

1. The system is liable to waste the time of the graduate student. This ill-spent time apparently averaged more than a year for each of 217 leaders in special clinical fields who responded to questionnaires of the Committee on Graduate Medical Education of the American Medical Association two years ago.[2]

2. Students in surgery, when left to their own devices, are liable to strive for technical training before they have grasped the essential relationships of pathology, or have attained sufficient skill in surgical diagnosis. Even their technical training may be too narrow to produce broad-gage surgeons or orthopedists.

3. Interns, residents and assistants are too often selected from among the graduates of the school with which the hospital is connected. These young men, without experience elsewhere, may acquire only very provincial points of view and are liable, in turn, to become members of their medical school faculty. The result of this inbreeding has already shown itself, in some medical faculties, in early professional paresis.

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* Read before the Session on Orthopedic Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] A. M. A. Bull. **15**: 49-50 (January) 1921.

[2] A. M. A. Bull. **14**: 45-49 (July) 1920.

4. The failure of universities in the past to recognize by higher degrees standard attainments in special medical fields has resulted in the attempt to remedy this by such organizations as the American College of Surgeons and the American College of Physicians, which, though actuated by the best of intentions, must labor under great difficulties in any attempt to standardize large numbers of widely scattered applicants, of whose actual attainments they can have only the most superficial knowledge.

MINNESOTA'S EXPERIENCE

With some realization of the above-mentioned difficulties in unorganized graduate medical training, the University of Minnesota, seven years ago, undertook to reorganize the opportunities in its laboratories and university-controlled hospitals in Minneapolis and St. Paul, and in the laboratories and hospitals of the Mayo Clinic in Rochester, Minn., into a system which would provide means for selected graduate students, under advice of a competent faculty, to round out any existing weak points in their previous medical training and to fit themselves, on a broad educational basis, for practice in special clinical fields, including surgery and orthopedic surgery. Accordingly, a plan for graduate medical education, which, in general, follows that in operation in many universities for graduate work in the liberal arts and the other sciences, was formulated, and has been in operation since Jan. 1, 1915. Selected graduates of Class A medical schools who have had at least one year of graduate internship or laboratory work are accepted for periods of from three to five years of graduate work in a specific field. Our seven years' experience, so far as statistics go, may be summarized thus:

At present, more than 1,000 prospective candidates a year are seeking opportunities for graduate medical training in the Mayo Foundation, which is one division of the medical graduate department of the graduate school of the University of Minnesota. Of these, about 60 per cent. are inquiring for work in general surgery. Almost all of the remainder are seeking opportunities in other clinical fields. An exceedingly small number are seeking opportunities in the preclinical branches.

Of the 1,000 prospective students a year, many are discouraged at the outset by the small number of vacancies in fellowships available, by the long period of work required, or by the stringent educational requirements for entrance and graduation. However, about 200 a year do complete their formal applications for a three to five year service, including submission of their credentials, references and so forth. In all, 1,005 such complete formal applications have been filed in the Mayo Foundation. A careful analysis of these applications shows that 778 candidates were eligible and 227 ineligible for admission under the rules of the university. Four hundred and eighteen students have been accepted, of whom 184 have selected surgery and eight orthopedic surgery as their major field. All students in orthopedic surgery have, of course, taken work in general surgery, and many students in general surgery have had special work in orthopedic surgery. Hence, it is proper to consider these two groups together. Of these 192 students in surgery, seventy-two are either now on duty in the Mayo Foundation or have been appointed for service during 1922. Twenty-four students in surgery were permitted to resign during the first year of their fellowship, seventeen during the second year, and forty-two during the third year or later, without having attempted to meet the final requirements for advanced degrees. Five more are now on leave of absence. Up to the present time, including the graduating class for June, 1922, thirty-seven candidates have attempted to meet the final requirements for advanced degrees in surgery. Of these, thirty-one have been granted the degree of master of science in surgery, two the degree of doctor of philosophy in surgery, and four applicants have failed to meet the requirements for any advanced degree in surgery.

These facts and certain others which may be of interest concerning other fields will be found in the accompanying table.

Our experience during the last seven years, in interviewing and corresponding with several thousand prospective graduate medical students and in working daily with the four hundred who have been with us, has led us to make certain observations concerning the previous training of the applicants, the various means of giving those who are accepted opportunities of becoming competent in their chosen fields, and the means of testing their attainments.

GRADUATE STUDENTS IN THE MAYO FOUNDATION FROM JAN. 1, 1915, TO MAY 16, 1922

Major Field	Graduate Students Now on Duty or Appointed July 1, 1922	Left During First Year of Fellowship	Left During Second Year of Fellowship	Left During Third Year or Later, Not Candidates for Degrees	On Leave of Absence	Applied for Degrees	Received M.S. Degree	Received Ph.D. Degree	Failed	Total Number Graduate Students (Duplicates Omitted)	Additional Eligible Applicants Not Accepted	Total Eligible Applicants	Ineligible Applicants	Total Completed Applications
General surgery....	65	24	17	41	5	36	30	2	4	184	246	430	148	578
Orthopedic surgery	6	..	..	1	..	1	1	..	..	8	5	13	3	16
Urology...........	6	3	4	2	1	5	5	..	..	20	8	28	7	35
Ophthalmology....	4	6	1	1	..	..	..	..	..	12	2	14	5	19
E., E., N. & T.	..	..	..	..	..	..	..	..	..	..	6	6	15	21
Otolaryngology...	10	2	5	1	1	2	2	..	..	20	6	26	5	31
Medicine...........	47	9	3	5	2	7	5	1	1	72	42	114	30	144
Dermatology......	6	2	..	..	1	1	1	..	..	9	4	13	..	13
Pediatrics..........	3	2	..	..	..	..	..	..	..	5	3	8	2	10
Neurology.........	4	..	..	..	..	..	..	..	..	4	3	7	..	7
Roentgenology....	5	2	..	..	..	..	..	..	..	7	4	11	4	15
Pathology.........	9	4	2	..	..	5	4	1	..	18	7	25	5	30
Bacteriology.......	1	1	1	2	..	2	1	1	..	7	10	17	..	17
Chemistry.........	3	2	1*	..	..	1	1	..	..	6	4	10	..	10
Physiology........	..	..	..	..	..	..	..	..	..	..	2	2	..	2
Dental surgery.....	9	2	1	..	..	..	..	..	..	12	8	20	3	23
Total..........	178	59	35	53	10	60	50	5	5	384	360	744	227	971
Short term†........	1	33	..	..	..	..	..	..	..	34	..	34	..	34
Total..........	179	92	35	53	10	60	50	5	5	418	360	778	227	1,005

* Died.

† Medical officers from the United States services, fellows from other universities, appointees of foreign governments, et al. Does not include undergraduate volunteer summer students.

DEFECTS IN PREVIOUS TRAINING

1. Applicants for fellowships average about 27 years of age at the completion of their internship, which averages about one and one-fourth years. This is obviously too old. Allowing eight years for college, medical school and internship, their average age at leaving high school was about 19 years. From personal interviews with hundreds of applicants, I am convinced that their retardation usually has been in the high school, and there almost always through difficulty with algebra, geometry and foreign languages. All of these studies, I believe, are customarily begun after the passing of the optimum psychologic period for their acquisition. I doubt very much whether 8 years of age is too early to begin the study of modern foreign languages, and I believe that every day after 12 years of age that such study is postponed adds an unnecessary burden to the student. There is no question that a child of 12 can readily grasp the fundamental principles of geometry and algebra. The postponement of the teaching of the principles of these until arithmetic is nominally mastered is an error which results in unnecessary hardship for the student in later years.

2. Very few applicants have a real reading knowledge of French or German despite the fact that they have nominally met the Class A medical school requirements in this respect. This is the result of bad teaching of the languages and the failure of medical school faculties to see that the medical student is required to persist in his reading of foreign medical literature.

3. Many applicants use incorrect spoken and written English. Many of them apparently have little knowledge of those subjects which contribute to good citizenship and personal culture, such as history, economics, literature, art and music. Defects in these probably may be charged to their homes as much as to their schools.

One cannot help believing that all such defects might be readily remedied. Attention in the home to the use of correct English, to the reading of good books rather than sloppy juveniles, to training in habits of industry, persistence, promptness, honesty and courtesy should lay the foundation. If, then, the grade and high schools would provide, for those whose parents desired it, instruction in algebra, geometry and foreign languages, at the period when these can best be learned, it should be possible for most boys and girls to enter college at 16 years of age. Added to this, a four-year college course which includes at least as much study of the humanities as of physics, chemistry and biology, should bring the 20-year-old college graduate to the portal of the medical course, not only with more culture than he has at present, but also with much more ability to evaluate and assimilate the important portions of the several preclinical medical sciences with which he is deluged during his first two years in medical school.

The attempt to teach, in the first two years of medical school, six complete medical sciences, any one of which would require the full attention of the medical student for at least two years were he fully to grasp the subject, is probably responsible for the next defect to be mentioned.

4. Many applicants have but a very superficial knowledge of anatomy, biochemistry, physiology, pathology, bacteriology and pharmacy. Their knowledge of essentials is as superficial as their knowledge of unessentials in these subjects. We must either double the time now allotted to the teaching of the preclinical medical sciences or halve the amount of subject matter in each which we attempt to teach if we are to approach necessary thoroughness in the essentials of each.

5. Many present day graduates are at a loss to apply what they do know of the essential principles of the preclinical branches in the diagnosis and treatment of disease. Unfortunately, the attitude seems to exist to some extent that, at the end of the first two years in the medical school, when the examinations in anatomy, pathology, chemistry, physiology, bacteriology and pharmacology have been taken and passed, the student is through with these subjects for the rest of his life, and, now that he is no longer to be bothered with them, he may give his attention to the really interesting fields of clinical medicine. This attitude is so pronounced that there is a strong tendency in the last two years of medical school and during internship to permit the student to fail to apply his knowledge of the fundamental facts of the preclinical branches in his study of the diagnosis and treatment of disease.

The physician who has a sufficiently thorough knowledge of the essentials of the fundamental medical sciences to use them as familiar tools in the every-day study of complicated individual cases, and who threads on these lines of knowledge his careful clinical observations, until he can reach a correct diagnosis and formulate a logical plan of treatment, is unfortunately getting rarer, and his production, we believe, is not favored by the present cramming system in our medical schools.

SELECTION OF FELLOWS

However, with all his defects, the present day applicant for graduate medical training is usually a likable and enthusiastic chap. On the assumption that the limited opportunities for high grade graduate training should be given only to high grade students most likely to profit by them, how shall we determine whether a certain applicant really has the makings of a real surgeon within him? A large number of young medical students think they have such ability. They are attracted toward surgery because it is the spectacular side of medicine. They feel that they have a "call" to surgery. This insistence of a "call" on their part we should not take too seriously. Dogs of almost every breed will hesitate or stop at the sight of a wild animal; but if we mistake this common hesitation for pointing, and try to train a bulldog for hunting prairie chickens or quail, we waste our time. Similarly, if we try to train every medical student who thinks he is a born surgeon, we will waste our time, his time, the patient's time and, occasionally, the patient's life. For this reason, I doubt whether courses in the graduate school leading to the study of special fields in medicine should be thrown open unqualifiedly to every student who is able to pay a tuition fee. While the judgment of faculties may be poor, they are in the long run probably much better than the ungaged desires of the average medical student who seeks admission to a graduate school for the purpose of becoming a surgeon. In making selections, however, we must not be guided entirely by scholarship as recorded in the medical school and college. We must look for evidence of broader scholarship than these institutions now furnish. True, his scholarship in medical school should have been at least sufficient to place the candidate in the upper third of his class. But, most of all, we should try to get some estimate of the applicant's character. Unless he shows in his personal appearance, in his manner with his associates, in his manner with patients (especially poor patients), in his general demeanor, in his honesty, his loyalty, and in his manner of receiving criticism that he is at heart a courteous gentleman, he should not be encouraged to enter an already overcrowded field of medicine. If, in addition to these qualifications, he has ambition, initiative, industry, persistence and promptness, he is worthy of careful consideration for training.

The candidate having been selected and means provided, either from his own funds or from private benefaction, for him to continue his special study for a period of not less than three years and preferably five, how shall his time be spent?

SERVICES IN WHICH THE CANDIDATE SHOULD BE TRAINED

Necropsy Service.—At the beginning, something must be done to attempt to patch up the defects in his previous training. Not all of this patching can be done at once, nor should it be. It is better to distribute repairs as required throughout his three to five years of training. One important phase of his education has been almost always neglected in American schools: He has not had his hands in more than half a dozen necropsies. I firmly believe that no man should be permitted to operate on the living until he has operated on at least 100 dead. Our first duty, then, if possible, is to place the embryo surgeon where he can make a start in necropsy work, which, if he is to be successful, he will need to follow out for the remainder of his professional life.

At the necropsy, the student should actually make the section, beginning first as junior, acting as assistant, and later as senior, making the postmortem. All of this work should be done under the eye of a competent pathologist, who, as a measure of restraint, may need to tie his own hands behind his back. The instructor must remember, however, that the embryo surgeon had better make errors on the dead than on the living. How a sufficiently large necropsy service is to be developed even in large hospitals is, I believe, merely a question of going after permissions in a straightforward but persistent manner. Time and time again, we have had demonstrations in the United States that, if we want postmortems, we can get them. No hospital should be satisfied with performing necropsies on less than 75 per cent. of the bodies of all patients that die. Friends of the dead have as much right to demand this service as the profession has to request permission to render it.

The percentage of postmortems in an institution and the character of and attendance on clinical pathologic conferences are perhaps the surest index of the scientific work of the institution.

Diagnostic Service.—After the necropsy service, the next in which the graduate student should be placed is the diagnosis of disease. Here, under constant competent supervision, the graduate student should have an opportunity to take histories, make the simpler laboratory examinations and designate more complicated ones for all classes of patients. The service should not be confined to cases that have already been separated into medical and surgical. The entire "grist" should be seen. In this work, the most important point to be looked out for by the instructor is that the graduate student shall be compelled, in his analyses of cases, to give his reasons in terms of anatomy, physiology, pathology, and so forth, that he may have constantly before him the necessity for applying the principles of these subjects in his interpretation of clinical phenomena and in his final summary or diagnosis. Throughout this work and all of his subsequent work, the graduate student should be expected to attend necropsies on, at least, those patients with whom he has come in contact, and all clinical-pathologic conferences occurring in the institution.

Operative Service.—After not less than one year of this service, the embryo surgeon may be placed on duty as second assistant in the operating room, where his duties include the hospital preparation of patients for operation, his ordinary duties as second assistant, and the postoperative care of patients.

As soon as his skill has sufficiently developed, which should be in not less than six months, and ordinarily at the end of one year, he should be given a first assistantship. In our experience in the Mayo Clinic, these first assistantships are of most value to the student if they extend for a period of not less than one year under the same chief surgeon. Fellows may be reappointed for a second year. The student's service here may include duties outside the operating room similar to those he had as second assistant, and, in addition, he becomes to some extent responsible for the training of his junior. As soon as he gives evidence of sufficient ability, he should be given opportunity to act as chief surgeon at operations, while the surgeon actually in charge stands by and sees that he does his work properly and that no harm comes to the patient.

The work as thus outlined represents the principal opportunities for study which should be provided for the graduate student in surgery. Nothing has been said about class work, lectures, quizzes, examinations, theses, degrees and so forth. However, these all enter in their proper place.

OTHER OPPORTUNITIES FOR STUDY

Lectures.—I very much doubt the value of the formal routine lecture course for graduate medical students. Its purpose may be better served by proper guidance in suggestive reading courses, in clinical conferences or seminars held not less frequently than once a week, and in inspiring lectures from outside men who have done special pieces of work and who may be induced to come and deliver lectures concerning it.

Seminars.—The seminar or clinical conference provides the best opportunity for teaching graduate medical students. This is not so when the professor in charge does all the talking. His function should be to answer questions rather than ask them; to stimulate discussion rather than to dominate it. In other words, he should encourage his young men to form opinions and to express them, thus giving him an opportunity for kindly criticism. The spirit of the seminar should be one of cooperative study rather than of master and pupil. The seminar and conference should be held at a definite period of from one to two hours, not less than once a week throughout the entire course.

Quizzes.—How shall we know whether the graduate is making real progress? Principally, by intimate, daily intercourse with him. It is desirable, when men are admitted from many different institutions, in order to test the efficiency of one's standard of admission, and to be sure that the men selected really have some knowledge of those principles of fundamental medical sciences which underlie clinical medicine, to give an examination to each man early in the course. This examination, preferably, should be oral and should be taken part in by from three to five members of the faculty, most of whom should be clinicians, who should quiz the candidate very thoroughly, yet avoid all questions except those designed to determine whether he has knowledge of the absolutely essential principles in the fundamental medical sciences. The candidate who is found not to have such knowledge should not be permitted to continue with his work. It is not the place of the graduate school to teach the elements of preclinical branches, but to give opportunity for the daily use of these elements.

Course Records.—That some record may be kept of the work of the graduate student, it is necessary that the faculty member with whom he is working shall make a report from time to time, preferably at the end of each quarter, of his work in all respects. This report should be confidential to the dean of the school and should cover not only an estimate of the details of his diagnostic and operative skill but also of his general training and his personal characteristics. Such a rating sheet, which has been in use in the Mayo Foundation and previously in the Mayo Clinic for a number of years, is presented herewith:

UNIVERSITY OF MINNESOTA GRADUATE SCHOOL OF MEDICINE

Fellow
Confidential report on........Scholar in THE MAYO FOUNDATION
Associate
in Course No................ with Assistant Professor...............
from............to............ Major:............ Minor:..........

NOTE—Students will be graded: A, B, C, D, or E on each numbered point on which it is possible for the instructor to form an estimate. A represents the highest possible grade and E the lowest short of complete failure. The "General grade for work of Course" will be marked as are the numbered points; or, if the student's work has been a failure, it will be marked F (failure); or, if the student has been too brief a time with the instructor to warrant giving him a grade, this item will be marked I (incomplete).

PERSONAL CHARACTERISTICS:
1. Personal appearance........
2. Manner with associates.....
3. Manner with patients......
4. General demeanor..........
5. Ambition ....
6. Initiative ....
7. Industry ....
8. Persistence ....
9. Promptness ....
10. Honesty ....
11. Loyalty ....
12. Reception of criticism......

TRAINING—GENERAL:
13. General intelligence.........
14. Use of oral English........
15. Use of written English.....
16. Chirography ....
17. General medical training....
18. Knowledge of anatomy.....
19. Knowledge of physiology....
20. Knowledge of pathology....
21. Knowledge of medical ethics
22. Comprehension of instructions ....
23. Faithfulness in carrying out instructions ....
24. System in work...........

DIAGNOSTIC:
25. Skill in history-taking......
26. Skill in physical examinations ....
27. Thoroughness in physical examinations ....
28. Judgment in referring patients for special examinations ....
29. Judgment in interpreting results of special examinations ....
30. Judgment in summarizing cases ....

OPERATIVE:
31. Quickness of vision........
32. Knowledge of and faithfulness in asepsis..........
33. Manual dexterity ....
34. Ability to meet emergencies
35. Care of postoperative cases..

General Grade for Work of Course...........

On the basis of the work which the student has done under your instruction, would you recommend him for reappointment at the end of his current Fellowship year?..................................

Would you recommend that he change his Major?....If so, to what?..

Would you recommend that he be asked to resign before the end of his current year?..

General Remarks ....

....

....

Date.................... Signed..........................

If the ordinary university grades of A, B, C, D, and so forth, are used, it is a good rule that no student receiving a grade below that of B shall receive credit toward his degree for the work so graded. It would seem to be a fair rule also that any student receiving for two consecutive periods a general grade of D or lower should be requested to leave the institution. Opportunities for grade study of medicine on a university basis are altogether too few in this country to warrant their being wasted on mediocre and inferior men.

Examinations.—Since our present system of licensing practitioners in the various states of the United States is based entirely on examinations, we are under the necessity of giving examinations to graduate students if we are to send them out from the university with the university stamp on them. As a result, all graduate students who are candidates for degrees from the university should take examinations, both oral and written, and these should be more severe in the fields of the candidate's major and minor subjects than he is ever going to get anywhere else.

STANDARD FOR DEGREES

Aside from a satisfactory residence of a definite period, which should be from three to five years for the graduate study of surgery, a satisfactory record of which has been filed at definite intervals, and aside from the passing of the examinations herein suggested, what other requirements should be made of a prospective candidate for a graduate degree in surgery from a university before he may be properly recommended for that degree? In the first place, it appears that he must be competent in his field; in other words, he must be an "honest-to-goodness" surgeon. The only way this can be determined as a matter of record is on certificate from the surgeons with whom he has worked that, in an emergency, they would be willing to send members of their own families to him for diagnosis and surgical treatment. If they are not willing to certify to the candidate's competence to this extent, the university should not grant him an advanced degree in surgery, since the granting of this degree will stamp the candidate as a surgeon competent to care for citizens of the state.

A further qualification should be that the candidate has shown that he has a scientifically trained mind, that he is capable of analyzing and synthesizing his own observations, either clinical or experimental, or both, comparing them with those of other men doing similar work, and drawing logical conclusions therefrom. Though in many respects unsatisfactory, the production of a thesis which embodies such an analysis is perhaps the best means we have for the candidate to demonstrate his scientific ability in this respect.

One of the most important services that an institution should provide is that of careful revision by members of the faculty of all articles written by graduate students. Besides this criticism for truthfulness, accuracy, clearness and so forth, they should be given careful editing by a competent editor, who will then laboriously explain to the writer the reasons for the changes made. The state of our medical literature at present is most deplorable. It will not be better until we give it more thorough and more constant attention. The undergraduate medical schools should do this work; the graduate medical schools must do it.

SUMMARY

The graduate of a Class A school who has had a minimum of one year's internship in a general hospital, who has had from three to five years' opportunity for graduate work in surgery, which has included at least six months of necropsy service, one year of diagnostic service, and one and a half or, better, two and a half years of operative service, during all three of which services he has had constantly before him the necessity for using daily the essential underlying principles of anatomy, physiology, chemistry, pathology, bacteriology and pharmacology, until they have become to him absolutely familiar tools for the diagnosis and treatment of disease, who is above all a competent surgeon, who has passed more severe examinations in the field of surgery than he will ever be obliged to pass elsewhere, and who has prepared and defended a thesis of the character indicated, may properly be recommended for the degree of master of science in surgery or master of science in orthopedic surgery, as the case may be, to be granted by a properly constituted university of which the medical school is a part.

Besides the foregoing, it sometimes happens, though unfortunately not often, that a graduate medical student shows that he has real research ability and demonstrates this beyond peradventure by making an actual contribution of considerable import to medical science. For such a student, there should be reserved the degree of doctor of philosophy in surgery or orthopedic surgery. Of course, in addition to the requirements outlined for the master of science degree, he should fulfil also those other minor conditions, particularly in relation to foreign languages, which are ordinarily required by universities of candidates for the degree of doctor of philosophy in other fields.

CONCLUSIONS

I wish to urge the importance of graduate work in surgery, orthopedic surgery, or any other specialty, being done in institutions where work in other fields of medicine is going on at the same time. Isolation, in the long run, is a serious handicap. The daily association of men who are engaged in other fields, the discussions with them in informal conferences and, especially, the frank criticisms of each other in staff meetings at which are read the articles which are the results of scientific study in the institution, all conduce to a much broader view of a specialty and to the making of much broader men who are to practice in the specialty.

ABSTRACT OF DISCUSSION

Dr. Dean Lewis, Chicago: The training of the surgeon is a timely but rather large subject for discussion. It seems rather a reflection upon surgeons that a pathologist should apparently consider it necessary and eminently fitting that he should outline the courses of graduate instruction necessary to make a well rounded surgeon and then pass upon his qualifications. Dr. Wilson has discussed the graduate training and as this rests upon a sound and sufficient undergraduate training, I consider that I shall not be digressing from the discussion if I mention some of the things in undergraduate work which are necessary to the proper training of a surgeon. In the first place men graduate too late in medicine. They should graduate much earlier so that they may devote their early productive years in concentrated effort upon the work which they choose to follow. The second feature which militates against good training is the lack of cooperation of departments and coordination of teaching. It should be possible to establish a curriculum which will give the best preparation, but this will never be possible until department heads are willing to sacrifice for the common good. The curriculum and methods of instruction in vogue today are of the spoon feeding type. There is too little effort made in the development of critical analytic ability and to discourage the acceptance of any dogma laid down notwithstanding insufficient data upon which deductions are made. We constantly hear about the teaching of principles. If a student in surgery had spent a few hours in this section yesterday afternoon, I do not believe that he would have been able to unravel the skein of principles involved in the treatment of fractures. It is not so long ago that the operative treatment of fractures threw into the discard most of the thoroughly established principles of the treatment of fractures which are just now being rescued. This merely shows how enthusiasm and propaganda can overthrow old established principles. It is difficult to say how the sound principles of surgery can be preserved when enthusiasm unchecked by critical ability and sound reasoning is rampant. No one denies the necessity of a sound pathologic training, but how to stimulate the student in the study of pathology is a great question. I would make the surgeon an excellent diagnostician, an expert pathologist, a good physiologist and an expert and sound operator. This is a difficult thing to do and it requires years of preparation. A man must be an idealist to secure the training necessary to fit him for the practice of surgery, and he is often discouraged in finding that he is handicapped in the competition, discovering frequently that surgery is sold to the highest bidder. Fee splitting interferes more with the training of the surgeon than the limitations of the students or the imperfections of our medical schools and clinics.

DESENSITIZATION OF HAY-FEVER PATIENTS BY INJECTION AND LOCAL APPLICATION *

A. H. W. CAULFEILD, M.B.
TORONTO

The localized desensitization which may take place after one has produced a reaction in testing a patient against pollens or proteins has been outlined by MacKenzie and Baldwin.[1] Their preliminary experiments showed the degree and duration of the cutaneous exhaustion which might follow an initial test. At this time they anticipated "the probability that by local application of pollen or dandruff extracts to the mucous membrane of the nose and throat of patients with allergic rhinitis the reactivity might here also be abolished."

The observation on my part, that specific cutaneous sensitization might disappear over night from a very considerable part of the same forearm which previously had been tested and found positive, led me to consider the possibilities of applying therapeutically the principles underlying the phenomenon. This change in local reactivity was drawn to my attention by the more or less routine testing of both bronchial asthmatic and hay-fever patients, and was not followed up by a series of carefully controlled experiments such as were made by MacKenzie and Baldwin.

In selecting ragweed as the particular pollen with which to try local application, I was influenced by the fact that it is with the ragweed-positive cases that one experiences the greatest difficulty in obtaining satisfactory desensitization and freedom from clinical symptoms. The possibility of further influencing the reactivity of the mucosa by utilizing local application as well as by subcutaneous injection would appear to be the logical basis on which one would expect the clinical results to be associated. In this connection it is to be remembered, however, that patients may show after successful subcutaneous treatment either positive or negative cutaneous sensitization to the pollen or protein against which they have been injected. In any event, the data which might be obtained from locally applying the antigen to the mucosa seemed sufficient to justify its trial on general, as well as on therapeutic grounds.

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* Read before Ontario Medical Association, June 1, 1922.

* From the Research Division of the Connaught Antitoxin Laboratories, University of Toronto.

[1] MacKenzie, G. M., and Baldwin, L. B.: Observations on the Specific Exhaustion of Cutaneous Reactions, Proc. Soc. Exper. Biol. & Med. **18**: 214, 1921; Local Desensitization in Hay-Fever Individuals and Its Bearing on the Prevention of Hay-Fever, Arch. Int. Med. **28**: 722 (Dec.) 1921. MacKenzie, G. M.: Desensitization of Hay-Fever Patients by Specific Local Applications, J. A. M. A. **78**: 787 (March 18) 1922.

The introductory references to the literature by MacKenzie[2] are so similar to those which had appealed to me as relative to the subject that I feel I may omit this aspect beyond perhaps drawing attention to the observations by Besredka[3] that the introduction of antigen through the upper respiratory tract is a satisfactory means of inducing immunity, and that through this channel also it is possible to induce anaphylactic shock in properly sensitized guinea-pigs. Parker's[4] demonstration that ragweed has true antigenic properties seemed to favor the selection of this pollen for the evaluation of local application and for any further work which might be suggested by the observations attendant on its application locally.

The groups of patients summarized in Table 1 suffered from seasonal hay-fever; they were tested and found positive to different pollens which, in view of the seasonal character of their symptoms, afforded reasonably certain evidence that their symptoms were due to pollen sensitization. In estimating the number of seasons involved, previous experiences were disregarded unless the pollens indicated by such past experiences gave positive reactions. Patients will not infrequently state that previously they suffered from symptoms which began in early summer and continued till the late autumn, but that latterly symptoms had begun only with the onset of the autumnal variety; the reverse of this, namely, an increase in the seasonal duration of symptoms, is perhaps as frequent.

The cases taken for analysis include all those treated except (1) a few who have failed to reply to inquiries regarding the results experienced, and (2) a number whose injections were far too few to warrant any conclusion being drawn therefrom. A certain number have been included to whom the full course of treatment was not given, because they either began too late or were absent during periods of their treatment. A rigid adherence to only those who had taken a full course previous to the approximate date of onset would exclude a number who experienced very satisfactory results.

Local application was made by inunction, the ragweed pollen being ground up (mechanically), and quantitatively mixed with phenolated petrolatum in dilutions[5] of 1:2, 1:20 and 1:200. Each dilution was put up in collapsible tubes, and applied by expressing a convenient volume on the little finger of the patient, and thoroughly rubbing into the nasal mucosa.

MacKenzie obtained local application by spraying the mucosa. While this would seem to have the advantage of reaching a greater area, a number of small considerations led me to select inunction. The dose was increased by mixing varying proportions of two strengths on the finger in advancing from the first application of the 1:20 strength to that of the 1:2 strength, for example.

METHOD OF GENERAL AND LOCAL DOSAGE

Injection[6] was given twice weekly except in the few instances in which the local reactions[7] were sufficiently severe to warrant a temporary postponement. During the prophylactic treatment the inunctions were made in nearly all cases at the time the injection was given: in a few the inunction was made by the patient at home a day or so following the subcutaneous treatment. The preseasonal treatment was, as far as possible, planned so that the full course would be finished sometime during the week or ten days following the date of onset of the patient's seasonal type. In suitable cases after the completion of the injections, tubes of the 1:2 strength of ointment were given to the patient for a limited continuance of local application. The number of pollens against which desensitization was attempted in each case is shown in Table 1. The factors on which this was decided were the degree and relative sensitization, as shown by the cutaneous tests, the history of seasonal symptoms, and the time available for treatment. The frequent absence of relative cutaneous sensitization, as exhibited by different patients, between, for instance, the various grasses used in testing, and among these the occasional absence of a positive test to either timothy or red top pollen, has led me to believe that treatment on the assumption of group reaction will not be as satisfactory as treatment based on the tests, repeated preferably during the season of attack. This conclusion is supported, among others, by Watson and Kibler.[8]

In planning early in 1921 a trial of local application, I had intended to use alternate cases so that afterward the results could be compared with those obtained by injection alone. As my experience with it increased, such a plan of comparison was abandoned, and the combined method was used in the majority of cases because of one or another of these considerations:

1. The combined method gave me the impression that dosage could be more rapidly increased with less local,

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[2] Mackenzie, G. M. (Footnote 1, third reference).

[3] Besredka, A.: De l'action des sérums par la voie respiratoire, Ann. de l'Inst. Pasteur **34**: 361, 1920.

[4] Parker, Julia T.: The Antigenic Properties of Ragweed Pollen, Proc. Soc. Exper. Biol. & Med. **18**: 237, 1921.

[5] These fractions refer to that dilution of a stock concentration of 1:70. This method was used so that the dilutions in ointment should correspond to the amounts used in the solutions made for injection.

[6] All pollen solutions were put up in four dilutions of the stock solution, which was made up by grinding 1 gm. of pollen in 70 c.c. of diluent. These extended from a 1:20,000 dilution to a 1:10. Occasionally a 1:4 solution was made and used. A preliminary desensitizing dose of 0.25 c.c. was given from a 1:200,000 solution (of the pollen or pollens to be used) at each treatment. If for any one treatment more than one pollen was used, the amounts from the different solutions desired were all drawn into the syringe before injection. With some attention to detail it was nearly always possible to keep the total volume below 1 c.c. and at the same time give the different solutions desired at the time.

The rate of increase was judged by the reactions caused by the previous dose, on which the following rules might be taken as approximate guides: A. If no local reaction was induced in either arm (from the desensitizing or therapeutic injection), the dose was increased four to five fold or more, depending on circumstances. B. If a local reaction was induced in one arm only (therapeutic injection), the dose was increased from two to four times, depending on the severity of the reaction. C. If a local reaction was induced in both arms, the increase should be slight and under twice. N. B. 1. The greatest care must be exercised as one nears the more concentrated solutions. 2. Particularly after more than one large increase in the dosage without local reactions, extreme caution should again be used, as it is apparently possible suddenly to overstep the threshold and induce an almost instantaneous general reaction without the warning of having obtained local reactions.

[7] For the comparatively few instances in which a general reaction has followed the injections, given as outlined, I have always found epinephrin of immense value. I believe it should always be available. Given hypodermically in from 0.5 to 1 c.c. doses, it is often startling in the rapidity of its effect. The subject of reaction should, I feel, not be mentioned without emphasizing its dangers—even that of death. R. A. Cooke, in a comprehensive discussion of this aspect (Studies in Specific Hypersensitiveness, J. Immunol. **7**: 119-145 [March] 1922), both endorses epinephrin as the best drug available, and advocates strophanthin in selected cases. In my four years' experience with pollen and protein desensitization I have had only two instances of a delayed general reaction of any severity, in both of which the approximate guides suggested in these remarks were for different reasons ignored.

[8] Watson, S. H., and Kibler, C. S.: Etiology of Hay-Fever in Arizona and the Southwest, J. A. M. A. **78**: 719 (March 11) 1922.

and less tendency toward a general reaction, than by injection alone. 2. The season last year was advanced, and one was pressed for time in which to achieve prophylactically the amount of desensitization desired. 3. Considerable guidance with regard to dosage was afforded by the absence or degree of nasal reaction to the inunction. 4. Treatment could be continued, i. e., dosage increased by local application if the patient was forced by circumstances to miss the injection. Under these circumstances, the combined method was used in most of the difficult cases.

The small number of cases and the modifying circumstances in many instances would seem to justify impressions rather than statistical studies of the respective value of the methods of desensitization outlined in this paper. Comparative evaluation of their therapeutic effectiveness with that reported by others is rendered difficult because of the lack of uniformity in the classifications adopted with regard to the degree of protection obtained. In consequence, the definitions which follow—and have been used in this paper—are an attempt to suggest a set of classifications which combine certain features common to previous publications, and which are compatible with the divisions suggested by my own experience.

1. Complete freedom, to include, as well, those who reported an occasional transient attack of sneezing or nasal moisture, or an occasional prodrome, not realized symptomatically. The intervals, constituting practically the entire season, are to be without symptoms. Estimated value, from 90 to 100 per cent.
2. Practical freedom, to include those who were able to continue all their occupations or exercise (train, golf), with no prolonged attacks (part of a day only), and those infrequent; or one short series of more or less continuous mild attacks, following which freedom to be complete. Estimated value, 75 per cent.
3. Marked benefit, to include those who experienced attacks, but none to compare with their former experience and to have had long periods of freedom; may or may not have continued their vocation or avocations. Estimated value, 50 per cent.
4. Slight or no benefit, to include those whose relief was less than that defined in the third class.
5. Aggravation, to include those who obtained no benefit and whose symptoms were seemingly worse than formerly experienced. This fifth class may suit the results obtained in certain cases, particularly in view of the varying severity of seasons in different years, but for practical purposes groups 4 and 5 may be considered identical.

The patients in Table 1 have been grouped according to seasonal type; and in the results of treatment column for last year each season has been considered separately. Because a greater proportion of the cases (those that were ragweed positive, that is) were given the combined treatment, the results obtained previously have been utilized as a type of control.

The column labeled "difficult" refers to the manner in which the patient responded to increase in dosage. If the necessary increase, because of the imminence of the time of onset, induced sufficiently severe reactions to retard the desired progress, the case at once became in varying degrees difficult to treat. The degree in which this occurred is approximately shown by the use of the plus sign.

In the comment column, the observations have been confined to bronchial asthma as an all season complication, if due to proteins as shown by appropriate tests, or to bronchitis if severe. "Late" means that only to a limited extent was the treatment preseasonal. "Interrupted" and "incomplete" refer to the course of treatment. "Out of town" means that the course was completed by cooperation with others living outside Toronto. In varying degrees these factors militate against the best results, and hinder satisfactory comparison.

TABLE 1.—ANALYSIS OF CASES

	Seasons							Therapeutic Results			
Case No.	Spring	Summer	Autumn	No. of Pollens Injected	Injections Only	Combined Treatment	Difficult	Previous Year	Last Year	Post-Treatment Sensitization	Comment
Group 1											
1	+	..	..	2	+	..	..	..	2	?	Late
2	+	+	..	4	+	..	..	..	1,1	0	
3	+	+	+	5	+	..	..	1,1	1,1,1	—	
Group 2											
4	..	+	..	1	+	..	..	..	1	0	Bronchial asthma
5	..	+	..	3	+	..	..	..	1	—	Bronchial asthma
6	..	+	..	4	+	..	..	..	1	—	
7	..	+	..	1	+	..	..	1	..	0	
8	..	+	..	4	+	..	..	..	1	0	
9	..	+	..	4	+	..	+	2	2	+	Late
10	..	+	..	3	+	..	..	3	2	0	Out of town
Group 3											
11	..	+	+	2	+	..	++	3	..	0	Late
12	..	+	+	2	+	..	..	1,1	..	0	
13	..	+	+	3	+	..	..	..	1,2	0	Interrupted: out of town
14	..	+	+	8	+	..	++	2,3	1,3	+	Late; incomplete
15	..	+	+	5	..	+	+	1,1	1,2	+	
16	..	+	+	3	..	+	..	1,1	1,2	?	Out of town
17	..	+	+	5	..	+	..	..	1,1	?	
18	..	+	+	7	..	+	+	..	1,1	?	
Group 4											
19	..	..	+	2	+	..	..	1	..	—	
20	..	..	+	3	+	..	..	2	..	0	Incomplete
21	..	..	+	3	+	..	+	2	..	+	Late
22	..	..	+	3	+	..	..	..	2	+	Bronchitis
23	..	..	+	3	+	..	..	..	1	?	Bronchial asthma
24	..	..	+	2	+	..	+	..	3	0	Incomplete
25	..	..	+	3	+	..	..	..	1	?	Late
26	..	..	+	3	+	..	++	..	4	+	Late; incomplete
27	..	..	+	2	+	..	++	..	4	0	Late; incomplete, out of town
28	..	..	+	2	..	+	+++	4	2	?	Prev.. year late and incomplete
29	..	..	+	3	..	+	..	2	2	+	
30	..	..	+	2	..	+	..	1	1	—	
31	..	..	+	2	..	+	+	4	2	?	Prev. year incomplete; out of town
32	..	..	+	3	..	+	..	1	5	++	
33	..	..	+	3	..	+	..	3	1	—	
34	..	..	+	4	..	+	++	2	2	?	Late; incomplete
35	..	..	+	3	..	+	..	2	1	?	
36	..	..	+	1	..	+	..	2	1	—	Bronchitis
37	..	..	+	3	..	+	..	1	1	0	
38	..	..	+	1	..	+	..	..	3	+	
39	..	..	+	3	..	+	+	..	1	—	
40	..	..	+	3	..	+	+++	..	4	++	
41	..	..	+	3	..	+	++	..	2	?	
42	..	..	+	2	..	+	..	..	3	+	
43	..	..	+	3	..	+	..	..	1	—	

* The sign + signifies a marked cutaneous reaction; the sign ? a reaction of doubtful degree (from 4 to 6 mm.); the sign — no reaction or one less than 4 mm.; the sign 0 that post-treatment tests were not made. The figures under column Therapeutic Results refer to the foregoing classifications.

In the first group of three cases, five seasons were completely free and one season practically free, in which latter the treatment was only partially prophylactic, all the higher dilutions being given during the earlier part of the season. The third patient suffering throughout all three seasons illustrates a mild type of autumnal attack in contrast to the spring and summer. The previous year, fairly severe symptoms developed in September after a free spring and summer. Tests done then showed ragweed and goldenrod to be positive, both of which had previously been negative.

In the second group (summer hay-fever only) there are five instances of complete freedom, one of which was obtained the previous year and last year remained free without treatment. In the two remaining cases, which were practically free, the treatment could not be regarded as ideal, as one patient was late and treatment was continued during the season, while the second was to a great extent out of town.

In the third group (combined summer and autumnal variety) there are, as regards the summer type, six instances of complete freedom out of six cases treated last year; the case with complete freedom during the previous year remaining free last year without treatment. As regards the autumnal type, there are two instances of complete freedom, three of practical freedom and one of marked benefit. In these less satisfactory results, the factors militating against success, such as lateness, interruption and incompleteness, are noticeable. Four cases were treated by the combined method; and despite difficulties in treatment, and the factors as noted in the last column, two complete and two practical "reliefs" were obtained.

TABLE 2.—DEGREE OF PROTECTION

	Group 1 (Spring Included)	Group 2 (Summer Only)	Group 3 (Summer and Autumn)	Group 4 (Autumn Only)	Number	Per Cent.
Complete freedom	2	5	3	10	20	46.5
Practical freedom	1	2	3	8	14	32.6 }90.7
Marked benefit....	0	0	2	3	5	11.6
Little or no benefit	0	0	0	3	3	7.0 }9.3
Aggravated.......	0	0	0	1	1	2.3
Total...........	3	7	8	25	43	

In the fourth group (twenty-five cases of the autumnal type) twenty-two cases were treated last year, among which there are nine instances of complete and six of practical freedom; three patients obtained marked benefit, three slight or no benefit, and in one case the symptoms were aggravated. Success was jeopardized by the poor opportunity for treatment in one of the three obtaining only marked benefit, and as well, in two of the three with no benefit. No such explanation, however, can be advanced as a cause for one case of no benefit, and for the case which was aggravated, but which the previous year was completely protected.

Table 2 summarizes the degree of protection. In this the results for each season are not taken into account as they were in Table 1, the most unfavorable outcome being taken as indicative of the protection obtained.

Local application was employed with twenty cases out of the thirty-three in Groups 3 and 4. These numbers are obviously too small to serve as a basis for any conclusion; moreover, the different circumstances militating against a fair trial were too frequently present in both the injection and combined treatment groups. Without attempting to assess these varying factors, the percentage results obtained show that the combined treatment in contrast to injections alone was slightly more successful. The figures for combined treatment versus injection alone respectively are in complete freedom 45 and 30.7 per cent., in practical freedom 35 and 30.7 per cent., in marked benefit 10 and 23 per cent., and in no benefit, including aggravation, 10 and 15.3 per cent.

In Table 1, the results of sensitization after treatment have been noted because a consideration of these suggest that, when this is marked, the combined treatment may be contraindicated. An attempt was made to ascertain the correlation between the cutaneous and the nasal reactivity in a few cases. The contrast afforded among these cases so tested showed a fairly marked degree of similarity, when one considers the relative character of the amounts used and the difference in the methods used to elicit this. Apart from any theoretical considerations, an analysis of the degree of post-treatment sensitization and the therapeutic results show that, in both Groups 3 and 4, there were six cases treated by the combined method in which the post-treatment sensitization was marked. The results in these were three of no benefit, including the one case of aggravation, two of marked relief, and one of practical freedom. This proportion of poor success or failure is greater than in the other treated by the combined method, and also greater than that obtained in similar cases treated by injection alone. Admittedly, the numbers are too small, but the effect at least raises the question of the advisability of using local application in those cases in which previous tests have shown marked cutaneous sensitization after injections alone, especially if the results obtained had been satisfactory.

The conclusions drawn by MacKenzie, using a different method of local application by itself, combined with and contrasted to hypodermic injections alone, left me with the impression that he considered its further use justified. My results lead me to concur with the restriction that it may be contraindicated in certain individuals.

OBSERVATIONS ON THE DISTRIBUTION OF VITAMIN B *

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The absolute necessity of an adequate supply of vitamin B, in the dietary of growing animals, if growth is to be maintained at a normal rate, is a fact that has been established beyond question. Among the earlier observations on this point were those of Osborne and Mendel,[1] Hopkins [2] and Stepp.[3] These authors, working independently, arrived at the same conclusions, although their ideas as to the nature of the hypothetic substance were at variance. Since that time, research has led to the demonstration of vitamin B in "milk, rice, wheat embryo, cotton seed, pancreas, maize kernel, wheat, oat, kidney beans, yeast, ivy beans, peanut meal" [4] and many plants used as food in the form of "greens," such as asparagus, celery, dandelions and lettuce.[5]

An adequate supply of vitamin B is necessary not only because of the growth stimulating properties of the vitamin itself but also because of its influence on the general food intake of the animal.[6] All experimenters in the field of accessory food substances have observed the stimulating effect of an adequate vitamin supply on

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[1] Osborne, T. B., and Mendel, L. B.: Pub. 156, Parts 1 and 2, Carnegie Institution of Washington, 1911.

[2] Hopkins, F. G.: J. Physiol. **44**: 425, 1912.

[3] Stepp, W.: Biochem. Ztschr. **22**: 452, 1909; Ztschr. f. Biol. **57**: 135, 1911-1912.

[4] Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. **32**: 309 (Dec.) 1917.

[5] Osborne, T. B., and Mendel, L. B.: Further Observations on the Distribution of Vitamin B in Some Vegetable Foods, J. A. M. A. **78**: 1121 (April 15) 1922.

[6] Cowgill, G. R.: Am. J. Physiol. **57**: 420 (Oct.) 1921.

the appetite of their animals. These substances need be present in only minute quantity, but their presence is essential. It is this relation to appetite and food intake that prompts this report.

In the course of certain studies on bacterial nutrition it became of interest, at one time, to test the basal ingredients of culture medium of organic origin, i. e., peptone and beef extract, for their vitamin content. This research was especially indicated, since the literature is not clear on this point. Bayliss,[7] in his discussion of the growth promoting principle "Bios," says: "It is present in Liebig's meat extract and commercial peptone." Funk [8] reports the presence of vitamin in meat juice and meat extract, and Osborne and Mendel [4] as well found "a small amount of the water soluble food hormone" in meat extract.

EXPERIMENTAL METHODS USED

The tests were carried out on young rats, weighing from 50 to 75 gm., which were failing to grow on a diet known to be adequate to promote growth at a normal rate when sufficient vitamin B was supplied. The food mixture consisted of casein, 18 per cent.; sugar, 17; starch 52.5; butter fat, 10, and salt mixture, 2.5. Inspection shows this mixture to be adequate except for the deficiency of vitamin B.

The peptone and beef extract were added to this ration in place of definite quantities of starch. Each substance was tested in the amount of 2.5 and 7.5 per cent. of the ration.

RESULTS

In no case was the decline of the experimental animals stopped by the addition to the ration of definite quantities of either peptone or beef extract.

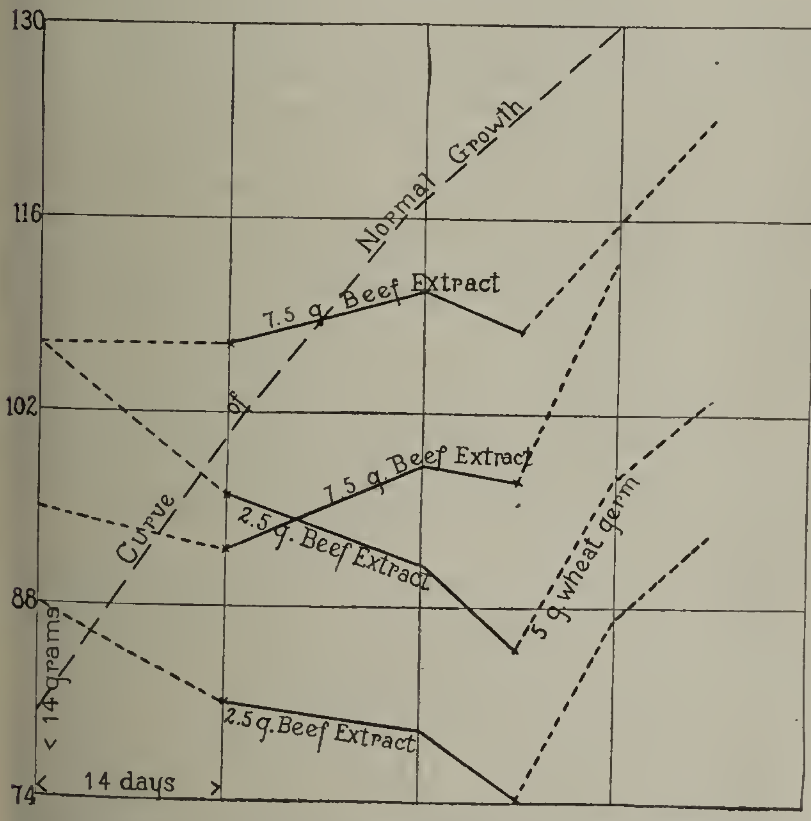

Chart 1.—Failure of rats that had declined on a diet deficient in vitamin B to recover when beef extract was added as a source of this factor.

The accompanying charts show typical growth curves of rats fed this experimental ration. The initial period of decline, on a diet deficient in vitamin B, is indicated by the dotted line. Following this is the period when the animals were fed the same basal ration plus the peptone or beef extract and failed to recover; and finally there is the period of recovery, indicated by the rapid rise of the growth curve when the basal ration was supplemented by wheat germ as a known source of vitamin B.

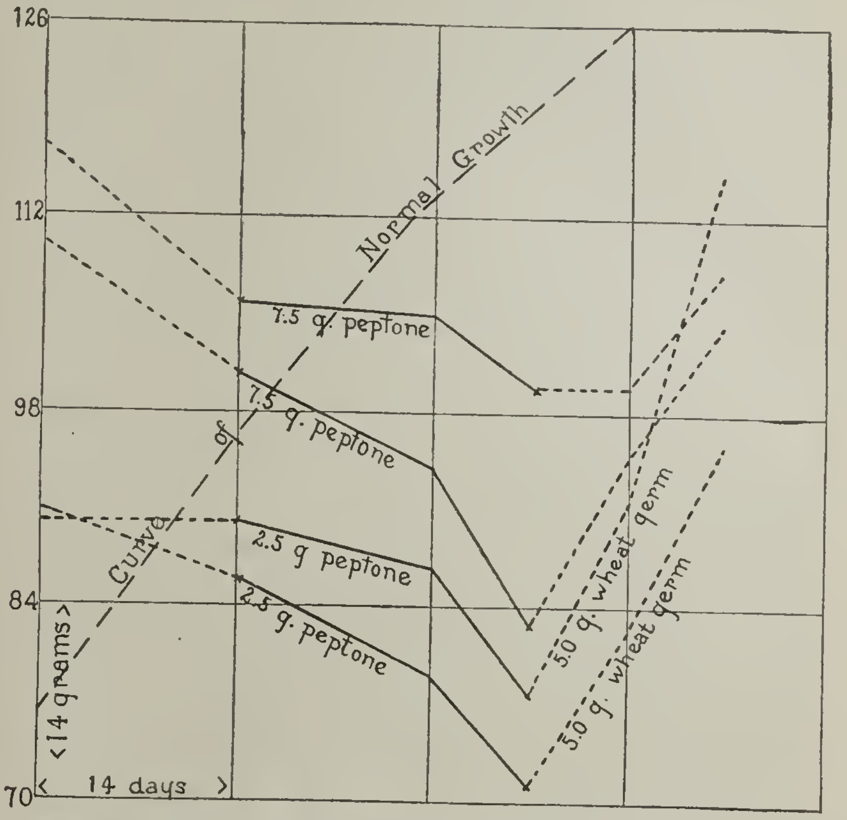

Chart 2.—Failure of rats that had declined on a diet deficient in vitamin B to recover when peptone was added as a source of this factor.

CONCLUSIONS

Commercial beef extract and peptone are devoid of the water soluble vitamin B.

NOTE.—The importance of these observations in connection with the use of beef extract in convalescence will be recognized by all who heard Dr. Mendel at the recent Congress of American Physicians and Surgeons in Washington describe the relation of vitamin B to appetite and food intake.

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[7] Bayliss, W. M.: Principles of General Physiology, 1915, p. 260.
[8] Funk, C.: München. med. Wchnschr., 1913, p. 2614.

THE PRACTICAL APPLICATION OF THE RESULTS OF VITAMIN STUDIES

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Our knowledge of vitamins has given a new basis for the evaluation of foods. Certain articles which, from the point of view of their energy value, are almost worthless have been shown to possess great nutritive value. Their importance is not suggested by their chemical analysis. They furnish something very essential in a human diet.

The tomato, cabbage, spinach, lettuce, chard and all the green or leafy vegetables are composed chiefly of cellulose, water and inorganic salts. Fruits have sugar, vegetable acids, water and salts, but none of these things suggest their essential value as foodstuffs.

Many of our foods we no longer eat in their natural state. The conditions of modern life have made necessary the transportation of foods for long distances and the preservation and storage of food in immense quantities for long periods. A certain amount of injury is done to our vegetables, fruits, milk, meats and grain by the processes to which they are subjected in preparation, preservation and storage. The study of vitamins has helped us to understand, to some degree at least, the nature of that injury. Some of it is due to the heat applied during our ordinary processes of cooking; some is a consequence of heat applied for purposes of sterilization, whether for the destruction of the germs of disease or for the preservation of food.

We have also sacrificed something in their nutritive value by the refinement of our foods, as in polishing rice and using only the white flour of our wheat to make our bread, and feeding to pigs and cows the balance of the grain. The coarse black bread of the middle ages and of the European peasant of today is despised by our modern civilized city dweller.

But let us not at the same time forget the immense benefits of the preservation and storage of food. Take, for example, the question of white wheat flour. As long as wheat was grown and milled, as it still is in most European countries, within a comparatively short distance of the place where it was consumed, and was used within a few weeks of milling, the problem was a simple one. At present much of our milling is done 1,000 or 2,000 miles from our large centers of population. Not only must the time required for transportation be taken into account, but also the necessity for storage of immense quantities as a normal food reserve. New York City, for instance, consumes more than 20,000 barrels of flour every day. Much of this, it is estimated, has been milled five or six months before it is eaten. White wheat flour keeps indefinitely, certainly for many months, without any important deterioration. But whole wheat flour can be kept only about thirty days; after that it is likely to become "wormy." Flour experts tell us that the general adoption of whole wheat flour for bread in this country is an economic impossibility. The modern method of milling and our system of transportation and storage make a bread famine here almost impossible.

Although heating milk may injure or destroy its vitamins, this fact does not invalidate its great advantages, such as protection from diseases which may be communicated through milk and its preservation by drying, condensing or sterilizing, which permits its wider use as a food all over the world. The same may be said of the canning and drying of vegetables, fruits and eggs. These preserved foods are all of great benefit in the nutrition both of children and of adults. We would not stop the use of them if we could.

Our knowledge of vitamins has, however, pointed out that these procedures have their disadvantages, even their dangers; but when the nature of these is once thoroughly understood and their importance appreciated, the remedy will come also.

In the food of infants it is only vitamin C that is likely to be injured by any process to which their food, chiefly their milk, is subjected in preparation or preservation. In the first place, it should be understood that the amount of this vitamin in milk is small. Chick and Hume found that, to protect a guinea-pig, whose food contains no other source of this vitamin, 100 c.c. daily of fresh milk is required, although complete protection is secured by only 1.5 c.c. of orange juice.

It is well established that all heating of milk (I do not, of course, mean warming for feeding) whether by boiling, pasteurizing, sterilizing, drying or condensing, injuries this vitamin. It has not been shown that vitamin A or vitamin B in milk is thus injured. The amount of injury done to vitamin C depends on the height of the temperature and the length of the period during which the temperature is maintained, and possibly on whether the heating is done in open or in sealed vessels. The duration of the heating seems clearly more important than the temperature employed. Short heating at a high temperature apparently does less injury than prolonged heating at a lower temperature; so far as its effect on this vitamin is concerned, boiling for five minutes seems better than pasteurizing for thirty minutes.

While there is still considerable difference of opinion among investigators as to the relative amount of damage done by various types of heating, it may be regarded as proved that they all injure milk in this respect, and that the only safe rule in practice is to supply some efficient antiscorbutic in the diet of all infants reared on milk treated in any one of these ways.

Evidently the body has a sufficient store of this vitamin to meet its needs for a considerable time, for symptoms of scurvy do not usually appear for some months after the deficient diet has been taken. Of the last nine cases of infantile scurvy treated in my hospital service, the period was between five and seven months in seven, and in none more than nine months.

If the food contains even a small amount of antiscorbutic vitamin, the development of scurvy will be delayed. To infants whose principal or sole food is any one of the forms of heated, dried or condensed milk, it would appear, then, to be quite sufficient if an antiscorbutic were begun at the age of 5 months.

The observations of Hart, Steenbock, Ellis and others indicate that the vitamin content of cow's milk is affected by the food of the animal. This was first shown to be true of the vitamin C. The winter milk of stall-fed animals was decidedly poorer in this respect than the summer milk of pastured animals. The same law seems to hold with respect to all the vitamins. If the food of the cow does not contain an adequate supply, the milk may be deficient in any or in all of them. It would seem, therefore, a wise precaution during the winter to supplement cow's milk by other foods known to be rich in this vitamin, such as the yolk of egg or the juice of steamed green vegetables, but best of all by cod liver oil.

The vitamin content of the food of the nursing mother undoubtedly affects her milk in a similar way. This may furnish a clue to some of the puzzling cases of scurvy developing in nursing infants.

It is reported that, among the Filipinos, beriberi is common among the nursing children of rice-eating mothers of those islands. This is believed to be a large factor in the extremely high infant mortality that is seen there.

These facts may explain why infants do not thrive on some milks, although the supply is abundant and the proportion of the different constituents, as shown by chemical analysis, is within normal limits.

The practical application of these facts is, first, to recognize the necessity of supplying to nursing mothers a diet which is ample in all the vitamins. Vitamin A and vitamin C are the ones most likely to be lacking in the diet of the poor. These vitamins are abundantly supplied by milk, eggs, green vegetables and fruits, all of which unfortunately are expensive foods but should be included in the diet.

I have never seen and have never known of a case of scurvy in a child over 2 years old who was living under normal peace conditions. So far as vitamin A —so indispensable for the growth of children—is concerned, it is necessary only that care be taken that the diet include an ample supply, since it is not likely to be injured in the preparation or preservation of food.

We know well the dangers of vitamin deficiency when the diet is necessarily restricted, because conditions do not admit of choice or variety of food. These conditions exist in times of famine or great food shortage, or even may be the result of poverty; also in prisons, army camps, on shipboard, in the arctic regions and, one must add, in infancy. The consequences to children are serious, whether we consider simply arrested growth and general malnutrition or the diseases, such as scurvy and beriberi, which result from marked and prolonged deficiencies. But it does not seem probable that, except in conditions like those mentioned, either children or adults who take the average or usual diet are likely to receive such small quantities of the vitamins as definitely to interfere either with growth or normal nutrition.

A glance over the list of foodstuffs known to contain the different vitamins shows how abundant vitamins are in most common foods. This may be one of the reasons why, in the evolution of the diet of the human race, certain foods have a place. It seems perfectly evident that, unless the diet given is a very one-sided one, children receive in their usual food a liberal supply of all these essential food constituents.

Two very striking things are brought out in the investigation of vitamins by observations on animals: One is the very small amounts which are apparently required to produce their effects, and the other is the specificity of their action.

Until these substances have been isolated, we shall not know the amounts required for normal nutrition. Apparently, the amount of any one of them is not large.

Chick, Drummond and their associates at the Lister Institute have shown how much of different foods is required to protect laboratory animals against beriberi and also against scurvy, when the diet contained no other source of the vitamin in question. While this establishes much that is important with regard to the relative value of foods, it gives us no idea as to the actual amounts required by human beings. All the evidence goes to show that the vitamin requirement is affected by many conditions. It undoubtedly varies even in animals. Laboratory animals in confinement might be expetced to show effects of deficiencies in diet sooner than those living under natural conditions. It is well known that men who were much exposed and doing hard work were affected by scurvy sooner than others, although all had the same diet. If the human diet is poor in other respects, the effects of the absence of the antiscorbutic or any other vitamin is more quickly apparent.

How much of the different vitamins is needed for health we do not yet know. It is clearly not a definite amount for all human beings of the same age, sex and weight; but, like our other food requirements, the vitamin need no doubt varies with many conditions.

The great importance of vitamins for growth makes it imperative that the diet of children especially should contain the articles of food that are rich in these factors. The requirements of adults are for maintenance merely and undoubtedly are much less than those of children. This is especially true of vitamin A.

It is during the period of infancy that children are likely to suffer most: first, since infants are the most susceptible of human beings to all adverse conditions; secondly, infancy is the period of most rapid growth, and anything which may affect growth produces its most marked effects at this time; and finally, the diet of infancy is necessarily a restricted one.

Proprietary foods are harmful, not so much from what they contain as from what they lack. They may be deficient in all three of the vitamins.

The specificity of action of these substances is quite as great as that of antitoxin in diphtheria or thyroid extract in cretinism The different vitamins seem entirely independent of one another in their activity. They are in no way interchangeable; they seem to have no relation to one another. We cannot supply a deficiency in vitamin B by giving more of vitamin A, nor can we protect against scurvy by the most liberal allowance of vitamin B. Each one has a perfectly definite function in nutrition, which, from all evidence now in our possession, can be performed by it but by nothing else.

If no vitamin deficiency exists in the diet, it does not seem probable that general symptoms of malnutrition in children past the period of infancy who are taking a varied diet are due to a deficiency of any of these factors, or that improvement in general nutrition is likely to follow their administration in larger amount, when no real deficiency exists. In other words, benefit from an excess of any of them seems most improbable, and we lack proof that such is the case.

Another practical question is whether if the diet is low in its vitamin content, i. e., a condition of relative deficiency exists, there may occur perhaps not frank scurvy, beriberi, rickets or keratomalacia, but milder and less definite symptoms, such as failure to make normal progress in growth, malnutrition and general evidence of ill health. This is something difficult to establish. On *a priori* grounds it seems not improbable. It must be remembered, however, that symptoms such as those mentioned may be due to a great variety of causes other than vitamin deficiency. In the absence of definite means of diagnosis, the only evidence of their dependence on vitamin deficiency is the therapeutic test, namely, prompt and decided improvement, which follows when foods known to be especially rich in the different vitamins are added to the diet—such as orange juice or yeast or cod liver oil.

Reasoning from experience with deficiency diets in animals, one would expect to see improvement in a few weeks. In this connection one is reminded of the "patent medicine" advertisement which ran somewhat as follows: "If you are not cured you haven't got the disease. The remedy never fails."

It should first be evident from an analysis of the diet that a deficiency probably exists. The changes made should be as carefully planned as are laboratory experiments with rats or guinea-pigs. Otherwise the results reported to follow are likely to depend on either the faith or the skepticism of the observer.

Some suggestive observations on the use of antiscorbutic vitamin have been made by Hess and others, in which the weight curve of infants showed a prompt rise on addition of orange juice to the daily diet; but in many or most of these cases the diet was known, or at least strongly suspected, to be poor in this factor.

Vitamin B has been urged upon the profession in the form of yeast as being especially important for children who are not making the normal gain in weight, who suffer habitually from poor appetite, chronic constipation, etc. My own experience has been one of complete disappointment.

However, in view of the important part which we now know to be played by vitamins in nutrition, it behooves the physician in all cases of malnutrition, particularly when the explanation is not obvious, to investigate carefully the character of the food and its preparation to discover any errors that might result in a vitamin deficiency. Especially is this necessary in the case of chronic invalids or of delicate children whose diet has become greatly restricted from necessity or from caprice, and in the case of infants, whose diet is always a restricted one. But, until we have some more certain means of diagnosis than we now possess, the indiscriminate use of vitamins in other circumstances than the foregoing for what is often referred to as "general results" is not likely to be beneficial; it should be discouraged. It is hardly scientific therapeutics.

It is most unfortunate that the popular interest in vitamins, which is the result of so much recent publicity as has been given to this whole subject, should be exploited commercially. Just now vitamins are in fashion, and as much capital as possible is being made of this fact. The medical profession, at all events, should not be carried along in the popular current. Important and indispensable though vitamins are, one can fall into no greater error than to assume that vitamin deficiency is the chief cause of all chronic nutritive disorders; just as not very long ago these were all referred to auto-intoxication, and at present a certain group would have us believe that they are due to some disturbance of the glands of internal secretion. The use of vitamins without definite indications will be popular for a period but, like other fads, it will pass. With time and further investigation, their true place will be determined.

Our knowledge of vitamins has taught the necessity of a variety of food and the danger which follows when conditions make a choice of variety impossible. It has taught us also the incomparable value of certain foods, particularly of milk, not only in infancy, but during the entire period of growth; also the importance in the diet of children of the green or leafy vegetables. The chief objection to some, such as cabbage, lettuce and celery, when used in a raw state is the difficulty of making children masticate them properly.

Our knowledge of vitamins has greatly helped to put the whole subject of nutrition on a scientific basis. The experimental method has been substituted for the empiric one in determining the value of the different foods. Formerly we might know that certain foods were desirable or necessary; now we are able in very many cases to say why such is the case and to determine their precise value in nutrition. A knowledge of vitamins has furnished a key to many problems in nutrition which before were obscure or insoluble.

Until they have been confirmed by clinical experience there is, however, some danger in relying too much on the results of laboratory observations on animals of a different species, whose physiologic needs may be different from those of human beings.

The study of vitamins has taught us several important things regarding the nutrition of children.

Children should eat a variety of food, and special dangers may follow the habitual use of a very restricted diet.

Milk is the one indispensable food for children. The diet during the entire growth period should include, if possible, whole milk, or if skimmed milk is used it should be supplemented by butter. Of the butter substitutes, those which contain beef fat, mutton fat and peanut oil are better than those in which other vegetable oils or lard are important constituents.

A diet which includes no milk whatever should contain ample amounts of the green or leafy vegetables.

Cereals, particularly those from whole grains, and potato are important and adequate sources of vitamin B.

Fruits have other uses than as laxatives and as sources of mineral salts; they should form a regular part of the diet. When fresh fruits are not available, dried fruits may be given; but they are distinctly inferior to canned tomatoes as sources of the antiscorbutic vitamin.

Cabbage is such a rich source of all the vitamins that it should form a larger part of the diet than is usually the case, especially since it is cheap, and in winter often almost the only green vegetable available.

In normal peace conditions, the results of vitamin deficiency are most often seen in infancy. In rare cases they may be seen in older children and in adults when there is extreme poverty, and still less frequently in those suffering from chronic disease, or in very delicate children whose diet for a long period has been greatly restricted.

If the daily diet contains in reasonable amount unskimmed milk, cereals, potato, green vegetables and fruit, one need not fear a vitamin deficiency. While these articles are especially rich in vitamins, nearly all of our common foods contain them.

155 West Fifty-eighth Street.

CLOSTRIDIUM BOTULINUM

II. PRESENCE IN THE HUMAN ALIMENTARY TRACT *

FRED W. TANNER, PH.D.
AND
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URBANA, ILL.

The importance of *Clostridium botulinum* as a cause of food poisoning, and probably food infection, justifies extensive study of its distribution. At frequent intervals it has been reported in the intestinal contents of both apparently healthy and diseased animals and human beings. The present paper is a report of a short study on its possible presence in the intestinal tracts of healthy human beings.

Van Ermengem[1] isolated the organism from the intestinal tracts in fatal cases of the disease. In 1897, however, he could not find it in the intestinal contents of fish, or in cow or horse manure, or duck excreta. Burke[2] found the spores of this organism in insect droppings and manure from a hog which had recovered from botulism three months before. Dickson[3] examined the intestinal contents of 250 hogs without finding the organism in a single instance. Kempner and Pollack[4] isolated it in 1897 from the intestinal contents of a hog. We[5] found it in three specimens of hog feces and one sample of sewage. Graham and Barger[6] found *Clostridium botulinum,* Type A, in one specimen of feces and five specimens of urine from widely separated spontaneous cases of poliomyelitis in Illinois. Graham and Schwarze [7] isolated the organism from the intestinal contents of chickens that had died of limber neck.

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* From the Department of Bacteriology, University of Illinois.

[1] Van Ermengem: Centralbl. f. Bakteriol., Part I, **19**: 442, 1895.

[2] Burke, G. S.: J. Bacteriol. **4**: 541-553 (Sept.) 1919.

[3] Dickson, E. C., quoted by Burke (Footnote 2).

[4] Kempner and Pollack: Deutsch. med. Wchnschr. **23**: 505, 1897.

[5] Tanner, F. W., and Dack, Gail M.: J. Infect. Dis., to be published.

[6] Graham and Barger: Univ. Bull. **19**, No. 7, 1921.

In order to determine whether the spores of the organism might be present in the intestinal tract of the healthy human being, samples of stool were collected from ten different persons.

TECHNIC

Ten samples of feces from apparently healthy persons were brought to the laboratory on sterile swabs. The samples were broken up in sterile physiologic sodium chlorid solution and transferred to sterile corked test tubes. These were shaken vigorously for about ten minutes on the shaking machine in order to secure a homogeneous preparation. The tubes were then put into a constant temperature bath at 80 C. for thirty minutes in order to destroy the vegetative cells which were present. Various qualitative dilutions were made, and the material was plated out in dextrose agar. The plates were made anaerobic by Dick's method. After incubation at 37 C., the plates were carefully examined for colonies like those of *Clostridium botulinum.* Suspicious colonies were transferred to sterile tubes of sheep brain medium, which were incubated at 37 C. after being made anaerobic with sterile paraffin. The sheep brain medium cultures which gave the characteristics of growth generally secured in this medium were tested serologically for the presence of the botulinus toxin. One cubic centimeter portions were fed to guinea-pigs by mouth. Those animals which died with the usual symptoms were examined postmortem, and new cultures in brain medium were inoculated with material from the brain of the guinea-pigs. It has been found that the organism may be isolated from the brains of guinea-pigs which have died with a typical case of botulism. This culture was then carefully purified and typed against antitoxin kindly supplied by Prof. Charles Krumwiede.

RESULTS

Two of the ten specimens of feces from apparently healthy human beings were found to contain the organism. Five others gave very strong evidence of its presence. The cultures from these five samples, however, formed weaker toxins, and death in the guinea-pigs was delayed for as long as twenty days in one instance. The guinea-pigs, however, died with the usual symptoms at the end of that time. This delayed death has also been mentioned by others. Since these strains reacted so sluggishly to the usual tests, they were not regarded as absolutely positive, although we feel that they were *Clostridium botulinum.* An analogy may exist between the delayed symptoms in guinea-pigs and those in human beings. It is possible that some of the severe gastro-intestinal disturbances often occurring in isolated cases and in groups may have been due to a weak toxin capable of causing symptoms only superficial to those caused by a strong toxin. Perhaps the incubation period in some of these cases may be so delayed that the apparently spontaneous symptoms, when they appear, are not connected with the ingestion of a poison-containing food.

The significance of these data is perhaps merely suggestive. Our results seem to be somewhat confirmed by the more recent contributions on the presence of the organism in the soil. Tanner and Dack [5] and Meyer and Geiger [8] have shown that the organism is quite widely distributed in the soil. The latter investigators have proposed that certain geographic areas may be more heavily seeded than other areas. It would not be unexpected to find the organism on foods which are eaten fresh or which are partially or imperfectly cooked. An analogous situation seems to exist in *Clostridium tetani.* The work of Nicolaier and others [9] has shown that this organism is abundant in the superficial layers of the soil, and especially in soil which has been cultivated and fertilized. The recent work on forage poisoning [10] by a number of investigators also indicates that the organism may be distributed in soil and may thus reach food. In the numbers that would get into food, its presence is probably not significant. Armstrong, Story and Scott [11] reported that pigs receiving 120,000,000 spores subcutaneously died in four days, while animals receiving 12,000,000 and 1,200,000 spores remained well. Orr [12] has given this subject more elucidation. While Orr admits the possibility of toxemia due to the ingestion of detoxicated spores, he regards it as of very rare occurrence, if it ever occurs. Thus, it seems that the spores of *Clostridium botulinum* may be present in the intestinal tracts of apparently healthy persons without any untoward symptoms or results.

SUMMARY

Two of ten specimens of feces from healthy persons were found to contain *Clostridium botulinum.* Five other specimens gave strong evidence of its presence. The two strains absolutely identified as Type B strains formed powerful toxins in sheep brain medium.

Clinical Notes, Suggestions, and New Instruments

DIAPHRAGMATIC HERNIA AS A LATE SEQUEL OF WAR WOUND OF THE CHEST

Harold E. Waxman, M.D., Pittsburgh

An interesting phase of the case here reported is the fact that diaphragmatic hernia may be confused with appendicitis. From a theoretical standpoint it scarcely seems probable that a condition pathologically and anatomically so different from diaphragmatic hernia as acute appendicitis could be confused with the former. Yet this did happen, and Borden [1] recently reported a similar mistake, although in a widely different and more chronic form of diaphragmatic hernia.

REPORT OF CASE

History.—J. B., a white man, aged 28, a city fireman, was admitted to the hospital, Dec. 30, 1920, complaining of pain in the abdomen. December 23, while at a fire, the patient was overcome by smoke. He did not remember much of what had happened to him, but was told by companions that his asphyxia was rather profound, and the pulmotor was used. Before the accident, to the best of his knowledge, he was in perfect health. That evening he began to have a dull pain in the left side of the abdomen just below the ribs. The pain radiated upward to the left shoulder. The pain was not severe. He took no medicines and abstained from food, as part of the after-treatment of the asphyxiation. His bowels moved well that day without causing him any pain or other symptoms, and so continued until December 26, three days after the accident. The dull pain in the left hypochondrium persisted. December 27, he began to have pain of a dull nature in the right iliac fossa. The onset of this was followed by vomiting. Since then he had vomited at all attempts at eating. The vomited material usually consisted of what he had eaten shortly before. He had not had a bowel movement since December 26, and numerous enemas proved unsuccessful. December 30, he developed acute, agonizing pain in the right iliac fossa, the pain on the left side having subsided. Realizing that his condition was not due altogether to the asphyxiation, he again called his physician, who advised immediate removal to the hospital.

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[7] Graham, R., and Schwarze, H. R.: J. Infect. Dis. **28**: 317 (April) 1921.

[8] Meyer, K. F., and Geiger, J. C.: Pub. Health Rep. **36**: 4-6 (Jan. 7) 1921.

[9] Hiss and Zinsser: A Text Book of Bacteriology, Ed. 4, p. 457.

[10] Graham, Brueckner and Pontius: Kentucky A. Exp. Sta. Bull. 207, 1917; Bull. 208. Graham and Schwarze: Abstr. Bacteriol., August, 1921; Abstr. 1547.

[11] Armstrong, Story and Scott: Pub. Health Rep. **34**: 2877 (Dec. 19) 1919.

[12] Orr, P. F.: J. Infect. Dis. **30**: 118-127 (Jan.) 1922.

[1] Borden, D. L.: Diaphragmatic Hernia, Ann. Surg. **75**: 337 (March) 1922.

When admitted, he complained only of a sharp, colicky pain in the lower right abdomen and of vomiting whatever food or drink he took. He had not secured a bowel movement for four days in spite of the use of enemas. On the morning of admission, hiccup developed and persisted. He said that the vomiting was almost always preceded by a long period of nausea, which he relieved voluntarily by forcing the act of vomiting when it did not come spontaneously.

The patient said that he had always been active and athletically inclined, enjoying excellent health. He had all the usual minor ailments of childhood, but none of the more serious acute infectious fevers. In 1918, while in action in France, he was wounded "just below the heart" by a machine gun bullet. He was in a military hospital for several months. No exploratory operative treatment was attempted at the time he was shot. He apparently made a good recovery, and said that he had been in excellent health since his discharge from the army. He had never before had any pain of a nature similar to that which he was now experiencing. He had never had a surgical operation of any kind.

Examination.—On the left side of the chest, in the midclavicular line, in the sixth interspace, was a scar from the entrance of the bullet. There was also a scar at the point of exit of the bullet in the left posterior axillary line, in the tenth interspace. The heart and lungs were normal. The abdomen was flat, with no distention, and was tympanitic to percussion above the umbilicus. There was marked tenderness on deep palpation over the entire right iliac fossa, with some rigidity of the right rectus muscle. No tenderness was noted elsewhere, and no masses were palpated. There were no hernias, inguinal or femoral. Rectal examination was negative. The specific gravity of the urine was 1.030; examination revealed: albumin, trace; sugar, negative; indican, trace; casts, none; red blood cells, a few. Blood examination revealed: leukocytes, 15,000; polymorphonuclears, 77; small mononuclears, 17; large mononuclears, 6.

Clinical Course.—December 30, the patient's condition was as described in the history. A diagnosis of acute intestinal obstruction, with probable location in the right iliac fossa, was made. Exploratory laparotomy was urged, but the patient refused his consent. The temperature ranged between 99 and 100 F.

December 31, a marked changed in the patient's condition was manifest. He was restless, and complained of great pain in the right iliac fossa. During the twenty-four hours since admission, four irritant enemas had been given. These were returned practically as given, uncontaminated with fecal matter. The abdomen was distended uniformly. There was exquisite tenderness and marked rigidity of the overlying musculature of the right iliac fossa. The breath had a fecal odor. Operation was accepted. The diagnosis was acute appendicitis or intestinal obstruction.

Operation and Result.—Under ether anesthesia, a right lower rectus incision was made. The cecum, ascending colon, transverse colon and terminal ilium were markedly injected and greatly distended. The appendix was bulbous, infiltrated, bound down, and surrounded by a small quantity of pus. Considerable manipulation and exploration were necessary to locate the obstruction of the intestine accounting for the distention. The splenic flexure of the transverse colon was caught in a small hernia of the diaphragm. The incision was, of course, in the wrong place to deal effectively with both the appendical condition and the diaphragmatic hernia. The patient was in great shock. The knuckle of bowel was hastily freed from the opening in the left diaphragm, and the abdomen closed. The operation was performed by a member of the visiting staff.

The patient did not rally through the night from the shocked condition in which he left the operating table. In spite of all restorative and stimulative measures, he died, twelve hours after the operation.

COMMENT

To have made a diagnosis of diaphragmatic hernia would have been easy enough had this been a case in which the patient did not present an acute condition of the abdomen; if there had been sufficient eventration of the abdominal contents into the thorax to give physical signs, or if a roentgen-ray examination could have been made. In this case the optimum in diagnosis would have been acute intestinal obstruction. With the presence of pain in the right iliac fossa there seems some justification for having regarded the seat of all trouble in that location. Had an incision been made in the upper left quadrant, it might also have been possible to deal secondarily with the appendical condition; but, as is too often the case, in this instance "hindsight seems better than foresight." Undoubtedly, also, operation was too long delayed.

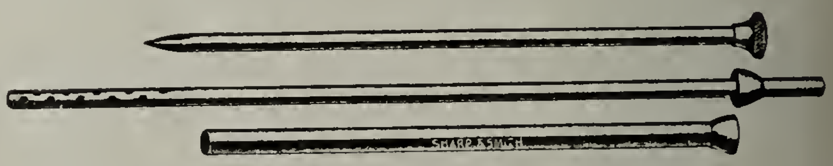
The explanation of the mechanism of production of the hernia may be that, during the violent breathing which the patient undoubtedly employed while overcome by smoke, through greater use of the abdominal muscles in respiration, the increase of intra-abdominal tension was sufficient to rupture the scar in the dome of the diaphragm on the left side and force through the splenic flexure. The accompanying acute suppurative appendicitis beggars explanation. It gave a justification for making the right iliac fossa the location suspected as being also the seat of the acute intestinal obstruction.

5819 Forbes Street.

A PRACTICAL TROCAR AND CANNULA FOR REMOVING ASCITIC FLUID

William W. Duke, M.D., Kansas City, Mo.

When ascitic fluid is withdrawn from the peritoneal cavity through the cannula ordinarily used for this purpose, the end of the cannula frequently strikes loops of intestine or the omentum before the desired amount of fluid has been removed. This not only interferes with further withdrawal of fluid, but causes pain and anxiety in the patient. The end of the cannula can be freed from the intestine or omentum by manipulation, and additional amounts of fluid can be withdrawn. Such additional amounts, however, are usually small, and, after manipulation has been attempted several times, further effort at complete drainage has to be abandoned. The result is that a considerable amount of ascitic fluid may be left in the peritoneal cavity. This may drain through the wound made by the cannula for one or several days, and cause the patient much annoyance. This disadvantage can be overcome by the use of the double cannula shown in the accompanying illustration.



Trocar and cannula for removing ascitic fluid: at top, trocar; in center, inner cannula; at bottom, outer cannula.

The outer cannula consists of a metal tube 9.5 cm. in length with a bore 4 mm. in diameter. This is fitted with an ordinary trocar. The trocar and outer cannula can be introduced into the peritoneal cavity in the usual manner; the trocar can be withdrawn, and in its place the inner cannula with the blunt, perforated end can be introduced. The inner cannula is 13.5 cm. in length, with a bore 3.5 mm. in diameter. This cannula, on account of its length and blunt end, can easily be introduced deep into the pelvis without causing pain or anxiety in the patient. The flow of fluid cannot be obstructed easily by omentum or loops of intestine, and the result is that the peritoneal cavity can be drained almost dry without difficulty. The advantages of this cannula would appear to offset its only disadvantage, namely, slightly increased cost.

Waldheim Building.

New and Nonofficial Remedies

YEAST PREPARATIONS

Report of the Council on Pharmacy and Chemistry

At its 1922 meeting, the Council directed that a general article, giving the present status in medicine of yeast and yeast preparations, be prepared. A committee was appointed for the purpose. This committee submitted to the Council the report which appears below, with the recommendation that its publication in The Journal and its subsequent inclusion in N. N. R. be authorized. The Council adopted the report of the committee, and, accordingly, the article, Yeast Preparations, appears below. W. A. Puckner, Secretary.

Yeast and preparations from it have long been used both externally and internally in medicine. Yeast, as commonly understood, is the ordinary brewer's or baker's yeast, consisting of the minute unicellular organism *Saccharomyces cerevisiae*. These cells have long been characterized by their power to convert certain sugars into products of fermentation, a reaction in which enzymes present in the yeast are concerned.

So-called dried yeast is usually obtained by filtering off the yeast cells grown on extracts of malted grains; they are completely or partially dried and may, or may not, contain a considerable admixture of starchy substance. Lately, preparations of relatively uncontaminated dried yeast have been marketed. Some of the dried yeast preparations are intended to retain their fermentative power. In others this has been destroyed by the process of desiccation. The so-called compressed yeast sold in freshly prepared form, usually with some admixture of a starchy substance to give it a suitable texture, will retain its fermentative activity for several days when kept at a low temperature. To what extent other micro-organisms are likely to contaminate the commercial yeast preparations is not generally known.

Actions and Uses.—Since fermenting liquids, if concentrated enough, have been assumed to have a bactericidal action, yeast has been proposed for use as a bactericide in the treatment of infections of the superficial tissues. Its application for this purpose has, however, been practically abandoned, although there are traditional accounts as to the healing properties of fresh yeast applied to open wounds. As yeast is one of the richest sources of vitamin B, which has recently come into prominence as a hitherto unrecognized food component essential to nutritive well-being and widely distributed in common foods, yeast and preparations derived therefrom have been widely extolled of late as sources of this vitamin whenever there may be indications for its therapeutic use. The latter are still so indefinite, aside from rather exceptional instances, such as beriberi, and the opportunities to obtain vitamin B through the customary foods entering into the dietary of man are so abundant that the special demand for the yeast vitamin seems to be limited relatively at the present time. At all events, the alleged curative or onic value of special vitamin B bearing products has been emphasized through widespread advertising to an extent unjustified by available evidence. The beneficial effect of products containing vitamin B on animals subsisting on a diet deprived of this food factor is truly remarkable; but this act, attested by laboratory observations, should not be nterpreted to mean that there is a widespread avitaminosis n this country or that the need for vitamin, other than in exceptional cases, cannot readily be supplied through simple dietary measures. The therapeutic aspects of the vitamin problem are still in the experimental stage.

The ingestion of yeast in liberal portions is known to produce a laxative effect. In some cases, particularly in oung children, such use of yeast has been followed by intestinal distention, doubtless attributable to fermentative gas production by the surviving yeast cells. There is, however, a preponderance of evidence regarding the advantageous use of yeast as a mild laxative. Aside from the objectionable possibility just referred to, there are no serious contraindications. Whether the laxative action of yeast is due to the survival of the living cells and some product of their reaction in the intestine or to a chemical component of yeast which may also be present in dead cells is not clear at present. Yeast has often been recommended for internal administration because of its supposed beneficial effects on furuncles, acne, etc. Its adherents assert that it is almost a specific. Many, if not most, clinicians doubt this remarkable effect, which may, after all, be expected from any anticonstipation agent. Whether yeast or its products can provoke a leukocytosis likewise remains undemonstrated. Many of the conditions for which yeast and yeast preparations have been recommended therapeutically are so variable in their clinical course and so likely to show improvement without special treatment that the elaborate claims made in regard to yeast therapy for somewhat indefinite disorders must be largely discounted. It is not clear to what extent, if at all, live cultures of yeast may be used to change the intestinal flora, if, indeed, such a reaction becomes desirable in many of the conditions for which yeast is commonly used.

Concentrated liquid extracts of yeast (which are rich in vitamin B) have long been used as substitutes for meat extracts in making bouillons and soup stocks, and it is asserted that meat extract is sometimes adulterated with yeast. Yeast vitamin concentrates have been prepared from extracts of yeast by a variety of methods.

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

ANTI-ANTHRAX SERUM (See New and Nonofficial Remedies, 1922, p. 284).

Parke, Davis & Company, Detroit.

Anti-Anthrax Serum: Marketed in syringes containing 50 Cc. (*Bio. 45*). Initial dose of from 50 to 100 Cc., injected intravenously. should be followed by further injection in six or more hours. It is well to test the sensitization of the patient to horse serum, prior to the first injection, by means of the cutaneous test, which will require about one-half hour. The drop of serum required for this test can be obtained directly from the syringe container of Anti-Anthrax Serum.

ANTIMENINGOCOCCUS SERUM (See New and Nonofficial Remedies, 1922, p. 286).

Parke, Davis & Company, Detroit.

Antimeningococcic Serum: Marketed in packages of two syringes, with flexible connection, gravity tube and needle with stylet (*Bio. 170*), each containing 15 Cc.; also in packages of one syringe, with needle and long flexible tube, suitable for intravenous injection either by pressure or gravity method (*Bio. 172*) each containing 50 Cc.

Dosage.—From 50 to 150 Cc., intravenously; from 15 to 30 Cc., intraspinally.

DIPHTHERIA ANTITOXIN-TOXIN MIXTURE (See New and Nonofficial Remedies, 1922, p. 282).

Parke, Davis & Company, Detroit.

Diphtheria Toxin-Antitoxin Mixture.—Diphtheria Prophylactie: Each cubic centimeter of the mixture represents a single human dose, corresponding to the requirements of the Public Health Service. Marketed in packages of 3 bulbs, each containing 1 Cc. (*Bio. 60*) representing one immunizing treatment; also in vials containing 20 Cc. (*Bio. 65*).

TUBERCULIN DENYS (See New and Nonofficial Remedies, 1922, p. 296).

Parke, Davis and Company, Detroit.

Tuberculin B. F. (Bovine).—Made in the same manner as tuberculin Denys (Human), except that the bovine type of tubercle bacillus is used. Marketed in packages of six 1 Cc. sealed glass tubes.

Borcherdt's Malt Extract (Plain) (See New and Nonofficial Remedies, 1922, p. 176).

Borcherdt's Malt Cod Liver Oil and Prosphorus: Each 100 Cc. contains phosphorus, 0.009 Gm. (1/25 grain per fluidounce), cod liver oil, 25 Cc. and Borcherdt's malt extract (plain), 75 Cc.

Dosage.—From 8 to 15 Cc. (2 to 4 fluidrachms), three times a day, after meals.

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SATURDAY, JULY 8, 1922

FEBRILE TEMPERATURE

The current conception of fever involves reactions which consist in an alteration of the body temperature, together with changes in the mechanism which controls this temperature. Fever can be induced by placing the body in an environment so warm and moist that heat cannot be lost by the usual devices of radiation, conduction and evaporation. In such a predicament there is an obvious failure of heat elimination. In persons suffering from ichthyosis hystrix involving an almost complete loss of function of the sweat glands,[1] the body temperature can be varied by altering the temperature of the surroundings. Considerations such as these have been responsible for the view that a prominent factor in the genesis of fever is the failure of the mechanisms ordinarily responsible for the removal of heat from the body. On this hypothesis the increment of heat might be merely an exaggeration of that seen in healthy persons after exercise, but with an imperfect elimination of the heat thus set free.

Water is of so much importance in heat loss by vaporization that one naturally thinks of the rise in temperature as possibly dependent on a failure or inability of the body to "mobilize its water reserve." As stated in a recent article,[2] the ability of the body to utilize water in heat elimination is of the greatest importance in the regulation of temperature. Because of its high specific heat and fluid character, it is capable of absorbing large amounts of heat from the cells and of distributing it to the surface of the body, where it may be eliminated. The dry skin and concentrated urine of acute fevers has often given rise to the belief that the mechanism of heat loss is disturbed.

The latest studies of Du Bois[3] and his colleagues, in a variety of infectious fevers, lend no support to the theory of inability of the body in such conditions to mobilize its water reserve for the elimination of heat. Their results show that the heat lost in the vaporization of water from the skin and lungs bears a fairly constant relationship to the total heat elimination. In cases of erysipelas, for example, the heat lost in the vaporization of water constitutes from 23.6 to 33.4 per cent. of the total heat elimination. During rising, constant and falling temperatures, the percentage of heat eliminated in the vaporization of water was greater than in normal persons; hence the conclusion that fever should not be attributed to failure in the function of water elimination.

The careful earlier calorimetric investigations of typhoid, tuberculosis and malaria are now supplemented by additional evidence from other febrile states to show that rise in body temperature is accompanied by increased heat production, and that the increase corresponds to the degree of fever. Apparently the patient with fever responds to bodily changes by a rise in temperature in a manner which resembles closely the chemical reactions in the test tube suspended in a water bath. According to Barr, Cecil and Du Bois, the increased heat production follows van't Hoff's law, which may be thus stated: "With a rise in temperature of 10 C., the velocity of chemical reactions increases between two and three times." This means an increase of from 30 to 60 per cent. for a rise in body temperature from 37 C. to 40 C. It is important to realize that increment in body temperature may of itself thus "speed up" metabolism.

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[1] Linser and Schmid: Deutsch. Arch. f. klin. Med. **79**: 514, 1904; abstr. J. A. M. A. **42**: 1526 (June 4) 1904.

[2] Barr, D. P.; Cecil, R. L., and Du Bois, E. F.: Clinical Calorimetry, XXXII, Temperature Regulation After the Intravenous Injection of Proteose and Typhoid Vaccine, Arch. Int. Med. **29**: 608 (May) 1922.

[3] Coleman, Warren; Barr, D. P., and Du Bois, E. F.: Clinical Calorimetry, XXX, Metabolism in Erysipelas, Arch. Int. Med. **29**: 567 (May) 1922. Barr, D. P.; Cecil, R. L., and Du Bois, E. F.: Footnote 2.

THE GOETSCH TEST IN HEALTHY PERSONS

Medical practice is enriched and mankind benefited by any procedure, prophylactic, diagnostic or therapeutic, by which the problems of disease can be more accurately approached. When Sir John Floyer adapted the watch for the counting of the pulse, he made the civilized world his debtor. The application of chemistry in the test for sugar in the urine has proved to be of enormous help to the physician. The simplified technic for the estimation of basal metabolism has opened new possibilities in clinical medicine. Human nature is not always easily swayed by interest in the novelties of science; but, when it is moved, the pendulum of enthusiasm is often more than likely to swerve too far in one direction before it regains the normal swing. One need but read the history of any new test, new instrumental procedure, new apparatus or new drug, to find abundant illustrations of this dictum.

The epinephrin test introduced by Goetsch for the detection of hypersensitiveness in hyperthyroidism[1] seems to be no exception to the common experience referred to. It depends in principle on the theory that, in an organism in which there is an overabundance of thyroid secretion, the sympathetic nervous system is sensitized to the action of epinephrin. Peabody and his collaborators [2] at the Peter Bent Brigham Hospital, Boston, have already ascertained that, although hypersensitiveness to epinephrin as measured by the Goetsch test is found in many persons showing the clinical picture of hyperthyroidism and an increased basal metabolism, yet it is not always present under these conditions. On the other hand, the Goetsch test may show a positive response in persons who have no other indications of hyperthyroidism.

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[1] A good description of the procedure is given by Wearn, J. T., and Sturgis, C. C.: Effects of Injection of Epinephrin in Soldiers with "Irritable Heart," Arch. Int. Med. **24**: 247 (Sept.) 1919.

Significant evidence of this has lately been offered by van Wagenen,[3] who conducted Goetsch tests on a group of students in the Department of Physical Education at Cornell University. He states that "a more physically fit, more symptomless group could not have been desired." Yet in the fifty persons comprising it there were ten positive reactions, or 20 per cent., judged by the characteristic changes in blood pressure, pulse rate, general symptoms and local reactions attending the intramuscular injection of the conventional test dose of epinephrin hydrochlorid. Such facts raise doubt, to say the least, as to the exclusive diagnostic value of a test for hyperthyroidism in "borderline cases" in which, in the absence of observable symptoms of psychoneurosis, neurasthenia and hysteria, so large a proportion of healthy persons respond in what might be designated as a positive way.

REJUVENATION BY TESTICULAR TRANSPLANTATION AND OCCLUSION OF THE SEMINAL DUCTS

The quest through the ages for a mystic agent which shall revive the faded youth of the aged has recently been rewarded—at least so the newspapers allege—by the discovery of the fountain of youth. Indeed, two such fountains have been acclaimed from different sources. Neither of the methods proposed, it is true, promises more than partial rejuvenation of the old. Neither offers, for example, to grow natural teeth to replace artificial dentures, or to garnish a bald pate with a luxuriant thatch. Yet, if a method will renew sexual vigor—and this is the alluring promise—full many a Faust will eagerly barter his worldly goods for drafts from the fountain.

The more sensational of the two methods of rejuvenation now in the limelight is the transplantation into the old man of testicular substance removed from young men, monkeys, goats or whatever the market affords. Each of these sources of material is guaranteed, by somebody, to rejuvenate. A fundamental error in this scheme is the assumption that vigor in general and erectile power in particular are measured solely by some testicular internal secretion, and hence that loss of such power can be remedied by a fresh supply of testicular substance. Physicians know that destructive disease of the thyroid, of the anterior pituitary or of the suprarenal cortex entails loss of sexual power as surely as does castration; that copulative vigor is apparently a composite, possible only when a chain of endocrine glands, including at least those just named, furnish their normal products to the blood, and that under-function of any of these impairs vigor in general, and virility in particular. Removal of the entire thyroid, for example, causes sexual impotence, relieved not by transplanting testes but by feeding thyroid tissue. Since a chain is no stronger than its weakest link, and since in old age all the links of the endocrine chain are weaker than in youth, it is difficult to imagine that the implantation of youthful testicular substance could rejuvenate old men, any more than that the insertion of a new link could strengthen a worn-out chain. The legitimate subject for testicular implantation, by this reasoning, is the otherwise normal young man whose testes have been destroyed by disease or injury. In some such cases, however, this attempt has failed utterly, but in a few other cases, disinterested physicians have attested an improvement, general and sexual, following the transplantation of human tissue. In no instance, so far as we know, has an alleged rejuvenation of an old man been so attested.

A second assumption in this scheme of rejuvenation is that transplanted gonad substance, of whatever origin, continues to function in its new environment. Yet in many instances human tissue, testicular and ovarian, removed months after such transplantation, has been found to have been treated as a foreign body, disintegrated and removed by the tissues of the host. The clinical results of gonad transplantation, as reported by the operators themselves, range from flat failure to marvelous success; thus, the gonad of the goat is said to have cured or mitigated not only sexual impotence but also a score of chronic ailments of diverse etiology and pathology. The veteran Tuffier, whose surgical utterances have long commanded respect, working in a Paris hospital with the precision of a laboratory investigator, implanted ovarian tissue freshly removed from young women into each of twenty women who had passed the menopause; in not one of these was there a return of menstruation or other evidence of rejuvenation. Most of his 230 operations were autotransplantations, removal of ovaries from the pelvis to other locations in the same woman. The results illumine the subject under discussion, for, while menstruation was reestablished in a majority of the women under 30, in only one of fifty-six women over 40 did this flow reappear after autografting. Moreover, even in the youngest women, from four to ten months elapsed after autografting before menstruation was reestablished; and, when it did appear, it was irregular and seldom continued more than three years. His verdict is that the therapeutic result of autografting of ovaries is transient; that of grafting from one woman to another is nil. It is difficult to reconcile such facts with the copulative frenzy alleged to occur in old men a few days after implantation of human or other testes, except through mental suggestion. No work on testis transplantation so convincing as Tuffier's ovarian transplants has come to our attention.

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[2] Peabody, F. W.; Sturgis, C. C.; Tompkins, E. M., and Wearn, J. T.: Epinephrin Hypersensitiveness and Its Relation to Hyperthyroidism, Am. J. M. Sc. **161**: 508 (April) 1921.

[3] Van Wagenen, W. P.: Some Observations on the Epinephrin Hydrochloride Test (Goetsch Test) in a Group of Normal Individuals, J. Indust. Hyg. **3**: 343 (March) 1922.

A second widely advertised method of rejuvenation emanates from a Vienna physiologist, Steinach. This scheme likewise measures vitality solely in terms of testicular secretion, but claims to increase such secretion in an old man, not vicariously, through transplanted gonads, but directly, by speeding up his own production. The blood supply of the testis is normally divided between the spermatic tubules, which provide sperms for procreation, and the interstitial groups of epithelial cells called Leydig's glands, which are supposed to elaborate the internal secretion. Steinach assumes that, by diminishing the production of sperms, there must result an increased blood supply to the interstitial glands and a corresponding increase of internal secretion, whereupon the old man is young again. A decrease in sperm production is known to follow gradually the occlusion of the seminal duct; hence the Steinach method is simply vasectomy or its equivalent. Some physicians harbor the idea that Steinach devised a method or operation disclosing a new principle; the only novelty was the occlusion of the seminal duct by dividing the vasa deferentia leading from testis to epididymis instead of the vas itself; and the motive for this was the hope of sparing the artery of the vas deferens, the smallest of the vessels supplying the testis, which is necessarily ligated in vasectomy. But since Steinach asserts that identical results followed simple vasectomy in senile rats, and since the Vienna surgeon who applies the theory to human subjects abandoned the so-called "Steinach operation," the Steinach thesis is reduced to simply this: Occlusion of both seminal ducts rejuvenates an old man. Although the flaws in this argument are glaring and numerous, their enumeration is superfluous, because there is overwhelming clinical evidence that occlusion of the seminal ducts does not rejuvenate an old man. A generation ago, when prostatectomy was more dangerous to life than it now is, vasectomy was widely practiced for the mitigation of the evils entailed by prostatic obstruction; leaders in surgery, including Harrison in Liverpool and Rovsing in Copenhagen, reported the results in hundreds of cases of bilateral vasectomy for this purpose in old men; in not one was rejuvenation achieved. In a recent article, a Steinach follower, apparently realizing that the latter's scheme for rejuvenation died before it was born, naively explains that the old men vasectomized a generation ago did not secure rejuvenation because they were not expecting it! Apparently, then, occlusion of the seminal ducts increases testicular secretion only when the old man is convinced in advance that he will be rejuvenated. It should be possible to induce such conviction without resorting to surgery.

Current Comment

MEDICAL ETHICS

One factor distinguishing medical from other professional ethics is that medical ethics relates largely to acts immediately affecting the lives and health of human beings, and not to merely abstract principles. This distinction has been recognized, since the days of Hammurabi, in all statements of principles, or so-called codes, of medical ethics. It is interesting to note, too, the permanence of the statements of ethical principles governing specifically the acts of physicians, as formally approved by the American Medical Association, since the adoption of the "Code of Ethics," at the first annual session of the Association, in 1847. The code then adopted continued in effect until 1903, when, at the New Orleans session, it was superseded by a new statement there adopted, and the title changed from "Code" to "Principles" of medical ethics; but even then only minor modifications were made, the most important being the omission of the chapter defining the relationship which the public and the patient should hold to the practitioner of medicine. In 1912, the statement of the "Principles of Ethics" was revised, but the changes were hardly more than changes in phraseology. New conditions, however, have recently developed in the practice of medicine, and group and institutional practice have loomed up as elements to be reckoned with. Many physicians, it is to be feared, have quite unconsciously tolerated on the part of groups and institutions with which they are connected acts which they would not for a moment have considered if they had felt that they individually were responsible for them. It has always been recognized, for instance, that "solicitation of patients" is unprofessional, and that a physician cannot ethically engage in such solicitation. Justice and fairness demand that the practice be not indulged in by physicians through groups or institutions with which they may be connected, any more than it would be indulged in by such physicians acting in their individual capacities. These considerations led the House of Delegates at the last annual session in St. Louis to incorporate in the "Principles of Ethics" the following, so that there might be no doubt as to the duty of groups and institutions or of the physicians connected with them:

> Sec. 4.—Solicitation of patients by physicians as individuals, or collectively in groups by whatsoever name these be called, or by institutions or organizations, whether by circulars or advertisements, or by personal communications, is unprofessional. This does not prohibit ethical institutions from a legitimate advertisement of location, physical surroundings and special class—if any—of patients accommodated.

As may be noted, it is recognized that "institutions" which provide means for treating the sick and which have certain physical attributes which can properly be announced may call attention to these facilities. But groups of physicians associated for any reason, in group clinics or other institutions, should conform to the restrictions governing the individual physician. For professional and quasiprofessional acts committed by such groups or institutions, the physicians connected therewith must hold themselves accountable.

A SCHOLASTIC VIEW OF BOTULISM

A critical attitude of mind toward generally received opinions is perhaps a desirable character in an adult; zeal for propagation of the faith—one's own faith—is also often considered commendable. But a combination of the two qualities sometimes produces results that make the judicious grieve. An editorial comment on "More 'Botulism'" in a recent number of the *Medical Officer,* London (June 10), is an astonishing example of the effects of mental prejudice. In reviewing an article[1] that appeared in The Journal on an outbreak of botulism in Cambridge, Idaho, the writer of the editorial quotes the list of foods eaten at the fatal meal, and goes on in somewhat questionable taste: "We are not told if the water was home-canned. Anyway, the birthday party, although no doubt an immediate success, was tragic enough in the conclusion." The concluding paragraph of the editorial reveals an imperviousness to scientific evidence which is so extreme as to be diverting:

> But the diagnosis of "botulism" in these days does not cut much ice. We are so familiar with the "trailers" that follow and the "scouts" that precede our influenza epidemics, with all the symptoms of "sausage poisoning" that we are chary of accepting that unconvincing and unaerobic bacillus which Van Ezmergen [Van Ermengem is doubtless meant] "discovered" twenty odd years ago. It is so much more probable and likely that all the reported examples of so-called botulism were case-to-case, and not food infection, that they were examples of stupor, of lethargy, of polio-enceplado-myelitis, of encephalitis lethargica—call them what you will. At any rate in this instance we feel that there is some possibility of excusing the home-canned food; nor is this the first time that epidemiologists have been nauseated by the insistence by avid writers on their discovery of new and rare diseases.

The view so confidently and naively expressed in this paragraph is held by a small but scriptorially active group in England. This is not the place for a critical discussion of the somewhat tenuous hypothesis that would attribute influenza, epidemic encephalitis, botulism and poliomyelitis to a single "epidemic constitution." But we can at least point out that the airy dismissal of botulism as a figment of the imagination has never been preceded by any serious critical discussion of the numerous comprehensive investigations of botulism carried out in this country during the last decade. Before such immature views as those expressed in the *Medical Officer* can receive anything more than indifferent and amused attention, they must be based on something more substantial than innuendo and scholastic word-juggling. The grotesque misconceptions about botulism shown by the writer of the editorial cited; indeed, the sheer ignorance of epidemiologic and bacteriologic evidence, do not encourage much confidence in the speculations that are responsible for the attempt to deny botulism a place in the list of specific affections. Such views as expressed are all the more reprehensible, appearing, as they do, in a publication devoted to the enlightenment and interests of public health officials.

Association News

BUREAU OF LEGAL MEDICINE AND LEGISLATION

Complying with the request made by the Council on Health and Public Instruction, the House of Delegates of the American Medical Association, at the St. Louis Session, authorized the Board of Trustees to take over from the Council its medicolegal and legislative work and to organize a bureau through which such work shall be carried on. The Board announces the appointment of Dr. William C. Woodward as Executive Secretary of the Bureau. Dr. Woodward's experience in public life, as health commissioner of the District of Columbia and later of Boston, and his legal training have especially fitted him for the position.

The functions of the Bureau of Legal Medicine and Legislation are: (1) To keep in touch with federal and state legislation relating to medicine and public health; (2) promptly and intelligently to advise interested state associations and component societies concerning medical legislation and, so far as practicable, to cooperate with them in such proper action as they may take; (3) to study the circumstances under which threatened actions for malpractice arise, with a view to devising methods, if possible, of reducing the frequency of such actions; of rendering defense—or compromise, if that be indicated—more equitable and effective; and of procuring relief and redress in actions inaugurated and carried on without probable cause; (4) to study and advise generally with respect to legal and legislative matters of concern to the science of medicine and to the medical profession.

The problems which will come up will be many and intricate and their satisfactory solution will depend on proper organization and operation of the Bureau. Success will depend also on the whole-hearted support and cooperation of the profession, which is earnestly requested in this effort of the Association to benefit its members and the general public.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Revocation of Licenses.—It is reported that the state board of medical examiners has revoked the license of Frederick Nathaniel Staples, on a charge that he was guilty of having been party to a criminal abortion, resulting in death.——It is also reported that the board revoked the license of Charles E. Marsh, a naturopath, on a similar charge.

Arrest of Medical Impostor.—It is reported that a person using, at different time, the names Leslie Hollen, Leslie Powell, J. Mitchell Palmer and Thomas Holland, was arrested recently in Los Angeles, on a charge of passing bogus checks and of having forged names of reputable physicians to prescriptions for narcotics. He asserted that he had practiced medicine in New York and Philadelphia. He claimed also to have been a major in the army.

CONNECTICUT

Personal.—Dr. Marvin Z. Westervelt, who has recently been in charge of the employee health service of the Winchester Arms Company, New Haven, has been appointed superintendent of the Staten Island Hospital, Tompkinsville,

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[1] Whiteman, R. T., and Wilkinson, E. A.: Outbreak of Botulism at Cambridge, Idaho, J. A. M. A. **78**: 1278 (April 29) 1922.

N. Y.—Dr. Thomas F. O'Loughlin has been appointed health officer of Vernon to fill out the unexpired term of Dr. Wright B. Bean, who resigned recently.

Yale Medical Alumni Association.—At the annual meeting of the association at New Haven, June 19, it was voted to change the name of the organization to "The Association of Yale Alumni in Medicine," and to admit all Yale physicians, whether graduates of the Yale Medical School or other departments of the university. It was announced that the class of 1922 has agreed to contribute $3,000 to the school in ten annual instalments of $300, the money to be used as loans to worthy students. This will be known as the "Loan Scholarship Fund, Class of 1922." The following officers were elected: president, Dr. Charles E. Farr, New York; chairman of the executive committee, Dr. Herbert K. Thoms, New Haven, and secretary-treasurer, Dr. Simon B. Kleiner, New Haven.

DELAWARE

Medical Examiners Appointed.—Governor Denney has reappointed Drs. Presley S. Downs, Dover; Henry W. Briggs, Wilmington; Edwin S. Anderson, Dover, and Abram E. Frantz, Wilmington, as members of the state board of medical examiners.

DISTRICT OF COLUMBIA

Child Health Demonstrations.—The Commonwealth Fund will finance a child health program in three typical cities for a period of five years. The general qualifications of the first city to be selected are that it shall be from 15,000 to 25,000 in population, with an infant mortality of approximately 100 per thousand live births, or greater. Announcement of this action was made, June 29, by Courtenay Dinwiddie, executive secretary of the Child Health Committee for the Supervision of Three Child Health Demonstrations, Washington. The program will comprise safeguarding the health of the expectant mother, laying a good health foundation for children in the early sensitive and formative period of their growth, and health supervision and the formation of the essential health habits in schoolchildren. The responsibility for carrying out this comprehensive child health program is placed on the American Child Hygiene Association and the Child Health Organization of America. A joint committee has been formed that will have charge of all general policies, consisting of Dr. Philip Van Ingen and Dr. Richard A. Bolt of the American Child Hygiene Association; Dr. L. Emmett Holt and Miss Jean of the Child Health Organization of America; Dr. Livingston Farrand and Courtenay Dinwiddie of the National Child Health Council; Dr. Donald B. Armstrong of the National Health Council, and Mr. Barry Smith and Miss Quin of the Commonwealth Fund. An office will be opened at 532 Seventeenth Street N. W., Washington, and active work will begin at once. It was decided by the committee at their first meeting that the first city to be assisted will be selected from the upper half of the Mississippi Valley region. Two other cities are to be selected in other sections of the country after work has been well started in the first. The work will be so developed as to enlist the cooperation of physicians, public health nurses, school nurses and all other persons and agencies interested in health and child welfare in the communities selected.

FLORIDA

License Revoked.—The Tampa *Tribune* states that the license of Dr. Riley C. Hammers, former Tampa physician, was revoked at a session of the state medical examiners' board, June 13. This is the first time that a physician's license has been revoked by the examining officers of Florida, it is stated. Dr. Hammers has served several terms in prison for rape and violation of the Harrison Narcotic Law.

GEORGIA

Atlanta Graduate School of Physicians and Surgeons.—The formal opening of the Atlanta Graduate School of Physicians and Surgeons will take place in the fall. The general offices of the school are located in Grady Hospital. In addition to the city hospital, practically every private sanatorium in Atlanta will be affiliated with the graduate school. Dr. William Perrin Nicolson has accepted the office of dean, and Dr. Michael Hoke has accepted the position as president of the faculty. Dr. Garnett W. Quillian is vice dean and Dr. Frank L. Eskridge is proctor for the faculty. The executors of the estate of the late Albert Steiner have definitely agreed to erect two new buildings for the Grady Hospital, one to be a modern outdoor clinic building, which will be used exclusively by the visiting staff for the care of white patients, and the other to be devoted exclusively to the study, diagnosis and treatment of cancer. The first course offered at the graduate school will be one in orthopedic surgery and, following that, courses in general and abdominal surgery, gynecology and obstetrics, internal medicine, eye, ear, nose and throat, pediatrics, dermatology, neurology, urology and oral surgery.

ILLINOIS

Child Health Clinic.—A medical clinic for physical defects and underweight children was held in Bloomington, June 20, by Dr. George T. Palmer, president of the Illinois Tuberculosis Association, and Dr. Robert H. Hayes, Chicago.

Personal.—Dr. Willis T. Zeigler, Canton, has been elected county physician of Fulton County to succeed Dr. Jasper M. Adams.——Dr. Nelson A. Lowry, Chicago, addressed the final meeting of the Peoria City Medical Society, June 15, on the subject of "Paravertebral Anesthesia."——Dr. Daniel N. Eisendrath has returned to Chicago after a two years' stay abroad.

Hospital News.—A twenty-five room addition will be erected at the Burlington Hospital.——Construction work will begin immediately on the Mary Davier Hospital at La Harpe.——Plans are being revised for the South End Hospital building, Chicago, which will be erected at a cost of $300,000.——A new $130,000 building will be erected for Memorial Hospital, Harvey, Cook County.——A new laboratory will be established at the Galesburg Cottage Hospital.

Chicago

Physicians Club Elects.—At the annual meeting of the Physicians Club, held July 1, the following officers were elected: secretary, Dr. Frederick C. Test; directors for one year, Dr. Truman W. Brophy, Dr. A. A. Goldsmith, Dr. A. A. O'Neill; and director for two years, Dr. John E. Rhodes, Dr. Arthur M. Corwin and Dr. Henry T. Byford.

Rush Alumni Honor Professor Haines.—At the annual banquet of the Alumni Association of Rush Medical College, Prof. Walter S. Haines was presented with a watch in which was engraved a statement recognizing his fifty years' service in medical teaching. At the same time the Alumni Association announced the establishment of a Walter S. Haines Fund for the college library, the subscriptions to be completed within four years, at which time Professor Haines will have completed fifty years' service in Rush.

LOUISIANA

Physician Gives Donation to University.—Dr. Leon L. Solomon, New Orleans, has announced that he will give the University of Louisville the sum of $500 annually, for use in the medical research laboratory of the university. This fund will be known as the Solomon Fund.

Measure to Aid Records.—Senator Doussan's bill providing for a fee of 25 cents to be paid to physicians, midwives and other persons required to issue birth and death certificates passed the Senate, June 19. It was stated by Senator Doussan that the payment of the fee would probably encourage negro midwives in the parishes to report births.

Maternity Bill Opposed.—After prolonged arguments for and against the measure, the Senate Committee of Health and Quarantine, June 21, reported unfavorably on representative Dymond's maternity bill, which provides that Louisiana give its assent to the Sheppard-Towner maternity bill. Senator E. H. Robert, New Orleans, argued in favor of indefinite postponement of the bill and pointed out that the states of New York, Massachusetts, Maryland and Maine had rejected the bill.

MAINE

Physician Fined.—It is reported that Dr. Alexander C. Hagerthy, for many terms mayor of Ellsworth, was tried in the District Court, June 13, charged with illegal possession of twenty cases of whisky. Dr. Hagerthy was fined $500 and costs, and about $15,000 worth of liquor found in the cellar of his residence was confiscated.

Maine Medical Association.—At the annual meeting of the association held at Portland, June 26-28, under the presidency of Dr. Addison S. Thayer, Portland, the following officers were elected for the ensuing year: president, Dr. Langdon T. Snipe, Bath; president-elect, Dr. Charles A.

Moulton, Hartland; first vice president, Dr. John W. Nichols, Farmington; second vice president, Dr. Walter N. Miner, Calais, and secretary-treasurer, Dr. Bertram L. Bryant, Bangor. The next meeting will be held at Houlton, June 12-14, 1923. Dr. Olin West, Chicago, traveling secretary of the American Medical Association, and Dr. Channing Frothingham, Boston, gave addresses.

MARYLAND

Hess Dispensary Completed.—The new medical and orthopedic dispensary in connection with the Hebrew Hospital has been completed, and clinics, which will be housed there, will be in operation within the next few weeks. The dispensary is a gift to the hospital by Morton Samuels and is known as the Hess Dispensary, in memory of Mrs. Samuel's parents.

Diphtheria Immunization Clinic Opened.—The school of hygiene and public health of Johns Hopkins University, in cooperation with the department of health of Baltimore city, has opened a diphtheria immunization clinic, which will be conducted during the months of July and August. It offers to any physician the privilege of recommending any family in his practice for admission, when immunity produced by toxin-antitoxin can be brought about before the diphtheria season is here.

Personal.—Dr. J. H. Mason Knox, Jr., of Baltimore, has accepted appointment as chief of the state bureau of maternity and child hygiene, created at the last session of the legislature under provisions of the Sheppard-Towner Act. Dr. Knox is now in Europe, where he is directing child hygiene work for the American Red Cross, with headquarters at Paris. He is at present at Riga, Esthonia, from which place he cabled acceptance to Dr. John S. Fulton, secretary of the state department of health.——Dr. T. Capsar Gilchrist, Baltimore, sailed on the steamship *La France* for England and will spend the next two months traveling abroad. Dr. Gilchrist will deliver the annual address before the London Dermatological Society, July 13, in London.——Dr. Richard Follis, Baltimore, has sailed for Europe and will spend his time traveling through England and on the continent, returning September 20.

MISSOURI

Personal.—Dr. C. H. Wallace, St. Joseph, has been appointed a member of the welfare board by Mayor McIninch to succeed Dr. Daniel Morton, who declined reappointment. ——Dr. J. E. Jordan, Columbia, was presented with a gold watch as a token of esteem recently by the Boone County Medical Society. Dr. Jordan is retiring from practice owing to injuries received in an automobile accident last fall.—Dr. William P. Fischer, Columbia, has been elected secretary of the Boone County Medical Society to succeed Dr. Jordan. ——Dr. J. W. Boger, Sedalia, has been appointed county health officer of Pettis County.—Dr. Henry L. Wilfner, St. Louis, has resigned from the board of education after nine years of service.——Dr. Edward S. Smith, Macon, has been selected one of twenty officers to be sent to Harvard University for a special course in medicine.

MONTANA

State Medical Meeting.—The annual meeting of the Medical Association of Montana will be held at Great Falls, July 12-13, under the presidency of Dr. Wyman W. Andrus, Miles City. Dr. Joseph C. Bloodgood, Baltimore; Dr. Ernest M. Hammes, St. Paul; Dr. David S. Hillis, Chicago; Dr. Leonard G. Rowntree, Rochester, Minn., and Dr. Dean Lewis, Chicago, will be among the visiting physicians who will gives addresses.

NEW JERSEY

Medical Society of New Jersey.—At the one hundred and fifty-sixth annual session of the society, held in Spring Lake, June 20-22, under the presidency of Dr. Henry G. Costill, Trenton, the following officers were elected for the ensuing year: president, Dr. James Hunter, Jr., Westville; vice presidents, Drs. Wells P. Eagleton, Newark, Alexander MacAlister, Camden, and Archibald Mercer, Newark; secretary, Dr. William J. Chandler, South Orange, and treasurer, Dr. Elias J. Marsh, Paterson.

Aid for Unwedded Mothers.—A conference was held in Trenton recently, under the auspices of the bureau of child hygiene and the state board of health, to consider means for extending the work in regard to problems relating to unwedded mothers, including their care and that of their children. A plan was proposed to enlist the cooperation of the general public, especially the women, so that it may be possible for illegitimate children, of which there are approximately 1,000 a year born in New Jersey, to have a "square deal."

NEW YORK

Personal.—Dr. Haven Emerson has been appointed full-time professor of the department of public health administration at Columbia University, New York, by the board of trustees of the university.——Following his retirement from active service at the Harlem Hospital, Dr. Irving S. Haynes was tendered a complimentary dinner by members of the medical board of the New York Athletic Club, June 8.——Dr. Alec N. Thomson, director of medical activities of the American Social Hygienic Association, New York, has been appointed to the staff of the committee on dispensary development of the United Hospital Fund, New York.

Camp for Pertussis Patients.—The Riverside Convalescent Camp on North Brother Island, for patients suffering from whooping cough, was opened, June 26, by the New York City Health Department. It will be under the direction of Dr. Robert J. Wilson, director of hospitals for the department, and Dr. Thomas Joyce will be in direct charge. At the present time, there are about 500 children in the city afflicted with this disease, and very few of the hospitals in the city have provisions for caring for them while they are convalescent. In the new camp, there are accommodations for 2,000 children, who will be kept there for a period of six weeks or longer without expense to their parents.

Change in Compensation Law.—The following amendments have been made to the Workmen's Compensation Law, effective July 1, 1922:

Explanation: Matter in *italics* is new; matter in parenthesis is old law (to be omitted).

Article 2, Section 13. Treatment and care of injured employees. The employer shall promptly provide for an injured employee such medical, surgical or other attendance or treatment, nurse and hospital service, medicine, crutches and apparatus *for such period* as the nature of the injury *or the process of recovery may require* (during sixty days after the injury; but the commission may, where the nature of the injury or the process of recovery requires a longer period of treatment require the same from the employer). If the employer fail to provide the same, after request by the injured employee, such injured employee may do so at the expense of the employer. The employee shall not be entitled to recover any amount expended by him for such treatment or services unless he shall have requested the employer to furnish the same and the employer shall have refused or neglected to do so, or unless the nature of the injury required such treatment and services and the employer or his superintendent or foreman having knowledge of such injury shall have neglected to provide the same; *nor shall any claim for medical or surgical treatment be valid and enforceable, as against such employer, unless within twenty days following the first treatment, the physician giving such treatment, furnish to the employer and the industrial commissioner a report of such injury and treatment, on a form prescribed by the industrial commissioner.*

New York City

Personal.—Dr. Harold W. Hersey has resigned as head of the New Haven Hospital to take a position on the administrative board of Columbia University and the Presbyterian Hospital.——Dr. Thomas H. Cherry and Dr. Julius Auerbach sailed for Europe on the American Liner *Resolute*, June 27. ——Dr. and Mrs. Russell A. Hibbs sailed for Europe on the *Celtic*, July 1.——Dr. and Mrs. David Hunter McAlpin, Dr. Frederic E. Sondern and Dr. Samuel S. Gant sailed for Europe on the *Homeric* of the White Star Line, July 1.——Health Commissioner Dr. Royal S. Copeland sailed for Europe on the *France*, June 28, in order to obtain first hand information as to health and sanitary conditions abroad. His ultimate destination is Poland, where he will spend several weeks investigating conditions in the typhus-infected district. He is representing the city of New York at the International Congress for the Protection of Mothers and Infants held in Paris, July 6 to 8.

Hospital News.—The eleven-story addition to the Broad Street Hospital was formally opened, June 19. The institution has accommodations for 100 patients. The Grand Lodge of the State of New York finances the Masonic floor; the seventh floor will be known as the Roosevelt Memorial floor, for children, and will be financed by William Hamlin Childs. Mrs. James Barber will finance another floor, which will be known as the Nora Nickle Barber Maternity floor. For the maintenance of the hospital, every business firm south of Chambers Street will be asked to contribute a stated sum annually. Every firm may protect its employees by paying $1 a year per person, with a minimum of $25. During the past five weeks, 115 firms, with a total of 15,000 employees, have taken out this form of "health insurance."——The Montefiore Hospital for Chronic Diseases has purchased a plot 50 by 100 feet adjacent to its home on Gun Hill Road and also acquired a lot, 125 by 100 feet, on the east side of Steuben Avenue. The hospital recently bought five lots adjoining the latter purchase on the north.

OHIO

Hospital News.—A tuberculosis sanatorium will be erected at Cleveland exclusively for Jewish people.——Plans to issue bonds for $300,000 for a new building at the Flower Hospital, Toledo, have been made.

Physician's License Restored.—The license of Dr. Alfonza Aratus of Cincinnati, which was revoked in 1909 in Ohio and in 1917 in Kentucky, was restored in the state of Ohio in December, 1917, according to a recent report.

Ohio Licenses Revoked.—The license of W. H. Blanck, Cleveland, is reported to have been revoked on the ground that he is now serving a term in the penitentiary for committing an alleged abortion.——The certificate of J. D. Clyne of Cleveland, alleged abortionist, has likewise been revoked.——The certificate of M. Lowenthal, Cleveland, was revoked on the ground that he was convicted of violation of the Harrison Narcotic Law, as a result of which he was sentenced to four years in the penitentiary and fined $2,000.——The certificate of Katherine Kolling, a midwife, Cleveland, was revoked on the ground that she was serving a term in the penitentiary for alleged abortion.——The certificate of S. E. Zeigler of Akron was revoked on the ground that he had been convicted of violating the Harrison Narcotic Law.

Personal.—Dr. John M. Withrow, Cincinnati, received the honorary degree of doctor of laws at the eighty-third annual commencement of Miami University, in recognition of his work in the interests of the public schools in Cincinnati.——Dr. Felix T. Revailles of the Ohio Hospital for Epileptics, Gallipolis, was knocked down and badly beaten, and four patients were stabbed, while trying to subdue a patient who ran amuck recently.——Dr. H. H. Goddard has resigned as director of the state bureau of juvenile research, and Dr. Edmund M. Baehr, psychiatrist for the department of welfare, has succeeded him. Dr. Goddard will become professor of abnormal psychology at Ohio State University in the fall.——Dr. Carl L. Mueller, health commissioner of Wapakoneta, has been elected secretary of the newly organized Auglaize County Public Health League.——Dr. Frank D. Phinney, Cincinnati, has been made a citizen of the United States. Dr. Phinney immigrated from Canada in 1895.——Dr. Edgar J. Curtiss has been appointed physician for the Allen County Children's Home, to succeed Dr. Jonathan B. Vail, resigned.

OKLAHOMA

University of Oklahoma.—During the year 1921, improvements were made at the University of Oklahoma Medical School, Norman, in the way of remodeling, at an expense of $6,000,000. An additional building was provided for the University Hospital at a cost of $75,000, which increased the capacity from 176 to 276 beds, and a nurses' home was erected at a cost of $60,000. The legislature provided an appropriation of $20,000 for radium. As the hospital is directly under the management of the school of medicine, all of these improvements add to the facilities of the school.

OREGON

Pacific Northwest Urological Association.—This organization was recently formed, composed of specialists in urology, with Dr. Albert E. MacKay, Portland, president; Dr. Eric W. Boak, Victoria, B. C., vice president, and Dr. William J. Pennock, Spokane, secretary-treasurer.

PENNSYLVANIA

Hospital News.—Reading Hospital has sold its building for $600,000 and a site for $100,000, and $1,000,000 is now available for a new building.——An addition to Mount Sinai Hospital, Philadelphia, doubling the capacity of the institution, was formally opened and dedicated, June 25. Judge Patterson delivered the dedicatory address. A feature of the new addition is an animal experimentation laboratory, which is maintained by the Federation of Jewish Charities, for scientific research and investigation in connection with its social welfare organizations. The new houses adjoining the hospital will be purchased in the near future and the hospital will occupy the entire block.

Medical Extension Service.—Establishment in the near future of a state-wide medical extension service, as a result of the efforts of leaders in the medical profession, was forecast, June 14, at a meeting of the Philadelphia County Medical Society. Dr. George H. Meeker, dean of the graduate medical school of the University of Pennsylvania, is one of the principal sponsors of the plan, according to Dr. James M. Anders, who referred to its possibilities and value in a paper on "Some Deficiencies of Modern Therapeutics." This will enable physicians who, busy with their practices, have not kept in touch with the latest achievements by fellow-members of their profession, or with discoveries and improved methods in its every branch, to be kept constantly informed through the extension service, which will have branches in practically every hospital of the commonwealth.

Philadelphia

Medical Agent Charged with Graft.—It is reported that after county detectives had listened through a dictaphone for several hours, while Dr. Louis Saltzmann, an agent of the state bureau of medical licensure, bargained with an official of the County Chiropractors' Association, he was arrested, June 10. The Council for the Philadelphia County Chiropractors' Association complained to the district attorney that Dr. Saltzmann was trying to extort money from the chiropractors by promising not to prosecute them for violation of the medical practice laws. The chiropractors declared that the association has paid Saltzmann $150 a month for several months not to prosecute them. The bureau of medical licensure stated that he had been employed by them as a detective to gather evidence against persons believed to be practicing without a license.

RHODE ISLAND

Rhode Island Medical Society.—At the annual meeting of the society, held in Providence, June 1, under the presidency of Dr. George S. Mathews, Providence, the following officers were elected for the ensuing year: president, Dr. Frank E. Peckham, Providence; first vice president, Dr. Arthur T. Jones, Providence; second vice president, Dr. William F. Barry, Woonsocket; treasurer, Dr. Winthrop A. Risk, Providence, and secretary, Dr. James W. Leech, Providence.

SOUTH CAROLINA

Public Health Lectures.—In the monthly report of County Health Commissioner Chimene, it is stated that fifteen public health lectures were given during the month of May in Greenville, with an estimated number of 1,045 persons in attendance. Three hundred and fifty children were examined; and motion pictures were exhibited at the mills on the subject of prevention of venereal disease.

Personal.—Dr. J. Baxter Haynes, Spartanburg, and Dr. J. S. Matthews, Denmark, have been appointed members of the state board of medical examiners.——Dr. Washington P. Timmerman has been elected president of the Batesburg Board of Trade and of the newly organized Batesburg Medical Society.——Dr. Charles W. Kollock was elected president of the Charleston Tuberculosis Association recently.

TENNESSEE

Orthopedic Clinic.—A new department of the health center of Knoxville was opened June 15, for the treatment of orthopedic cases. Any person in the city suffering from a disease or deformity which may be relieved by orthopedic treatment, and who is unable to pay for the treatment, may secure remedial treatment at the health center.

TEXAS

Hospital News.—The Spohn Hospital of Corpus Christi, which was destroyed by a storm in 1919, has completed its fund for rebuilding on a large and modern plan. Meanwhile, the hospital continues work in a building, with its regular corps of Catholic sisters.——The Ranger City and County Hospital, Ranger, is under construction and will be completed about October of this year. The institution will have a forty-two bed capacity and will be of fireproof construction.

UTAH

New Appointments.—Dr. Clarence C. Jensen, state superintendent of public instruction, Riverton, has been appointed state director of health education, to succeed Dr. Ephraim G. Gowans, Salt Lake City, who resigned recently.——Dr. Douglas L. Gamette, Salt Lake City, has been appointed house surgeon at St. Mary's Free Hospital for Children, New York City.

WISCONSIN

University of Wisconsin.—Appointment of a committee of the regents and faculty of the University of Wisconsin to consider problems growing out of the proposed construction of the $1,350,000 Wisconsin General Hospital in connection with a four-year medical course of the university has been made. This committee will investigate and report to the governor on questions which he wishes answered before authorizing construction.

Triple Ownership Plan for Sanatorium.—At a meeting of the tri-county sanatorium committee, representing delegates from Fond du Lac, Winnebago and Waushara counties, final details of the triple ownership plan for Sunny View Sanatorium, near Oshkosh, were agreed on. Winnebago is erecting a Hick Memorial Nurses' Home near Sunny View and the county has agreed to permit the nurses of the Sunny View Sanatorium to use the nurses' home.

CANADA

Hospital News.—Plans have been requested for the establishment of a sanatorium, in Ontario, to be erected at a cost of $1,000,000, for the treatment of tuberculous members of the Brotherhood of Railway Trainmen.——At a recent meeting of the Kiwanis Club, in Quebec, two huts were presented to Laval Hospital for the use of tuberculous children during the summer months. Premier Taschereau accepted the huts on behalf of the hospital.

PHILIPPINE ISLANDS

Philippine Islands Medical Association.—At the annual meeting of the association held in Manila, under the presidency of Dr. Baldomero Roxas y Luz, the following officers were elected for the ensuing year: president, Dr. Harry H. Steinmetz; first vice president, Dr. Aristeo R. Ubaldo; second vice president, Dr. Daniel de la Paz; councilor for five years, Dr. Vicente de Jesus De Zabala, and secretary-treasurer, Dr. Isabelo Concepción.

GENERAL

Russians Honor American.—A delegation of sixty, representing the various Russian organizations in Greater New York, met the body of Harold F. Blandy, the first American relief worker to die in Russia from typhus, when it arrived on the *Polonia*, June 23, from Libau.

American Psychiatric Association.—At the annual meeting of the association held in Quebec, Canada, June 6-9, the following officers were elected for the ensuing year: president, Dr. Harry W. Mitchell, Warren, Pa.; vice president, Dr. Thomas W. Salmon, New York, and secretary-treasurer, Dr. Clarence Floyd Haviland, Albany, N. Y.

American Neurological Association.—The American Neurological Association at the annual meeting at Washington, D. C., elected Dr. Harvey Cushing, Boston, president of the society. Other officers elected were: Drs. Herman H. Hoppe, Cincinnati, and Charles S. Potts, Philadelphia, vice presidents, and Dr. Frederick Tilney, New York, secretary-treasurer.

American Urological Associaion.—At the annual meeting of the association held at Atlantic City, May 26-28, the following officers were elected for the ensuing year: president, Dr. Henry L. Sanford, Cleveland; vice president, Dr. James A. Gardner, Buffalo; secretary, Dr. Homer G. Hamer, Indianapolis, and treasurer, Dr. James B. Cross, Buffalo. The next annual meeting will be held at Rochester, Minn .

Report of Infant Mortality.—The American Child Hygiene Association has published its third annual report of infant mortality in cities of over 10,000 population in Continental United States. Data were sought only from cities in the death registration area, and of these, 573, covering 94.4 per cent. of the population, are included in the report. A remarkable reduction in infant mortality throughout the country is shown. In cities of over 250,000 population, the infant mortality rate dropped from 89.0 in 1920 to 75.3 in 1921. The rate in cities with a population between 10,000 and 25,000 dropped from 93.8 in 1920 to 82.3 in 1921. The rate for all cities in the area dropped from 91.5 to 77.9. Of the cities included in the report having more than 250,000 people, Portland, Ore., San Francisco, and Seattle had the lowest infant mortality rate; Pittsburgh, Kansas City, Mo., and Buffalo had the highest rates.

National Health Council Issues Report.—The U. S. Bureau of Animal Industry is concerned chiefly with the welfare of animals. Much of the work of this bureau, however, relates to human health. In order to present a brief outline of the activities of the bureau, the National Health Council has issued a mimeographed report setting forth the legal authority, history and development of the bureau, its organization, personnel and appropriations, and its cooperation with other agencies. It is the eighth in a series concerning the health activities of the United States government which has been issued by the council. It is planned in the near future to combine all of these reports in a single printed pamphlet, thus offering for the first time correlated and accurate information concerning the public health work of the United States government. Copies of the report on the Bureau of Animal Industry, or of any of the other reports, may be obtained without charge from the Washington office of the council, Seventeenth and D streets N. W., Washington, D. C.

Nursing Education Program.—A program of nursing education that seems to have the unanimous support of the physicians, nurses and public has been effected recently. For three years, a committee has been studying the problem, which began with the question of the proper training of public health nurses. The personnel of this committee consisted of Dr. C. E. Winslow, professor of public health, Yale University Medical School, New Haven; Dr. Welch, Johns Hopkins University, Baltimore; Dr. Edsall of Harvard, Boston; President Farrand of Cornell, Ithaca; Commissioner Biggs; Dr. L. Emmett Holt, and Dr. Conner, New York, and others. Unanimous recommendations urge three grades of nursing service: (1) the trained registered nurse for the care of the acutely ill, the present training course to be reduced 20 per cent. in length (that is, to two years and four months), but with such improvement as not to lower present standards; (2) the public health nurse, the supervisory nurse and the teacher in schools of nursing, who shall receive specialized graduate training beyond the standard course, and (3) the subsidiary nursing worker, who shall be trained in a course of eight or nine months and be licensed as a "nursing aid" or "nursing attendant" for the care of minor and chronic illness and convalescence. Thus, it is proposed to maintain the present "R. N." standards, and at the same time to give further protection to the public through standardizing the subsidiary type of nurses under a description that will not be distasteful.

Bequests and Donations.—The following bequests and donations have recently been announced:

Children's Free Hospital Fund, Wisconsin, $128,962, as final payment of the $150,000 pledge, by the Ferdinand Schleisinger estate.

Youngstown Hospital Association, Youngstown, Ohio, $100,000 for a maternity ward, to be known as the Grace Todd Arrel Maternity Ward Trust Fund, by the will of Mrs. Grace Todd Arrel.

Madison, Wis., for the establishment of a hospital to be conducted by the Norwegian Lutheran Church of America, $50,000, on condition that $100,000 is raised in six years by the church, to be donated by Torger G. Thompson.

Methodist Episcopal Hospital, Brooklyn, and the General Hospital Society of Connecticut, $25,000 each, by the will of William P. Armstrong.

Flushing Hospital, Flushing, L. I., $25,000, by the will of Mrs. Angeline M. Booth.

Grinnell Community Hospital Association, Grinnell, Iowa, about $25,000, on the death of her sister, by the will of Sophronia G. Turner.

Woman's Medical College of Pennsylvania, Philadelphia, $21,000, the income to be used for scholarship purposes by the will of Dr. Emma Culbertson of Boston.

Jewish Convalescent Home, Torresdale, Pa., $15,000; an initial donation of $10,000 by Joseph B. Fursman to build a separate wing for cardiac cases, and $5,000 that was contributed at the annual meeting of the directors.

Fifth Avenue, Broad Street and the Lenox Hill hospitals, New York, and the Sisters of the Poor of St. Francis and St. Vincent's hospitals, each $5,000, by the will of Nicholas Rath.

Barton Dispensary, Philadelphia, approximately $1,000 in pledges, by the alumnae of the Woman's Medical College of Pennsylvania at their annual meeting.

Hollywood (Calif.) Hospital Association, $500, anonymously.

Sisters of St. Mary, Baraboo, Wis., property for a hospital, by Mrs. Della Ringling of Baraboo.

For the benefit of humanity, the residue of her estate and forty acres of her farm near Warrenton, Ore., for a public park in memory of her parents, on her death, by Dr. B. A. Owens-Adair.

Department of Labor.—Secretary of Labor Davis in a communication to Surgeon General Cumming of the U. S. Public Health Service requests full information as to the legislation necessary to secure a thorough physical examination of every alien who is admitted to the United States through the immigration ports. Secretary Davis also announced his intention of recommending to Congress the enactment of such legislation at the earliest possible moment. His communication reads in part as follows:

> The protection of the health of American citizens against disease carried by incoming aliens is of the utmost importance and, it seems to me, should be thorough at every port. I note in your recent statement that Ellis Island, N. Y., and Angel Island, Calif., are the only immigration stations that have satisfactory facilities for a thorough medical examination. Surely Seattle and Boston are important ports, where many aliens enter, and these should be medically in the same

class with Ellis Island and Angel Island. I am assuming that all ports have equipment which will make thorough examinations possible, but that the want of equipment at some of the smaller ports merely requires a longer time to complete an examination, and that additional equipment at the larger ports facilitates examination. In the final analysis, loathsome contagious diseases are as dangerous to American citizens when coming through a small port as when coming through a large port. It is barely possible that those afflicted with diseases, knowing that the examinations at the smaller ports are not so thorough, seek the smaller ports for entrance. The subject of examination of seamen seeking shore leave I think requires immediate and thorough attention. The privilege of shore leave applies to all seamen, including even the races which are barred as immigrants and the zones from which the immigrants may not come. Seamen in the very nature of things touch some time or other all the ports of the world and thus are more likely to be carriers of disease than are immigrants. If there is no provision in the law for thorough examination of seamen who seek shore leave, the provision should be made therefor. Will you be good enough to give me a full and detailed statement of what is necessary by way of either legislation or appropriation, so far as you know, in order to secure a thorough examination, medically, of every alien who enters the United States at any port anywhere? Also, kindly indicate to me, if you will, the scope of legislation, so far as your own bureau is concerned, for extending the service, so that I may know what legislation should be provided in connection with this department. Also kindly let me know what provision by way of appropriation for the extension of the service is made in connection with your service, so that I may know what recommendations to make for extending the service so far as this department is concerned. I should appreciate it if you would give me this report as soon as possible, so that I may have it when preparing my report to the President and to Congress for the fiscal year ending June 30, 1922.

FOREIGN

Postgraduate Work in Vienna.—A cablegram just received from Dr. Kettelkamp, Secretary of the American Medical Association of Vienna, states: "The unhappy conditions set forth in our letter of March 14 have been adjusted. Postgraduate work in Vienna is on pre-war basis."

Bust Presented to Thibierge.—The retirement of Dr. G. Thibierge from his dermatologic service at the Hôpital Saint-Louis at Paris was the occasion of the presentation of a bronze portrait bust, and tribute from numerous speakers who lauded not only his scientific work but his leadership in organization, and skill in teaching.

Cancer Research Committee.—The minister of hygiene in France has organized a special commission to coordinate the efforts and research in regard to the etiology, clinical study, treatment and prophylaxis of cancer. Dr. E. Roux of the Pasteur Institute is the honorary president of the commission, and Prof. Quénu is the acting president. The commission includes a large number of clinicians and workers in these lines.

University News.—At the annual commencement of the Mukden Medical College, Dr. Dugald Christie, principal of the university, gave the opening address. It was announced that, in 1924, through the generosity of Sir Joseph Maclay, former British shipping controller, the Mukden Medical College will be open to women students. The Rev. Dr. Webster addressed the students and opened a new outpatient department of the Mukden Hospital, which is attached to the college of medicine.

Infant Welfare Conference.—The week of July 3-8 will be known as Baby Week in London. The object is to further the child-adoption movement for Great Britain. Until the present time, legal adoption of children in that country could not be carried out, and the new propaganda aims at enactment of laws to legalize such adoptions. This may result in a plan for adoption of English orphan children in American families. Dr. Henry Dwight Chapin of New York, who sailed for England, June 21, will give an address at the conference entitled "An Alternative to the Institutional Rearing of Children."

Kuling Medical Association.—The summer activities of the Kuling (China) Medical Association include, Good Health Week, July 17-22; a course for educational workers and mothers, in which they will take up school inspections, simple physical examinations and corrective hygiene; a course in physical training for girls; scientific health lectures every evening during Good Health Week, by Prof. C. H. Robertson; a sanitary survey of Kuling under the direction of Dr. R. M. Atwater; a course in physical training for Chinese at Lily Valley in August, by Dr. Gray of the Y. M. C. A., Shanghai, and the annual banquet of the association, August 1.

Knighthoods for the Medical Profession.—The list of honors conferred in June, on the occasion of the king of England's birthday, contains the names of several members of the medical profession. Sir Berkeley Moynihan, who has founded the most outstanding school of surgery in the country, received a baronetcy. Knighthoods were allotted to Dr. H. Kerr Anderson, master of Gonville and Caius College, Cambridge; Prof. W. M. Bayliss, professor of physiology, University College, London; Dr. John Macpherson, professor of psychiatry, University of Sydney, Australia; Dr. Douglas Rice-Oxley, mayor of Kensington, London, and Dr. David Maurice Serjeant. In the Order of the Bath, knighthoods were given to Sir Robert Hill, director general of the medical department of the Royal Navy; Major General Klenkinsop, and Mr. Richard R. Cruise, surgeon-oculist to the king. Major A. W. Lynsdale, professor of materia medica, Madras Medical College, becomes Companion of the Imperial Service Order.

Personal.—Prof. E. Schmiegelow of Copenhagen has been elected an honorary member of the Vienna Laryngologic Society.——The *Ugeskrift for Læger* relates that Dr. T. Madsen of Copenhagen has been given the Polish decoration, Polonia Restituta.——A banquet was tendered recently to Dr. G. Marañon of Madrid to celebrate his election to the Academia de Medicina. His address on taking his chair was on the present status of the theory of internal secretions.——The Spanish Gynecologic Society recently held a special session in honor of Dr. Cospedal who is retiring from charge of the Princesa Hospital, having reached the age limit.——The *Medicina Ibera* relates that Dr. L. Recasens was the guest at a banquet given in honor of his successful competition for a post in the Beneficencia Municipal.——Prof. Martinez Vargas, dean of the Barcelona medical faculty, has been appointed senator.——The completion of forty years of university teaching by Prof. E. Maragliano is to be celebrated by the foundation of a medical library at the University of Genoa, to bear his name.

Deaths in Other Countries

Dr. **Edmund Fallows Lawson,** C. M. S., Hospital Funing, Fukien, South China, and Dr. Marcus MacKenzie, both medical missionaries from England, contracted pneumonia plague while attending the sick, and died in Foochow, recently.——Dr. **Gordon Ley,** London, gynecologist, Charing Cross Hospital, in an aeroplane accident in the English Channel, June 3.——Dr. **G. Martin,** a prominent ophthalmologist of Bordeaux.——Dr. **C. E. Mariani,** of Turin, editor of the *Archivio di Antropologia Criminale* and director of a private sanatorium. He has published a number of works on criminal psychology, teratology, psychic epilepsy, etc.——Dr. **F. Boschetti,** professor of clinical medicine at the University of Modena.——Dr. **J. W. Cardoso** of Rio de Janeiro.

Government Services

Additional Grounds for Walter Reed Hospital

President Harding, through the director of the budget, has recommended to Congress that the sum of $440,000 be appropriated for the acquisition of additional land for the Walter Reed General Hospital, Washington, D. C. The sum of $350,000 has already been appropriated by the legislative branch, but it has been found that this is insufficient to carry out the plans for securing the property in the vicinity of the institution.

Nursing Service for Disabled Veterans

Before taking its summer recess, the House of Representatives passed the pending bill providing the maximum amount to be paid disabled ex-service men requiring the constant assistance of a nurse or attendant. The sum fixed was $50 a month. Heretofore, disabled ex-service men were allowed $20 a month for a nurse or attendant. The law applies specifically to disabled veterans who are totally blind or suffering with mental diseases that do not confine them to an asylum.

Vocational School for Neuropsychiatric Cases

A resident vocational school for neuropsychiatric cases has been established by the U. S. Veterans' Bureau at Chick Springs, S. C. The institution will provide for treatment of 250 disabled ex-service men, already assigned there. A systematic course of instruction such as is feasible for neuropsychiatric patients has been established. The vocational school and hospital consists of a new building fully equipped with machinery, by which students will learn various trades, with additional facilities for medical treatment. A corps of experienced teachers has been engaged by the Veterans' Bureau to supervise the training, while physicians and nurses will look after the physical welfare of the ex-service men.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 19, 1922.

Deanglicization of the Indian Medical Service

The Indian Medical Service, which used in its upper ranks to be almost entirely recruited from Great Britain, is rapidly losing its British element. It is true that Indians were always eligible, but the very difficult competitive examination was held in London, and the Indian medical schools had not reached a level capable of turning out competitors. The Indians who competed were therefore the few who could be educated in England, and they furnished only a small minority of the service. There was a "subordinate medical service" recruited entirely from India and manned by men termed the "assistant surgeons," whose training was below the European standard, and they permanently held a subordinate rank. With the recent granting of powers of self-government to India and the improvement of its medical schools, natives have entered the medical service in greatly increased numbers. The result is that a newly appointed British officer is faced with the possibility of having to work under seniors who may be natives. This is objectionable to the ordinary Britisher, and the result is that there is greater and greater difficulty in recruiting the service from British sources. At one time the Indian Medical Service was considered a splendid field for able and ambitious young physicians. The pay was higher than that of the medical service of the British army, and, in addition, valuable civil medical appointments in India were a perquisite of the service, for there were no other physicians available. The result was that the service reached a high level and numbered many investigators who shed luster on British medicine. With the exception of Manson, all the pioneers of tropical medicine belonged to its ranks. Now the difficulty of recruiting is so great that the competitive examination has been dropped, and even British physicians cannot be induced to enter. Recruiting in England is at a standstill. If the native physicians who have taken the place of British maintain the same high standard of efficiency, nothing can be said against the change as regards the military part of their work, for that is virtually confined to native troops. But there is the difficulty that the European population of India is dependent on the service for medical attendance, and objects to be handed over entirely to natives, however skilful they may be. It was recently stated in the House of Commons that, in the country districts of Bengal, there are only five European physicians, and that of twenty-four country districts of Madras there is a European physician in only seven. The result will be that the Indian Civil Service also cannot be recruited in England, for the Englishmen cannot be expected to take their wives up country to places where they cannot call in an English physician.

Retirement of Dr. Head

A complimentary dinner was recently given to Dr. Henry Head, F.R.S., on his retirement, in recognition of his services as editor of *Brain* for seventeen years. The chair was taken by Sir Charles Sherrington, F.R.S., professor of physiology at the University of Oxford and president of the Royal Society, whose outstanding contributions to neurology are so well known. Proposing the health of Dr. Head, he said that under his direction the influence of *Brain* had been increased and extended, forming a bond between the neurologists in these islands and those across the channel and beyond the Atlantic. Every worker in neurology knew that he could get a sympathetic hearing and an opportunity from Dr. Head. He had consistently upheld the scientific method in neurology and in his own work. He had his reward in the position *Brain* had obtained as a worthy representative of British science.

Sir David Ferrier, one of the founders and original editors of *Brain*, then sketched its history. In 1877, those interested in neurology felt the need of a special journal. The reports of the West Riding Asylum, the first school of neurology in this country, founded by Sir James Crichton-Browne in 1871, came to an end in 1876. In that year, *Mind* was started by Prof. Croom Robertson, but it was concerned mainly with pure psychology. A committee consisting of Crichton-Browne, Bucknill, Hughlings Jackson and himself resolved to establish a journal devoted to the anatomy, physiology and pathology of the nervous system. The title "Brain" was selected, and the first number was issued in April, 1875. It was edited in alternate years by Crichton-Browne and Ferrier for five years. Then, Dr. de Wattevill became acting editor. He was followed by Percy Smith, and, in 1905, Dr. Head became editor. The value of the journal had been greatly enhanced by his epoch-making researches.

Dr. Head, in responding, described the early financial struggles of the journal, speaking of the constant deficit, which had to be defrayed out of the editorial pocket. By rigid economy, a condition of financial solvency was at last attained. During the war, difficulty again arose. In the early days, Dr. Head read Hughlings Jackson's papers on aphasia, and was so struck by their importance to science that he reissued them as a double number. Congratulatory letters came from all parts of the world, and Von Monakow not only translated them into French but devoted a large issue of the *Schweizer Archiv* to a critical consideration of Jackson's views, which were entirely unknown on the continent. Then Sherrington's classic paper on postural activity of muscle and nerve was published. Though the issue was sometimes delayed, the journal appeared every year during the war. But the colossal rise in the price of paper and in wages again caused a deficit. By drastic measures, financial solvency was again attained. *Brain* had become an international organ of neurology and was universally considered as representative of the serious side of English work. English neurology had influenced foreign thought because it had brought something distinctive. It had been characterized by two features—dependence on clinical observations and consistency in looking at pathologic facts from the physiologic point of view. This began in 1859, when that adventurous genius Brown-Séquard came to England. Hughlings Jackson was profoundly influenced by him. The next most serious influence on English neurology was the publication by their chairman of the "Integrative Action of the Nervous System," which reinforced the tendency always present to regard pathologic facts from a physiologic standpoint, a principle still incompletely assimilated abroad.

In closing, Dr. Head spoke of his pleasure in leaving the journal in the competent hands of his successor, Dr. Gordon Holmes.

A "Rat Barrack"

A correspondent of the *British Medical Journal* has unearthed the following ingenious method of dealing with rats, which he found in Hall's book "Ireland," published in 1841:

> Mr. Russell has a "rat barrack" on his premises. It is about 12 feet long, 6 feet broad and 4 feet high, with a coping-stone on the top that projects a couple of feet inside the wall. The inside of the wall is full of holes that just admit a rat's body, leaving the tail outside. The whole is covered with old boards. There are two passages for them to come out into the yard, where they are fed and never disturbed. The consequence is they never go into his store where the bacon is. Once every three months, he closes the holes that communicate with the yard. He uncovers the walls, and the rats all run into the holes. Their tails are hanging out. A man goes in, takes them one by one by the tails and throws them into a barrel, where they are all destroyed, to leave room for a fresh supply.

The Influenza Epidemic

The quarterly return of the registrar-general shows the severity of the influenza epidemic of the early months of the year. Influenza was a primary or secondary cause of death in no fewer than 16,888 cases in England and Wales in the first quarter of 1922, and accounted for 10.2 per cent. of the total deaths. Moreover, the total deaths were 36,204 more than in the first quarter of 1921. This is usual when an epidemic is prevalent. When persons suffering from chronic disease are stricken in the epidemic, cause of death is not given as influenza. A remarkable fact is that during the epidemic more women than men died from the disease.

PARIS

(From Our Regular Correspondent)

June 9, 1922.

De Lapersonne's Mission in America

At a recent session of the Academy of Medicine, Dr. F. de Lapersonne, professor of clinical ophthalmology of the Paris Faculty of Medicine, presented a report concerning his mission as representative of the academy at the international congress of ophthalmology, held in Washington, April 25-28. "Our friends in the great American republic," said de Lapersonne, "made elaborate preparations for the congress, as usual, and its management was perfect." After a review of the principal work of the congress, de Lapersonne spoke of various hospitals and universities that he visited during his short stay in the United States. By coming in contact with American colleagues, he was able to observe the important scientific work which is being undertaken, and which is made possible by the extensive means at the disposal of investigators in the United States. He stated that it is impossible to imagine, in France, the unlimited resources available for study and the development of private initiative. "With their tenacity of purpose and their practical minds," said de Lapersonne, "American scientists desire to become in medicine, as in other provinces, the first nation of the world." De Lapersonne believes that the results they obtain so rapidly fully justify this ambition. American professors expressed the desire to cooperate more closely with their French colleagues through the exchange of scientific works, the reciprocal publication of articles in medical journals of both countries, and the exchange of professors and students. The principal obstacle to this is the fact that few Americans speak French and that, in turn, few Frenchmen speak English. De Lapersonne believes that it is important for French children to learn English "so that they may benefit by the ever-increasing amount of interesting work coming from Anglo-Saxon races."

Edema of Larynx in Mumps

In a previous letter, I mentioned the occurrence of appendicular manifestations with mumps (The Journal, May 6, 1922, p. 1401). Edema of the larynx is another complication in mumps which seems scarcely to have attracted attention in the past. Textbooks and practical treatises on laryngoscopy do not make mention of it; but this complication appears to be more frequent than we think, as is shown by a communication presented by Drs. L. Reverchon and G. Worms to the Société parisienne de laryngologie. During six years in the otorhinolaryngology service of the military hospital of Val-de-Grâce, Reverchon and Worms observed three cases of edema of the larynx in mumps. The evolution of their two first cases was very simple, and the edema could have been considered as an ordinary clinical curiosity, interesting only on account of its infrequency. But a third case, with fatal outcome in less than five hours after admittance to the hospital, and seven or eight days after subsidence of the mumps, demonstrated that this complication can have a serious prognosis notwithstanding the usual benign course of mumps. The seat of the edema was the same in the three cases: the posterior region of the vestibule, the aryepiglottic muscle. This infiltration of the submucous connective tissue was unilateral in the first case and bilateral in the two other cases. The three cases of mumps were of submaxillary type, isolated in the first case, and with parotid mumps in the second case. Tracheotomy was not performed at once in the third case, because the patient did not present any signs of asphyxia; there was no distress or cyanosis, but he was pale and drowsy. On the other hand, laryngoscopic examination revealed that the edema did not reach the epiglottis, and the throat appeared to be sufficiently permeable. The slight dyspnea was not accompanied by laborious breathing, and the immobility of the posterior commissure during inspiration, with slight intermittent roaring, recalled bilateral paralysis of the dilators, which, as a rule, does not require immediate tracheotomy. This occurrence has demonstrated that the posterior edema, by blocking the arytenoids, presents serious consequences even when the dimension of the glottis is not particularly reduced.

During the discussion that followed the communication, Lubet-Barbon remarked that pallor and livid discoloration of the teguments are the main symptoms of nonacute edema of the larynx. He has seen crises of asphyxia suddenly complicating this apparently mild condition, and ending with death after two or three days of slight dyspnea. On the other hand, these patients may also succumb from syncope rather than from suffocation. He has witnessed deaths even after tracheotomy. In such cases, then, death is due to compression of the pneumogastric nerve or one of its branches.

Morbid Disturbances Due to the Handling of Celluloid

The number of occupational diseases is constantly increasing, and Dr. F. Heim, professor of industrial hygiene of the Conservatoire National des Arts et Métiers, has directed attention to an interesting observation. With the collaboration of Drs. E. Agasse-Lafont and A. Feil, he examined, from a clinical and hematologic standpoint, women employed in making small portable battery boxes of celluloid. Their ages ranged from 17 to 53, and they have been working with celluloid from one to five years. They employ two substances: the celluloid powder, containing camphor, is very inflammable, and its odor is disagreeable to any one entering the factory; the other is a sort of glue containing a mixture of equal parts of amyl acetate and acetone. Their inquiry on morbid manifestations attributed to celluloid intoxication revealed one transitory clinical sign, headache, and a persistent and frequent hematologic symptom, eosinophilia. This cause of toxic eosinophilia is important, and Agasse-Lafont and Heim had already reported it after an inquiry concerning the condition of workmen pasting and perforating films in a motion picture studio. It resembles somewhat benzene eosinophilia. Although it has not the pathognomonic value of granular degeneration of erythrocytes in chronic lead poisoning, this eosinophilia is interesting because it gives an almost indubitable proof of intoxication or, at least, of a reaction to saturation of the organism by fumes of acetone and of amyl acetate. On the other hand, the lack of knowledge of this cause of eosinophilia might entail errors in diagnosis, as when a workman handling celluloid is clinically suspected of intestinal parasites or hydatid cyst, as the diagnosis of these affections is often based on the finding of eosinophilia.

War Losses

Up to Sept. 1, 1921, the pension office had received 2,500,000 claims for pensions or allowances, of which 1,712,000 were granted, being thus distributed: 830,000 among the incapacitated; 447,000 among widows and orphans, and 413,000 among parents. Fifty-nine thousand of the incapacitated were totally invalided, and 60,000 suffered disability amounting to from 80 to 95 per cent. The 456,125 pensions granted up to April, 30, 1920, were thus distributed:

Percentage of Disability	Final Pensions	Temporary Pensions
10	2,059	56,665
20	3,064	92,390
30	1,120	78,088
40	455	50,013
50	346	38,675
60	14,915	24,465
65	41,553	......
80	40,329	6,688
100	5,104	5,645

Following are the statistics of the war wounded: From 1914 to 1916, wounded and sick (front and rear lines): 1914, 776,274; 1915, 1,326,911; 1916, 677,891; sick: 1915, 1,117,930; 1916, 899,310. From 1916 to 1919, at the front: wounded, 1917, 269,853; 1918, 212,915; 1919, 23,622; sick: 1917, 360,911; 1918, 321,706; 1919, 87,244. Rear lines: wounded, 1917, 338,907; 1918, 610,987; 1919, 46,201; sick, 1917, 769,896; 1918, 940,452; 1919, 208,380. For Algeria and Tunis: wounded, 1914, 22,015 (including the sick); 1915, 8,055; 1916, 18,099; 1917, 13,696; 1918, 12,496; 1919, 2,821; sick, 1915, 15,683; 1916, 54,005; 1917, 44,835; 1918, 55,870; 1919, 12,946. Summing up these figures we have: wounded, 3,594,889; sick, 4,988,213. It may be interesting to compare these figures with those concerning men sent back from the front to the interior of the country: 1914, 490,000; 1915, 1,019,000; 1916, 551,000; 1917, 375,000; 1918, 675,000.

Medical Tours to Water and Health Resorts

Under the direction of Dr. Paul Carnot, professor of therapeutics in the Paris faculty of medicine, and of Dr. F. Rathery, associate professor, the sixteenth medical tour to the mineral water and health resorts of France will include the stations of the southwest and those west of the Pyrenees Mountains: Arcachon, Biarritz, Dax, Pau, Cauterets, Luchon, etc. It will take place from August 26 to September 6 of this year. Members will meet at Arcachon, August 27, and will disband at Luchon, September 6. French and foreign confrères can subscribe by sending a check of 680 francs to Dr. Maurice Gerst, general secretary, 94 Boulevard Flandrin, Paris (16). This fee includes all expenses.

BELGIUM

(From Our Regular Correspondent)

Liége, June 7, 1922.

Regulation Concerning the Sale of Disinfectants

To repress fraud and abuses in the sale of proprietaries which rely entirely on advertising for their existence, the authorities have compiled regulations concerning the sale of disinfectants and antiseptics. The containers must now bear a label indicating (1) the name and address of the manufacturer or person selling the product; (2) its composition, indicated in usual terms regardless of the chemical formula; (3) the instructions for the various uses of the product, and (4) its bactericidal value, especially the concentration, temperature and the time required to kill bacilli. Pamphlets, or advertising matter pertaining to these products must be identical with the label and contain only additional information that may be useful to the purchaser. The retailing of disinfectants or antiseptics is limited to public drug stores. All products not registered in the pharmacopeia, but sold as disinfectants or antiseptics, are subject to these regulations.

Testing the Mentality of Schoolchildren

Dr. Rémy, chief inspector of hygiene of the ministry of the interior, recently, in the schools of Etterbeek, made practical experiments before the members of the Belgian society of pediatrics by means of apparatus and procedures invented by him to test the fatigue and mental capacity of schoolchildren. He had previously given to the society the results obtained during a course of research extending over more than seven years, and had shown how he can classify schoolchildren according to their mentality in a practical and rather accurate manner. The apparatus and procedures conceived by him allow teachers to examine simultaneously all children in one grade and to establish the average of visual, auditive and tactile memories. The age of children and results of their yearly school examinations furnish other averages. Gifted children are above these averages, and the others are below. Account was also taken, at the same time, of conditions that may influence the performance of pupils, on which depend not only advice as to choice of profession or life work and the assignment of scholarship funds to those who are better endowed, but also, in the last analysis, the hoped for increase in productive capacity and the consequent uplift that will accrue to their country.

Ovarian Grafts

Dr. de Bruyn reported to the society of gynecology and obstetrics certain experimental facts as to ovarian grafts, citing one clinical case in which fragments of ovaries were transplanted in the subcutaneous tissue of a woman of 25 after subtotal hysterectomy with bilateral ovariectomy. The grafts hypertrophied, and ablation was performed 178 days after the operation, whereupon the menopause occurred. Statistics from the Ghent clinic show that, in cases of hypertrophy of grafted tissue, postoperative menopause disturbances are less frequent when there is no transplantation or when the graft is not larger than a pea. On the other hand, a grafted fragment of the corpus luteum hypertrophies only in 20 per cent. of the cases, a fragment of the medulla in 33 per cent., and a portion of the cortical layer in 70 per cent. The cortical layer seems to prevent disturbances of ovarian insufficiency more than any other tissues of the ovary. Ovaries in which a grafted fragment had hypertrophied had a normal histologic aspect; those in which there was no graft, or a graft smaller than a pea, were composed mostly of sclerous tissues; while in one, a woman of 40, the ovaries presented the histologic picture of a normal organ. After 40, grafts never seem to hypertrophy.

Death of Ernest Solvay

Although Ernest Solvay was not a member of the medical profession, his life was too closely associated with it to let his death pass unnoticed. He was an honorary doctor of the University of Brussels, and an eminent sociologist, and his generosity was proverbial. His improved method for the manufacture of soda was a great economic achievement; and he devoted a great part of his wealth to the foundation of scientific and social institutions. He created the Institute of Physiology, the Institute of Sociology and the School of Commerce in the University of Brussels, and he founded also the International Institute of Chemistry and the International Institute of Sociology.

Exchange of Lecturers Between France and Belgium

The end of the academic year 1921-1922 was marked by the beginning of a new undertaking, created after the armistice, which is the consecration of the friendly ties uniting France and Belgium in every form of their activity. The faculties of Brussels and Liége recently heard a series of lectures by French professors. Gley spoke on endocrine glands; J. L. Faure gave motion picture lectures on his method of hysterectomy; Picqué demonstrated the usefulness of anatomy as applied to surgery, by a series of twelve demonstrations, and Balthazard presented the problem of intoxication by carbon monoxid gas. This first series of foreign lectures was much appreciated by students, and also by physicians, who attended in large numbers.

Marriages

Beauford Ivan Pippin, Excelsior, Wis., to Miss Beba Nevada Hudson of Richland Center, Wis., April 6.

Lester Emmet Tretheway, Manteca, Calif., to Miss Charlotte L. Amarantes of Pleasanton, Calif., June 18.

Karl Busbee Pace, Greenville, N. C., to Miss Lida Harrison Taylor of Goldsboro, N. C., June 7.

Edgar Joseph Craite, Rich Lake, Wis., to Miss Margaret Sheedy of Green Bay, Wis., May 18.

Walter H. Spoenemann, Chicago, to Miss Carol Stucke of Michigan City, Ind., June 17.

Paul Pleasant Cooper, Zirkle, Ga., to Miss Sallie Williams of Patterson, Ga., June 3.

Victor Hugo Gardner, Dunnel, Minn., to Miss Florence Jack of Tomah, Wis., June 27.

Emery Don Lukenbill, Portland, Ind., to Miss Treva Steed of Redkey, Ind., May 8.

Wesley Raymond Wells to Miss Flora S. Monroe, both of Lake Forest, Ill., recently.

Harry Eugene Wilson, Baltimore, to Miss Angelo Pauline Kehoe at Baltimore, June 24.

Lee Sanford Seward to Miss Eunice Smith, both of Ahwahnee, Calif., June 15.

Hubert Rogers Arnold to Miss Agnes Ward, both of Oakland, Calif., recently.

Maurice E. Shamer to Dr. Bertha E. Tapman, both of Baltimore, June 18.

B. H. Aberembt, Milwaukee, to Miss Rosalia Sullivan, Wausau, May 18.

Edward Dudley Allen to Miss Grace V. Robeson, both of Chicago, June 14.

Richard Kovacs to Miss Ina Clare Nickel, both of New York, June 14.

Deaths

Herman Tuholske ⊕ St. Louis; Missouri Medical College, St. Louis, 1870; formerly demonstrator of anatomy and professor of surgery at his alma mater, and professor of surgery at the Washington University Medical School; at one time physician-in-chief at the St. Louis City Dispensary, surgeon-in-chief at the Jewish Hospital, consulting surgeon at St. John's Hospital, Jewish Home for Chronic Invalids and others; president of the St. Louis Medical Society in 1908; died, June 12, aged 74, from chronic interstitial nephritis and hypostatic pneumonia.

Winton Markwood Nihiser ⊕ Hagerstown, Md.; College of Physicians and Surgeons, Baltimore, 1882; Bellevue Hospital Medical College, New York, 1885; formerly president of the Washington County Medical Society; served as surgeon for the Baltimore and Ohio Railroad for a number of years; was found dead in his office, June 17, with a bullet wound in his head, presumably self-inflicted, while suffering from ill health, aged 63.

Edward Aaron Aronson ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1899; at one time instructor in the Fordham University Medical College and the College of Physicians and Surgeons, New York; formerly instructor in internal medicine at the New York Polyclinic Medical School; on the staff of the Mount Sinai Hospital, where he died while undergoing an operation, June 24, aged 47.

John Cropper Wise ⊕ Medical Director, U. S. Navy, Washington, D. C., Washington University School of Medicine, Baltimore, Md., 1869; entered the Navy as assistant surgeon, April 28, 1870, and retired Oct. 7, 1910; was fleet surgeon on the *Baltimore* of the Asiatic Fleet from 1897-1899, taking part in the battle of Manila Bay; formerly in command of the U. S. Naval Hospital, Washington; died, June 13, aged 73.

Edison Burr Starr ⊕ Columbus, Ohio; Jefferson Medical College, Philadelphia, 1905; formerly director of industrial hygiene and medicine in the U. S. Public Health Service; at one time health director of Springfield; chief of the state division of industrial hygiene; died, June 19, aged 41, from typhoid fever.

Reuben Lindsay Robertson, Charlottesville, Va.; University of Virginia Department of Medicine, Charlottesville, Va., 1882; following his graduation he served in the U. S. Army for a period of twenty years; formerly city health officer; died, June 4, aged 62, at University Hospital, from septic pleurisy.

George Howard Wilson ⊕ Mount Carmel, Ill.; University of Louisville Medical Department, Louisville, 1912; served during the World War in the M. C., U. S. Army, with the rank of captain; specialized in radiography; coroner of Wabash County; died, June 19, aged 30, from carcinoma of kidney.

Allen J. Perkins, Lake Charles, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1888; member of the Louisiana State Medical Association; coroner of Calcasieu Parish; died, June 20, from a bullet wound through the head, presumably self-inflicted, aged 56.

Joseph Albert Hague ⊕ Alton, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, Ga., 1913; formerly member of the state board of medical examiners; aged 38; shot and killed himself, June 12, in one of the rooms of his hospital.

Martin V. B. Newcomer, Tipton, Ind.; Medical College of Ohio, Cincinnati, 1867; member of the Indiana State Medical Association, and the American Association of Railway Surgeons; died at the home of his daughter in Delphi, June 13, aged 85.

Rosalie Bell ⊕ New York; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1898; for six years an inspector of the department of health; died, June 14, at West Brighton, N. Y., from heart disease.

William Leo Mulcahy ⊕ Far Rockaway, N. Y.; Albany Medical College, Albany, N. Y., 1903; on the staff of the St. Joseph's Hospital; died, June 16, at the St. Mary's Hospital, San Francisco, from cerebral hemorrhage, aged 40.

Benjamin Franklin Abernathy, Danville, Tenn.; College of Physicians and Surgeons of the Western District of New York, Fairfield, N. Y., 1890; died recently, aged 72, from influenza and pneumonia.

Harry Charles Gabriel, Athens, Ohio; Starling Medical College, Columbus, Ohio, 1894; member of the Ohio State Medical Association; died, June 2, at Beckley, W. Va., aged 55, from heart disease.

George Albert Libbey, Tacoma, Wash.; Dartmouth Medical School, Hanover, N. H., 1875; member of the Washington State Medical Association; died, June 18, aged 71, from cerebral hemorrhage.

James O. Bates, Grand Haven, Mich.; Hahnemann Medical College and Hospital of Chicago, 1884; member of the Michigan State Medical Society; was found dead in his office, June 17, aged 73.

William M. Richards, Joliet, Ill.; Chicago Medical College, Chicago, 1876; died, June 17, aged 68, at the St. Luke's Hospital, Chicago, from injuries received when he was struck by a street car.

Cecil Stevens Cutler, Northampton, Mass.; Medical Department of the University of the City of New York, 1877; formerly member of the city council; died, June 8, aged 71, from heart disease.

Marshall E. Cooksey, Etoile, Ky.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, Ky., 1880; died, June 9, aged 82, from tuberculosis.

Guy S. Dunbar, Cleveland; University of Louisville Medical Department, Louisville, Ky., 1915; member of the Ohio State Medical Association; died recently, aged 33, from pneumonia.

Mark A. Brawley ⊕ Frankfort, Kan.; Cincinnati College of Medicine and Surgery, Cincinnati, 1873; formerly city health officer; veteran of the Civil War; died, June 16, aged 72.

Charles Williamson Crumb ⊕ Utica, N. Y.; Medical Department of the University of the City of New York, 1886; died, June 18, aged 56, at his summer home in New Hartford.

Arthur Otis McLaughlin ⊕ Haverhill, Mass.; Tufts College Medical School, Boston, 1912; died, June 18, aged 42, at the Hale Hospital, from heart disease.

⊕ Indicates "Fellow" of the American Medical Association.

Edward F. Bruce, Pensacola, Fla.; Medical Department of the Tulane University of Louisiana, New Orleans, 1897; was found dead in his office, June 19, aged 45.

George Louis Schmitt, Kansas City, Mo.; University Medical College of Kansas City, Mo., 1898; aged 46; was shot and killed in his office recently by a patient.

Albert H. Felch, Beatrice, Neb.; Hahnemann Medical College of Philadelphia, 1876; member of the Nebraska State Medical Association; died, June 3, aged 72, from paresis.

William Bostick ⊕ St. Louis; Kansas City Medical College, Kansas City, Mo., 1898; died, June 17, aged 45, at the Evangelical Deaconess Home and Hospital.

James W. Jenney, Salina, Kan.; Western Homeopathic College, Cleveland, 1868; member of the Kansas Medical Society; died, June 14, aged 75, from pneumonia.

William C. McCurdy, Philadelphia; College of Physicians and Surgeons, Baltimore, 1874; died, May 20, aged 66, at the Philadelphia General Hospital.

George Howe Winkler, New York; University of Georgia Medical Department, Augusta, Ga., 1881; died, May 23, aged 74, from cerebral hemorrhage.

George W. Meredith, Lincoln, Neb.; Indiana Medical College, Indianapolis, 1873; formerly member of the state legislature; died, June 15, aged 70.

William F. Bullard, Berrien Springs, Mich.; Medical College of Indiana, Indianapolis, 1880; died, May 18, aged 73, following a long illness.

George Heslop Grey, Rochester, N. Y.; Niagara University Medical Department, Buffalo, 1893; died, June 1, aged 50, from diabetes mellitus.

Frederick James Barrett ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1905; died recently, aged 52.

Kennett L. Jones, Lewisburg, Tenn.; Vanderbilt University Medical Department, Nashville, 1890; was struck and killed by lightning, June 12.

Dennis Alphonsus Murphy ⊕ Gloversville, N. Y.; Albany Medical College, Albany, N. Y., 1904; died, June 14, aged 41, from pleuropneumonia.

George W. Vernon, Dexter, Mo.; Central College of Physicians and Surgeons, Indianapolis, 1886; died, June 5, aged 64, from heart disease.

Caswell A. Atkins, Power Springs, Tenn.; Medical Department University of Tennessee, Memphis, Tenn., 1899; died, June 13, aged 68.

William Harper, Byron, Mich.; Rush Medical College, Chicago, 1866; formerly a member of the state legislature; died, June 4, aged 79.

L. S. Young, Moreland, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, Ga., 1880; died, June 9, aged 83, from senility.

Clarence S. Latham ⊕ Hamilton, Ohio; Starling Medical College, Columbus, Ohio, 1905; died, June 2, aged 40, from heart disease.

Wickes Washburn, Elizabeth, N. J.; Medical Department of the University of the City of New York, 1877; died, June 19, aged 68.

Joseph Grant Wheeler, Jr. ⊕ Bellevue, Pa.; University of Pittsburgh School of Medicine, Pittsburgh, 1920; died, June 7, aged 26.

John Emmet O'Brien ⊕ Scranton, Pa.; Rush Medical College, Chicago, 1869; Civil War veteran; died, June 14, aged 73.

Allen M. Riggs, Lafollette, Tenn.; University of Tennessee College of Medicine, Memphis, Tenn., 1893; died, April 5, aged 55.

Samuel T. Floyd, Kansas City, Mo.; Missouri Medical College, St. Louis, 1870; Confederate veteran; died, June 1, aged 81.

Joseph Clark Lackey ⊕ Jamestown, Ohio; Ohio Medical University, Columbus, Ohio, 1896; died, May 16, aged 53.

William S. Taylor, Marrowbone, Ky.; Kentucky School of Medicine, Louisville, Ky., 1889; died, May 26, aged 63.

Josiah S. Wailes, Mystic, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1889; died, April 16, aged 73.

Clarence Augustus Stetson, Lynn, Mass.; Medical School of Maine, Portland, 1892; died, June 17, aged 61.

Maria Allen Jessup, Farfield, Ind.; Woman's Medical College, Chicago, 1887; died, May 5, aged 76.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

THE HILLSIDE COMPANY OF S. W. STAADS

Your Liberty Bonds or Cash Will Be Accepted to Exploit a German Cancer Cure—Twenty Per Cent. Profits Assured

A Nebraska physician writes:

> "I am enclosing a letter from the Hillside Company which was sent to me by a clergyman friend of mine, whose letter I also enclose. These letters are self-explanatory and you have his permission to make use of them if you care to do so."

The letter from the doctor's ministerial friend reads in part:

> "I enclose a letter for your inspection. I don't know where that institution got my name, but I believe they want to soak a poor preacher."

The enclosure itself is a mimeographed letter on the stationery of the Hillside Company, Sioux City, Iowa, and is signed "Dr. S. W. Staads." It is written in German and the first paragraph reads:

> *Dear Friend:*—It will be of interest to you, as it will be to every friend of suffering humanity, to know that German physicians have succeeded in their investigations to the extent that they have been able to prepare remedies that have cured the most difficult cases of cancer, without operation. In fact, also patients who had been operated on in vain or who had received roentgen-ray or radium treatment without success have been completely cured. Through reading German medical literature and the kindness of my medical friends in Germany, I became familiar with these remedies a number of years ago, and I have now been positively assured that the rights to these remedies for the whole United States will be turned over to us under certain conditions. Enormous prospects are thus opened up to us. On the one hand, this means a great boon for the cancer patients in our country, and, on the other hand, such a concession for the whole United States means untold profits for us. All physicians would gladly seize the opportunity if they knew of a cancer remedy that had been authoritatively approved."

The letter then states that it is the purpose of the Hillside Company to send a representative to Germany "to draw up the necessary contracts" which will doubtless result in the shares of the company rising considerably. In the meantime, this wonderful opportunity is given the "friends and acquaintances" of Staads to get in on the ground floor: shares in the Hillside Company at $10 per share! Furthermore, Staads declares himself ready at the request of the purchaser to buy back these shares within two years of the date of issuance at the price paid for them and, in addition, assures the purchaser a profit of 20 per cent. *"Ich erkläre mich bereit auf Wunsch diese Shares zwei Jahre nach Ausstellungsdatum, zum selben Preise zurück zu keufen und dass dieselben dann 20% eingebracht haben sollen."*

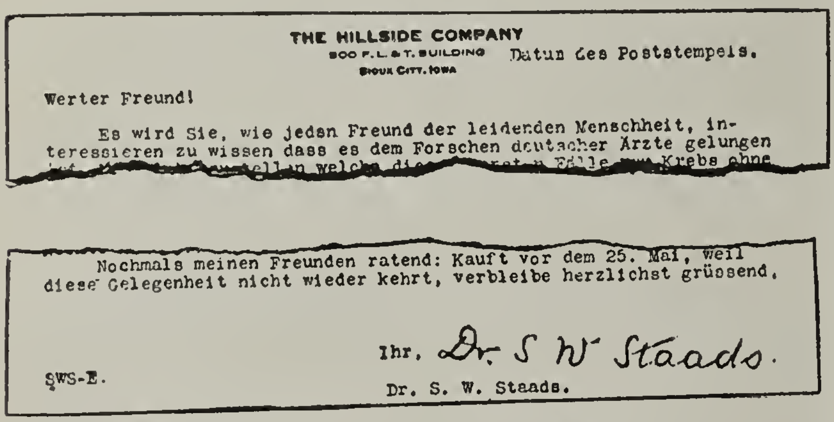
Any one who wishes to accept this "absolutely safe offer" (*"absolut sichere Anerbieten"*) must fill out the enclosed subscription blank and send it, with cheque, no later than May 25. "War Savings Stamps and Liberty Bonds will be accepted in payment at price we receive for them."

The Hillside Company is, apparently, a family affair, with S. W. Staads, president, his son-in-law, vice president, and his son (a chiropractor, it is said) secretary and treasurer. The company is reported to be a "trust estate" with an authorized common stock of $200,000 and an authorized preferred stock of $150,000. How much capital has been paid in has not been learned.

SOME EDUCATIONAL DATA

S. W. Staads' name appears in each issue of Polk's Medical Directories from 1900 until 1917, inclusive. In each case it is a display announcement giving the alleged educational and professional qualifications. In the directories for 1900, 1902 and 1904 Staads is given as a graduate of the "German Medical College of Chicago, Ill., 1892" and of the "Independent Medical College, Chicago, 1899." The "German Medical College," long since out of existence, was during its brief span repeatedly characterized by the Illinois State Board of Health as a fraudulent diploma mill. It was operated by one Johann Malok who, according to the Illinois State Board of Health, "profited by the wide-open incorporation laws of Illinois to the extent of securing charters for a brood of fraudulent diploma-selling institutions." The "German Medical College" was not chartered until Dec. 28, 1891; Staads was "graduated" in 1892!

The "Independent Medical College" was a fraudulent Chicago diploma mill whose charter was revoked by the Supreme Court of Illinois in 1899—the year of Staads' "graduation." The directory for 1906 and all subsequent issues contain no reference to Staads' "graduation" from the "Independent Medical College"; Staads still claims graduation from the "German Medical College."



THE HILLSIDE COMPANY
800 F. L. & T. BUILDING
SIOUX CITY, IOWA

Datun des Poststempels.

Werter Freund!

Es wird Sie, wie jeden Freund der leidenden Menschheit, interessieren zu wissen dass es dem Forschen deutscher Ärzte gelungen

Nochmals meinen Freunden ratend: Kauft vor dem 25. Mai, weil diese Gelegenheit nicht wieder kehrt, verbleibe herzlichst grüssend,

Ihr, Dr. S. W. Staads.
Dr. S. W. Staads.

SWS-E.

Photographic facsimile (reduced) of the opening and closing sentences of the letter of S. W. Staads in the latest attempt to sell stock.

In the same notices in Polk's directories we find Staads is also a "D. P. Chicago School of Psychology, 1897," and a "B. S. Chicago Seminary of Science, 1899!" In addition, he claims a "special course Chicago Homeopathic Medical College, 1897," and "Pratt's Course of Orificial Surgery" over a period of years commencing with 1898 and adding to these years with each subsequent edition of the directory. Of Staads' membership in medical organizations the directories showed:

Member American Institute of Homeopathy.
Missouri Valley Homeopathic Medical Association.
Hahnemann Medical Association of Iowa.
Sioux City Homeopathic Medical Society.
American Association of Orificial Surgeons.
Hon. Member Nebraska State Homeopathic Medical Society.

The directories also gave Staads as "Staff Surgeon, German Lutheran Hospital, Sioux City, and Lecturer to the German Hospital Training School, Sioux City, Iowa."

In the spring of 1911, following a discussion in The Journal regarding the "fee splitting" evil, a physician sent in a letter that he had received from Staads. The opening sentence of the letter called attention to the alleged fact that Staads limited his "work to surgery and gynecology exclusively" and that he would "be pleased to take care of any surgical cases" that might be sent him. Later in the letter Staads said:

> "Should a physician be paid for taking an operative case to a surgeon, and for his assistance in such cases, and for the responsibility and work he shares? He certainly is entitled to such recompense."

Whether this was a cryptic reference to the secret division of fees, we do not know; the physician who received the letter evidently thought that it was.

THE SANITARIUM COMPANY

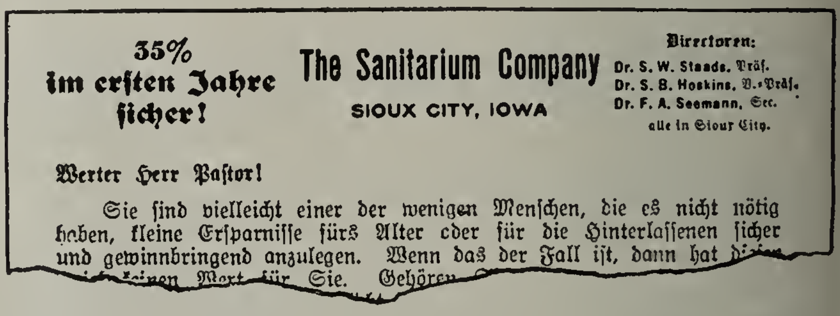
The Hillside Company is not the first stock-selling scheme of Staads' that The Journal has felt impelled to bring to the attention of its readers. In this department for March 15, 1913, under the title "Another Get-Rich-Quick Scheme," the "Sanitarium Company" of Sioux City, Iowa, was dealt with. The Sanitarium Company had for its president S. W. Staads. Its alleged object was "to manufacture and sell medicines for humankind and animals, chemicals, pharmaceuticals, infant and invalid foods, health coffees, to build and maintain a Sanitarium, etc."—a fair sized order. German-Americans, preachers and physicians, were circularized, and a return of "22½ per cent. on your money" and, in some instances, 35 per cent. was promised to those who would invest.

The prospectus declared that the Sanitarium Company had closed a contract with a German drug concern which would give it the exclusive right "to manufacture all of their products as medicines, chemicals, foods, etc., which have a tremendous sale in Europe." Nor was this exclusive concession limited to the United States: it took in also Canada, Cuba, the West Indies, Mexico, Philippine Islands, and practically all South America. As the prospectus naively said:

> "You will admit that with such large territory and such excellent preparations which have a great reputation where known, we have a wonderful future full of the very best opportunities. When thoroughly established in the United States through wide advertising to the physicians, druggists and the laity, we will gradually have to open branches in Canada, Mexico, Cuba, South America, the Philippines, etc. Have you any conception of the wonderful possibilities of such work? Just think what it means to have thousands of physicians and druggists as shareholders as we intend to get! All shareholders are entitled to 10 per cent. discount for cash on any direct purchase of our goods not marked net, and on bills incurred at the proposed Sanitarium. A 10 per cent. discount means a good deal to the dispensing physicians and druggists, and rest assured, they will gladly buy from us all they can and recommend our preparations. Does not that stand to reason? And that alone spells success."

In addition, it was claimed that a large house had been bought in neighboring city (Cedar Rapids); this was going to be remodeled and turned into a "Hospital-Sanitarium." This institution, said the prospectus, would have an advantage over all others in the United States in that it would be the only one in which patients would be able to get the medicinal preparations made by the German concern whose exclusive rights the Sanitarium Company had obtained! As a subsidiary of the Sanitarium Company was the Physio-Chemical Company, which put out a line of "patent medicines." These facts and others were given in detail in The Journal's article which, in closing, expressed wonder as to "how many physicians or 'Dear Reverends' would really invest good money in such a crudely and baldy exploited scheme."

The present scheme is just as crude and bald. In order to get preachers and others to send in their Liberty Bonds or their money Staads would have them believe that he can get the exclusive right to some made-in-Germany nostrums that will cure "the most difficult cases of cancer."



35%
im erſten Jahre
ſicher!

The Sanitarium Company
SIOUX CITY, IOWA

Directoren:
Dr. S. W. Staads, Präſ.
Dr. S. B. Hoskins, V.-Präſ.
Dr. F. A. Seemann, Sec.
alle in Sioux City.

Werter Herr Paſtor!

Sie ſind vielleicht einer der wenigen Menſchen, die es nicht nötig haben, kleine Erſparniſſe fürs Alter oder für die Hinterlaſſenen ſicher und gewinnbringend anzulegen. Wenn das der Fall iſt, dann hat

Reproduction (reduced) of the opening sentence of the letter sent out in 1913 to preachers.

Hookworm Disease in Brazil.—A recent report by Dr. Belizario Penna shows that, from July, 1918, to September, 1921, about 300,000 persons were examined in the hookworm dispensaries. In the federal district and neighboring territory, 236,890 persons were examined, 213,050 of whom were found infected with intestinal parasites. More than 34,000 cases of malaria were treated. A total of 616,451 hookworm treatments were given. There were 34,682 persons vaccinated or revaccinated. In some districts, the percentage of hookworm carriers varied from 31.9 per cent. to more than 99 per cent. Hookworm disease is an old disease in Brazil, where Wucherer and Silva Lima studied it, in 1860, under the name of intertropical hypohemia and tun-tun. The hookworm work has lately been conducted under the direction of Dr. Lewis Wendell Hackett of the Rockefeller Foundation. In 1921, the federal and state appropriations reached $2,300,000, in addition to the annual expenditure of $250,000 by the International Health Board.

Correspondence

PROPHYLAXIS OF VENEREAL DISEASE

To the Editor:—I have read with interest the communication on this subject by Dr. Herman Goodman, THE JOURNAL, June 24. He says, among other things, "The more prophylactics administered, that is, the more admitted exposures, the greater the incidence of venereal disease. On the other hand, when opportunity for prophylaxis was reduced by curtailment of opportunity of exposures, the incidence of venereal disease became practically nil." This statement is followed by two imposing tables of statistics. One can scarcely but suspect that the author has a subconscious bias against prophylaxis, perhaps for the same reason that the late Secretary of the Navy disapproved of it—that it licensed license. The sense of the letter would appear to be that if men are prevented from indulging in intercourse they are not likely to contract venereal disease, a conclusion with which all must agree. If one needed statistics to back this up the medical authorities of Sing Sing prison could furnish them.

The reason that I call your attention to this matter is that I had not supposed that the American Medical Association was interested in the reduction of disease rate by the exercise of police power on the individual. Conceding the fact that abstinence from sexual intercourse is a sure preventive of venereal disease, it appears to me that the enforcement of that abstinence lies in the province of individual morality rather than in that of preventive medicine.

ARMITAGE WHITMAN, M.D., New York.

"THE WILL TO BELIEVE"

To the Editor:—I have received a number of letters approving the position I have taken with regard to the performances of Willetta Huggins, and others expressing, somewhat after the manner of the communications of Dr. Babcock and of Dr. Nagel in THE JOURNAL, June 24 and 31, some reservations and a good deal of skepticism that sight sufficient to recognize colors should be possible despite a blindfold. With some acquaintance with the blindfold performances on the stage, I can say that the "goggles" type of blindfold used in Chicago would be regarded as one of the "easiest"—that is, easiest to circumvent. Sealing the eyelids with *opaque* court plaster, as suggested by Dr. Babcock, would be completely effective, as would also be a number of other devices known to those who have given attention to the subject; and the tests in a completely dark room would also be made decisive. Dr. Babcock is entirely correct in citing examples of the unusual and expert use of senses by the blind and deaf; and I know of a number of instances more remarkable than those he cites. But these cases do not function after the manner shown by Miss Huggins. The question of excluding hearing is by no means so simple. The experience of submarine detectors during the war seemed to show that nothing less than a device similar to a diver's helmet would answer. Only an expert would be competent to determine just how far sound was excluded; though it is open to any one with normal hearing to apply a sound-excluding device and determine just how much he can hear and understand with it or despite it.

There is no occasion to add anything in reply to Mr. Hooper's public comment on the conclusions which I presented (New York *World*, June 17), and presented not as final but as a caution against the gratuitous hypothesis that the performance demands the assumption of "smelling" colors or "understanding" vibrations through the fingers; though it may be pertinent to indicate the apologetics which are needed to defend this strange conclusion. To account for the failure, it is urged that the dark room at Madison was full of chemical odors which prevented the "smelling" of colors. It did not prevent the "smelling" (?) of colors when a low light was on in the same smelly room, but only when that light was extinguished.

Like Dr. Babcock, I am interested in having the matter determined beyond any doubt. For this end I have prepared a set of tests which I should be glad to have any competent person apply in a wholly objective manner and unembarrassed by the presence of any advocate who believes that the performance requires a resort to extraordinary assumptions, or by the presence of a skeptic like myself who—as in the case of mediums, who also claim unusual senses—is regarded as emanating unfavorable vibrations interfering with the exercise of the sense in question. As I indicated in my article in THE JOURNAL, June 17, the psychologic laboratory has adequate methods and technic to bring the matter to a definite conclusion. All that is needed is the cooperation of the subject and the determination of the conditions of the test by competent experimentalists. I trust that this will be done in the near future. Let it be understood that all depends on the technic and rigidity of the tests.

JOSEPH JASTROW, Madison, Wis.

METHOD FOR UTILIZING ETHYL CHLORID IN LOCAL ANALGESIA

To the Editor:—I wish to call attention to a simple but effective method of applying the ethyl chlorid spray for local analgesia. I have used this method for the last four years in opening localized infections and in the fulguration of warty growths. The reason that the freezing method as universally used is not effective is that the tissues are so hard that pressure enough to cause pain must be applied before the sharpest knife will cut through the frozen tissues. The method I suggest is to apply the spray so as to form a circle around the area to be incised or fulgurated, care being taken to keep the spray away from the center. The width of the frozen area should be at least half an inch, and there should be at least 1 inch of unfrozen area in the center of the circle. Blowing the breath on the freezing surface will be found to accentuate the freezing. As soon as a white crust forms *all the way around*, the incision should be made or the spark applied, immediately. There will be very little if any pain, as this is essentially a nerve-blocking anesthesia.

RAYMOND L. BRADLEY, M.D., Houston, Texas.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF CHEILITIS

To the Editor:—I have a patient who suffers from peeling every summer, owing, I think, to the effects of the sun, as he is in the open all day. The part of the lip affected is the mucous surface just posterior to the mucocutaneous junction. I have tried everything I could think of without much benefit. This trouble persists until cool weather, and then subsides until the next summer. Anything you might be able to suggest in the line of treatment would be appreciated. The patient cannot protect himself from the sun. He has to work in the open. Please do not publish my name.

PHYSICIAN.

ANSWER.—There are patients who have inflammatory reaction in the lips, cheilitis, from exposure to the sunlight. It is difficult or impossible to overcome if exposure of the lips cannot be avoided, as is usually the case. The use on the lips of a thick paste, made skin color with zinc oxid and calamine (or "crocus martis") as coloring, would offer protection against the sun's rays, and if used persistently and frequently might be a great benefit. When the patient is, as this one, a man, he might raise a walrus mustache, provided his mustache is heavy, which would give great protection from sunlight.

PYROGALLIC ACID AS HAIR DYE

To the Editor:—Is pyrogallic acid in a 2 per cent. solution a safe hair dye for brown hair that is prematurely gray? A young woman in my practice comes to me with this question, and I am unable to answer her. If the pyrogallic acid is no good, kindly suggest something better. Please omit my name.

Subscriber.

Answer.—Pyrogallic acid is not an entirely safe application as a hair dye. It sometimes causes dermatitis, and poisoning has been observed from it. It is usually used in combination with silver nitrate. Probably as good a dye as any is paraphenylendiamin, which is the usual dye used for dyeing hair and furs brown or black. This also, in susceptible persons, causes dermatitis, but not frequently. There is no hair dye that is free from all risk.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, July 11. Chairman, Dr. Samuel W. Welch, Montgomery.

Connecticut: Hartford, July 11-12. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

Connecticut: New Haven, July 11. Sec., Eclec. Bd., Dr. James Edwin Hair, 730 State St., Bridgeport. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

District of Columbia: Washington, July 11. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

Hawaii: Honolulu, July 10. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

Indiana: Indianapolis, July 11-13. Sec., Dr. W. T. Gott, State House, Indianapolis.

Massachusetts: Boston, July 11-13. Sec., Dr. Samuel H. Calderwood, 144 State House, Boston.

New Mexico: Santa Fe, July 10-11. Sec., Dr. R. E. McBride. Las Cruces.

Oklahoma: Oklahoma City, July 11-12. Sec., Dr. J. M. Byrum, Shawnee.

Pennsylvania: Philadelphia and Pittsburgh, July 11. Sec., Mr. Thomas E. Finnegan, State Capitol, Harrisburg.

South Dakota: Waubay, July 18. Director, Dr. H. R. Kenaston, Bonesteel.

Washington: Olympia, July 11. Sec., Mr. William Melville, Olympia.

West Virginia: Martinsburg, July 11. State Health Commissioner, Dr. W. T. Henshaw, Charleston.

Wisconsin January Examination

Dr. John M. Dodd, secretary, Wisconsin State Board of Medical Examiners, reports the oral, written and practical examination held at Madison, Jan. 10-12, 1922. The examination covered 19 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 17 candidates examined, 14, including 1 osteopath, passed, and 3, including 1 osteopath, failed. Twelve candidates were licensed by reciprocity, and 1 candidate received an osteopathic license by reciprocity. Six candidates were licensed on government credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1912)	80
Northwestern University	(1922)	86
Rush Medical College	(1906) 85, (1921)	91
Harvard University	(1921)	87, 89
Tufts College Medical School	(1920)	86
Washington University	(1921)	80, 85, 88
Columbia University	(1920)	91
Marquette University	(1905)	78
University of Vienna	(1903)*	81
Osteopath		85

FAILED

College	Year Grad.	Per Cent.
Loyola University	(1917)†	81
Marquette University	(1922)†	86
Osteopath		58

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Denver and Gross College of Medicine	(1909)	New York
Loyola University	(1921)	Illinois
Northwestern University	(1921, 2)	Illinois
Rush Medical College	(1916) Minnesota, (1919), (1921, 4)	Illinois
Keokuk Medical College, Coll. of Phys. and Surgs.	(1902)	Illinois
University of Louisville Medical Dept.	(1910)	Kentucky
Osteopath		Missouri

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement with
College of Physicians and Surgeons, Chicago	(1903)	U. S. Army
Northwestern University	(1908)	U. S. Army
Rush Medical College	(1905)	U. S. Army
Fordham University	(1916)	U. S. Army
University of Texas	(1913)	U. S. Army
Medical College of Virginia	(1886)	U. S. Army

* Graduation not verified.

† Fell below 60 per cent. in one branch.

Alaska March Examination

Dr. Harry C. DeVighne, secretary, Alaska Territorial Medical Examining Board, reports the written examination held at Juneau, March 7, 1922. The examination covered 9 subjects and included 100 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Louisville	(1907)	86
University of Toronto	(1918)	90

Ohio Reciprocity Meeting

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports that 19 candidates were licensed by reciprocity at the meeting held April 4, 1922. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
University of Colorado	(1914)	Colorado
Illinois Medical College	(1905)	Alabama
Rush Medical College	(1884) Kansas, (1917)	New York
University of Louisville Medical Department	(1917)	Kentucky
Johns Hopkins University	(1907), (1912)	Maryland
University of Michigan Homeopathic Medical College	(1921)	Michigan
Washington University	(1911)	Missouri
Syracuse University	(1917)	New York
Eclectic Medical College	(1915)	Nebraska
University of Cincinnati	(1916)	Kentucky
Jefferson Medical College	(1895)	Penna.
University of Pennsylvania	(1917) New York,	Pennsylvania
Meharry Medical College	(1913) Alabama, (1918)	Arkansas
University of the South Medical Department	(1908)	Washington
Laval University	(1891)	Michigan

Porto Rico April Examination

Dr. M. Quevedo Baez, secretary, Porto Rico Board of Examiners, reports the written and practical examination, held at San Juan, April 4, 1922. The examination covered 9 subjects and included 75 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
State University of Iowa College of Homeopathic Med.	(1919)	77.1
University of Maryland	(1920)	87.5

Nevada May Examination

Dr. Simeon L. Lee, secretary, Nevada State Board of Medical Examiners, reports the written examination held at Carson City, May 1, 1922. The examination covered 13 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 6 candidates examined, 5 passed and 1 failed. One candidate was licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, San Francisco	(1918)	83.3
Oakland College of Medicine and Surgery	(1920)	82.7
Kansas City University of Physicians and Surgeons	(1922)	75
Cornell University	(1920)	95.4
Ohio State University College of Medicine	(1920)	84.4

FAILED

College	Year Grad.	Per Cent.
Chiba Special Medical School	(1905)*	69.3

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Saginaw Valley Medical College	(1903)	Michigan

* Graduation not verified.

Miscellany

A GERMAN VISITOR'S IMPRESSIONS OF AMERICAN MEDICINE

Dr. Hans Holfelder (*Klinische Wochenschrift* **1**:531 [March 11] 1922) gives an account of his visit to the United States a few months ago. During his first short stay in Buffalo he was soon convinced of the efficacy of buried radium emanation in the treatment of malignant tumors, particularly cancer of the tongue and primary carcinoma of the rectum, whereas in metastases and recurrences it could not be used. Just the opposite is true of the German method of roentgenotherapy. He considers radium emanation as adapted only to primary tumors of the mucosa.

In giving his impressions of American hospitals, Holfelder brings out the fact that they usually do not have *Chefärzte* (chief or head physicians) as in Germany, but are open-staff hospitals in which a considerable group of physicians and surgeons work side by side. He thinks that with America's vast wealth it would be destined soon to assume an unquestioned position at the head of the medical science of the world if it were not for the peculiar organization of the hospitals, which not only militates against a uniform and systematic instruction of interns and assistant physicians and surgeons but also makes genuine research work more difficult. The trouble seems to be that in the open-staff hospitals the interns are the assistants of from ten to twenty different physicians, who belong to the staff of the hospital, and that, for this reason, they do not come under the influence of any particular school. In some large cities, such as New York, the staff undergoes frequent changes throughout the year, which deprives the interns of the opportunity of continuous and systematic instruction. The intern is responsible for the care of certain wards in which a large number of physicians treat their patients in a promiscuous manner. Today the intern comes in contact with one physician and tomorrow with another, so that there is not the necessary continuity in the instruction he receives. Another thing that makes this condition worse is the "unevenness" which is characteristic of American universities and medical schools, owing to the fact that they are not under state control. However, the classification of medical colleges as A, B and C schools has done a great deal toward remedying the unevenness of medical instruction, and will doubtless accomplish still more in the future. Whereas the absolutely free competition that has prevailed in the past has been conducive to a high ethical tone, he sees in the operation of the Volstead act a grave menace to the morale of American physicians.

He thinks the Ford Hospital at Detroit the most luxuriously appointed hospital he has ever seen; and as for cleanliness, one could perform without hesitation an aseptic operation even in the furnace room. However, it seemed to him that the use of machinery to replace manual labor had been carried to extremes, and that the patients would be better off if the physicians were allowed more individual freedom.

Holfelder referred to the recent endeavor of the Rockefeller Foundation to have the heads of departments receive adequate salaries but be deprived of the right to keep up their private practice. He does not think that such a policy will lead to the desired goal, since most eminent clinical professors will prefer to renounce their professorial duties rather than their private practice. It would also seem to involve a great risk for the character of the instruction if a professor is deprived entirely of the personal contact with patients, which has such a stimulative effect on clinical instruction.

Holfelder noted that the results of laboratory tests play a much greater rôle for diagnosis and therapeutic indications than is the case in Germany. The methods of performing laboratory tests have been so simplified that it has become possible to utilize them on a large scale; but he thinks it would be well for Germany to adopt certain features of American laboratory methods. However, he fears that one result of such extensive application of laboratory tests has been that the clinical examination of the patient has sometimes been relegated to the background to such an extent as to prove harmful to the patient. Especially does this seem to be true in the case of physicians who have not enjoyed the advantages of the first-class medical schools. This condition will be improved when all medical schools have been brought up to the high standard of the best. In regard to the claim that, in a large percentage of cases, rheumatic symptoms can be traced to a focus of infection in the teeth or mouth, Holfelder is somewhat skeptical. He admits that the relationship between a focus of infection in the mouth and rheumatic pains in some distant organ may not have received in Germany the attention it deserves, but he feels equally sure that such a relationship is being assumed in America much more frequently than the facts will warrant.

He was much impressed with the system of blood transfusion as practiced in America, and especially with the organization of details, so that in an emergency case only ten minutes was required to have a donor of the proper blood group on hand ready to furnish up to 1,000 c.c. of his blood. While he feels that many lives are thus saved, there may be a tendency to overdo the matter.

CHILDREN OF WAGE-EARNING MOTHERS

A report of the U. S. Department of Labor, entitled "Children of Wage-Earning Mothers: A Study of a Selected Group in Chicago," states that gainful employment of mothers of young children frequently means that the children receive inadequate care during the day. The report presents the results of a study of 843 families of working mothers, in which were 2,066 children under the age of 14 years. This included 212 colored families. The forty-five day nurseries in Chicago were not maintaining high standards with respect to sanitation and child care, and only two nurseries, with a capacity of twenty each, were available to colored children. Retarded school progress of the children, overfatigue and ill health of the mothers, with consequent loss to the children, and in some instances overwork by children who had the responsibility for household tasks beyond their strength, were other conditions found. More than one third were found below the standard grade for their age in the schools. Measures will be taken for reducing the necessity for wage earning by mothers of young children. These measures will include an improvement of economic conditions that will make the fathers' earnings more nearly adequate; training of mothers in household management and the care of children; preserving the normal family group through movements for the prevention of accidents and the promotion of health, and providing substitutes for the father's support, at his death or when he is incapacitated, by means of mothers' pensions and aid from social agencies.

THE RELATION OF GAS POISONING TO TUBERCULOSIS

Ex-soldiers who were exposed to poisonous gases during the World War have been led to believe that they are likely to develop tuberculosis as a result of such exposure. Hence, although in good health, they are constantly watching for symptoms of consumption. Neither fact nor sound opinion affords any basis, apparently, for this fear. An investigation of this subject was made by the Chemical Warfare Service, and the results have been published. The investigation covered experiments with mustard gas and phosgen on laboratory animals, a study of 2,000 gas cases by a board of officers, the views of many officers of large experience in treating gassed soldiers, and a study of the reports of several European countries.

It was stated in the British report that "tuberculosis does not develop more frequently in gas victims than in other subjects." A similar view was held by the French, who said, "Judging from experience, it does not seem that lung lesions caused by gassing predispose to tuberculosis." The Germans reported that their "physicians unanimously agree that gassing has no connection with tuberculosis."

The Chemical Warfare Service concluded its investigation by saying: "It is far from convincing that gas played any particular rôle in this connection, and it is doubtful if the incidence of lung tuberculosis among ex-service men is much greater by reason of the part that gas played. Those who claim to have developed tuberculosis a year after leaving the service, from conditions experienced in the army, certainly have no basis for such assertion. They probably would have become tuberculosis patients even if they had never been in the army. . . . There are two elements entering into this problem—one neurasthenic, where the men were gassed, usually very slightly, and believed sincerely that this was a factor in their illness; and second, mistaken diagnosis in many cases, especially those following influenza, in which instances of unresolved bronchopneumonia occurred leaving nodular patches on which the diagnosis of tuberculosis was frequently based on roentgen-ray plates."

Book Notices

Væ Inventoribus Magnis. Por el Dr. Angel Pulido Fernández, V. Presidente del R. C. de Sanidad, Académico. Paper. Pp. 524, with illustrations. Barcelona: Imp. La Renaixensa, 1921.

Precursor, Representativo y Mártir. Por el Dr. Angel Pulido Fernández, V. Presidente del R. C. de Sanidad Académico. Paper. Pp. 496, with illustrations. Madrid: Imprenta del Instituto Nacional de Sordomudos y de Ciegos, 1921.

These two books, by the venerable president of the superior board of health of Spain, are an eloquent disproof of the old saying that no man is a prophet in his own country. Both, printed at the expense of the government, take up most minutely, perhaps too much so, the achievements of Dr. Jaime Ferrán the scientist, whom the author calls a pioneer in many remarkable medical advances. In fact. Dr. Pulido aims to prove that the whole fabric of modern vaccination, both preventive and curative, has its origin in Ferrán's anticholera work in 1885. The first book goes in detail into the cholera epidemic in 1885; Ferrán's discovery of vaccination as a prophylactic; the attacks made on anticholera vaccination and typhoid inoculation (also introduced by the Spanish bacteriologist before Wright); the unfavorable reports made at the time by the French and Spanish Commission; Cajal's scornful attitude toward the new method; the favorable change in foreign opinion as represented by Klemperer, Guttmann, Roux, Metchnikoff, Calmette and Ehrlich, and finally what he calls Ferrán's martyrdom, i. e., the neglect toward the investigator, who was even expelled from his position as head of the municipal laboratory of Barcelona, although this apparently was due to poor administrative methods on Ferrán's part. The second book deals especially with Ferrán's present theory of tuberculosis and the trial of his antialpha vaccination in Palma de Mallorca and elsewhere. No one could read these well written if prolix books without a feeling of admiration for their gifted author or respect at the sense of duty which impelled him, at the age of 69, following recovery from a serious disease, to devote all his energies to Ferrán's defense and panegyric. After wading, however, through 1,020 pages filled with encomium, satire, literary quotations, attacks on Cajal; reports and speeches, and lacking in actual statistics, one cannot escape the conviction that the story would have gained by being told more concisely and systematically; that Ferrán's own peculiarities and lack of business acumen may have had a great deal to do with his tribulations; that his theory may have been better than his practice; that Cajal's reservations may have been only too well founded and that, after all, Ferrán's conception of the duality of the tubercle bacillus is still *sub judice*. Why make a martyr out of a man who has found thousands of people to submit to his antituberculous inoculations, has his own laboratory, plenty of patients, a number of followers in South America who call him master, has just been given 50,000 pesetas by the government for his antituberculosis work, and, above all, has such an able and earnest advocate as Dr. Pulido to sing his praises in two thick volumes published by the Spanish government?

Diseases of Women. By Ten Teachers. Under the direction of Comyns Berkeley, M.D., M.C., Obstetric and Gynaecological Surgeon to the Middlesex Hospital. Edited by Comyns Berkeley, H. Russell Andrews and J. S. Fairbairn. Second edition. Cloth. Price, $10 net. Pp. 641, with 223 illustrations. New York, Longmans, Green & Co., 1922.

A book written by several men in collaboration rarely exhibits unity of purpose or sustained excellence. For this reason one will be agreeably surprised to find how rigorously in this book the individuality of the authors has been subordinated to scholarly production. At the same time the mechanical workmanship has not been neglected. The plates and illustrations are informative, and the index is a joy in its meticulous execution. The order of the subjects is excellent, and the text is consistent, logical and clear. The book is written from the standpoint of the ideal surgeon who is not only openminded but also broad through a mature familiarity with all available resources of our profession. It is a pleasure to come across a treatise which is not disfigured by dogmatism, useless verbiage or futile speculation over exploded or undeveloped hypotheses. Though many of us would be gratified by a somewhat more elaborate and detailed description of the operative technic, it is remarkable how adequately this section has been covered in the allotted fifty pages. It would seem to show that ordinarily much space is wasted in duplication or verbosity. The portion devoted to infections has also been stripped to the bone, and yet the theme advances with marvelously little sacrifice of important matter. A novel and valuable feature is the inclusion of the chapters on appendicitis and acute conditions of the abdomen as definite gynecologic maladies rather than as complications of more generally recognized conditions. The pathology in these cases is so obviously intertwined with the pelvic disorders that we wonder why they have not been admitted heretofore into a frank fellowship. In an effort to imitate the authors in the clarity and succinctness of their style, we may say that the book is a masterly condensation of the principles and practice of modern gynecology; an invaluable compendium for both the student and the practitioner.

Grundriss der klinischen Therapie innerer Krankheiten. Von Prof. Dr. Georg Klemperer, Direktor der IV. medizinischen Universitätsklinik Arztl. Unter Mitwirkung von Oberarzt Dr. I., Dünner. Paper. Price, 108 marks. Pp. 237. Berlin: Urban & Schwarzenberg, 1922.

Only a clinician of the widest bedside experience could have written such a book as this. The volume is based on the assumption that the first element in therapy is correct diagnosis, and the book is intended only for those capabl of making correct diagnoses. Throughout it stresses th necessity of attention to the details of the individual case for all patients, no matter what the disease, the mind mus be kept at rest, the surroundings agreeable and composed the food appetizing. It is really interestingly written, whic is saying a great deal for a book of therapeutic opinions One notes certain omissions, for instance, the absence of a discussion of protein sensitization in bronchial asthma an its therapeutic indications. The casual remark on serum therapy in pneumonia leaves one in much doubt. To thos American readers who are accustomed to consider the treatment of gastric ulcer as possible along only one royal road we particularly commend Klemperer's interesting discussio The treatment of diabetes mellitus used for a long time b Klemperer will evoke a sympathetic response in the follower of the new slogan, "low protein, high fat."

A Psychiatric Milestone. Bloomingdale Hospital Centenary, 182 1921. Cloth. Pp. 220, with 6 illustrations New York: The Societ of the New York Hospital, 1921.

This volume, printed in 1921, marks the hundredth anniversary of the Bloomingdale Hospital and Asylum. I includes an historical review and addresses by a number o noted neurologists who took part in the anniversary celebration.

Medicolegal

Disability from Typhoid Fever Caused by Drinking Polluted Water

(Wasmuth-Endicott Co. v. Karst (Ind.), 133 N. E. R. 609)

The Appellate Court of Indiana, in affirming an award of he industrial board, under the workmen's compensation act, n favor of plaintiff Karst, says that there was substantial evidence tending to establish that he was in the employ of he defendant company in its factory, where drinking water vas furnished from a well, through pipes, it being pumped by tream, and flowing constantly during working hours. Without the company's knowledge, the water became contaminated by seepage from a toilet in the factory. The plaintiff used he water for drinking purposes, without knowledge of such pollution, and became infected with typhoid germs, by reason of which he had an attack of typhoid fever. On this evidence he industrial board found that he received a personal injury by accident arising out of and in the course of his employment.

This court, in determining questions of liability under the vorkmen's compensation act, has adopted the definition that 'an accident is any unlooked-for mishap or untoward event not expected or designed." Applying this definition, it is lear that the entering of typhoid germs into the plaintiff's ntestines, by reason of his drinking the polluted water furnished him by the company for that purpose while in its mploy, might rightfully be termed an "accident." The next question was as to when the injury could be said to have occurred. It has been said that, in common speech, the word injury," as applied to a personal injury to a human being, ncludes whatever lesion or change in any part of the system produces harm or pain or a lessened facility of the natural use of any bodily activity or capability. When that definition s applied to the facts of this case, it is not difficult to determine when the injury resulting from the accident in question occurred. It is well known that typhoid fever is due to a pecific micro-organism, known as the typhoid bacillus. The acillus sets up a catarrhal inflammation of the mucous memrane of the intestines, causing ulcers and fever. When this occurs, the victim evidently sustains an injury. The typhoid acillus, when taken into the intestines, does not always reate a catarrhal inflammation. If it does not, no fever ollows, and no injury is sustained. In this case, however, uch an inflammation occurred, with resulting fever, contituting an injury within the meaning of the workmen's ompensation act.

Nor can it be said that the decision in this case is not in armony with the limitation of the Indiana statute that 'injury' and 'personal injury' shall mean only injury by ccident arising out of and in the course of the employment nd shall not include a disease in any form except as it shall esult from the injury." It is obvious that, in any given case involving disability so resulting, the inquiry must always be, Did the disease result from an injury by accident, arising ut of and in the course of the employment? The injury, owever, need not be produced by violence, as the Indiana tatute, unlike the statutes of some other states, does not so rovide. It suffices in that regard, whatever the accident may ave been, if it produces a lesion or change in any part of the system which injuriously affects any bodily activity or apability. When this occurs, and disease follows, causing disability, the right to compensation is not affected by the tatutory limitation quoted. But it must be borne in mind that the injury must be by accident arising out of and in the ourse of the employment. This limitation alone will have the ffect of preventing a recovery of compensation for disability resulting from diseases generally, as it is clear that a disease contracted by an employee through such usual intercourse ith his fellow workmen as is common among men, and ot because of any unusual circumstances connected with is employment, cannot be said to be an accident within the meaning of the workmen's compensation act. The fact that the accident involved in this case occurred while the plaintiff as engaged in quenching his thirst, rather than in the actual performance of some duty which he owed the defendant under his employment, was not a matter of controlling importance, as it is recognized that such acts as are necessary to the life, comfort, and convenience of the workman while at work, though personal to himself, and not technically acts of service, are incidental to the service; and an accident occurring in the performance of such acts is deemed to have arisen out of the employment.

Power to Quarantine Typhoid Carriers

(People ex rel. Barmore v. Robertson et al. (Ill.), 134 N. E. R. 815)

The Supreme Court of Illinois, in remanding the relatrix to the custody of the respondents, says that the latter were the commissioner of health and an epidemiologist of the department of health of the city of Chicago, from whose alleged unlawful restraint of her liberty at her home, as a typhoid carrier, the relatrix sought release through habeas corpus. She had been keeping roomers and boarders, when information came to the department of health that several persons who had previously roomed and boarded at her house had been ill with typhoid fever. She submitted to the department specimens of feces, an examination of which revealed large numbers of typhoid bacilli; but she testified that she had never been sick with typhoid fever; that no member of her family and no boarder or roomer had ever been sick with typhoid fever while living with her, and that so far as she knew no one had contracted the disease by contact with her. The department of health placed her and her house under quarantine, placing a large placard on the house warning all persons that a typhoid carrier resided in the house. The quarantine regulations prescribed required her to remain in her home and forbade her to prepare food for any one but her husband, and forbade any one to come into her home, as roomers or otherwise, unless they had been immunized from typhoid fever.

It is not necessary that one be actually sick, as that term is usually applied, in order that the health authorities may have the right to restrain his liberties by quarantine regulations. Quarantine is not a cure; it is a preventive. As the term is used in this opinion, quarantine is the method used to confine the disease within the person in whom it is detected, or to prevent a healthy person from contracting the infection. Disease germs do not usually travel through the air unaided, but they are carried by insects, by dumb animals and by human beings. Effective quarantine must therefore be not so much the isolation of the person who is sick or affected with the disease as a prevention of the communication of the disease germs from the sick to the well. Thus, in the case of typhoid fever, effective quarantine must include very strict restrictions on the movements of the attendants who in any way come in contact with the sick person or his discharges. It must include the destruction of the bacilli in the feces and the urine, and in the cloths used to wipe the mouth of the patient. Quarantine, in the very nature of the regulation, is not a definite uniform measure, but it must vary according to the subject. One of the important elements in the administration of health and quarantine regulations is a full measure of common sense.

In the case at bar, the state board of health, or a board of health in the city of Chicago, duly organized pursuant to the authority given the city council by the legislature, would undoubtedly have the right to establish reasonable quarantine regulations with respect to the relatrix, so long as she was discharging the germs of a contagious and infectious disease. Whether the authority exists to compel a person apparently well to submit to an examination to determine whether he is a germ carrier was not before this court, for the reason that the relatrix submitted to the examination which revealed that she was such a carrier. The only question presented for determination was whether she was legally and properly detained under quarantine in her home. The statute gives to no such individual as the health commissioner of Chicago authority to make rules and regulations which shall have the effect of law; and the city has no right to give him authority to determine when a contagious and infectious disease exists, and to establish a quarantine. His authority is limited to carrying into execution orders of a legally constituted board of health. But the department of health of Chicago reported the case of the relatrix to the state department of health, and requested that department to authorize a modified quarantine, which authority was granted, so that the respondents were restraining the relatrix as agents of the state department. She was bound to respect the rules and regulations promulgated by the state department of health respecting the modified quarantine under which she was placed, and for a violation of these rules she was subject to the penalties provided by the statutes. In order that she might know what the rules and regulations were, it was necessary that she be furnished a copy of them.

Sufficient Authority and Statement for Services

(Dalton v. St. Louis & S. W. Ry. Co. (Mo.), 238 S. W. R. 523)

The Springfield (Mo.) Court of Appeals, in affirming a judgment against the defendant railway company for services rendered by the plaintiff as a physician to one Monigold, says that Monigold was found on the right of way of the defendant, with one foot and leg badly crushed. No one saw the accident, but it was inferred that the injury was caused by a passing train. The station agent called the plaintiff over the telephone and asked him to attend Monigold. The plaintiff went, and found the man loaded in a wagon to be taken to his office. The plaintiff was at that time, and afterward, told by the assistant claim agent of the defendant to treat Monigold, and in pursuance with that direction as well as the call from the station agent, he performed the service which was the basis of this action. The leg was amputated below the knee, with the assistance of the defendant's regular physician, who was out of town when the plaintiff was called. After the amputation, the patient was taken in charge by the defendant's physician, but the plaintiff continued in consultation with him until the patient recovered. The plaintiff filed this statement before a justice of the peace:

March 9, 1920.

St. Louis & Southwestern Ry. Co. to Dr. George Dalton, Dr.
March 9, 1920. To professional services rendered as per request on J. W. Monigold....................................$200.00

The sufficiency of the statement was challenged by the defendant. The test of its sufficiency was: Did it notify the defendant with reasonable certainty of the nature of the cause of action it was required to meet, and would it bar another action on account of the same subject matter? Measured by this standard, the court thinks the statement was sufficient.

The next contention was that there was no evidence that either the station agent or the assistant claim agent had authority to employ the plaintiff, and thereby bind the defendant, and that the employment itself did not constitute a binding contract. If the employment was authorized, the law would imply a promise to pay the reasonable value of the services rendered, in the absence of an agreement as to the price to be paid. The station agent testified that he had authority to employ a physician in an emergency to attend passengers or employees; and that was the only evidence relating to his authority, while there was no evidence that the injured man was either a passenger or an employee; so that the evidence did fail to show authority in the station agent to make the employment. But the evidence as to what the station agent did was competent to show how the plaintiff was induced to begin the service to the injured man, in connection with what he testified took place immediately thereafter between him and the assistant claim agent. The assistant claim agent testified that his business was to investigate the facts when injuries occurred, and that he had no specific instructions as to what to do in relation to employing physicians; but that he used his own judgment in emergency cases. This, in connection with what he did in this case, was sufficient to take the case to the jury on the question of his authority to act for the defendant in the emergency under which the plaintiff was employed by him in this case. In short, the court does not think that there was any evidence that the station agent had authority to employ the plaintiff to attend Monigold; that the question of the assistant claim agent's authority was a close one on the testimony, and that the jury must have based their verdict on a finding that the assistant claim agent, and not the station agent, had the authority and did employ the plaintiff.

Sale of Practice—Issuance of Prescriptions

(Clabaugh v. Heibner et al. (Mo.), 236 S. W. R. 596)

The Kansas City (Mo.) Court of Appeals, in reversing a judgment obtained by the plaintiff on a note, says that the note was given as part of the $800 consideration for which the plaintiff, a physician, sold his office fixtures, buggy, practice of medicine and good will thereof, in a stated community, to another physician, who will be called the defendant, the plaintiff agreeing that he would not directly or indirectly enter into or engage in the practice of medicine in the city where he had been located, or the country immediately adjacent thereto, as long as the defendant should be engaged in the practice of medicine in the city in question. In a counterclaim, the defendant set up that the plaintiff had violated the agreement, and, on this account, damages were asked, less the amount due on the note. The execution of the note being admitted, the burden was on the defendant to establish his counterclaim. The plaintiff, who subsequently located in a neighboring city, admitted that after the maturity of the note he had practiced in his old location, and about three weeks after the maturity of the note, he wrote to the defendant: "The practice I have done is practice that refused to employ you." So, the court goes on to say, it was beyond question that the plaintiff did practice medicine in that community in violation of his contract not to do so.

It is well settled that contracts of this nature are valid. The good will of a business is a species of property, a thing of value which may be bought and sold, and which the law will protect, awarding damages for injuries thereto. The trial court, however, confined the defendant to evidence of the plaintiff's practice prior to the maturity of the note, and would not allow evidence to be offered as to practice after that date, on the theory that the failure to pay the note when due was a breach of contract on the defendant's part which authorized the plaintiff to disregard the provision obligating him to refrain from practice in that community. That was error. There was no provision in the contract that a failure to pay the note when due would render the terms of the contract void or have any effect thereon. The nonpayment of the note when due was merely a default in the payment of that obligation, not a breach of the other contract. Besides, the failure of the defendant to pay the note when due may have been due to the plaintiff's prior violation of the contract.

In addition to evidence of professional visits and practice carried on by the plaintiff in or around the city where he was first located, the defendant introduced 120 prescriptions issued by the plaintiff to patients residing in the city in question and within eight miles thereof. These prescriptions were filled at a drug store in this city. The issuance of prescriptions in which a physician prescribes remedies he deems appropriate for ailments or diseases is practicing medicine. But the question here was, Where was the practice, in issuing such prescriptions, carried on? It would seem that, if patients went to the plaintiff's office in the other city and consulted him and were examined, treated or received prescriptions there, such acts on the part of the plaintiff would constitute practicing of medicine in the other city, even though the patients in question may have resided in or around the city of his first location and have taken such prescriptions to the latter place, where they were filled. But if the prescriptions were issued under such circumstances as that, either the giving of the prescriptions, or the consultations with or examination of the patients to whom they were given, could be said to have been consummated in or around the city of his first location, then such practice was not in the other city, but within the territory of the contract.

Society Proceedings

COMING MEETINGS

Colorado Congress of Ophthalmology and Oto-Laryngology, Denver, July 28-29. Drs. M. D. Brown and J. M. Shields, Metropolitan Bldg., Denver, Secretary.

Idaho State Medical Association, Wallace, July 10-11. Dr. E. E. Laubaugh, Overland Bldg., Boise, Secretary.

Montana, Medical Association of, Great Falls, July 12-13. Dr. E. G. Balsam, 222 Hart-Albin Bldg., Billings, Secretary.

Utah State Medical Association. Salt Lake City, Aug. 31-Sept. 2. Dr. W. L. Rich, Boston Bldg., Salt Lake City, Secretary.

SOUTH DAKOTA STATE MEDICAL ASSOCIATION

Forty-First Annual Session, held at Huron, May 16-18, 1922

The President, DR. G. S. ADAMS, Yankton, in the Chair

Syphilis in General Practice

DR. A. A. MCLAURIN, Pierre: The spirochete has invaded the lymph and blood streams before the primary lesion develops. Any lesion of the external genitalia, regardless of its appearance or duration, should be considered syphilitic until proved otherwise. Caustics applied to these lesions delay the diagnosis and expose the patient to unnecessary danger.

Practical Suggestions in Diagnosis and Treatment of Pulmonary Tuberculosis

DR. F. W. WITTICH, Minneapolis: The patient should rest for half an hour before and after meals; should take the temperature and pulse before arising in the morning, or, if remaining in bed, at 7:30 a. m. and at 4 and 8 p. m., and should remain in bed for at least six weeks or until the temperature and pulse are normal and there is a gain in weight. Before taking exercise by walking, he should commence activities by going to the evening meal. If the temperature remains normal at 8 p. m., he should go to two meals and finally to all three. If there is a rise, he is exceeding his exercise and must remain in bed until it remains normal for three days. Before walking exercises are begun, he should try to dress himself, try sitting in a reclining chair out doors as much as possible, and going to meals. After doing this for several days without increase in cough or expectoration, and temperature and pulse, he should begin to take fifteen minute walks in the middle of the forenoon. He should return to bed or recline in the chair and take the temperature and pulse at once, rest for half an hour, and take them again. If they are above normal, it means that he is exceeding his exercise. He should be weighed each week, if possible, when on exercise. Between the walking exercises he should remain in the open as much as the weather will permit. He should go to bed every afternoon after lunch until 4 o'clock. Lunches consisting of a glass of milk, buttermilk, malted milk and crackers may be taken at 10:30 a. m. and 4 p. m. The voice should be rested as much as possible, also the lungs, by avoiding long conversations. When the voice is hoarse and the throat sore, he should whisper. He should be in bed with the lights out at 9 p. m. The patient should try to avoid crocheting, letter writing, and even reading for at least an hour after the noon meal. The cough should be controlled as much as possible, and gauze or a paper napkin held in front of the mouth when coughing. These should be placed in a paper bag pinned to the mattress at the head of the bed, and burned each day. The dishes should be washed and scalded separately.

Relation of Laboratory to Clinical Medicine

DR. J. C. OHLMACHER, Vermilion: A few of the things that make for the ideal in group and hospital practice are: (1) The union of medical men in the various spheres of medical activity, whose paramount interests concern the welfare of the patient and the scientific and ethical advancement of their profession. (2) Thorough and up-to-date equipment in clinic and wards. (3) An up-to-date library. (4) Holding weekly or semiweekly conferences, at which cases may be discussed, and topics of interest concerning new scientific medical advancements considered. (5) Encouragement of clinical and laboratory investigations. (6) Establishment of a completely equipped laboratory where all the usual routine and the newer methods of laboratory diagnosis and original research may be carried on under the supervision of a competent pathologist. (7) Recording and filing of case histories, including clinical findings, laboratory findings, treatment, necropsy findings, etc., and the publication of papers in reference to cases of special interest, and articles covering clinical and laboratory research or the publication of a yearly or biennial bulletin containing matters of interest or value to the profession. There is a great need to standardize laboratory methods. Those having charge of laboratories should be licensed by some governing agency capable of raising and maintaining the standard of requirements to such a degree as to weed out all incompetents.

Inflammatory Conditions of the Mastoid Process and the Middle Ear

DR. A. A. SORNSEN, Aberdeen: There are two common forms of acute middle ear inflammation, in both of which the subjective symptoms may be identical and the indications for treatment very similar. The first is that known as acute catarrhal otitis media, generally related to such affections as rhinitis and influenza; to septic hypertrophied adenoid tissue in the nasopharyngeal vault, or to the presence of certain micro-organisms, being commonly an extension of a nasopharyngeal infection through the eustachian tube, and capable of assuming a subacute or even chronic form. A second form is acute purulent or suppurative otitis media, which is always of bacterial origin, often resulting from the entrance of such organisms as the pneumococcus, staphylococcus, streptococcus or influenza bacillus into the tympanic cavity by way of the eustachian tube, where they produce inflammation. Such micro-organisms are often associated with such a general systemic infection as pneumonia or typhoid, or may result from a tonsillitis or septic nasopharyngitis.

Recent Developments in Radiotherapy

DR. R. F. BELLAIRE, Sioux City, Iowa: Surgery should take precedence over all other forms of treatment unless the case is inoperable: then surgery is secondary to the roentgen ray or to radium. Deep therapy with the roentgen ray is in a very vital period of transition. To kill deep seated growths it is absolutely essential to introduce into the deep structures a 100 per cent. dose. The ratio between the skin and depth dose must be about equal. In certain forms of sarcoma the ratio may be as low as 60 or 80 per cent. of the total skin dose. For the production of deep lethal doses, tremendously high voltages must be utilized. Of all the factors concerned, high voltage is the most indispensable, because voltage determines the force with which the rays are projected into the tissues. The higher the voltage, the shorter the wave length; the shorter the wave length, the greater the velocity of the rays. If, therefore, sufficient voltage can be generated for the introduction into the deep parts of lethal doses without destroying the overlying skin, we shall have advanced tremendously toward the solution of the cancer problem.

Complications of Prostatectomy

DR. FRANKLIN R. WRIGHT, Minneapolis: Complications of prostatectomy naturally divide themselves into three groups: those which occur at the operation, those which occur immediately following operation, and those which take place during the healing process. Those which occur at the time of the operation are the accidental opening of the peritoneum, and hemorrhage. This accident is not of serious nature. Hemorrhage at the time of operation may be anything from a slight loss of blood to one which threatens the patient's life. Troublesome hemorrhage may come from the edge of the bladder mucous membrane where, during the enucleation, the urethral mucous membrane was torn from it, or may come as a general oozing from the surface of the cavity from which the tumor was enucleated. Neither of these two forms is serious. The third form of hemorrhage is of serious nature. If, in attempting to enucleate the tumor from the prostate, the prostatic sheath is torn, a venous plexus is torn, and the hemorrhage is alarming. The prognosis in these cases is not good. We can control hemorrhage; but as virtually all these bladders are septic, the clots which form under the packing in the torn veins become septic, and patients die of general sepsis about the fifth or sixth day. Complications immediately following operation are uremia, reflex conditions and infections.

Pathogenic Ptosis of Right Colon

Dr. E. P. Quain, Bismarck, N. D.: Coloptosis is a very common anatomic abnormality. Comparatively few coloptotic patients suffer serious symptoms. Some of the effects of coloptosis are translated to other abdominal organs which may then give rise to a new set of symptoms based entirely on the complication, and obscuring the original and chief cause. Medical treatment gives relief in most cases and should be given thorough trial in all cases, but its ability to cure is doubtful in any case. Surgical treatment is as successful in these lesions as in many other so-called surgical diseases and promises better results as experience accumulates.

Pyuria in Infancy and Childhood

Dr. Henry F. Helmholz, Rochester, Minn.: I use the term pyuria rather than pyelocystitis or pyelitis because often pyuria is the only diagnosis permissible from the symptoms and physical findings. The pus may be obtained from the vagina, urethra, bladder, ureters, pelvis or substance of the kidneys. Catheterization merely discloses the presence or absence of inflammation in the bladder or urinary tract above. It seems hardly justifiable, in view of the relatively benign course of most infections of the bladder and kidneys, to make general use of ureteral catheterization in infants and children. Occasionally the tuberculosis bacillus alone may give rise to pyuria, although in the majority of cases the colon bacillus is present as a secondary invader. Sometimes cases are observed in which the cultures are sterile and the possibility of a tuberculous infection can be excluded by stains, cultures and animal inoculation, even though there are large amounts of pus in the urine. Pyuria may be part of a general pyemic process with numerous abscesses in the cortex or medulla of the kidneys. Sometimes these abscesses occur only in the kidneys and give rise to a severe type of pyuria, closely resembling pyelitis and to be distinguished from it only at necropsy. Pyuria is virtually always produced by hematogenous infection localizing in the renal cortex and forming abscesses which, on draining into the pelvis, may set up pyelitis. A second type of renal involvement is that secondary to the usual pyelitis which, after running a rather chronic course, suddenly becomes extremely acute. The process is a pyelonephritis without abscess formation resulting in a complete shut-down of the kidney. A third type of disease of the kidney is that associated with the damming back of the urinary flow due to obstruction from any cause, and a localized breakdown of the substance of the kidney into multiple abscesses. A fourth type of involvement is ordinary primary pyelitis, which unquestionably is very much more common among girls. A fifth type is pyuria secondary to infections other than those in the urinary tract, following tonsillitis, bronchitis, otitis and other pyogenic infections. This type, usually recognized only by examination of the urine, there being practically no symptoms pointing to involvement of the urinary tract and increased temperature, if present, is assumed to be due to the primary infection. Water is the most important single item in all treatment. For infants 1 year old fluid intake should reach from 1½ to 2 quarts every twenty-four hours. If necessary, fluids may be given by rectum, or by intraperitoneal, subcutaneous and intravenous injection. Infants may also be given sodium citrate and sodium bicarbonate, 60 grains in twenty-four hours; the dose may be doubled every forty-eight hours until the urine becomes alkaline. In certain cases hexamethylenamin and acid sodium phosphate may be used. Local treatment by ureteral catheterization and pelvic lavage may be tried as a means of last resort.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

June 8, 1922, **186**, No. 23

Decreasing Diabetic Mortality: Increasing Incidence of Glycosuria. E. P. Joslin, Boston.—p. 761.
*Divided Meals for Severe Diabetics. H. Gray, Boston.—p. 763.
*Advantage of Multiple Meals in Treatment of Severe Diabetes. T. Murayama, Boston.—p. 768.

Divided Meals in Diabetes.—The theory of divided meals appears to be activation of the liver or pancreas by a small, preliminary meal of carbohydrate given one or two hours before each main meal; the organism being then in action at the time of that regular meal responds to the food load more vigorously than with the everyday three meal schedule. The results obtained by Gray indicate that the method does help to lower the blood sugar. The method is, therefore, advocated by him as having practical value.

Multiple Meals in Diabetes.—The experiments described by Murayama suggest that the gratifying result obtained in a severe case of diabetes is ascribed to the giving of six split meals, but it is possible that the lower carbohydrate fat ratio in the divided meal period may have also been a factor. Absolute proof would not be furnished unless the identical diet both in variety and quantity, should be given the same patient as three meals under the same conditions for a definite time. The justification for this paper is rather the fact that such an intractable glycosuria, withstanding many efforts at desugarization, disappeared with the new divided diet.

Illinois Medical Journal, Oak Park

June, 1922, **41**, No. 6

Problem of Medical Parasite. C. E. Humiston, Chicago.—p. 413.
Cholecystitis, Its Influence on Upper Abdominal Pathology. B. B Davis, Omaha, Neb.—p. 417.
Malpractice Suits as They Relate to Medical Profession. C. U. Collins Peoria, Ill.—p. 422.
Surgical Treatment of Gastric and Duodenal Ulcer with End Result of Gastro-Enterostomy. C. A. Stevens, Chicago.—p. 428.
Associated Pathology of Appendicitis. F. D. Moore, Chicago.—p. 431
Practical Perimetry. H. S. Gradle, Chicago.—p. 435.
Schick Test and Control of Diphtheria. R. P. Peairs, Bloomington, Ill —p. 439.
Interpretation of Gastric Symptoms. A. A. Goldsmith, Chicago.—p. 441
Occult Disease of Childhood. J. C. Gittings, Philadelphia.—p. 445.
*Subcutaneous Rupture of Trachea. L. H. Zeuch, Chicago.—p. 451.

Subcutaneous Rupture of Trachea.—To the fifty-three cases recorded in the literature Zeuch adds one case. A boy, aged 7, while playing the game of horseshoes, stumbled over a tricycle lying on its side. His neck struck the pedal and on rising his parents noticed a swelling in his neck, which was rapidly increasing, extending to the face and body. The pain was inconsiderable and no external evidence of injury was discernible. On examination Zeuch noticed a cushion of air two inches thick extending from the head to the thorax abdomen and scrotum. Every inspiration increased the emphysema and the boy was becoming cyanotic and gasping for air. Zeuch made four punctures with a small lance through the skin, anteriorly and posteriorly over the thorax A sizzling sound followed, such as the escape of air causes in a small puncture of an automobile inner tube. At operation a transverse rent was observed between the second and third cartilage completely across, the segments held only by its muscular coat posteriorly. The rent was closed by sutures. The boy recovered.

Johns Hopkins Hospital Bulletin, Baltimore

May, 1922, **33**, No. 375

Evolution of Human Races in Light of Hormone Theory. A. Keith London.—p. 155.
Pharmacologic Action of Epinephrin on Sphincter Pylori of Fetus P. G. Shipley and K. D. Blackfan, Baltimore.—p. 159.
*Occurrence of Anemia in Rats on Deficient Diets. W. M. Hap Baltimore.—p. 163.

*Significance of Influenza Bacilli. A. L. Bloomfield, Baltimore.—p. 172.
*Intercolumnar Tubercle, an Undescribed Area in Anterior Wall of Third Ventricle. T. J. Putnam, Baltimore.—p. 181.
*Pseudomyxoma Peritonei. E. Novak, Baltimore.—p. 182.
*Histamin as an Inflammatory Agent. W. Bloom, Baltimore.—p. 185.
*Treatment of Nonencapsulated Brain Tumors by Extensive Resection of Contiguous Brain Tissue. W. E. Dandy, Baltimore.—p. 188.
II. Diagnosis, Localization and Removal of Tumors of Third Ventricle. W. E. Dandy, Baltimore.—p. 188.
III. Cerebral Ventriculoscopy. W. E. Dandy, Baltimore.—p. 189.
IV. An Operation for Removal of Large Pituitary Tumors. W. E. Dandy, Baltimore.—p. 189.
V. An Operative Procedure for Hydrocephalus. W. E. Dandy, Baltimore.—p. 189.
VI. Diagnosis and Localization of Spinal Cord Tumors. W. E. Dandy, Baltimore.—p. 190.
Spontaneous Labor Occurring Through Obliquely Contracted, Kyphotic, Funnel Pelvis. J. W. Williams, Baltimore.—p. 190.

Anemia on Deficiency Diets.—Happ asserts that well balanced diets, deficient in iron, do not produce anemia in the rat in the first generation, nor do diets consisting solely of cow's milk or milk and bread. Slight anemia may occur in rats of the second generation on these diets. Diets deficient in fat soluble A or water soluble B, although they cause severe nutritional disturbances, do not produce anemia in the rat. Diets so deficient in water soluble B as to produce polyneuritis diminish leukopoietic activity and cause a severe leukopenia with a shift to the right in the Arneth formula. Diets low in an organic substance contained especially in cod liver oil with a low calcium but high phosphorus content, which produce rickets-like changes in the rat, may also produce anemia, provided the animal is kept for a long period on the diet. Animals of the second generation on this diet may also become anemic. This anemia is associated with evidences of increased hematopoietic activity. There is often an enlargement of the spleen. This condition resembles the anemias seen in association with rickets in human beings. A diet low in the organic substance contained in cod liver oil and low in phosphorus with a normal calcium content, a diet that produces severe rickets with great uniformity, does not produce anemia.

Significance of Influenza Bacilli.—The main results of Bloomfield's work may be summarized as follows: In the first place it appears that the general incidence of influenza bacilli in the throats of healthy people has declined greatly since the time of the pandemic, the present figure being comparable to that which existed before the wave of influenza in 1918. Furthermore, there seems to be no striking relationship to the season of the year or to the prevalence of minor respiratory infections. An outstanding feature of the carrier state in the persons observed was its usual relatively brief duration and the absence of evidence in the case of healthy people of localization of influenza bacilli in a localized area of diseased tissue such as the tonsil.

Intercolumnar Tubercle in Third Ventricle.—A structure in the anterior wall of the third ventricle of the mammalian brain is described by Putnam which appears to be analogous in many ways with the well known areae postremae of the fourth ventricle. It is a small prominence, up to one millimeter in diameter, situated between the columns of the fornix, at the level of the upper border of the foramina of Monro, below the juncture of the two lateral choroid plexuses. It is composed of a peculiar loose neuroglia tissue, containing many coarse capillaries, and covered by low ependyma. In the human brain it contains small nerve cells. The adventitia of the capillaries takes up trypan blue and other vital dyes intra vitam. No function can at present be assigned to it. The name intercolumnar tubercle is suggested for this structure.

Pseudomyxoma Peritonei.—In the male, Novak says, pseudomyxoma peritonei nearly always occurs from the rupture of a gelatinous cyst of the appendix. In rare cases it may possibly arise elsewhere, e. g., in the retroperitoneal tissues. In the female this condition may be due either to ovarian or to appendiceal disease. Sometimes both ovary and appendix are affected, and it may be difficult to say which is responsible for the peritoneal involvement. In such cases the chemical nature of the secretion may be valuable evidence.

Histamin Not an Inflammatory Agent.—A number of experiments were performed by Bloom to determine the inflammatory inciting and chemotactic properties of histamin. In none of these experiments did histamin produce an inflammatory reaction more marked than that caused by the control experiments. Histamin is indifferent with respect to chemotaxis in vivo and in vitro.

Treatment of Nonencapsulated Brain Tumors.—Gliomas comprise probably 80 per cent. of brain tumors; they are never encapsulated, some are circumscribed, others infiltrating. The fact that they invariably recurred has rendered operative procedures apparently hopeless. In recent work, however, Dandy and his associates have made trial of careful resection, en masse, of a zone of normal brain tissue with the tumor in the center. They have removed an entire right or left frontal lobe without any observable mental or other after-effect. Whole right temporal or right occipital lobes have been removed with only a contralateral homonomous hemianopsia. In two instances, it has been necessary to resect the right temporal lobe and the occipital lobes. Virtually complete resection of one or two lobes of the cerebral hemispheres has been done in about ten instances, but partial resection of a lobe with the tumor is frequently all that is necessary. The exact amount of brain tissue which must be removed depends on the position, size and character of the tumor. Partial or even complete resection of lobes of the brain entails very little operative risk. The two largest resections were done when the patients were unconscious, and complete recovery followed. Similarly, glioma of the cerebellum can be removed by resecting large portions of the cerebellum. Three times the entire vermis was removed and no symptoms have followed. Two boys, 10 years old, are well and working four years after removal of the tumor together with all of the vermis and about half of each lateral lobe of the cerebellum.

Journal of Bacteriology, Baltimore

May, 1922, 7, No. 3

Cultural Requirements of Bacteria. I. J. H. Mueller New York.—p. 309.
Studies on Cultural Requirements of Bacteria. II. J. H. Mueller, New York.—p. 325.
Method for Counting Number of Fungi in Soil. S. A. Waksman.—p. 339.
Thermophilic Bacteria. I. Aerobic Thermophilic Bacteria from Water. L. E. Morrison and F. T. Tanner, Urbana, Ill.—p. 343.
An Apparatus for Rapid Measurement of Surface Tension. R. G. Green, Univ. of Minn.—p. 367.

Journal of Biological Chemistry, Baltimore

May, 1922, 52, No. 1

Possible Source of Error in Bell-Doisy Method for Determination of Phosphates in Blood Plasma. W. W. Denis and L. von Meysenbug, New Orleans.—p. 1.
*Chemical Changes of Blood Under Influence of Drugs.—1. Ether. H. V. Atkinson and Harold N. Ets, Chicago.—p. 5.
*Occurrence of Creatinin and Creatin in Blood. J. A. Behre and S. R. Benedict, New York City.—p. 11.
Method for Quantitative Estimation of Minute Amounts of Gaseous Oxygen and Its Application to Respiratory Air. H. F. Sheaff, Chicago.—p. 35.
Differential Precipitation of Proteins of Colostrum and Method for Determination of Proteins in Colostrum. P. E. Howe, Princeton.—p. 51.
Metabolism and Respiratory Exchange in Poultry During Vitamin Starvation and Polyneuritis. R. J. Anderson and W. L. Kulp, Geneva, N. Y.—p. 69.
Nitrogen Nutrition of Yeast. F. K. Swoboda, Chicago.—p. 91.
*Chemical Studies of Intestinal Intoxication. 1. Presence and Significance of Histamin in Obstructed Bowel. R. W. Gerard, Chicago.—p. 111.
*Utilization of Calcium and Phosphorus of Vegetables by Man. N. R. Blatherwick and M. L. Long, Santa Barbara, Calif.—p. 125.
Method of Quantitative Determination of Trypsin. Modification of Gross' Method. Sotara Kai, Cincinnati.—p. 133.
Partial Pressure of Oxygen in Blood During Progressively Induced Anoxemia. C. W. Greene, Columbia, Mo., and C. H. Greene, Rochester.—p. 137.
Quantitative Study of Adsorption in Solution and at Interfaces of Sugars, Dextrin, Starch, Gum Arabic and Egg Albumin, and Mechanism of Their Action as Emulsifying Agents. G. L. Clark and W. A. Mann, Nashville.—p. 157.
Action of Muscle Tissue on Fumaric, Maleic, Glutaconic and Malic Acids. H. D. Dakin, Sarborough-on-Hudson, N. Y.—p. 183.

Determination of Fatty Acids (and Cholesterol) in Small Amounts of Blood Plasma. W. R. Bloor, K. F. Pelkan, and D. M. Allen, Berkeley.—p. 191.
Human Digestion Experiments with Raw White of Egg. C. G. L. Wolf, Cambridge, England.—p. 207.
Nutritional Adequacy of Proteins of Chinese and Georgia Velvet Beans with Reference to Amino-Acid Composition. D. B. Jones, A. J. Finks and H. C. Waterman, Washington.—p. 209.
Colorimetric Method for Determination of Small Amounts of Magnesium. F. S. Hammett and E. T. Adams Philadelphia.—p. 211.
New Color Reactions of Cholesterol. L. Kahlenberg, Madison.—p. 217.
Synthesis of *a*-Hydroxyisopentacosanic Acid and Its Bearing on the Structure of Cerebronic Acid. P. A. Levene and F. A. Taylor, New York.—p. 227.
*Antiscorbutic Vitamin. 1. Its Solubility from Desiccated Orange Juice. E. B. Hart, H. Steenbock and S. Lepkovsky, Madison.—p. 241.
Digestibility of Raw Rice, Arrowroot, Canna, Cassava, Taro, Tree-Fern and Potato Starches. C. F. Langworthy and H. J. Deuel, Jr., Washington, D. C.—p. 251.
Method for Determination of Small Amounts of Lactic Acid. S. W. Clausen, St. Louis.—p. 263.
*Mineral Metabolism of Milch Cow. E. B. Forbes, J. A. Schulz, C. H. Hunt, A. R. Winter and R. F. Remler, Wooster, Ohio.—p. 281.
Studies of Uric Acid. 1. Examination of Variables in Folin and Wu Uric Acid Method. G. W. Pucher, Buffalo.—p. 317.
Id. 2. Modification of Folin and Wu Uric Acid Method. G. W. Pucher, Buffalo.—p. 329
A. Saponin from Agave Lechuguilla Torrey. C. O. Jones, L. H. Chernoff and A. Viehoever, Washington, D. C.—p. 335.

Effect of Drugs on Blood Sugar.—Atkinson and Ets found that the blood sugar content during ether administration, also the hydrogen ion value, is raised and the carbon dioxid capacity of the blood plasma decreased. The cause of the rise in the sugar may be related to: (*a*) the increase in the hydrogen ion which corresponds to a decrease in the p_H; and (*b*) the decrease in the carbon dioxid capacity of the blood plasma. The fat decreased during the ether narcosis and then showed an after rise above normal. The cholesterol and lecithin change very little.

Creatin and Creatinin Metabolism.—Any theory of creatin and creatinin metabolism, Behre and Benedict hold, must take into account the fact that creatin circulating in the blood appears to be essentially a waste product. The view proposed by them attempts to do this, and is the only view so far put forward which takes account of the increased blood creatin after impaired kidney function.

Histamin in Obstructed Bowel.—Histamin was found by Gerard in the contents of isolated closed loops of the large or small intestine. The amount varied in different samples; from 2 to 3 mg. of histamin dihydrochlorid per 100 c.c. of fluid being a fair minimum average. A combined histamin derivative is also present in obstruction fluid. Evidence is presented that this is of peptid nature. The sterile secretion of jejunum contains no histamin. Sterile mucosa of the jejunum contains histamin, as does the mucosa of closed loops of the jejunum. Histidin is present in loop fluid and mucosa. Histamin is carried down in heat and acid coagula of loop fluid, and small amounts may be absorbed in the alcohol precipitate from loop fluid.

Calcium and Phosphorus in Vegetables.—Data are presented by Blatherwick and Long, which indicate that calcium and phosphorus derived from vegetables are capable of meeting the maintenance needs of man.

Antiscorbutic Vitamin in Orange Juice.—The antiscorbutic vitamin of desiccated orange juice Hart et al. found to be soluble in 80 and 95 per cent. and absolute ethyl alcohol. It is also soluble in methyl alcohol. The investigations of others show that it is also soluble in water, but these experiments do not exclude the influence on solubility of the salts inherent in the material extracted. This vitamin of desiccated orange juice was found to be insoluble in butyl alcohol as well as in benzene, petroleum ether, acetone, ether, chloroform and ethyl acetate. The behavior of this vitamin toward organic solvents and water indicates that it is not of fat or lipin character.

Mineral Metabolism of Milch Cow.—The results of the investigation reported on by Forbes et al. suggest the desirability of building up extensive mineral reserves in growing heifers by liberal allowance of feeds rich in mineral nutrients, and also the importance of a dry, resting period of adequate length to permit the restoration of all previous nutrient overdrafts, with liberal feeding during this period.

Journal of Immunology, Baltimore

May, 1922, **7**, No. 3

Immunologic Studies on Types of Diphtheria Bacilli. W. H. Park, A. W. Williams and A. G. Mann, New York.—p. 243.
*Relationship of Lipoids and Proteins to Serum Reactions in Tuberculosis. W. R. Hodge and M. F. MacLennan, Toronto.—p. 253.
Toxicity of Acids for Leukocytes, as Indicated by Tropin Reaction. A. C. Evans, Washington, D. C.—p. 271.

Relation of Lipoids and Proteins to Serum Reactions in Tuberculosis.—Evidence is introduced by Hodge and MacLennan which indicates that the fixation bodies in human tuberculous serum are either removed or destroyed by extraction of the dried serum with alcohol, chloroform or ether, and that the substances responsible for the inhibiteur reaction of Calmette are identical with those responsible for the inhibitive reaction of Caulfeild.

Journal of Medical Research Boston

April-May, 1922, **43**, No. 2

Experimental Production of Macrophages in Circulating Blood. M. E. Simpson, San Francisco.—p. 77.
Immunity in Relation to Transplanted Tissue. M. S. Fleisher, St. Louis.—p. 145.
Cultural Stud of Anaeobic Spore-Bearing Bacteria with Strains Isolated by Barber Single Cell Technic. M. C. Kahn, New York.—p. 155.
Adaptive Changes of Heart Muscle. W. D. Collier, Columbia, Mo.—p. 207.

Medicine, Baltimore

May, 1922, **1**, No. 1

Therapeutic Use of Digitalis. G. C. Robinson, Nashville, Tenn.—p. 1.
Treatment of Meningococcus Meningitis. K. D. Blackfan, Baltimore.—p. 139.

Nebraska State Medical Journal, Norfolk

June, 1922, **7**, No. 6

What Surgery Offers in Gallbladder Disease. J. B. Deaver, Philadelphia.—p. 185.
Infections Following or Complicating Tonsillectomy and Adenectomy. E. D. Brooks, Lincoln, Neb.—p. 190.
Field of Operation. R. W. Fouts, Falls City, Neb.—p. 194.
Simulation of Ectopic Pregnancy. C. H. Waters, Omaha, Neb.—p. 196.
Puerperal Sepsis. R. T. Van Meter, Fremont, Neb.—p. 201.
*Anthrax: Report of Case. M. G. Wohl and J. E. Pulver, Omaha, Neb.—p. 202.
Breast Tumors. C. C. Johnson, Lincoln, Neb.—p. 204.

Anthrax After Shaving.—In the case cited by Wohl and Pulver the lesion, situated on the right side of the neck, followed shaving. The diagnosis was confirmed by cover slide preparations, culture and guinea-pig inoculation. The patient was given intramuscular injections of antianthrax serum: 10 c.c. six successive times at four hour intervals. The serum was also injected locally around the lesion. At the end of three weeks, the eschar was removed surgically, and the lesion healed without any complications. The patient made a complete recovery.

New York Medical Journal and Medical Record

June 7, 1922, **115**, No. 11

Malignancies of Colon. J. F. Erdmann and R. F. Carter, New York.—p. 649.
Acute Intestinal Obstruction. A. F. R. Andresen, Brooklyn.—p. 653.
Acute Intussusception. T. T. Thomas, Philadelphia.—p. 656.
Fluoroscopy in Diseases of Abdominal Organs. A. L. Holland, New York.—p. 659.
Symptom Pain in Diagnosis of Appendicitis. P. A. D'Acierno, Weehawken, N. J.—p. 663.
Cause and Prevention of Gastrojejunal and Jejunal Ulcer. A. O. Wilensky, New York.—p. 668.
Dietetic and Treatment Regulations in Gastroduodenal Ulcer. A. Bassler, New York.—p. 670.
Some Difficulties in Diagnosis of Peptic Ulcer. A. W. Hamner, Philadelphia.—p. 672.
Acute Perforation of Gastric and Duodenal Ulcer. A. H. Noehren, Buffalo, N. Y.—p. 674.
Problems and Progress of Gastric Ulcer Surgery. W. Van Hook, Chicago.—p. 678.
Recognition and Treatment of Minor Ailments of Digestive System. M. Einhorn, New York.—p. 681.
*New Technic for Preparation of Bacillus Acidophilus Milk and Its Therapeutic Value. A. A. Eggston and N. P. Norman, New York.—p. 683.
Radiological Diagnosis of Primary Carcinoma of Ascending Colon with Metastasis to Jejunum. I. Glassman, New York.—p. 686.
Chronic Colitis in Neuropsychiatric Cases. J. W. Visher, Twin Falls, Idaho.—p. 688.

Importance of Roentgen Ray Localization of Intestinal Tube. J. Buckstein, New York.—p. 690.
Comparison of Successive Aspirates of Gastric Contents. B. C. Lockwood and H. J. Jacobson, Detroit.—p. 693.
Standardization of Test Meal. V. Knapp, New York.—p. 695.
Fernand Widal. M. W. Thewlis, Paris.—p. 699.

Preparation of Bacillus Acidophilus Milk.—Eggston and Norman claim to have produced a milk that is white in color, of a nonlumpy consistency, with practically no odor and in which they can regulate the fat content to suit the requirements of the patient. The milk can also be made with an acid or slightly sweetish taste. This can be done without altering the bacterial count. The white acidophilus milk is prepared in the following way: One pint of tap water is placed in a liter flask. If one wishes a sweet tasting milk, a heaping tablespoonful of lactose is added to the water, which is then autoclaved for twenty minutes under twenty-five pounds pressure. The water is cooled and a pound tin of unsweetened, evaporated milk is added to the flask, observing sterility. The mixture is inoculated with 10 c.c. of a stock culture of Bacillus acidophilus under aseptic technic, shaken and incubated for twenty-four hours at 99 F. The curd formed will be soft, white and slightly separated from the whey at the top. The flask is shaken to break the curd, refrigerated, and the milk is ready for use. The acidity of the milk is controlled by the incubation period—the longer it incubates the more acid it becomes. The fat content may also be regulated by varying the amount of water or milk.

Ohio State Medical Journal, Columbus

June, 1922, **18**, No. 6

Acute Mastoiditis. S. S. Quittner, Cleveland.—p. 405.
Cardiac Arrhythmias and Their Clinical Recognition. R. S. Morris, Cincinnati.—p. 408.
Medical Service in Industry. C. E. Ford, New York.—p. 412.
Harelip and Cleft Palate. C. M. Clark, Akron.—p. 417.
Stem Pessary. A. F. Spurney and P. M. Spurney, Cleveland.—p. 424.
Local Anesthesia Especially in Tonsillectomies. C. A. Campbell, Steubenville.—p. 426.
Medical Profession. W. Teachnor, Columbus.—p. 429.

Pennsylvania Medical Journal, Harrisburg

June, 1922, **25**, No. 9

*Surgical Treatment of Cancer of Large Intestine. G. W. Crile, Cleveland.—p. 599.
*Practitioner's Part in Acquiring Knowledge Necessary for Intelligent Interpretation of Atypical Wassermann Reactions. S. R. Haythorn, Pittsburgh.—p. 602.
Cytology of Cerebrospinal Fluid. J. H. Whitcraft, Wilkinsburg.—p. 606.
*Urea Concentration Test for Kidney Function. E. Weiss, Philadelphia.—p. 607.
*Moss-Agate Tracheal Sputum. C. Jackson, Philadelphia.—p. 613.
Spasmophilia. J. M. Higgins, Sayre.—p. 616.
Mental Side of Thyroid Hyperthyroidism. M. H. Weinberg, Pittsburgh.—p. 618.
*Circulatory Efficiency in Cardiac Disease. C. C. Wolferth, Philadelphia.—p. 624.
Case of Mercuric Chlorid Poisoning. A. Ellsworth, Warren.—p. 629.
Prevention of Mental Disease. A. Gordon, Philadelphia.—p. 630.

Mortality of Resection of Cancer of Colon.—The mortality rate for resection of the large intestine for carcinoma, which has ranged from 15 to 45 per cent., Crile shows has been reduced to 2 plus per cent. and cases hitherto considered inoperable have been brought within the range of operability.

Value of Wassermann Test.—A correlative review made by Haythorn of the clinical and laboratory records of 6,387 Wassermann tests made under as nearly constant conditions as possible, indicates that the partially positive or atypically test has a place of distinct value in the diagnosis and the control of the treatment of syphilis.

Urea Concentration Test for Kidney Function.—Weiss regards the urea concentration test as a simple and fairly reliable method of determining the efficiency of the kidney, but, notwithstanding certain theoretic advantages which it possesses over other methods, practically it is not ideal and should, therefore, be considered a useful adjunct test to be employed in conjunction with other methods, the whole being weighed with the clinical data in an evaluation of a case of renal disease.

Moss Agate Tracheal Sputum in Chronic Tracheitis.—Moss agate tracheal sputum is the name given by Jackson to a characteristic secretion seen in cases of chronic tracheitis. The characteristics are: (*a*) A gray color. (*b*) A degree of opalescent translucency. (*c*) A dark mottling which gives to the sputum an appearance like a gray moss agate stone. (*d*) A more or less globular form of sputum mass. (*e*) A tough tenacious consistency, sometimes gelatinous. (*f*) A tendency, at times, to be projected from the mouth in coughing. (*g*) A tendency to accumulate in the larynx, whence it is removed by cough or by semicough. (*h*) When it accumulates on the cords it often causes diplophonia by creating temporary nodal points. (*i*) A scantiness in quantity as compared to the sputum of most bronchial and pulmonary diseases.

Circulatory Efficiency in Cardiac Disease.—Wolferth asserts that to evaluate the cardiac function, it is necessary to consider how efficiently the circulation performs under the stresses of everyday life as well as special loads. The possible effects of disease outside the heart which may influence circulatory function must be weighed. It may be misleading to form an opinion of cardiac function based on a single type of test, or worse still, on only one of the reactions to such a test. In the absence of a satisfactory test, all the available data must be taken into account.

Porto Rico Medical Association Bulletin, San Juan

April 30, 1922, **16**, No. 136

*Serodiagnosis of Sprue. I. González Martinez.—p. 51.
Medical Sciences in Porto Rico. Opening Address. M. Quevedo Baez.—p. 58.
*The Endocrine Glands in Tropical Pathology. L. García de Quevedo.—p. 65.
Appendicitis and Sondern's Line of Resistance. R. del Valle Sárraga.—p. 73.

Laboratory Methods in the Diagnosis of Chronic Tropical Diarrhea.—González Martínez describes the characteristics of the causal micro-organism, the fixation of complement test and its importance and reliability in differential diagnosis, and the brilliant success of vaccine therapy. Few diseases have such a solid basis of established facts, microbiologic, experimental, serologic and therapeutic, which have been accumulated at the Porto Rico Hygiene and Tropical Medicine Institute by González Martínez, C. Michel and B. K. Ashford. The causal micro-organism has been named *Parasaccharomyces ashfordi.*

Endocrine Glands and Tropical Pathology.—García de Quevedo remarks that well defined diseases of endocrine origin, such as Addison's disease, exophthalmic goiter, acromegaly, etc., are rare in Porto Rico. On the other hand, abnormal functioning of endocrine glands is a frequent confusing element in tropical pathology. Giantism is rare in Porto Rico, but dwarf growth is frequent. Among the 17,000 drafted men examined for the World War, very few were over 5 feet 10 inches, and many failed to reach the army minimum of 5 feet 4 inches.

South Carolina Medical Association Journal, Greenville

May, 1922, **18**, No. 5

Symptomatology and Treatment of Certain Types of Chronic Infectious Arthritis. E. S. Cross, Baltimore.—p. 120.
Perirenal Abscess with Case Reports. J. H. Taylor, Columbia, S. C.—p. 128.
Ureteral Obstruction. L. J. Ravenel, Florence, S. C.—p. 134.

Tennessee State Medical Association Journal, Nashville

May, 1922, **15**, No. 1

Value of Necropsies. B. T. Terry, Nashville.—p. 39.

West Virginia Medical Journal, Huntington

April, 1922, **16**, No. 10

Mental Defectives in West Virginia. L. V. Guthrie.—p. 375.
Case of Hemolytic Streptococcus Septicemia with Some Unusual Clinical Manifestations. G. E. W. Hardy, Baltimore.—p. 382.
Syphilis of Central Nervous System. D. A. MacGregor, Wheeling, W. Va.—p. 384.
What Are You Going to Do About It? E. S. Hamilton, Oak Hill, W. Va.—p. 391.
Management of Nephritis. W. A. Jenkins, Louisville, Ky.—p. 395.

Wisconsin Medical Journal, Milwaukee

May, 1922, **20**, No. 12

Symposium on Cancer. P. H. McGovern, C. H. Banting, G. V. I. Brown, J. L. Yates, J. P. McMahon, et al., Milwaukee.—p. 599.
Endocrine Staff Meeting. A. A. Skemp, La Crosse.—p. 621.
Value of Radium in Treatment of Malignant Neoplasms. R. H. Jackson, Madison.—p. 624.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Medical Hydrology, London

May, 1922, No. 1

Scientific Foundations of Hydrotherapeutics. A. Strasser.—p. 16.
Treatment of Circulatory Trouble by Natural Effervescent Baths. R. Wybauw.—p. 22.
How to Study a Mineral Water at the Present Time. A. Chassevant and P. Ferreyrolles.—p. 25.
Modern Spectroscopy as Applied to Study of Natural Waters. S. Judd Lewis.—p. 33.
Physiologic Investigation of Medical Water. W. Bain.—p. 36.
Spas and "Modern Treatment" of Diabetes. G. Monod.—p. 37.

British Medical Journal, London

May 27, 1922, **1**, No. 3204

*Diagnosis of Hysteria. H. Head.—p. 827.
Three Years of Pelvic Surgery. W. E. Fothergill.—p. 830.
Some Common Defects of Diet and Their Pathologic Significance. E. Mellanby.—p. 831.
Interstitial Gland. L. Williams.—p. 833.
Peptone Treatment. A. G. Auld.—p. 835.
Case of Nonrheumatic Aortic Stenosis in Young Subject. W. Gordon. —p. 836.
Observations on Two and Half Years' Antenatal Work. M. E. Weston. —p. 837.
Axis of Astigmatism and Its Location. J. Keyms.—p. 838.
Fracture in Osteitis Deformans. J. A. Smith.—p. 838.
Fracture of Terminal Phalanx of Finger. C. V. Braimbridge.—p. 838.
Hemorrhagic Colitis. L. E. C. Norbury.—p. 839.
Elephantiasis of Labium. R. W. Mendelson.—p. 839.

Diagnosis of Hysteria.—Speaking of the treatment of hysteria, Head says: If possible, the patient should be removed from the usual surroundings and new influences brought to bear. An attempt should be made to switch the dissociated part into the continuity of the patient's mental life. Every form of persuasion should be exercised to convince the patient that he is able to carry out the action he is convinced to be impossible. Never bully him or accuse him of dishonesty. No one is a greater failure than the medical officer who wishes all hysterics could be shot at dawn. On the other hand, the firm diplomatist with subtle and demonstrable reasons why the patient can stand, walk, or feel, often produces miraculous cures. But it must never be forgotten that in a large number of cases, especially in civil life, removal of hysterical symptoms is only a prelude to the discovery of an anxiety neurosis. The causes for the suppressed emotion must be investigated, or the patient may be left in an even worse condition than that in which he was found. Do the patient no harm by antitherapeutic suggestion; carefully prune conversation, and do not think the diagnosis aloud. Avoid such words as "neuritis." Some diagnoses, such as "floating kidney," are more deadly than the disease. Avoid thinking in terms of surgery when dealing with functional neuroses. At the same time the most brilliant conversation is useless with an hysteric.

National Medical Journal of China, Shanghai

March, 1922, **8**, No. 1

*Trachoma in China. T. M. Li.—p. 1.
Present Status of Cancer Problem. J. H. Liu.—p. 11.
Bacteriologic Diagnosis of Cholera. E. T. H. Tsen.—p. 22.
Present Day Dietary Standards. B. E. Read.—p. 35.
*Importance of Adopting a Uniform Medical Nomenclature. C. V. Yui. —p. 43.
Case of Ovarian Cyst. J. W. H. Chun.—p. 45.

Trachoma in China.—Li says that trachoma is undoubtedly the greatest single cause of the economic losses that are occurring in China today, but it is appalling to find that so much apathy exists concerning a disease which has made millions of people blind and several times that many nearly blind.

Uniform Medical Nomenclature in China.—Yui reports briefly on the work done thus far by the Scientific Terminology Association. The association has been working for seven years on terminology with the result that 10,000 terms are fixed. It has the selected terms of old or Japanese translations, and modifications are made if necessary. Yui insists that China should have a medical literature of her own. She cannot indefinitely depend on foreign languages for instruction. Medical science, if taught in Chinese, can permeate the whole of China more quickly and with much greater ease, but only the approved terms should be used; hence the importance of adopting a uniform medical nomenclature.

Glasgow Medical Journal

May, 1922, **97**, No. 5

Laceration of Cervix Involving Lower Uterine Segment and Fornix. R. A. Lennie.—p. 257.
Tay-Sachs' Disease: Symptomatology and Pathology of Three Atypical Cases. H. W. Torrance.—p. 263.
*Herpes and Varicella. W. M. Elliott.—p. 274.
*Unusual Case of Extraperitoneal Abdominal Pregnancy. D. M. Lindsay.—p. 277.

Herpes and Varicella.—Out of nine cases of herpes occurring in wards in charge of Elliott, outbreaks of chickenpox followed in five, all within the acknowledged incubation period of the disease, and in none of the outbreaks was any source discoverable—that is to say, no other cases of chickenpox, either actual or suspicious, had occurred in the ward, and all the patients attacked had been in the ward for a time much over the incubation period. In two of the nine cases there appears to be considerable doubt as to the diagnosis of a septic condition or impetigo. If these two cases are discarded, there emerges the rather striking fact that out of seven occasions on which the patient in a ward developed herpes zoster, unexplainable chickenpox followed in five.

Extraperitoneal Abdominal Pregnancy.—Lindsay cites the case of a woman of 31, who complained of "pains back and front" and stated that her "waters had broken," Dec. 31, 1919. Inquiry revealed that her menstrual periods were regular and painless, and that she had menstruated regularly and normally until June 10, 1919. The breasts were enlarged, the nipples pigmented, and secretion could readily be expressed. The abdomen was prominent, the abdominal muscles somewhat taut, and there was a readily palpable mass of the size and consistence and in the position of a four months' pregnant uterus. Fetal parts or movements were not palpable, and the patient herself had not been conscious of fetal movement. Careful auscultation failed to discover sounds of a fetal heart. Pieces of decidua were passed and fever developed, irregular, but reaching 104 F. February 13 an incision was made in the convex right fornix, releasing a great quantity of foul smelling, brownish, pus streaked fluid. Much green gray membranous débris, fetal skeletal parts, and decomposing fetal soft parts were removed piecemeal with ovum forceps. Calculated from the size of the femora and humeri, Lindsay says the fetus must have been between the fifth and sixth month of intra-uterine life. The pus contained streptococci and coliform bacilli, also a gram-positive bacillus showing terminal spore formation. March 22 a further operation was deemed necessary. The urethra was dilated, and more osseous remains were removed from the bladder. Despite all efforts at stimulation the patient died. There was in this case absence of a history of acute abdominal pain, even of discomfort or of hemorrhage. Lindsay says the formation of the vesical fistula prior to operative intervention seems new.

International Journal of Psycho-Analysis, London and Vienna

March, 1922, **3**, No. 1

Manifestations of Female Castration Complex. K. Abraham.—p. 1.
Pleasure in Sleep and Disturbed Capacity for Sleep. M. J. Eisler.—p. 30.
A Few "Don'ts" for Beginners in Technic of Psycho-Analysis. E. M. Cole.—p. 43.
Symbolism of Appendicitis. W. H. B. Stoddart.—p. 45.
Simple Lapsus Linguae. C. D. Daly.—p. 46.
Unconscious Root of Aesthetic Taste. S. Herbert.—p. 47.
Spermatozoa Phantasy of an Epileptic. F. P. Muller.—p. 50.

Japan Medical World, Tokyo

May 15, 1922, **2**, No. 5

Syphilitic Serum Reactions. K. Tacka.—p. 126.
*Etiology of Beriberi. K. Ohomori, M.D., Y. Ohhashi, H. Nakanichi, M. Hara, and T. Ota.—p. 128.
*Experimental Polished Rice Diseases in Human. K. Taguchi, S. Hiraishi and F. Kwa.—p. 133.

Etiology of Beriberi.—Ohomori and his associates performed experiments which show that beriberi is produced in healthy men when they take food deficient in vitamin B. Thus it is clearly established that beriberi is avitaminosis. Therefore, without changing the diet, it may be cured by supplying vitamin B.

Beriberi and Human Polished Rice Disease.—The beriberi and human polished rice diseases, according to Taguchi et al., are not absolutely the same or identical diseases. But from the clinical side the human polished rice disease cannot be distinguished from beriberi. If polished rice disease can be considered as avitaminosis the human experiments of polished rice disease give a considerable weight to the theory that beriberi is due to lack of vitamin B.

Journal of Neurology and Psychopathology, Bristol

May, 1922, **3**, No. 9

*Causalgia and Allied Painful Conditions Due to Lesions of Peripheral Nerves. H. S. Carter.—p. 1.
Inhibition and Excitation in Central Nervous System. T. G. Brown.—p. 39.
*Psychopathology and Theory of Psychopathic (Germinal) Inheritance. I. D. Suttie.—p. 42.
*Treatment of Spastic Paralysis. R. G. Gordon.—p. 47.
Erythromelalgia, Causalgia and Allied Conditions. S. Kelly.—p. 55.

Etiology of Causalgia.—The fundamental lesion in causalgia and allied conditions, Carter says, is one of intraneural and perineural sclerosis, and the irritation thus set up of fibers at the site of injury to the nerve causes perverted afferent impulses to be sent back to the cord, and possibly further to the subcortical and cortical centers, and thence efferent responses of vasodilator, secretory, and trophic natures are reflected to the peripheral distribution of the nerve, where reaction on the end organs and sensory corpuscles in this area is interpreted as pain. The reason why lesions of this type of the median nerve and internal popliteal fibers produce a true causalgia in some cases, pain of less severity in others, and in the remainder nothing but the discomfort of partial sensory loss, is difficult to answer. It is improbable that inflammatory reaction to different groups of organisms provides a solution. It hardly seems possible that irritation of a special group of fibers is the cause, for causalgia is rare, and it is not within the range of probability that such fibers should be so seldom involved. The most that can be said is that there is some peculiarity in the trauma of the nerve in these few cases, which causes disturbance of those cells in the brain whose function it is to interpret pain. By resection of the irritated and sclerosed portion of nerve, the source of the perverted impulses is removed and the pain vanishes; and by restoring the continuity of the nerve, the path for normal impulses is remade and gradually recovers its conductivity as the nerve regenerates. Details of twenty-four cases are given.

Theory of Psychopathic Inheritance.—Suttie attempts to show that the neuropathologic theory of mental disease is associated with the hypothesis of its hereditary transmission. He thinks even that the two lend each other "moral" as well as logical support. He also indicates that the crucial test of the ultimate validity of psychopathologic interpretation is its ability to account for high familial incidence of the disease-form to which it is applied. To hazard a tentative judgment on these lines, while presuming an agreement on the evidence, it might be said that as certain mental syndromes have no typical or integrated psychic aspect, but have, on the other hand, a demonstrably organic basis, it must be inferred that any hereditary relation is physical, and mutatis mutandis where no neural lesion or abnormality is discoverable. Thus mental defect is heritable; the psychoses are questionably so, with the exception of paranoia, which with the minor and anomalous neuroses are probably acquired.

Treatment of Spastic Paralysis.—In cases of spastic paraplegia muscles are already hypertonic, and further stimulation by electricity or massage, as usually given, will increase their tone and make matters worse. A very important point in the treatment of spastic cases according to Gordon is, by the use of proper splints, to prevent the weaker muscles being stretched and rendered atonic. Contractures are the result of neglecting to apply a light celluloid splint or a leather gaiter. So far as active treatment is concerned, it is essential to attempt to induce relaxation of the hypertonic muscles and encourage the action of their opponents.

Journal of State Medicine, London

May, 1922, **30**, No. 5

Industrial Colonies and Village Settlements for Consumptive. P. C. Varrier-Jones.—p. 185.
Surgical Tuberculosis in Children. C. E. M. Jones.—p. 192.
Clinical Differences in Course of Tuberculosis Seen in Various Age-Groups and Races. S. L. Cummins.—p. 203.
Organization and Conduct of Tuberculosis Dispensary Work. W. H. Dickinson.—p. 208.
Helio-Alpine Treatment of Surgical Tuberculosis. A. J. Morland.—p. 210.

Journal of Tropical Medicine and Hygiene, London

May 1, 1922, **25**, No. 9

Dengue vs. Malaria. R. E. I. Johnson.—p. 111.
*Emetin Treatment for Bilharzia Disease. F. G. Cawston.—p. 112.
Aphiochaeta Xanthina, Speiser (A. Ferruginea, Brun) as an Intestinal Parasite in Gold Coast. A. Ingram.—p. 113.

Emetin in Bilharziasis.—An experience with more than 300 injections of emetin hydrochlorid given to patients whose urine contained the ova of *Schistosoma hematobium*, *S. mansoni*, and ova resembling those of *S. bovis*, Cawston says, shows that when the doses are given skilfully and regulated properly, this method of treating bilharzia disease is free from undesirable toxic effect, and is permanently successful in eradicating the infection. Nevertheless, in view of the difficulty in determining slight cardiac depression due to the large doses required by adults, the emetin treatment should be confined to children and young persons, and careful attention paid to the rate of the pulse throughout. Provided undue exertion is avoided, there is no reason for the patient to be treated as a bed patient, and moderate exercise is useful in determining when the highest dose the patient can comfortably tolerate is reached.

Lancet, London

May 27, 1922, **1**, No. 5152

*Alimentary Toxemia in Nervous Disorders. T. Thompson.—p. 1031.
*Syphilis in General Practice. D'A. Power.—p. 1035.
*Relation of Thyroid to Female Pelvic Organs. C. M. Wilson and A. W. Bourne.—p. 1038.
*Prognosis in Diabetes Mellitus. D. M. Lyon.—p. 1043.
*Case of Subclavian Aneurysm with Cervical Ribs. C. A. Moore.—p. 1045.
Blood Supply of Dentate Nucleus of Cerebellum. J. L. Shellshear.—p. 1045.
*Focal Tenderness in Diagnosis of Gastric Ulcer. G. Vilvandré.—p. 1047.
Association of Failure of Accommodation with Sore-Throat. L. McMillan.—p. 1048.

Alimentary Toxemia in Nervous Disorders.—To prevent the nervous complications of this condition and to avoid infection from the alimentary tract, Thompson states that it is essential first of all to attend to the hygiene of the mouth and associated cavities. Regular daily evacuation of the bowels is essential in the majority of people. The relation of food ingested to alimentary toxemia is very important. The ingestion of large quantities of meat tends to produce excessive fermentation in the intestine. The ingestion of carbohydrates, especially sugar, favors certain forms of intestinal putrefaction. It is probable that diminution of the total bulk of the food is of most value in reducing alimentary toxemia. Most people eat far too much and might with advantage make a very considerable diminution in the total amount of food eaten. The preparation of food is also most important; all salads and uncooked vegetables should be washed carefully and prepared before being eaten. Milk is a potent source of infection of the alimentary tract, and the utmost endeavor should be made to obtain a pure milk supply. The methods which have been adopted of modifying bacterial contents of the intestine are important. The giving of vaccines prepared from the *Bacillus coli* and streptococcus normally found in the feces is strongly condemned. If abnormal organisms are found in the feces and definite signs of intestinal poisoning are present, giving a vaccine made from such abnormal microbes is occasionally followed by good results. The introduction of lactic acid bacilli into the intestine with a view to diminishing intestinal fermentation has had a long and persistent trial with results not as successful as was at one time hoped. Intestinal disinfectants are certainly of use in many cases. These may be divided into mercurial preparations, salicylate preparations, and phenol derivatives. Of the mercurial preparations, calomel is the most effective, and is best given in small doses of 1/10 grain. Of the salicylate preparations, sodium salicylate and phenyl salicylate have proved of value. The taking of copious amounts of fluids also seems to have a good effect in cases of alimentary toxemia. Lavage of the large intestine has also been of considerable help.

Syphilis in General Practice.—Power discusses mistakes due to (1) the unlikelihood of infection owing to the social position of the patient or the unusual mode of infection; (2) prolonged latency of symptoms generally in connection with inherited syphilis, as in cases where the patient has no stigmata, has married, and has had healthy children; or, in the acquired disease, where very many years have elapsed since the patient had any signs. Under both conditions increasing age or slight injury appears to be the determining cause of the syphilitic manifestation. (3) The modifying effect of syphilis on other forms of infective inflammation, whether it be tuberculous, phagedenic, streptococcal or staphylococcal. The conclusion arrived at is that syphilis affects a sufficiently large number of the population to make it worth while to bear in mind the possibility of a spirochetal factor in many of the obscure and chronic inflammations which do not respond to the ordinary methods of treatment.

Basal Metabolism in Pregnancy.—Wilson and Bourne point out that the basal metabolic rate is in the majority of pregnant women, but not in all, raised above that normally found in the nonpregnant woman. The basal metabolic rate of different pregnant women at corresponding periods of gestation varies considerably, but they have not found it possible to trace any relation between these variations in the rate and the clinical condition of the mother. In some patients, probably the majority, the rise in the basal metabolic rate disappears after delivery, but in a certain number of cases the high rate of pregnancy does not subside after the puerperium, but abnormally persists. The suggestion is put forward that in some of the latter cases the excessive thyroid secretion gives rise to a menorrhagia without pelvic signs. Additional evidence that a high basal metabolic rate is associated with certain forms of menorrhagia is furnished by a group of cases to which the label functional menorrhagia is attached, to draw attention to the absence of any demonstrable pelvic abnormality. The cases comprising this group are resistant to all ordinary medicinal and operative measures, but respond readily when the thyroid gland is exposed to roentgen rays. The disappearance of pelvic symptoms is coincident with a fall to the normal of the basal metabolic rate.

Prognosis in Diabetes Mellitus.—Before treatment is begun a valuable index of the gravity of the disease, Lyon states, is the degree and rapidity of body-wasting that has taken place. For practical purposes the best guide to the severity of the condition is the total amount of glucose lost each day in the urine, but this sign, like nearly all others, fails to distinguish between temporary and permanent damage. Laboratory tests show that in cases of diabetes a degree of hyperglycemia may still be present even when sugar no longer appears in the urine. Mere estimations of the gravity of the disease when the patient is first seen give no sure guide to the future, since some cases, apparently severe, do much better than others whose signs are less marked. It is therefore recommended that no definite prognosis be given until the character of the patient's response to treatment has been studied.

Subclavian Aneurysm with Cervical Rib.—The aneurysm in Moore's case sprang from the front of the artery and not from the part in contact with the rib. The presence of a normal radial pulse seemed to indicate that there was no compression of the artery. It turned out to be a saccular diverticulum of the size of a cherry, springing from the front of the third part of the artery—itself apparently normal in other respects. The wall was thin and the sac could be emptied by compressing it. A kangaroo-tendon ligature was placed on either side of the sac. The operation was straightforward throughout and almost bloodless. Next day the arm was normal, except for absence of the radial pulse. The circulation differed in no other respect from that of the opposite side and all movements were unimpaired. There was a little surgical emphysema of the right chest and face, but none of the left side, and no clinical signs of pneumothorax. Recovery was uneventful. The radial pulse began to reappear on the fourth day, and the aneurysm could be felt, but no longer seen, as a firm nonpulsating mass.

Focal Tenderness in Gastric Ulcer.—By palpating with one finger along the whole of the lesser curvature, from a point nearly as high as the cardia, starting from the infrachondral margin down as far as the pylorus, a test is applied in the roentgen-ray diagnosis of gastric ulcer which, in Vilvandré's experience, is of great value. He terms it focal tenderness. Palpation similarly applied along other points of the small curvature elicits no response. The more intelligent the patient, the more rapid and definite the response.

Archives des Maladies de l'App. Digestif, Paris

May, 1922, **12**, No. 3

*Diverticulum of Esophagus. R. Bensaude, R. Grégoire and G. Guénaux.—p. 145.
*Tests for Occult Hemorrhage. L. Pron.—p. 204.

Diverticulum of Esophagus.—This profusely illustrated study of diverticuli at the entrance to the esophagus is based on six operative cases. While the diverticulum is forming, some slight disturbance in swallowing is usually noted, and signs of irritation in the pharynx, a tickling and dryness, profuse flow of saliva, the hawking up of thick mucus, frequent spasmodic coughing, and the sensation of a foreign body arrested in the throat. Nearly all these diverticulum patients had been long taking treatment for the throat, without the least benefit. In a few, the onset of disturbance was sudden, after some trauma to the throat. Radioscopy shows the recess, its filling up from above, the smooth oval outline, and the way in which it follows the movements of swallowing. He prefers to draw the tip of the diverticulum up into the incision, made at the point of greatest protrusion, and resect with the thermocautery, between two clamps, suturing at once. In 109 cases, with all the operative treatment at one sitting, there were twelve deaths; in three there had been septic cellulitis. Suppuration occurred in twenty-three cases but these complications are growing constantly rarer. The esophagus gives a solid suture, and fluid food can be allowed the fourth or fifth day or even earlier. Gross allowed it the next day; Jacobs the second day, and Taylor the fourth.

Test for Occult Hemorrhage in the Digestive Tract.—Pron concludes from his comparative tests of thirteen different methods that only the Boas chloral-alcohol-guaiac method and the modified Adler method are reliable and sufficiently sensitive. The Snapper spectroscopic test is sensitive and specific, but is only a laboratory method. Boas' test is made with 2 c.c. of a 70 per cent. alcoholic solution of chloral, plus 10 drops of acetic acid, the whole agitated several times and allowed to stand for five minutes. The mixture is then poured into a dry glass containing a pinch of freshly and finely pulverized guaiac resin. To this is added 20 drops of 3 per cent. hydrogen peroxid or a pinch of barium peroxid. The modified Adler method is to add a pinch of benzidin to a few cubic centimeters of acetic acid, without heating, and then add the hydrogen peroxid. By thus preparing the benzidin solution fresh each time, and diluting well, the reaction is reliable.

Archives des Maladies du Cœur, Etc., Paris

April, 1922, **15**, No. 4

*Composition of Human Blood. V. Bie and P. Möller.—p. 177.
Action of Quinidin in Auricular Fibrillation. R. Wybauw.—p. 206.
Basophil Granulocytes in Effusions. J. Sabrazès.—p. 214.

Composition of Human Blood.—Among the data compiled by Bie and Möller from their research on ten men and ten women is the finding that there is approximately 2 per cent. more ash in the blood of men than of women. The average number of red corpuscles in normal men ranged from 4,750,000 to 6,333,000, with the extreme limit at 6,500,000. In normal women the range was from 4,000,000 to 4,250,000 and up to 5,250,000, and extreme limit, 5,500,000. Men's blood can absorb more oxygen than women's blood. This is evidently due to the larger proportion of corpuscles.

Archives de Médecine des Enfants, Paris

May, 1922, **25**, No. 5

*Ascites from Inherited Syphilis. M. Acuña and A. Casaubon.—p. 257.
Influenza a Pneumonia. Suzuki.—p. 268. Conc'n. Abst. **78**: 1996.
Mongolian Blue Spot. E. Apert.—p. 295.
Pediatrics in Poland. J. Comby.—p. 297.

Chronic Peritonitis with Effusion in Inherited Syphilis.—In this communication from Buenos Aires, a case of ascites is described which forms the third on record of chronic peritonitis for which inherited syphilis was evidently responsible. The great improvement in all these cases under specific treatment for syphilis confirmed the nature of the ascites. The absence of fever and lack of pain and tenderness, with the various signs of inherited syphilis, differentiated the cases, especially as inoculation of guinea-pigs showed no signs of tuberculosis.

Bulletin de l'Académie de Médecine, Paris

May 23, 1922, **87**, No. 21

*Paratyphoid Cholecystitis. P. Menetrier et al.—p. 559.
*History of Law of Crossed Paralysis. Klippel.—p. 562.
Anatomy of Auriculoventricular Bundle. O. Josué.—p. 564.

Paratyphoid Cholecystitis.—The acute cholecystitis had developed in the man of 58 the tenth hour after eating some canned tongue which had seemed suspicious at the time. The paratyphoid A bacillus was agglutinated and was cultivated from the blood. The man had recovered in twenty-five days. A latent cholelithiasis had evidently helped to localize the toxi-infection in the gallbladder. He was a waiter, and one other waiter, who had eaten some of the tongue, died within forty-eight hours.

Law of Crossed Paralysis.—Klippel traces back through Morgagni, Valsalva and Boerhaave to Aretæus the practice of venesection on the sound side in case of unilateral apoplexy. Aretæus' exact period is not known but is ascribed to the first century of our era.

Journal de Radiologie, Paris

April, 1922, **6**, No. 4

Simplified Technic for Recording Chronaxia. H. Guilleminot.—p. 157.
*Electricity in Exophthalmic Goiter. M. Ménard and F. Foubert.—p. 162.
Present Uses of Deep Radiotherapy. Nadaud.—p. 171.
Deep Radiotherapy of Tonsil Sarcoma. Canuyt and Gunsett.—p. 181.
Diaphragmatic Hernia. V. Nalli and J. de Beaujeu.—p. 184.

Continuous Current in Treatment of Exophthalmic Goiter.—Ménard and Foubert compared the effects of radiotherapy and galvanization in the treatment of exophthalmic goiter; 17 patients were treated by galvanization and 10 by radiotherapy. Certain cases refractory to galvanization were improved or cured by radiotherapy, and vice versa; 57 patients were treated by the two methods, and the number of failures was considerably reduced. Galvanization is an ideally harmless treatment, but this absolute harmlessness, they say, does not prevent its positive efficacy, as results show. The similarity of the disturbances from exophthalmic goiter with those from pluriglandular and sympathetic derangement, suggested extending the action of the galvanic current to the sympathetic and endocrine systems. This abdomen-thyroid-spine galvanization treatment seemed to act on all the manifestations of the disease and subjective symptoms. In mild forms the symptoms rapidly subsided, but they advise to continue the sittings for three months.

Paris Médical

June 3, 1922, **12**, No. 22

*Infectious Diseases in 1922. Dopter.—p. 453.
*Antityphoid Vaccination by the Mouth. Besredka.—p. 460.
Infectious Diseases in Russia in Recent Years. Dopter.—p. 463.
*Intestinal Spirochetosis in Dysentery. V. de Lavergne.—p. 467.
*Fatal Mumps. Reverchon, Worms and Delater.—p. 471.
*Treatment of Influenza. D. Simici.—p. 474.
Disease in Celluloid Workers. Heim, Agasse-Lafont and Feil.—p. 477.

Infectious Diseases in 1922.—Dopter says that great progress has been realized, since his last annual review, by the practical application of some of the lessons learned in the World War. Epidemic encephalitis seems to be losing its epidemic character. Levaditi's finding of the virus on the epithelial cells in the saliva suggests that it may be a parasite of these elements. Further progress is the apparent identity of the virus of herpes of the cornea and lips with the virus of epidemic encephalitis; the only difference to be detected in rabbits was the lesser degree of virulence. Levaditi's research also sustains the assumption of healthy carriers. The virus may have an affinity for the epithelial cells but may acquire periodically an affinity for the central nervous system—the difference seems to be only in the degree of virulence of this *ultravirus encephalitogène*. When it acquires the affinity for nerve tissue, then we have an epidemic of encephalitis. Others dispute these conclusions, saying that the virus of herpes does not induce immunity for encephalitis and vice versa. In treatment of the complications of gonorrhea, intra-articular injection of gonococcus antiserum has proved far more effectual than the subcutaneous route. Sacquépée recently reported a case of gonococcus septicemia persisting for months until cured by four intravenous injections of the specific serum.

Typhoid and Paratyphoid Vaccine by the Mouth.—Besredka emphasizes the importance of following in vaccination the route taken by the infection in its invasion. This is the reason why guinea-pigs can be successfully vaccinated against anthrax by introducing the vaccine directly into the skin, while intraperitoneal vaccination is always disastrous. With dysentery, typhoid and cholera, the mouth is the route of invasion, and vaccination should be by the mouth likewise. An experiment in this line has just been made on a large scale in northern France by Vaillant, in a region where typhoid is endemic. The populace were persuaded to take a pill of bile and a tablet containing a mixture of heat-killed typhoid and paratyphoid bacilli, before breakfast, on three successive mornings; children under 7 took it for only two mornings. A total of 1,236 of the inhabitants were thus vaccinated out of a total of 2,000. Among the unvaccinated 7.7 per cent. contracted typhoid and 2.3 per cent. of the 173 who had been vaccinated by the subcutaneous route. Of the 1,236 who had taken the *vaccin bilié* by the mouth, only 0.17 per cent. developed the disease. The results were thus highly encouraging; there were no by-effects except slight colic and headache in a few cases, never enough to interfere with business or appetite. The resulting immunization is at least equal to that realized by the subcutaneous route. This immunization being strictly local, that is, intestinal, does not require the cooperation of any other organ. Hence a lesion in the kidneys, liver, lungs or elsewhere does not interfere with this form of vaccination although it might contraindicate subcutaneous vaccination.

Intestinal Spirochetosis with Dysentery.—The symbiosis of fusiform bacilli and spirochetes which is found in Vincent's angina has been discovered in the rectum and colon in cases of dysentery and explains many puzzling pathologic conditions.

Pathologic Anatomy of Mumps.—This article was reviewed in the Paris Letter.

Treatment of Influenza.—Simici writes from Bucharest to call attention to the encouraging results he has realized in treatment of influenza by subcutaneous injection of convalescents' blood.

Presse Médicale, Paris

May 10, 1922, **30**, No. 37

Intramuscular Treatment of Syphilis. E. Jeanselme et al.—p. 397.
Radioactivity of Mineral Waters. Castelnau and Loisel.—p. 399.
*The Barranikow-Döhle Corpuscles. H. Accoyer.—p. 401.

The Barranikow-Döhle Bodies in the Leukocytes.—Accoyer reports on these bodies in 5 cases of scarlet fever, in 2 of measles, 3 of erysipelas, 3 of tonsillitis, 5 of diphtheria and one each of malaria, mumps and typhoid, besides a number of other cases after defervescence and late into convalescence. These inclusions were most numerous the more pathologic the condition, regardless of the nature of the infection. He compares the theories in regard to their origin.

May 13, 1922, **30**, No. 38

*Intrathoracic Operations. P. Duval.—p. 409.
Calcium Salts in Asystolia. D. Danielopolu et al.—p. 413.

Unilateral Intrathoracic Operations.—Duval insists that unilateral surgical pneumothorax is harmless. In dogs, there is an open communication between the pleurae, and hence pneumothorax on one side spreads at once to the other side, so both lungs have to collapse. But even in dogs, if the opening into the thorax is closed, the dyspnea subsides, and the dog survives. The pleurae do not communicate in man or in the rabbit and calf. The pneumothorax on one side did not spread to the other side in his experiments on rabbits and calves. Hence, he says, Graham's conclusions from research on dogs are erroneous: they do not apply to man. With surgical pneumothorax, the lung collapses completely and there is no respiration; the air is quiet, not flowing in and out, and the pneumothorax causes no disturbance. All the various measures applied to relieve dyspnea with pneumothorax aim merely to arrest this inflow and outflow of air. The most effectual is to close the opening in the chest wall, and thus put an end to the pleural ventilation, or else to make the opening still larger and thus insure the total collapse of the lung. In two cases the dyspnea subsided when he made the opening larger, and pressed down on the lung with hot compresses to expel all the residual air. Differential pressure procedures, etc., are superfluous; all that is needed is to make the opening into the chest large, and immobilize the walls with a retractor which stretches that side of the diaphragm, making sure that all the residual air is squeezed out of the collapsed lung. The surgeons can then operate with confidence that there will be no modification of the heart or respiration rhythm, the collapsed lung safely tucked out of the way. He makes a point of aspirating out all the air in the pleura the last thing before completing the suture. The roentgenologist watches as this is being cautiously done, and notifies the surgeon the moment the entire lung expands to reach the chest wall. The results have been most gratifying in his experience with over 100 intrathoracic operations of the kind, many of them for extensive war wounds. All recovered but one man who was suffocated by pus, and another with cancer of the esophagus.

May 17, 1922, **30**, No. 39

*Treatment of Syphilis. L. Brocq.—p. 421.

Treatment of Syphilis.—Brocq declares that the general practitioner is confused by the conflicting opinions that prevail among syphilologists. There is no agreement as to the drug, the dose, the method, etc., and it is still a question whether the intravenous treatment may not damage the vessels and the liver seriously. He regards it as extremely significant that, whereas in the nine years before 1905 he never observed more than three or four cases of jaundice in syphilitics, in recent years jaundice is being constantly encountered in syphilitics that have been treated with arsenicals. In any event, he says, these drugs should not be given further to patients developing jaundice under them.

May 20, 1922, **30**, No. 40

*Radiotherapy of Pituitary Tumors. F. Terrien.—p. 429.
Intravenous Quinin Treatment of Malaria. Genevrier.—p. 431.
*Cardiac Thrombostasis. R. Lutembacher.—p. 432.
*The Anilin Dyes in Surgery. L. Cheinisse.—p. 435.

Radiotherapy of Pituitary Tumors.—A combination of organotherapy, mercurial treatment and the roentgen rays has given excellent results in nearly all the cases of pituitary tumors in which it has been tried. Terrien adds that the effect was particularly striking on the trophic disturbances from the tumor, and above all on the headache and impairment of vision. In 148 cases of pituitary tumor with visual disturbances on record, there was blindness in 34, but choked disk only in 15. In 10 cases treated with radiotherapy the improvement in the visual field is evident from the charts given, as also in Carlotti's 4 cases. In some of these cases vision was regained after several months of blindness. Béclère irradiates the pituitary through mouth, brow and temples, where the bone is thinnest, using 5 H. units at each sitting. In all his cases the action was durable. One patient has had no recurrence during nine years to date. In one of the cases the radiotherapy seemed to reduce the visual field, hence extreme caution is necessary. The effect is most pronounced with disturbances of mechanical origin.

Cardiac Thrombostasis.—Lutembacher describes the clinical picture induced by thrombi in the heart, too large to pass into the vessels. Even at necropsy the cause of the sudden death may not be suspected unless the heart is opened up.

The Anilin Dyes in Surgery.—Cheinisse concludes his review of recent literature on this subject with the statement that the anilin dyes seem to act only on staphylococci and streptococci.

May 24, 1922, **30**, No. 41

*Effect of Liver Extract on Heart and Vessels. H. Roger.—p. 441.
*Electric Destruction of Pleural Adhesions. M. Herve.—p. 446.
*The Babinski Toe Phenomenon. Z. Bychowski.—p. 447.

Action of Organ Extracts on Heart and Vessels.—In his systematic research on extracts of various organs, Roger tries to isolate the special substances and the antagonists. He discusses liver extract here, reproducing eleven tracings to show the cardiovascular effect.

Electric Destruction of Pleural Adhesions.—Herve describes in detail a case in which he succeeded in breaking up adhesions with the high frequency current, thus rendering artificial pneumothorax possible by this *étincelage*. It did not cause pain or hemorrhage, and the benefit from compression of the lung was prompt and pronounced.

The Babinski Toe Phenomenon.—Bychowski recalls that this year has been the twenty-fifth anniversary of Babinski's toe sign. "The chapter thus inaugurated by Babinski is by no means concluded." Bychowsky comments on the negative toe sign in his 100 cases of motor disturbances from epidemic encephalitis, and after certain war wounds of the brain.

May 27, 1922, **30**, No. 42

*Septicemic Adenopathies. P. Ravaut, Boulin and Rabeau.—p. 453.
*Recent Research on Measles. P. L. Marie.—p. 456.

Septicemic Lymphadenitis.—Ravaut and his co-workers discuss a variety of benign suppurative *poradéno-lymphite* with septicemia, and its relations with subacute inguinal lymphogranulomatosis.

Prophylaxis of Measles.—Marie reiterates that, next to tuberculosis, measles is the most murderous of all diseases of children, and yet not until 1916 was any attempt made to utilize convalescents' serum in prophylaxis. This was done by Nicolle and Conseil at Tunis, protecting the younger children in a family by injecting 4 c.c. of blood serum from the convalescent older child. Their further experiences were published in 1918, and were confirmed by Richardson and Connor in 1919 and by others in South America and Germany, by Degkwitz in particular, whose first publications date from 1920. Degkwitz has since published successful prophylaxis by a vaccine made from the eye and throat secretions of cases of measles. This induces a mild febrile reaction, and none of those thus treated has contracted measles during the months since.

May 31, 1922, **30**, No. 43

*Baldness in the Twenties. R. Sabouraud.—p. 465.
*Silent Cavities in Lungs. R. Burnand and R. Carrard.—p. 467.

Baldness in the Twenties.—Sabouraud remarks that many insects and birds, at the age corresponding to the twenties in men, develop some ornamental feature, a nuptial robe, while man may lose his hair at this time and thus be deprived of part of his comeliness. "This is illogical and unnatural, and the reason for it is a mystery that will probably baffle several generations yet." No treatment of seborrhea and of seborrheic alopecia has given any appreciable results to date. Local measures may retard the baldness but they never cure. A down may grow and encourage the patient, but the hairs are atrophic and do not last. The best local treatment of these grave seborrheas is carbon sulphid, in spite of the drawbacks of its odor, its inflammability and the smarting it induces. It is the only treatment, he says, which in a few weeks seems to arrest this premature baldness of young men and the seborrhea directly responsible for it. His formula is 75 c.c. of acetone, xylene or benzin; 75 c.c. of carbon tetrachlorid; 150 c.c. of carbon disulphid and 9 gm. of precipitated washed sulphur. He suggests the possibility of organotherapy with an extract of the interstitial gland, which seems to have under its control the secondary sexual characteristics. But no one has tried it as yet, and we cannot experiment on animals, as seborrheic alopecia is unknown outside of the human species. When the baldness seems to follow an illness, the typhoid or other infection has merely hastened the course of the already established alopecia. It begins with the genital period, and castration prevents it. No tendency to baldness was found in 340 eunuchs examined by his correspondents in Asia. In seborrheic alopecia new hairs sprout as soon as the old fall, but each new crop is weaker and smaller, to final total atrophy. Unless a family tendency is known, the young men do not apply for treatment until two, five, ten years too late. The earlier the seborrheic alopecia begins, the more rapid and severe the course. He knows of two brothers who were both bald at 18. When it begins at 16 or 17, it is established at 24, but when it does not begin till 18, the baldness is not complete till 27 or 28. The satyrs on the Greek vases were always young and bald.

Silent Tuberculous Cavities.—Burnand remarks that tuberculous cavities not inducing appreciable symptoms are nothing new, but he has been amazed to find that 55 per cent. of the tuberculous cavities shown up by the roentgen rays had not induced characteristic symptoms. In forty-two cases the only possible suggestion of a cavity was what he calls the *obscurité respiratoire d'un territoire trouble*. In twenty-three others the physical findings indicated merely a focus of softening of the second degree.

June 3, 1922, **30**, No. 44

Action of Garlic on Heart and Vessels. Loeper et al.—p. 473.
*Silent Intracranial Abscess. H. Aboulker.—p. 474.
Cirrhosis of Spleen and Liver of Malarial Origin. D. Ionesco and M. Popper.—p. 477.
Treatment of Sequels of Epidemic Encephalitis. Cheinisse.—p. 478.

Silent Intracranial Abscess.—Aboulker reports from Alger ten typical cases of intracranial abscess from his more extensive experience. In three cases with a very large extradural abscess, and in four cases in which the abscess was in the brain, choked disk was never found, and there was no pain on pressure or percussion, and no motor or sensory disturbances. Headache, with change of character and sluggishness in the mental processes is constant and early with an abscess of the brain. It should be sought and evacuated during this stage, which is a long one, before somnolency and deadening of all faculties follow. He ascribes two of his fatalities to the chloroform, and urges that chloroform should be proscribed when any complication in brain or meninges is suspected.

Schweizerische medizinische Wochenschrift, Basel

May 11, 1922, **52**, No. 19

*Neuritis. O. Veraguth.—p. 445.
*Strophanthin by the Vein. H. Staub.—p. 447.
*Fat Embolism of the Brain. J. Tobler.—p. 452.
Testing Vision. I. Strebel.—p. 456.
*Substitute for Dührssen's Tampon. E. Schreiber.—p. 458.

Notes of a Neurologist.—Veraguth describes a case of polyneuritis with both tonic and paretic features, but without incapacitating the man of 40, a Cook's guide. In another case a Korsakow psychosis followed an attack of botulism poisoning in a woman with pronounced polyneuritis. In another woman, polyneuritis had developed after two operations for recurring mammary cancer. The polyneuritis included the fifth, sixth and twelfth cranial nerves. In another case, carbon monoxid poisoning had induced the polyneuritis. The carbon monoxid had developed from a pile of phonograph records evidently set on fire by the drowsy man's cigar. When he regained consciousness, twenty-four hours later, he was lying on the floor, his legs paralyzed and also the right facial nerve and shoulder muscles, and he and the room were covered with soot. The polyneuritis was intensely painful for six months but it then subsided. The case raises anew the old question whether carbon monoxid polyneuritis is of toxic or mechanical origin, from lying so many hours in a cramped position unconscious. The gradually increasing paralysis of arms and legs in another man was traced to occupational use of "solvent naphtha" in automobiles.

Strophanthin.—Staub gives tracings from a case of severe cardiac asthma kept under control with strophanthin for the two years the man of 52 was under observation. The intervals were finally increased to ten or twelve days, and he was able to resume his work as a shoemaker. Staub warns that strophanthin has a cumulative action, though not so pronounced as digitalis, and only half the dose should be given if digitalis has been taken in the preceding two days.

Fat Embolism of Brain.—Tobler operated in the case described to relieve the pressure on the brain from unknown cause, the fat embolism not having been suspected. The man's leg had been fractured; he became unconscious after the fracture had been dressed. This free interval before the stupor is instructive. The urine and sputum may show fat droplets, but they may be found even without signs of fat embolism. Numerous symmetrical punctiform hemorrhages in the skin are characteristic; they appeared from the third day on in six cases on record. Headache, trismus and spasms of the limbs have been observed, as also isolated paralysis, vomiting, arrhythmia and fever, but are not pathognomonic. The fat embolism in this case was not suspected until necropsy, when the peculiar purpura aspect of the brain first suggested it.

Aluminum Acetate to Arrest Hemorrhage. — Schreiber relates that this drug has never failed in his twenty-five years of practice to arrest hemorrhage from inertia of the uterus at childbirth, and has proved its usefulness in many cases of parenchymatous hemorrhage of various organs. He uses it in a 2 or 3 per cent. solution to arrest obstetric hemorrhages, diluting the officinal 10 per cent. solution, which keeps indefinitely. The hemorrhage after tonsillectomy was always arrested at once by rinsing out the nasopharynx with the 10 per cent. solution.

Pediatria, Naples

April 1, 1922, **30**, No. 7

*Bacteriologic Research on Malta Fever. E. Gerbasi.—p. 289.
*Whooping Cough in the New-Born. G. Milio.—p. 297.
*Tumor in Rhinopharynx. D. Tanturri.—p. 302.
*Urticaria and Ascaridiasis. O. Pentagna.—p. 308.

Bacteriology of Malta Fever.—Gerbasi discusses the biologic and morphologic behavior of the Bruce micrococcus and others resembling it.

Whooping Cough in the New-Born.—Milio relates that the disease was severe in the two infants, 8 and 10 days old, but he tided both safely past the gravest period by an intramuscular injection of 5 c.c. of ether every second day. The paroxysms grew gradually less severe and less frequent. He gave a total of six and eight injections. No benefit was apparent until after the third injection, but then progressive improvement was manifest.

Tumor in Nasopharynx of Small Child.—Tanturri reports another case of successful extirpation of a tumor in the nasopharynx. The cautery loop in a protecting catheter was introduced through the nose (after cocain and epinephrin). It was fitted over the base of the neoplasm, the latter having been loosened up with the fingers. The electric current was then turned on for electrolysis of the base of the tumor. As the mass forming the tumor dropped off, it was seized with forceps and extracted through the mouth. There was no hemorrhage, and there has been no recurrence during the nearly four years to date. He has operated in this way in a number of other children, and all with similar success. The tumor in this case was a cystic fibroma showing sarcomatous degeneration.

Ascaridiasis and Urticaria.—The disappearance of the urticaria after a vermifuge apparently explained it as a manifestation of anaphylaxis from the ascaridiasis.

May 15, 1922, **30**, No. 10

*Treatment of Tuberculous Meningitis. O. Cozzolino.—p. 433.
Chloroma in Child of 3. G. Caronia.—p. 439.
*Influence of Protein Therapy on Phagocytosis. A. Dominici.—p. 446.

Treatment of Tuberculous Meningitis.—Cozzolino has been giving a trial to Bier's method of passive hyperemia in treatment of tuberculous meningitis in three children 4, 7 and 8 years old. He was inspired to do this by the report of two cases cured by this means, plus lumbar puncture, published in the *Münchener medizinische Wochenschrift* in 1913, p. 1430. No benefit was apparent in Cozzolino's cases, nor in Squarti's eight cases (1916).

Influence on Phagocytosis of Protein Therapy.—Dominici reports considerable research on guinea-pigs which demonstrated that phagocytosis was remarkably stimulated and the inoculated bacteria rapidly disappeared from the peritoneal effusion under the influence of parenteral injection of a protein, either whole milk or peptone or a vaccine. The similar effect induced by all these different proteins—the striking activation of phagocytosis that follows at once the parenteral injection of a small amount—suggests a uniform mechanism. A large dose has a paralyzing effect. She noted a specific action in addition from antityphoid vaccine, after inoculation with typhoid bacilli. Even twice the lethal dose was thus conquered. In experiments with the other proteins, the bacteria injected were always below the lethal dose.

Policlinico, Rome

May 1, 1922, **29**, No. 18

Pleuritis Inducing Asthma. U. Baccarani.—p. 569.
Nervous Symptoms from Malaria in Children. G. Squarti.—p. 571.
Examination of the Prostate. E. Pirondini.—p. 577.
Autolymph Treatment in Tuberculosis. L. Bottacin and D. Magro.—p. 579.
The Probe Needle. V. Bilotta.—p. 580.
Activated Sludge in Treatment of Sewage. A. Filippini.—p. 581.

May 8, 1922, **29**, No. 19

Protein Therapy in Theory and Practice. S. Belfanti.—p. 601. Conc'n No. 20.
Fracture of Patella. G. Tessier.—p. 609.
*Postencephalitis Parkinsonism. B. Masci.—p. 613.
Improvised Dark-Field Microscopy. V. Vanni.—p. 614.
Choice of Occupation. G. Casuccio.—p. 615.

Postencephalitic Parkinsonism.—Masci has been much impressed with the fact that persons with pronounced parkinsonian symptoms after epidemic encephalitis throw them all off when they run. Even one patient with hemiplegia seemed to cast it off like a garment when running. All these postencephalitis cases displayed this remarkable difference between their halting, jerking, slow movements and their agile running gait. Tilney calls this "metadromic progression," Souques, "paradoxic kinesia," and Masci calls attention to it as a means of distinguishing between true parkinsonism and that which follows epidemic encephalitis. There is nothing of the kind with true parkinsonism.

Riforma Medica, Naples

April 10, 1922, **38**, No. 15

Appendicectomy; Three Cases. S. Sciglìano.—p. 337.
*Reflex Action Between Stomach and Ear. A. Roccavilla.—p. 340.
Possible Hormone Action of Ciliary Epithelium. Scalinci.—p. 345.
Vascular Symptoms as Index of Pressure. A. Ferrannini.—p. 347.

Reflex Action Between Stomach and Ear.—Roccavilla applied stimuli of different kinds to the stomach in health and disease, and noted a reflex action in the labyrinth of the ear. It was not as constant nor as lively as the reflex action induced in the stomach, on the other hand, by stimuli applied to the labyrinth.

May 8, 1922, **38**, No. 19

Value and Limitations of Deep Radiotherapy. M. Ponzio.—p. 433.
*Total Amount of Blood. G. Moscati and G. Napolitano.—p. 435.
*Epidemic Lymphadenitis. V. Vanni.—p. 438.
*Malformations in Sexual Perverts. M. Carrara.—p. 440.
Pathology of the Patella. E. Aievoli.—p. 443.

Optic Test for Total Amount of Blood.—Moscati determines the polarizing action of the blood before and five minutes after injection into the blood stream of a given solution of glucose. His experiments in this line on dogs with experimental nephritis confirmed the assumption that there is actually a permanent hydremic plethora, from an increase in the total amount of the blood, and especially of the plasma, in experimental nephritis with much albuminuria.

Epidemic Lymphadenitis.—Vanni was sent to a remote part of the province of Rome to study an epidemic illness which began with sudden pain in one inguinal region followed by torpid ulceration of the local glands, each ulcerating separately. Fever was slight and irregular, and the whole healed in from four to six months, the ulcerations leaving pits. It was highly contagious, and affected both sexes and all ages. A minute micrococcus was shown up by the Ziehl and Giemsa stains in the puncture fluid from the glands. Guinea-pigs injected with this fluid or with cultures of the micrococcus mostly died in a few days, and the liver, kidneys and suprarenals were found much enlarged, the spleen very small.

Local Malformations in Sexual Perverts.—Carrara is director of the Istituto di Medicina Legale at Turin. He writes to protest against the traditional assumption that, because a person is suspected of being a sexual pervert, any abnormal conditions found in the sexual organs or anus are necessarily the result of "sexual delinquency." He declares, on the contrary, that the abnormal conditions may have been primary, and they may have been a factor in the sexual psychopathy. His text is a recent medicolegal case in which a daughter accused her father—a man prominent in social and business life—of incest rape, and presented a medical certificate to the effect that the vagina and anus were so large and smooth that they proved multiple sexual relations. The physician who signed the certificate confirmed it in the witness stand, and the court was more than disposed to accept his view.

Rivista Critica di Clinica Medica, Florence

March 25, 1922, **23**, No. 9

*Spinal Fluid in Neurosyphilis. A. Terzani.—p. 97. Conc'n No. 10, p. 109.

The Spinal Fluid in Disease of the Nervous System.—Terzani describes and criticizes the various reactions that can be induced in the cerebrospinal fluid with disease of the nervous system, especially in neurosyphilis. He gives an instructive table of the findings with eleven different parallel tests in 36 cases, including 3 of tabes and 3 of general paresis. He regards Boveri's simple test as very useful. Although it is not specific for any special disease, yet it warns of the presence of an organic lesion, and often this is all that we need to know for management of the case. He pours along the wall of a test tube containing 1 c.c. of the cerebrospinal fluid, 0.1 c.c. of a 1 : 1,000 solution of potassium permanganate (not 1 c.c. as often published). A yellow zone forms at the junction of the two fluids, or spreads through the whole if they are mixed. The intensity of the reaction is indicated by the promptness with which the tint changes; from two to six minutes is the accepted range for a positive response. In his series the strongest reaction was obtained with epidemic and tuberculous meningitis (half a minute to two minutes); in general paresis (one to three minutes); in acute poliomyelitis (three to four), and epilepsy (four minutes). The differential count of the cells in the sediment is also important. In one of the cases of tabes the Boveri reaction was pronounced although the Wassermann was negative.

Revista de Medicina Legal de Cuba, Havana

April, 1922, **1**, No. 4

*Lesions from Medicolegal Point of View. A. Barreras y Fernández.—p. 14.
Medical Officers. R. de Castro y Bachiller.—p. 40.

Lesions from Medicolegal Point of View.—Barreras emphasizes that the prognosis from the medicolegal standpoint is different from that of the pathologist. The length of the resulting disability, the physical defect left, and the deformity —all have their bearing on the medicolegal estimation of the case, as he shows by his classification and examples. The definition of deformity or disfigurement, its degree, etc., and the age and sex of the injured, the motive, etc., all have to be taken into account, as he explains.

Semana Médica, Buenos Aires

April 13, 1922, **1**, No. 15

*Pregnancy in Heart Disease. Chamorro, Folco and Dacharry.—p. 577.
*Fever with Hemoptysis in Tuberculosis. F. Gorriti.—p. 580.
Prostatic Adenoma. S. Barabino Amadeo.—p. 581.
Defence Against Tuberculosis. Hitce and Barrionuevo.—p. 595.
Intravenous Treatment of Typhoid Septicemia. de Quiros.—p. 601.
Perversion of Sensuality. L. Sirlin.—p. 606.
Melanic Epithelioma of the Conjunctiva. C. Jiménez Lopez, V. Ribón and A. Peña Chavarría.—p. 609.

Pregnancy in Heart Disease.—The young woman reached term without grave disturbance from the congenital mitral stenosis which before the pregnancy had always been well compensated. Labor brought severe asystolia, arrhythmia and cyanosis. After fourteen hours of ineffectual labor, under spinal anesthesia the cervix was dilated with the fingers, the perineum incised as the head presented, while pressure was applied to the abdomen, and the child was extracted with forceps. The patient was kept in a semiseated position as much of the time as possible. Compensation was soon restored under tonics, restriction to milk, and cupping. The child is developing normally.

Fever with Hemoptysis.—Gorriti has noticed at the national sanatorium for the tuberculous in his charge that hemoptysis sometimes occurs in several of the patients at once during the same day or week. This collective appearance of hemoptysis always coincided with a low barometer. Men are affected with hemoptysis far more frequently than women, and he reasoned that menstruation serves as a safety valve to ward off hemoptysis. This assumption suggests the advisability of occasional venesection in prophylaxis of hemoptysis in men known to have a tendency to hemorrhage from the lungs. Fever with hemoptysis is not due entirely to the toxic-infectious process; the reabsorption of the extravasated blood may explain a certain proportion of it, if not the whole. It is like the fever with a simple fracture.

Vida Nueva, Havana

March, 1922, **14**, No. 3

*Estimation of Age of Bloody Finger Prints. I. Castellanos.—p. 69.
Large Aneurysm of Arch of Aorta. J. Ortiz Pérez.—p. 73.
Recurrent Laryngeal Paralysis from Stab Wound. A. Frias Oñate.—p. 76.

Estimation of Age of Bloody Finger Prints.—Castellano's two colored plates show the aspect and change of tint of the blood and finger print after intervals of less than ten minutes to one hour to one month and over twelve months, a total of twelve specimens. He has adapted the Tomellini color scale to the Tallqvist scale, making the openings a long rectangle instead of circular, as his plates show.

Beiträge zur klinischen Chirurgie, Tübingen

1922, **125**, No. 3

*Accessory Renal Vessels. G. Petrén.—p. 493.
*Embolic Gangrene. P. Bull.—p. 519.
Perforated Ulcer in Stomach and Duodenum. W. Schmidt.—p. 568.
Appendicitic Abscess; 102 Cases. Dewes.—p. 581.
Appendicitis: 1,000 Operative Cases. H. Steichele.—p. 607.
Contusion of Abdominal and Pelvic Organs. M. Baumann.—p. 624.
*Mammary Cancer. G. H. Feist and A. W. Bauer.—p. 636.
Tetany After Goiter Operations. H. Knaus.—p. 669.
Functional Treatment of Fractures. M. Krabbel.—p. 681.
Solitary Cysts in Kidneys. C. Harms.—p. 688.
The Neurinoma Question. R. Sommer.—p. 694.
Bone Findings After Plaster Dressing. H. Löwenstädt.—p. 721.
Primary Thiersch Flaps Over Large Area. O. H. Petersen.—p. 730.

Clinical Importance of Accessory Renal Vessels.—Petrén's own experience and review of the literature have confirmed the probability of there being some abnormal blood vessel in the kidney when there are repeated attacks of pyelitis and no calculi can be detected with the roentgen rays, the ureters can be normally catheterized, and the kidney pelvis is dilated, while the urine and micturition seem normal. The suspicion of hydronephrosis from an accessory vessel justifies an exploratory incision at once. Unusually profuse hemorrhage at an operation on the kidney can usually be explained by some supernumerary vessel. In operating on the kidney, he adds, it is well to bear in mind that one kidney in every five has some anomaly in its vessels.

Embolic Gangrene.—A similar article by Bull was summarized in these columns, March 18, 1922, p. 855. He warns that pains or functional disturbance or both anywhere in the body with any form of heart disease, should always suggest embolism. The surgeon is practically powerless if the diagnosis is not made until gangrene is under way.

Mammary Cancers.—Feist and Bauer give a retrospective analysis of 128 cases at Prague, and compare their findings with the literature. Over 72.7 per cent. are still cured after three years, but only 33.3 per cent. of those with glands affected at the time. Local recurrence was observed in 17 per cent. The outcome was much less favorable in the cell-poor, scirrhous tumors than in the cell-rich tumors. About 42 per cent. died from internal metastasis, and twice as many of those with scirrhous tumors as of the solid, cell-rich tumors. Only the most extensive excision of the soft parts, especially of the skin and subcutaneous fat tissue, guarantees against local recurrence. In only 31 per cent. of the entire number was the interval from the first discovery of the tumor less than three months. In 72.5 per cent. there was already metastasis in the glands in the axilla, and in 48.4 per cent. the skin was already involved.

Deutsches Archiv für klinische Medizin, Leipzig

May 5, 1922, **139**, No. 3-4

*Gout and Lead Poisoning. A. M. Brogsitter and H. Wodarz.—p. 129.
*Poliomyelitis During Influenza Epidemics. F. Hiller.—p. 143.
*Muscle Tonus. E. Grafe.—p. 155.
*Percussion and Auscultation. P. Martini.—p. 167.
*Primary Oliguria. W. H. Veil.—p. 192.
Metabolism of Water and Salt During Thyroidin and Ovarian Treatment. W. H. Veil and H. Bohn.—p. 212.
*Epinephrin Test in Diabetes. W. H. Veil and Reisert.—p. 235.
*Acute Malignant Degenerative Syphilis. A. Pfeiffer.—p. 245.
Catalase Content of Blood in Pernicious Anemia. H. Korallus.—p. 252.

The Kidneys in Gout and Lead Poisoning.—In the 8 cases of chronic lead poisoning and 6 of gout described here, there was nothing in the history to indicate that there had ever been an acute hemorrhagic nephritis, so the necropsy findings can be ascribed to the lead or the gout. Deposits of urates were found in only 2 cases, but the blood vessels showed pronounced changes in both the lead and the gout cases, as also the glomeruli; the findings in the tubuli differed materially.

Poliomyelitis During Influenza Epidemic.—Hiller reports 10 cases of acute spinal disease during a recent six months, accompanying an epidemic of influenza at Dresden. In 6 cases the clinical picture was that of acute anterior poliomyelitis; in 3 it was more an acute diffuse myelitis, and in another case a sudden paralysis of the bladder was the only disturbance. This case was the only one in which recovery has been complete. The paralysis in the others very slowly retrogressed, and there are still traces of it. His study of the records has shown an epidemic appearance of disease of the central nervous system during the great influenza epidemics of 1712 and 1889-1890. The connection between infantile spinal paralysis and epidemic encephalitis needs further study. The onset differs in these diseases, the meningitis of the former being scarcely noted with the latter, and then is evidently only secondary. In 2 of the cases here described the extensive myelitis had induced the picture of hematomyelia. In a compilation in 1907 of 25 cases of spontaneous hematomyelia, 14 were known to have occurred during or shortly after an epidemic of influenza.

The Muscle Tonus.—In this first article of a series, Grafe discusses the influence of changes in tonus on the total metabolism with organic nerve disease, tabulating under nineteen headings the various findings in sixteen cases.

Research on Percussion and Auscultation.—Martini in this second communication studies the laws and interpretation of tympanitic and nontympanitic resonance.

Primary Oliguria.—Veil explains how primary oliguria can occur, the exact opposite of diabetes insipidus. It may be from organic or functional disturbance in the autonomic nervous system, a vegetative neurosis in the edema line. Some cases of different types are described. In treatment, calcium and iodin must be considered. Iodin is most effectual in daily doses of not more than 0.25 mg. Ovarian extract may be useful to combat a dropsical tendency.

Reaction of Diabetics to Epinephrin.—The findings are recorded in twelve diabetics in regard to the glycemia after a test injection of epinephrin, the vasomotor reaction, glycosuria, acidity of the urine, ketonuria and the carbon dioxid tension in the alveolar air.

Acute Malignant Syphilis.—The acute degeneration affected the liver, kidneys and spinal cord in the three cases described. The syphilis was of twenty years' standing in one case, and the clinical picture with the acute degeneration of the liver was of the acute yellow atrophy type.

Deutsche medizinische Wochenschrift, Berlin

March 31, 1922, **48**, No. 13

Degeneration and Regeneration. Ernst.—p. 409. Conc'n.
*Lawn-Tennis Leg. H. Küttner.—p. 412.
Syphilis in Wetnurses. K. Zicler.—p. 413.
Quinin-Digitalis in Heart Disease. Starkenstein.—p. 414. Cont'd.
Roentgen Irradiation of Cancer. Strauss.—p. 416. Conc'n.
Duodenal Sound in Disease of Bile Ducts. Hecht and Mantz.—p. 418.
*Carbohydrate Metabolism in Liver Patients. Hetényi.—p. 420.
Hyperthyroidism. A. Hellwig.—p. 420.
Complete Differential Leukocyte Count in Puerperium. Fuss.—p. 422.
Modified Form of Twilight Sleep. B. Liegner.—p. 424.
*Desquamation in Urinary Tract in Scarlet Fever. Gonnella.—p. 426.
Course in Dermatologic Technic. M. Joseph.—p. 426. Cont'n.

Lawn-Tennis Leg.—In the midst of a tennis game, a player suddenly stops short on feeling a sharp pain in the calf or farther down on the leg, Küttner states. A muscle or a tendon (the Achilles tendon) has been torn. Usually the player is able to limp off the court, but sometimes has to be carried off. A roentgenogram will confirm the usually certain diagnosis, and will reveal the details in regard to the site and extent of the laceration, as the tendon casts a distinct shadow on the roentgen plate. The roentgenogram is also useful in following the healing process in the tendon or muscle. Formerly such injuries were treated with splints or plaster bandages or even surgical therapy, with operative exposure of the injury and suture. The results were not good, or at least, recovery was delayed, as is shown by Dr. Fane's own experience, since it was nineteen months before he could walk without embarrassment. The only correct treatment is that which lays stress on the rapid restoration of function, does not confine the patient to bed, and induces him to begin walking at once. In mild cases, with a partial rupture of a muscle, this causes no difficulty. With the aid of a cane, the patient should at once make an attempt to walk, which will be painful at first, but after two or three days it will be easier, and after a week a normal gait can usually be reached. In the mild cases, bandages are unnecessary and massage is superfluous. For nervous patients, if the pain is severe, a bandage may be used. For three or four weeks, all violent exercise, including tennis, should be avoided; especially in older persons, as the lacerated muscle or tendon will otherwise break down again. Even in severe cases—total rupture of the Achilles tendon—walking should be begun at once, but here, since the pain is great and the foot is weak, the treatment introduced by Hood in England should be instituted. The patient reclines on a sofa and the injured leg is kept in an elevated position. This suffices to check the hemorrhage, to bring down the swelling and ease the tension. The patient is admonished to walk more and more each day. In the severe cases the bandages may be renewed until the patient feels that he can dispense with them. The prognosis is excellent even when the Achilles tendon is severed, but partial rupture of the muscle heals much more rapidly, though pains in the muscle may be felt for several months.

Carbohydrate Metabolism of Liver Patients.—Hetényi states, after research in more than a hundred cases of various forms of liver disease, that he was unable to find that the blood sugar values fasting were appreciably affected. From his experiments he found that lesions of the liver may affect the blood sugar in two ways: By loss of functioning parenchyma, sugar formation in the liver is lessened, and obstruction of the bile ducts impairs glycogen fixation on the part of the liver. When we apply the rôle of these factors to human pathology, we can ascribe to the first factor only a limited importance. The effect of the second factor was shown in the high blood sugar values in patients with icterus.

Desquamation of the Urinary Tract in Scarlet Fever.—Gonnella's investigations lead him to believe that ordinarily there is a desquamation of the urinary tract in scarlet fever analogous to the desquamation of the epidermis.

April 7, 1922, **48**, No. 14

Encephalitis and Myelitis in Early Syphilis Under Arsphenamin; Recovery Under Mercury and Arsphenamin. Werther.—p. 443.
Treatment of Auricular Fibrillation with Quinidin and Digitalis. W. von Kapff.—p. 445.
*Quinin-Digitalis in Heart Disease. E. Starkenstein.—p. 448. Begun No. 13, p. 414.
Radiothorium. P. Lazarus.—p. 451. Conc'n No. 15.
Bilirubin Crystals in Urine in Icterus. G. Dorner.—p. 453.
Treatment of Rickets. R. Hamburger.—p. 454.
Quick Staining of Intestinal Flagellates. R. Oehler.—p. 456.
Experiences with Neosilverarsphenamin Sodium. Sternthal.—p. 457.
Roentgen Rays in Gonorrheal Epididymitis. J. Wetterer.—p. 459.
Temporary Roentgen Sterilization of Man and Wife. Markovits.—p. 459.
Treatment of Acute Nephritic Lung Edema by Constriction of Limbs. L. Ehrenberg.—p. 460.
Table for Taking of Body Measurements . Schmidt and Weiss.—p. 461.
Course in Dermatologic Technic. M. Joseph.—p. 461. Conc'n.

Quinidin-Digitalis Treatment of Auricular Fibrillation.—Starkenstein states that the use of quinin and digitalis combined is justified if, in connection with prolonged digitalis medication, it is necessary to counteract possible cumulative effects or other dangers from intoxication, and more especially if the heart is already showing toxic symptoms, in which case the toxic remedy is omitted and the other employed as "antagonist." In certain cases the combination may be valuable for the strengthening of the desired therapeutic action of digitalis if an excessive systolic effect opposes the necessary diastolic, or if, owing to narrowing of the coronary artery, the action of digitalis has itself an inhibitive effect. The combination is contraindicated when a quick systolic effect of digitalis is needed, since here quinin serves as an inhibiting antagonist and opposes the desired effect. If, as the result of auricular fibrillation, disturbances in ventricular activity and in the circulation arise, then the combination with digitalis is justified to strengthen the effect of the quinin. Digitalis alone is contraindicated. Cases of cardiac insufficiency with auricular fibrillation should be treated first with digitalis alone; then, after compensation is established, with quinin alone, and if the conditions mentioned above are present, the combination of quinin and digitalis may be used.

Jahrbuch für Kinderheilkunde, Berlin

April, 1922, **98**, No. 1-2

*Oxyuriasis. O. Heubner.—p. 1.
*Fatigue and Irritability. P. Karger.—p. 22.
*Endothelium Permeability. P. Hoffmann.—p. 39.
*Incipient Scurvy. E. Nassau and M. J. Singer.—p. 44.
*The Kidneys in Infants. E. Stransky and R. Kochmann.—p. 63.
*Blood During Loss of Weight. A. Bálint and A. Peiper.—p. 74.
*Porridge in Infant Feeding. B. Epstein.—p. 85.

Oxyuriasis.—Heubner had a minute dendritic ulcer form in the cornea which was about a year in healing, and one ophthalmologist said that he had encountered similar cases in persons with oxyuriasis. Heubner had long been infested with the oxyuris and had been making a special study of his case. Hemeralopia has also been noted in oxyuriasis. His research has demonstrated that the course of this helminthiasis is by six or seven week cycles, probably by new generations. The vermifuge treatment is rendered more effectual by taking onions or garlic for six or seven days beforehand, three or four times a day, 15 or 20 gm. of fresh scraped raw onions or garlic. Then santonin or male fern put an end at once to all disturbances. A month passed without further signs of the helminths. There can be no question of eradication, however, until two months have passed without signs of the helminths. By wearing tight bathing trunks at night, the pinworms that crawl out of the anus get caught in the fibers of the trunks and can thus be studied. Treatment should aim to attack the new generation as it develops.

Hypokolasia.—Karger has coined this term to apply to a group of nervous affections characterized by early fatigue or other functional weakness of the inhibiting mechanism. The result may be an abnormal exaggeration or an abnormal weakness of inhibitions. This offers a new point of view for treatment of neuropathies. For example, in treatment of anorexia, the child can be got up an hour earlier, so that, from lack of anything better to do, he fills up the time before school by eating. Or repose is enforced after dinner till the clock strikes so the child will linger at the meal instead of rushing through it to run out to play. The aim in treatment is to conquer the inhibitions, not to coddle them. If a child cannot go to sleep unless the room is dark and quiet, combat this, instead of keeping the house quiet.

The Endothelial Symptom in Infants.—Hoffmann refers to the minute hemorrhages in the skin that develop after an elastic band has been applied to the upper arm, drawn tight enough to congest the veins but not to shut off the radial pulse entirely. This was supposed to be peculiar to scarlet fever, but has been found positive in various other infections. Hoffmann's tests on the ten infants suggest that a lack of vitamins may also entail this abnormal permeability of the endothelium of the capillaries. A positive response may thus warn of the necessity for adding accessory factors to the food.

Impending Scurvy.—Nassau and Singer describe a set of symptoms which warn that scurvy is impending. In 50 per cent. of thirty children who later developed scurvy, minute punctate hemorrhages in the skin had been observed, mostly in the face. In 37 per cent., from two weeks to three months before the scurvy, blood had been noticed in the urine although the children seemed to be thriving. Loss of appetite was noted in 50 per cent. on an average of 1.7 months before the scurvy developed. Inability to resist infection is another feature of this prodromal stage, as also the stationary weight.

Renal Function in Infants.—In this fourth report of research in this line, Stransky and Kochmann state that some infants eliminate water by means other than the kidneys in larger amounts than through the kidneys. Epinephrin did not seem to modify kidney functioning but pituitary extract in large doses checked elimination of water by the kidneys; it was thrown off by other routes. Small doses of pituitary extract increased the elimination of sodium chlorid in the urine. The details are given from nine infants and young children.

The Blood During Sudden Losses of Weight.—The experiments reported demonstrate that the blood may be abnormally concentrated or abnormally diluted in infants who are losing weight.

Porridge in Infant Feeding.—The advantages of giving a food less fluid than milk to infants with habitual vomiting are now thoroughly established. The stomach contracts around the more solid food, and this prevents swallowing of air and the expulsive contractions. The infants thrived on the one to three teaspoonfuls of porridge daily (*weizengrützebrei*), kept up for months. In this article Epstein describes experiences with it for infants requiring a little supplementary food or to combat constipation, in which it proved of great advantage.

Klinische Wochenschrift, Berlin

Feb. 25, 1922, **1**, No. 9

Decomposition of Carbohydrates in Animal Organism. Embden.—p. 401.
The Ovarian Cycle and Its Influence on the Changes in the Uterus. R. Schröder.—p. 403.
Dynamics of Dilated Heart; Treatment of Lung Edema. Weitz.—p. 405.
Aluminum Compounds. H. Kionka.—p. 408.
*Ammonium Chlorid in Tetany. Freudenberg and György.—p. 410.
Operation for Congenital Goiter in Infants. E. Melchior.—p. 412.
Erroneous Impressions Produced by Shadow Summation in Roentgenograms. F. Peltason.—p. 413.
Indications from Analysis of Blood in Skin Diseases. E. Pulay.—p. 414.
"Foundations of Medical Thought of Today." O. Wolfsberg.—p. 417.
Permeability of Glomerulus Membrane for Sugar. Hamburger.—p. 418.
Effect of Killed Tubercle Bacilli. H. Selter.—p. 419.
Cholesterin Content of Antigens; Bearing on Wassermann. Frank.—p. 419.
A Case of Retrosternal Goiter. A. L. Molnár.—p. 420.
Adhesions in the Pelvic Abdominal Cavity. P. Lindig.—p. 421.
Treatment of Gonorrhea. F. Rosenthal.—p. 423.
Significance of Phosphoric Acid for Working Muscle. Schmitz.—p. 432.

Ammonium Chlorid in Infantile Tetany.—Freudenberg and György report that by the internal administration of ammonium chlorid (from 3 to 7 gm. per diem) to spasmophilic infants they were able to check the mechanical and faradic nervous hyperexcitability and rid the patients of the manifest symptoms of tetany. The procedure is adapted to practical application, but should be employed only in manifest and not in latent tetany. In one case of postoperative tetany it was shown to be efficacious. In some instances the medication had to be kept up for ten days. It averts the acute danger and time is gained in which to bring about a permanent change in the condition by means of cod liver oil and quartz lamp irradiation. Ammonium chlorid is preferable to calcium chlorid for the reason that it is pleasanter to take. The writers have sometimes found it absolutely impossible to get children to take the required dose of calcium chlorid (from 6 to 8 gm.). The effect of ammonium chlorid is, to be sure, only symptomatic.

Mitteil. a. d. Grenzgeb. d. Med. u. Chir. Jena

1922, **34**, No. 5

*Variations in Freezing Point of Urine. Elfeldt.—p. 567.
Cure of Occipital Cortical Epilepsy After Removal of Projectile. H. Kunz.—p. 591.
"Form of Chronic Paronychia." Tillmann.—p. 596.
"Occult Hemorrhage." H. Peiper.—p. 598.
*Distribution of Leukocytes. H. Ruef.—p. 601.
*Testicles and Electric Responses. Melchior and Nothmann.—p. 612.
*Spondylitis. H. Quincke.—p. 624.
Etiology of Hirschsprung's Disease. K. Vogel.—p. 637.
Behavior of Tissues under Saline. P. Rostock.—p. 644.
Action of Iso-Agglutinins and Isolysins in Blood Transfusion. F. Jervell.—p. 650.
*Agglutination in Diagnosis. J. and J. Vorschütz.—p. 662.
*Water Test in Diagnosis of Gastric Ulcer. F. L. Bonn.—p. 678.

Freezing Point of the Blood.—Elfeldt presents further evidence that the freezing point of the blood depends on a number of factors both renal and extrarenal. His long tabulated series of cases of sound and diseased kidneys, enlarged prostate, etc., confirm the necessity for the subjects being in water balance for tests of the freezing point to be instructive.

Distribution of Leukocytes.—Ruef gives the leukocyte count in blood taken from different parts of the body before and after a major operation. The findings throw doubt on the accuracy of estimation of the total leukocytes from the number found in the peripheral blood. A man with 5,000 leukocytes in blood from the ear may have around 20,000 in blood taken from an internal organ.

Influence of Testicles on Electric Excitability.—In fourteen cases, more or less of the testicles had been removed for various reasons, and in twelve of these fourteen subjects the response to electric tests thereafter was much increased. The results of experiments on dogs coincided with this. The changes in electric excitability seem to be a manifestation of endocrine disturbance. Investigation of the electric excitability may thus throw light on disturbances in the balance of the endocrine system.

Spondylitis.—Quincke has encountered a number of cases in which supposed muscular rheumatism of the back had persisted for several months but the tenderness of the spinous processes finally imposed the diagnosis of spondylitis. In all there had been an acute infectious disease or suppurative lesion not long before. The bacteria invade the bone marrow of the vertebrae early in acute infectious diseases, typhoid, a streptococcus process in a tooth, or other infectious process. This invasion may be the explanation of the pains in the back at the onset of typhoid and other infections. The marrow process usually retrogresses without leaving a trace, but occasionally it leads to actual spondylitis, and a trauma may first call attention to it. He describes a number of cases, and emphasizes the necessity for greater care of the spine in acute infectious diseases, relieving it of weight bearing and warding off strain and trauma. In one of the cases cited, the spondylitis developed, with fever, two months after defervescence in typhoid.

Agglutination in the Blood in Diagnosis.—Vorschütz states that hemagglutination is identical with bacteria agglutination; also that it is an electric process, and depends on the proportion of globulins. The speed of sedimentation of the erythrocytes also depends on the proportion of globulin.

The Water Test in Diagnosis.—Bonn refers to the differentiation of gastric ulcer from cancer by the difference in the excretion of water and salt. His tests failed to confirm recent statements to this effect.

Monatsschrift für Geb. und Gynäkologie, Berlin

March, 1922, **57**, No. 3-4

Histology of Physiologic Menstruation. K. Lindner.—p. 119.
*Heart Disease and Pregnancy. A. Nelius.—p. 127.
*The Kielland Forceps. A. Mayer.—p. 138.
Twenty Years of Rural Obstetrics. Schroeder.—p. 143.
*Pubiotomy Outside of Pregnancy. W. T. Schmidt.—p. 155.
Pregnancy in Stump of Tube. J. Diemer.—p. 157.
Nonparasitic Cysts in Spleen. E. E. Pribram.—p. 164.
Ancient Books on Obstetrics. O. Feis.—p. 171.

Heart Disease and Pregnancy.—Nelius' data confirm that it is almost impossible to foretell the outcome when a woman with heart disease becomes pregnant. The course may be favorable with a serious valvular defect, and may be grave with an insignificant heart lesion. Women with grave disturbances at one pregnancy may have no trouble at the next one, and so on. In his fifty-three cases in twelve years it was evident, however, that the earlier in the pregnancy compensation failed, the graver the prognosis. With failing compensation, expectant treatment under close supervision may tide through to safety.

The Kielland Forceps.—Mayer concludes his illustrated description of this instrument and its application with the remark that it is not yet to be recommended to the general practitioner. It has proved, he says, very valuable for certain conditions, an actual *vergeisterung* of the forceps procedure. It was described in The Journal, July 9, 1921, p. 142.

Pubiotomy Outside of Pregnancy.—Schmidt has constructed a pelvis dilator which screws the edges of the bone apart when the pubis is divided. With this, the limits for pubiotomy can be reduced to a conjugate diameter of 6.5 or even 6 cm. This operation outside of pregnancy, or very early in a pregnancy, represents a much less serious operation than when done at term, and the dilator insures that the cleft will not close up again.

Wiener klinische Wochenschrift, Vienna

March 23, 1922, **35**, No. 12

*Influencing of Pulse Beat by Sense of Taste. M. Heitler.—p. 263.
Dermatitis During Treatment of Syphilis. J. Klaar.—p. 266. Conc'n No. 13, p. 297.
Angioma in the Deep Neck Musculature. H. Finsterer.—p. 269.
A Method of Staining of Reticular Fibers. R. Maresch.—p. 270.

Influencing of Pulse by Sense of Taste.—Heitler reports the results of research which apparently demonstrate that the pulse beat can be modified by the mere taste of certain foods, drugs, beverages and condiments.

April 6, 1922, **35**, No. 14

*The Appendix and the Adnexa Uteri. H. Thaler.—p. 311.
Treatment of Febrile Abortion. E. Mauthner.—p. 315.
Neo-Silver-Arsphenamin. K. Ullmann.—p. 316.
*Childbirth After Death of Mother. Strassmann.—p. 322.
Simple Blood Staining Method. J. Hickl and N. Jagič.—p. 323.
Meningitis Serosa in Appendicitis Gangraenosa. Steiger.—p. 324.
Old Age and Cancer Formation. F. Orthner.—p. 324.

The Appendix and Affections of the Adnexa Uteri.—Thaler reports that in 777 laparotomies performed during the past eleven years for inflammation of the adnexa in the Women's Hospital in Vienna he found thirty-one cases in which the appendix was adherent to the right adnexa. A study of these thirty-one cases revealed that there was only one instance in which the appendix was diseased and the adherent right tube was healthy. In the remaining thirty cases it could be shown from the anamnesis, the local findings and the behavior of the opposite adnexa that it was highly probable that at the time the adhesions formed the right adnexa were in an abnormal condition. There was no evidence of a direct extension of an inflammation of the appendix to the central portions of tubes still healthy at the time of the formation of the adhesions.

Delivery Thirty-Six Hours After Death.—The macerated fetus measured 24 cm., and conditions showed that it had been expelled by gases within the uterus. The woman of 32 had died two days after a chill and other symptoms had suggested possible criminal abortion.

Zeitschrift für klinische Medizin, Berlin

1922, **93**, No. 4-6

*Physiology and Pathology of Amount of Blood. J. Plesch.—p. 241.
Typhus in Moscow 1917-1920. D. Pletnew.—p. 285.
*The Hemoclastic Crisis. P. Holzer and E. Schilling.—p. 302.
*Idem. W. Worms and H. Schreiber.—p. 323.
*Surface Tension of Urine in Diagnosis. W. Schemensky.—p. 334.
*The Arneth Blood Picture in Scurvy. T. Hausmann.—p. 346.
The Constitution in Relation to Appendicitis. W. Backman.—p. 358.
*Diastase in Blood and Urine in Diagnosis. W. Block.—p. 381.
*Size of Erythrocytes in Different Diseases. L. Csáki.—p. 405.
Influence of Stomach Function on Carbohydrate Metabolism. N. Roth and Z. Ernst.—p. 417.
*The Prognosis in Kidney Disease. S. Litzner.—p. 424.
*Acute Nephritis without Albuminuria. L. Mayer.—p. 460.

The Total Amount of Blood.—Plesch advises against forbidding meat and salt for longer than six weeks, for any cause, but a protein-poor and salt-poor day once a week is extraordinarily effectual in the chronic diseases of middle age. Nearly all religions make fasting at some time a regular law, but this provision undoubtedly at first was merely for hygiene. His research has provided a base for venesection, fasting, and various forms of dietetic treatment, as he explains. His tables show the blood findings in fifty cases, and the effect of venesection, etc.

Test Hemoclastic Crisis.—Holzer and Schilling noted a positive hemoclastic crisis with liver disease, and with congestion in the liver from heart disease, also often after arsphenamin injections, and with subacidity, but the response was variable in infectious diseases. The findings with various tests in fifty-one patients are tabulated. Peptone had a similar action, the number of leukocytes running up in the healthy, and dropping when there was liver disease.

The Hemoclastic Crisis.—Worms and Schreiber report thirty tests on twenty-five patients. They regard the leuko-Widal, as they call the test, as indicating merely a change in the distribution of the leukocytes. The response is not very constant or reliable, and can be depended on as an important clinical symptom only when the reaction is intense or there are special circumstances. The reaction is not proportional to the severity of the liver process, or its nature, and a negative response does not exclude liver disease.

Surface Tension of the Urine in Prognosis.—Schemensky was surprised at the close parallelism between the stalagmometer curve and the clinical course in his latest series of nine cases of acute articular rheumatism, glomerular nephritis, and tuberculosis of the lungs. In one other case of nephritis the stalagmometer quotient has kept high although the disease has long been progressively improving; no explanation of this behavior can be discovered. It is possible that the apparent cure of the nephritis in this instance may be deceptive.

The Blood Picture with Scurvy.—Hausmann classifies the leukocytes by the Arneth differential count in scurvy, specifying some characteristic changes, reduction in numbers of neutrophils, and absence of features suggesting infection.

Amylase in Diagnosis.—Block regards the amylase (diastase) in blood and urine as an aid in the diagnosis of the most diverse pathologic conditions, as he describes, with nearly four pages of bibliographic titles set solid.

Size of Erythrocytes.—Csáki has often noticed that the size of the erythrocytes seemed to correspond always to the hemoglobin percentage. Any change in one was accompanied so promptly by a corresponding change in the other that he is inclined to believe that the red corpuscles can regulate their own hemoglobin content. With nephrosis, there is microcytosis, probably from the increase of salt in the plasma. With nephritis, on the other hand, the size of the erythrocytes is not modified.

Prognosis of Kidney Disease.—Litzner's thirteen pages of tabulated details of 75 cases of nephritis allow retrospective analysis of the probable outcome. The more intense the hyposthenuria, the nearer the end. Some with arteriosclerotic contracted kidney survived for many years, up to decades. The prognosis at the time in the 75 cases was correct in all but 5; in one of these it was too favorable, in the others too unfavorable. His tables list fourteen kinds of details.

Acute Nephritis Without Albuminuria.—Two cases are described. In one the tuberculous young man was in good condition when he suddenly developed acute glomerular nephritis, with anuria and dropsy, but no albumin for a week. Then came slight albuminuria, and death the eighteenth day. The acute nephritis without albuminuria was mild and transient in the other young man.

Zentralblatt für Chirurgie, Leipzig

Feb. 25, 1922, **49**, No. 8

Appearance of Tetany After a Gastro-Enterostomy. Baumann.—p. 250.
*Operation for Postoperative Jejunal Ulcer. H. Alapy.—p. 253.
Suprarenal Extirpation and Epilepsy. E. Heymann.—p. 255.
Technic of the Henle-Albee Operation. J. Elsner.—p. 257.

Operation for Postoperative Jejunal Ulcer.—Alapy (Budapest) recommends, in cases of postoperative peptic jejunal ulcers that arise after gastro-enterostomy on account of a constricting duodenal ulcer, that normal anatomic conditions be restored by excision of the jejunal ulcer, resection of the anastomosis loop, with end-to-end suture, plus pyloroplasty.

Casopsis Lekaruv Ceskych, Prague

March 4, 1922, **61**, No. 9

Notes on Internal Medicine at London. B. K. Prusik.—p. 177.
Technic of excochleation and Cauterization of Cancer of Uterine Cervix. A. Micka.—p. 182.
*Coexistence of Different Species of Malaria Parasites. E. Sieber.—p. 184.
Otosclerosis and Chronic Progressive Loss of Hearing. Goldmann.—p. 186.

Coexistence of Different Species of Malaria Parasites.—The second species is less resistant than the old strain. Syphilis appears in a patient with malaria at first with very marked symptoms, which however diminish. The Wassermann reaction remains negative in the spinal fluid, while it is positive in the serum. The low percentage of parasyphilitic diseases in countries infested with malaria may be in connection with this fact.

March 11, 1922, **61**, No. 10

Analysis of Immunity by Partial Antigens. J. Jedlicka.—p. 201. Conc'n No. 12, p. 252.
*Effect of Epinephrin on Fibrinogen in Blood. F. Vanysek.—p. 204.
Acute Myeloid Leukemia. E. Zeman.—p. 207. Conc'n No. 12, p. 255.

Amount of Fibrinogen in Blood After Injection of Epinephrin.—The fibrinogen increases early and quickly, except in cases with alimentary glycosuria.

March 18, 1922, **61**, No. 11

*Treatment of Postencephalitic Parkinsonian Syndromes. K. Henner.—p. 233.

Treatment of Postencephalitic Parkinsonian Syndromes by High Doses of Sodium Cacodylate.—Henner confirms the good results obtained by Bellarmin Rodriguez and Souques. Doses up to 2.6 gm. (!) were tolerated, when injected intravenously in a 50 per cent. solution, though Souques published some untoward results. Henner considers these injections as the treatment of choice.

March 25, 1922, **61**, No. 12

*Ability of the Young to Produce Precipitins. F. Luska.—p. 249.

Ability of Young Individuals to Form Specific Precipitins.—A perfect parallelism could be demonstrated in young rabbits between the H ion concentration of the serum, the flocculation of the serum by small amounts of alcohol, and the formation of specific precipitins. In very young rabbits with a p_H smaller than 7, the flocculation required more alcohol and no specific precipitin formation could be obtained by injections of horse serum. The increase in p_H was not due to the injections, as it occurred in the untreated controls too, but not in the mother of the rabbits serving as positive control. The increase of the ability to flocculate with age points to Ruzicka's theory of the hysteresis of the protoplasma. The impossibility to find specific precipitins in rabbits 4 to 5 weeks old means only that it is not possible to demonstrate their presence by the methods now used.

Finska Läkaresällskapets Handlingar, Helsingfors

March-April, 1922, **64**, No. 3-4

*Xanthosarcomas in Tendon Sheaths. A. Krogius.—p. 102.
*Chronic Stomach Disease. R. Ehrström.—p. 122.
*Arteries in Kidneys and the Blood Pressure. A. Wallgren.—p. 138.
*Lack of Water in the Tissues. R. Ehrström.—p. 152.
The Evolution of Pediatrics. W. Pipping.—p. 155.
Influenza at Helsingfors, 1918-1921. H. Sundelius.—p. 172.
Tuberculosis in Rural Districts. S. Savonen.—p. 186.

Xanthosarcomas in Tendon Sheaths.—In connection with 4 cases personally observed and one of multiple xanthoma, Krogius reviews the history of these growths, and protests against the general assumption that they are comparatively benign tumors. Of the 93 cases compiled by Tourneaux in 1913, the finger was the site of the lesion in 48, the hand in 12 and the forearm in 6; 19 were on the foot and one on the leg. The age ranged from 6 to 80. These tumors may grow very slowly and be stationary for years, and then start to sudden rapid growth, or they may be malignant from the first. Those on the fingers have seemed to be the most benign while those on the forearm, hand and foot seemed most malignant. In one of his cases there was local recurrence a year after removal of the tumor in the foot. In 6 of the total 93 cases there was metastasis in lungs, liver, etc., and recurrence was known in 21. He reiterates that the general assumption that tendon sheath tumors are benign growths must be abandoned, except for the small ones on fingers. All others demand prompt removal, and if adjacent tissues are involved, testifying to extreme malignancy, amputation should be considered as for malignant disease in general.

Chronic Stomach Disturbance.—Ehrström remarks that notwithstanding the roentgen rays, the stomach tube and the findings at operations, there are certain cases of stomach disturbances in which no explanation can be found for the patient's complaints. On the other hand, grave organic lesions may develop without subjective symptoms. Krogius' compilation of 129 cases of perforation of a gastric ulcer included 15 in which the perforation was absolutely the first symptom to call attention to the stomach, and 8 in which there had been subjective symptoms for only from one to four weeks, although in some the ulcer was hard and evidently of long standing. With symptoms typical of ulcer, the operation may show the stomach apparently intact; gastro-enterostomy, however, cures the symptoms. The disturbance seems to be a chronic intermittent dyspepsia. (A similar article was briefly mentioned on page 88.)

The Arteries in the Kidneys in Relation to the Blood Pressure.—In the 128 cadavers in which Wallgren paid special attention to the renal arteries, nothing was found which conflicted with the assumption that the severe changes in the kidney vessels were due in large part to the high blood pressure that had prevailed during life. There was nothing to prove that the arteriosclerosis had preceded the hypertonia.

Lack of Water in the Tissues in Relation to Acetone Elimination.—Ehrström noticed in a case in 1906 that after a period of profuse vomiting there was a strong odor of acetone on the breath. It subsided after saline infusion. Other experiences of the kind since have confirmed the connection between the condition of water deficit entailed by profuse diarrhea, repeated vomiting, etc., and the appearance of acetone in the breath and urine. In fever cases with much acetone, his investigations always revealed that there had been unusually small intake of fluids. Increasing the intake of fluids seemed to reduce the acetone. This sequence explains also the acetonuria in the insane refusing food; as they refuse food, the intake of fluids is proportionately reduced. The thirst and the polyuria in diabetes throw further light on this connection. Both the water deficit and the acetone excretion are linked with the excess of sugar in the blood, the tissues suffering from the lack of fluids and of carbohydrates. Ehrström's article has already been mentioned, p. 88.

Hospitalstidende, Copenhagen

April 1, 1922, **65**, No. 9

*Influence of Exercise on the Temperature. C. H. Würtzen and C. Holten.—p. 133. Begun No. 7, p. 101.

Influence of Exercise on the Temperature in the Tuberculous.—Würtzen and Holten give 19 pages of the tabulated findings in regard to the stage of the tuberculosis and the fluctuation of the temperature after a 15 minute walk and after a 10 minute and a 5 minute walk, as also in 27 healthy controls. The temperature showed some modification up or down in 52 per cent. of the tests on the normal after the 5 minute walk; in 64 per cent. after the 10 minute, and in 39 per cent. after the 15 minute walk. In the tuberculous, the rise in temperature might occur a little earlier and last longer than in the normal, but the percentage affected was only from 15 to 27 after the 5 minute walk; from 27 to 45 after the 10 minute, and from 59 to 61 per cent. after the 15 minute walk. There is thus no regularity in the behavior of the temperature after exercise, in either sick or well, no definite limit between the normal and the pathologic.

April 20, 1922, **65**, No. 11

*Proportional Size of Lung and Chest. C. Lundsgaard and K. Schierbeck.—p. 173.

Lewandowsky's Nevus Elasticus. C. With and A. Kissmeyer.—p. 181.

The Proportionate Size of the Lung.—Lundsgaard reports that further research on twenty-seven normal adults has confirmed the findings previously published from study of a group of eighteen subjects. From the chest measure during maximal inspiration, maximal expiration, and the middle position, the total volume, the residual air and the medium capacity of the lungs can be estimated and compared.

Ugeskrift for Læger, Copenhagen

April 13, 1922, **84**, No. 15

*Roentgen Ray Therapy of Exophthalmic Goiter. J. F. Fischer.—p. 345. Conc'n No. 16, p. 385.

Puzzling Roentgenograms of Stomach. A. Borgbjærg.—p. 362.

Dermatitis from Fur Dye. C. Rasch.—p. 365.

April 20, 1922, **84**, No. 16

Ulcerative Gastritis. A. Borgbjærg.—p. 375.

Radiotherapy of Exophthalmic Goiter.—Fischer reviews his 490 cases. The improvement realized by the radiotherapy has persisted in the majority during the years since. His entire 490 cases included only eleven men. In 8 cases the thyroid had been previously resected. The interval from the first symptoms ranged from six months to five years in the majority, and the age in all from 24 to 63. Fourteen cases are described with illustrations. The weight increases as the benefit is felt; a gain of 5 kg. is common, and gains up to 10 or 20 kg. have been observed. Sweating and diarrhea were promptly arrested, as also the glycosuria noted in 3 per cent. Tachycardia was the most constant symptom, and this disappeared entirely in 25 per cent. and was materially modified in a further 50 per cent. In the others, the pulse kept at about 100 to 120 but the patients felt well. Exophthalmos was the hardest to influence of all the symptoms, whether treatment was by raying or by operation, but it subsided completely in some. The effect was more pronounced the more recent the exophthalmos. In about a third of the patients, the goiter persisted, although the general condition had been very much improved. In the other two thirds the thyroid returned more or less completely to its normal size. The soft goiters yielded soonest; the hard first became soft, and then slowly subsided. Recurrence was very rare in private patients, but certain working women had the symptoms return later, and a second course of treatment was given. Four cases are on record in Danish literature in which the patients died after roentgen exposures, and the radiotherapy was incriminated for the fatalities. But Fischer here reports two similar cases of suddenly fatal exophthalmic goiter differing only in that radiotherapy had not been applied. Otherwise the conditions seemed to be identical. All these fatal cases were in the severer forms of exophthalmic goiter, and these forms call for extra caution. In the 30 cases of pregnancy while the women were under observation no influence on the gestation from the radiotherapy could be discovered, and the pregnancy did not aggravate the hyperthyroidism. In the severe cases the cross-fire dose was 3 H units; if this was borne well, then 8 or 10 units a month later. The mild cases were given the latter dose to start with. In mild, rudimentary cases, the radiotherapy usually insured a permanent cure. If the roentgen treatment had not benefited in two or three months, it was considered useless to continue it. He says that the radiotherapy never renders an operation later more difficult. Stationary chronic forms should be given operative treatment on account of the danger of degeneration of the myocardium; radiotherapy is only the second choice in this group. The more recent the case, the greater the chance of cure under radiotherapy, which may be said to be quite harmless.

April 27, 1922, **84**, No. 17

*Cholelithiasis. S. Hansen.—p. 405.

Gallstones.—Hansen declares that it is not a casual happening that there were only twenty-six deaths from appendicitis during a recent twenty-one months while there were forty deaths from cholelithiasis, although the total of cases, 293, was much less than of the appendicitis cases. Appendicitis is treated rationally, the surgeon is called in early, while delay in the differential diagnosis and expectant treatment wastes valuable time with gallstones. In nine of the forty cholelithiasis deaths the patients were in the medical ward. The bile ducts were normal in 43 per cent. of the 293 cases; cancer was found in the gallbladder in three cases.

May 4, 1922, **84**, No. 18

*Diet in Tuberculosis. M. Hindhede.—p. 433.

*Micromethod for Chlorin in the Blood. P. Iversen and N. J. Schierbeck.—p. 454.

*Bangs' Chlorin Micromethod. P. Iversen.—p. 456.

May 11, 1922, **84**, No. 19

Shape of Chest Determines Shape and Position of Stomach. K. Faber. —p. 479.

The Diet in Tuberculosis.—Hindhede has long been the apostle of the advantages of a milk-vegetable diet. His dictum is "*Stinkende ekskrementer* are incompatible with wellbeing." In this communication he emphasizes that no exception should be made for the tuberculous. Otherwise we handicap and cripple them in their fight with the disease. At Leysin, Rollier has sanatoriums for all purses, and those paying the highest prices are given meat, while in the cheaper establishments the fare, he says, "out-Hindhedes Hindhede." But the statistics show, year after year, that the cures are more numerous and more complete in the less expensive than in the high priced quarters. Rollier told Hindhede that he is convinced that it would be to the great advantage of the tuberculous to drop meat from the menu. But he feared that if he did this his motives would be misconstrued. Hindhede presents further an array of data from various sanatoriums in Switzerland and Denmark, which justify the conclusion, he says, that there is no evidence that a diet rich in meat and fat offers any advantage for the tuberculous.

Test for Chlorids in the Blood.—The Hagedorn and Norman-Jensen micromethod is applied as for sugar in the blood, and the filtrate is tested for chlorin by the Vollhard method. This micromethod is not so simple as Bang's, but comparative tests showed that it is considerably more exact. The technic is described in detail.

The Bang Test for Chlorids in the Blood.—Iversen reports experiences which confirm that the Bang micromethod gives from 1 to 3 per cent. too low values for the chlorin content of the blood.

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BRONCHIAL LYMPHADENOPATHY, NONTUBERCULOUS *

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The tremendous number of observations that have been made on tuberculosis of the bronchial lymph nodes during the last hundred and fifty years yields a literature fairly surcharged with experimental and clinical data. An investigation of the work that has been done on the acute or subacute bacterial infections, on the other hand, is particularly striking on account of its paucity.

Several explanations can be deduced for this interesting status. It has been recognized, ever since the publication of Lalouette in 1780 (Traité des scrofules), and Leblond in 1824, that tuberculosis of the bronchial lymph nodes is a distinct disease. Furthermore, Louis (1825), Laënnec (1837), Fischer and others have emphasized the fact that tuberculosis is the most common disease of these lymph nodes and it occurs more frequently in them than in any other viscus of the body. It must be remembered that this information has been largely gathered from postmortem examinations, so it is not surprising that so much attention has been focussed on it. Acute and subacute infections of the bronchial lymph nodes have been studied by very few men, for the following fundamental reasons: (*a*) necropsy material has always been very scarce; (*b*) when available, it has been so overshadowed by the associated lesions in the respiratory organs, that its importance has been overlooked, and (*c*) the diagnosis may for obvious reasons be considered most difficult, both as to classic symptomatology and physical signs.

THE LITERATURE

It is highly interesting, in referring to certain fundamental facts that have been deduced concerning the anatomy and physiology of the bronchial lymph nodes, to review briefly some of the pioneer work that has been accomplished. Modern medicine is too much inclined to take for granted the investigations of the eighteenth and nineteenth centuries, forgetting men whose efforts and studies should always be a source of great stimulation. Becker, in 1826, following the researches of Mascagni and Cruikshank, divided the thoracic lymph nodes into (*a*) parietal and (*b*) visceral. It remained for a Frenchman, Barety, however, so comprehensively and thoroughly to describe these glands, that, up to the present time, practically nothing has been added to his observations. His description has become so classic that scarcely a reference can be found, either anatomic or clinical, that does not quote him in great detail. He describes a tracheobronchial region that is comprised of all of the mediastinum except the heart. It is bounded above by the superior opening of the thorax, below by a plane, where the pulmonary veins empty into the left auricle. It is limited in front by the sternum, behind by the vertebral column and laterally by the lungs. Barety divides the mediastinal glands into three groups: (1) pretracheobronchial right and left; (2) intertracheobronchial or subbronchial, right and left, and (3) interbronchial.

1. The pretracheobronchial group of glands occupies the anteriosuperior side of the obtuse angle, which is formed externally by the trachea and principal bronchus. They are situated on both sides, but hypertrophy and degeneration are found more commonly on the right.

2. The intertracheobronchial or the subbronchial right and left groups of glands lie on the under surface of the main bronchus. They are more numerous on the right than on the left side.

3. The interbronchial groups of glands occupy the angle of division of the bronchial tubes. They are found in the bronchial divisions up to the fourth order.

The physiology of the lymph nodes is so intimately associated with pathology and bacteriology that their normal function has been extensively studied by investigators in these allied sciences. Councilman, in the Harvey lectures, 1906-1907, in describing the changes in the lymphoid tissue in certain of the infectious diseases, stresses several salient facts. In the masses of small lymphoid cells, particularly along the convexity, are round or oblong foci of differentiated cells. They were first described by His, and later more fully studied by Fleming, who regarded them as centers of cell production or germinal centers. He especially emphasizes the fact that, in the study of the lymphoid tissues, one is impressed by a striking feature, i. e., its preponderance in childhood. They play an interesting rôle in the pathology of the tissue. Oertel first demonstrated that, in diphtheria, areas of necrosis occur in the lymph nodes, corresponding to the germinal centers. Similar changes are observed in scarlet fever, variola and other conditions.

Manfredi, in an experimental study on the function of lymph nodes, found that they act against bacteria by: (1) filtration; (2) diminishing the strength of the bacteria, whereby their virulence is partly or wholly lost, and (3) bringing into contact with the invading organisms the immune substances that are elaborated by the body in general. Next to the skin and mucous membranes the lymph nodes act as the strongest barrier against bacteria. Manfredi's experiments throw interesting light on the question of latency of bacteria in the lymph nodes, a subject to which too little attention has been paid in the study of infection and immunity. He found that *Staphylococcus pyogenes-aureus* lived latently in the lymph nodes of guinea-pigs forty days and in those of dogs, thirty days, while *B. typhosus* was present in guinea-pigs sixty days and in dogs thirty days. Pneumococci that were recovered from the lymph nodes did not kill rabbits; the same organisms cultivated from the blood or spleen were fatal to rabbits. Typhoid bacilli recovered from the glands lost their virulence for guinea-pigs, while the virulence of staphylococci and tubercle bacilli was definitely diminished by passage through the lymph nodes.

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* Chairman's address, read before the Section on Diseases of Children at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

Baumgarten found that, following the intravenous injection of tubercle bacilli, animals developed a generalized tuberculosis of the lymph nodes, and that only when the glands could no longer hold back the bacteria did they get into the blood stream through the veins and invade the other viscera. He considered this highly presumptive evidence of the elective capacity of the lymph nodes to absorb circulating bacteria.

Loomis, Kalbe, Piccini and many others were able to demonstrate by animal inoculation the latency of tubercle bacilli in the bronchial lymph nodes of people in whom there was neither macroscopic nor microscopic evidence of tuberculosis. Kalbe, by cultivating and injecting lymph node material into animals, recovered streptococci, staphylococci, pneumobacilli and pneumococci, the last two of which were fatal in white mice in twenty-four hours, while the first two produced local abscesses in a number of instances. Perez, in eighty-eight cases, found latent bacteria most frequently in the subcutaneous lymph nodes; then in the bronchial group, and least often in the mesenteric glands.

The incidence of enlargement of the lymph nodes in childhood is so striking as scarcely to warrant statistical verification. It may, however, be well to comment on the fact that Laser, in examining 2,506 children, found that those from 7 to 9 years of age had enlargement of the glands in 96 per cent. of the observations; from 10 to 12 years, in 91.6 per cent., and from 13 to 14 years, in 84 per cent. Baer, reporting on twenty-five new-born infants and 350 older infants and children, rather cynically stated that nearly all children had enlarged lymph nodes.

In summarizing these investigations in an effort to determine their bearing on infections of the bronchial lymph nodes, the following facts assert themselves:

1. Lymphoid tissue is strikingly predominant in childhood.
2. The activity of the tissue can be judged by the presence of the germinal centers, which are rarely absent during this period.
3. Enlargement of the lymph nodes in the child is so common as to be almost constantly demonstrable.
4. Bacteria, in a latent stage, are present in many of these glands.
5. The virulence of these organisms is frequently attenuated.

It must, therefore, be strikingly apparent to all clinical observers that the lymphatic apparatus in childhood is constantly engaged in a system of defense against pathogenic organisms, whereby there is gradually developed for the body an immunity against these bacteria. Only a slight realization of this stupendous function is necessary to make one appreciate the great incidence of infections of the bronchial lymph nodes.

A careful survey of the literature bearing on the clinical signs of acute and subacute bronchial lymph node infections reveals the striking fact that it is extremely difficult to find records of observations sufficiently detailed to make a symptomatic diagnosis possible. Zabel quotes no less an authority than Heubner, who states in his textbook that the disease picture in enlarged bronchial glands is uncertain, and no one symptom can be a guide to an absolute diagnosis.

In an effort more definitely to stabilize the clinical manifestations of this important subject, a study has been made of a large number of cases in which physical examination and roentgen-ray findings have, as far as is possible, established the presence of an acute or a subacute bronchial lymphadenitis.

CASE GROUPS

The cases divide themselves into five groups, which may be arbitrarily described as:

1. Those in which malnutrition is the cardinal symptom: malnutrition type.
2. Those in which frequent colds or persistent cough is the primary symptom: subacute bronchitis type.
3. Those in which a pertussis-like cough is the most striking evidence: pertussoid type.
4. Those in which a low grade febrile course is the essential complaint: chronic febrile type.
5. Those in which there has developed persistent attacks of asthmatic bronchitis following an acute respiratory infection, usually a pneumonia: asthmatic type.

It may be presumptuous to attempt a classification of this sort in a disease picture that has always been accepted as somewhat ambiguous. In an effort to justify this classification, a more detailed outline of the typical history and symptomatology in each group is desirable.

1. *Malnutrition Type.*—These children are brought for medical advice usually on account of their general appearance. The most common complaint is that they have not looked well for a variable period, from several weeks to as long as from two to three years. They are often below weight and give a history of not having gained for a long time. The appetite is poor and the color pale. Fatigue and languor are frequently a source of worry, and the complaint is elicited either that the child never cares to play or exercise, or that, if persuaded to indulge in this form of recreation, he becomes fatigued in a short time. Digestive symptoms may develop, and one not infrequently hears that, incidental to his general lack of well being, the child has equivocal gastro-intestinal disturbances, for which there is no explanation. Notation may have been made of a slight afternoon rise in temperature, although this is rare.

2. *Subacute Bronchitis Type.*—The clinical picture in this class of case is somewhat variable. Most frequently there is present a chronic cough, with which there is little, if any, expectoration. The cough is liable to be more pronounced at night, although it is rarely severe enough to wake the child. In other cases, the essential element is the marked frequency of infectious colds, in which, notwithstanding their mildness, the symptoms persist for a long time. These children are much more liable to have a distressing cough with the upper respiratory infections; and when all other signs of an inflammatory process have subsided, the cough remains an irritating feature. Any of the general evidences of toxemia present in the malnutrition

type, loss of weight, pallor, poor appetite or lack of energy, may be present.

3. *Pertussoid Type.*—From an historical and from a clinical standpoint, this group of cases presents the most fascinating characteristics. In 1780, Lalouette, commenting on the symptoms in tuberculosis of the bronchial lymph nodes, called attention to the persistent cough, which was so changed in character that a diagnosis of pertussis was frequently made. Leblond, in 1826, described this same cough in patients with enlarged bronchial glands. Ley (1834) noted, in children with enlarged glands, attacks of violent coughing with a sonorous inspiration resembling whooping cough. Verliac, in 1865, stated that if the spasmodic cough lasted too long after pertussis, bronchial gland disease must be suspected. Daga emphasized the fact that the cough in bronchial gland involvement often returned in crisis, and that it was frequently spasmodic and had a peculiar sound, like the bark of a dog. Finally, Rilliet and Barthez commented on the fact that in these cases the diagnosis between pertussis and bronchial adenopathy was often difficult, if not impossible.

A careful consideration of the histories of this type of case reveals some interesting observations. It seems definitely possible to divide this group into several subdivisions, depending on the manner of development of the classic symptoms. One striking feature of these subdivisions is that they seem strongly influenced by the nature of the etiologic agent. Incidental to the epidemics of influenza that have been present during the last few years, cases of this type have been common. They group themselves into two subdivisions: (*a*) cases in which the pertussis-like cough has developed within a few days of the onset of the disease, and (*b*) cases in which this peculiar symptom has not become manifest for a considerable period of time, during which the essential symptom has been an ordinary cough incidental to the acute bronchitis.

The children in the first group are taken ill usually with the symptoms of a mild upper respiratory infection, malaise, moderate rise in temperature, coryza and slight cough. Within from two days to a week, these symptoms disappear, and the patient develops a cough which is at first described as harsh and barking and which rapidly becomes paroxysmal, developing a whoop so like pertussis as to make the differential diagnosis very difficult. There are, however, several important distinguishing features in this type of bronchial gland disease, which usually make its differentiation from whooping cough possible: (1) The paroxysmal character of the cough develops within a much briefer period, a few days instead of two weeks. (2) The actual length of the paroxysm preceding an inspiratory whoop is shorter than in whooping cough. (3) Vomiting, while present, is less common. (4) Children exposed may develop the same syndrome, but often only show the signs of a mild upper respiratory infection. (5) The course of this group of cases in which the characteristic whoop is developed in a few days is usually much shorter than in pertussis, the paroxysmal cough disappearing at times in from one to two weeks.

The cases in the second group are as a rule more severe from the onset, and the symptoms of an acute bronchitis are more striking than those of the upper respiratory tract. After the symptoms of acute intoxication have disappeared, the cough persists, and its intensity is out of proportion to the physical signs ascribable to changes in either the lungs or bronchial tubes. The cough, which is at first harsh and barking in character, may retain this peculiarity, or may become distinctly paroxysmal and finally develop a typical whoop, which may last for many weeks or, rarely, for several months. Slight afternoon rise in temperature is occasionally present and, depending on the degree of toxemia, any of the symptoms described in the malnutrition type of the disease may be in evidence.

It is, by inference, perfectly apparent that all types of bronchial lymph node disease may develop following any respiratory infection in the pleura, lungs or bronchi, irrespective of the etiology. There are, however, two distinct diseases following which the chronic pertussoid type of bronchial lymph node disease is extraordinarily common; namely, measles and pertussis. The frequent incidence of this situation has been responsible for erróneous deductions, particularly on the part of the earlier clinicians. See, in 1854, submitted a work in which he proposed to show the analogy which existed between pertussis and certain of the eruptive fevers, especially measles. He contended that the cough, the fever, the catarrh and the contagiousness were comparable. He based his contention on his own observations and on an historical study which showed that, since 1732, many had been impressed either by the simultaneous appearance of the two diseases or by the observation that pertussis frequently followed measles.

In view of the fact that nothing was known at the time these conclusions were drawn concerning either the physical or roentgen-ray diagnosis of bronchial lymph node disease, and since, following measles, it is most common to find secondary infections of the bronchial glands with symptoms suggesting pertussis, it is not surprising that errors should have been made. Many of the earlier writers were likewise struck by the similarity of the clinical picture of tuberculosis of the bronchial lymph nodes and pertussis, and descriptions were also given of cases of chronic pertussis lasting sometimes as long as from two to three years, with a characteristic cough. As early an observer as Lalouette realized, in 1780, that this peculiar character of the cough was probably due to vagus irritation, but it was not until much later, in the middle of the nineteenth century, that the bearing of secondary involvement of the bronchial lymph nodes in pertussis was appreciated. Noël Guéneau de Mussy, taking up the question of the analogy between bronchial adenopathy and pertussis, says:

> I have already noted the pertussoid character of the cough in certain types of adenopathy. It is difficult not to admit that this is due to a direct or reflex action on the vagus by the diseased glands. I do not contend that in pertussis an adenopathy is the intermediary necessary for vagus irritation. I believe, though, that in many cases the glandular involvement mixes its symptoms with those of the disease of which it is the complication. I am disposed to attribute to pneumogastric irritation, by enlarged bronchial glands, the so-called cases of chronic pertussis, which last sometimes from two to three years. Without affirming that the convulsive cough of pertussis, which seems to point to an excitation of the vagus, is associated with an adenopathy, and without denying that this neurosis of the tenth pair of nerves can be a direct manifestation of the malady, one can at least point to the fact that the laryngeal spasm in pertussis occurs only several days and even weeks after the beginning of the pertussis and after the development of the bronchial congestion. If one

can show that, at this point, signs of an adenopathy appear, the correlation of the two phenomena would be infinitely probable.

Guéneau de Mussy's contentions grow much more probable and logical when one remembers the pertussoid cases previously described, in which the characteristic cough develops only a few days after the onset of influenza infections, in which by roentgen-ray and physical examination enlargement of the bronchial glands is definitely demonstrable.

4. *Chronic Febrile Type.*—These are the cases which are the greatest source of concern to the family and the medical advisor. They are characterized by a low grade febrile course, usually without any subjective symptoms beyond those associated with a slight toxemia, such as pallor and languor. The condition may start as a mild upper respiratory infection, more commonly an influenza than any other, so benign in character that the mother is instructed to keep the child in bed until the temperature has been normal for from twenty-four to forty-eight hours. Much to the surprise of every one, the temperature does not reach normal and there is an afternoon rise in temperature of from a half degree to 2 degrees, rarely higher, that may last weeks, months and even years. At times, there are present the characteristic symptoms seen in any chronic infection. At other times, the well-being of the child is not disturbed in the least; and, eventually, the rise in temperature is ignored in the absence of other signs of infection.

5. *Asthmatic Type.*—Considerable exception may be taken by clinicians, particularly those interested in protein hypersensitiveness, to the assumption that there is a type of asthmatic bronchitis due to subacute infections in the bronchial lymph nodes. This is particularly so when one realizes that most children who suffer frequent attacks of asthmatic bronchitis develop enlargement of the glands, incidental to the absorption from the low grade inflammatory process in the bronchial mucous membrane. On the other hand, every one recognizes that there is a definite form of hypersensitiveness which evidences itself by bronchial spasm, in which the sensitizing protein is bacterial in character; and what focus, in view of the experimental work that has been done on the latency of bacteria in lymph nodes, can play a more effective rôle than the bronchial glands? Add to this evidence the fact that, in these children, a history is frequently elicited of attacks of asthmatic bronchitis beginning following an acute upper respiratory infection, usually a pneumonia; and the circumstances combine to make the hypothesis even to the most skeptical, a tenable one.

PHYSICAL EXAMINATION

In estimating the value of physical signs in the diagnosis of bronchial lymph node disease, it seems advisable to divide the upper portion of the thorax into four divisions, in order of their importance: (1) the spinal column between the seventh cervical and the fifth dorsal vertebrae; (2) the interscapular regions; (3) the superior sternal regions, including the sternoclavicular articulations, and (4) the regions to the right and left of the sternum between the clavicle, above, and the third rib, below.

1. It is to d'Espine of Geneva that the greatest recognition is due for his contribution of the most consistent physical sign in bronchial lymph node disease. This sign, which now so familiarly bears d'Espine's name, was first reported to the French Academy of Medicine in 1904, although the original observation had been made in 1889, while he was studying the early diagnosis of pneumonia of the upper lobe. One can do no better than to translate literally a short description of the sign as originally reported:

> The first signs of bronchial adenopathy are furnished exclusively by auscultation of the voice and by observing its character, nearly always in the region of the vertebral column, between the seventh cervical and the first (upper) dorsal vertebrae, either in the fossae under the spinous processes or lower down in the interscapular spaces. The sign consists in a timbre (quality) added to the voice, which one can call chuchotement (whispering in the ear or whispered pectoriloquy) in the first stage and bronchophony in a more advanced stage.

D'Espine comments further on his observations:

> In young infants, it is necessary to auscultate the quality of the crying voice. In a normal child, the characteristic bronchial breathing emanating from the trachea ends abruptly at the seventh cervical vertebra, where the lungs begin. In bronchial adenopathy this bronchial breathing extends to a varying degree into the space between the seventh cervical and the fourth or fifth dorsal vertebra, corresponding to the last part of the trachea and the bifurcation of the bronchi. Sometimes in extensive adenopathy, the bronchophony extends to the region of the lamina, more to the right than to the left. If auscultation of the spoken voice or the cry does not give a satisfactory result, one can try the whispered voice in children who cooperate and get an aphonic pectoriloquy (chuchotement). It has the same value as bronchophony. This bronchophony is the earliest and sometimes the only sign of bronchial adenopathy. In certain cases, however, one can also find, on percussion over the last cervical and upper dorsal vertebrae, definite dulness. Increased dulness in this region always coincides with intense bronchophony.

In a later contribution, d'Espine further emphasizes the value particularly of the whispered voice in eliciting his sign and says:

> The sign is most obvious if one makes the child speak or count in a low whisper. The voice is then accompanied by an added whispering sound localized to one or two vertebrae or possibly extending to the fourth or fifth. Bronchial breathing over this area has the same diagnostic value except that it is an indication of more extensive enlargement.

It may be advisable, in briefly commenting on d'Espine's original article, to call attention to the fact that some confusion has occasionally occurred on account of errors in translation. If care is not taken in translating "les prémieres vertèbres" referring to the upper dorsal, in the plural, the whole sense of the observation is lost. As a matter of fact, it is fairly generally recognized that, in older children, it is within normal limits to have what appears to be a positive sign over the seventh cervical or first dorsal vertebra without enlargement of the bronchial glands. Koranyi stressed this point and contends that pectoriloquy is only indicative of large lymph nodes if it occurs below the seventh cervical vertebra in young children, below the first dorsal in those 8 years of age, the second dorsal in those of 12, and the third dorsal in children 15 years old. The sign is brought out much more clearly if the child is instructed to bend the head slightly forward and fold the arms in front of the chest.

2. The spaces between the spine and the scapulae, even though their importance has been discredited by the French school, offer interesting and frequently striking evidences of bronchial gland disease. Dulness in this area, with characteristic auscultatory changes, is of greatest diagnostic value. The breath sounds,

particularly expiration, are prolonged and harsher than normal, and at times bronchovesicular or even bronchial breathing may occur. In simple bronchial lymph node disease, without an accompanying bronchitis, adventitious sounds are conspicuously absent.

3. Baréty, whose epoch-making thesis on disease of the bronchial lymph nodes has already been discussed, lays special emphasis on the importance of the superior sternal regions in physical examination. He briefly quotes Fonssagrives, who, in 1861, first described the percussion of the superior sternal region in tuberculosis of the bronchial lymph nodes, and noted the presence of dulness at the sternoclavicular articulation, although he did not appreciate its importance. Whereas dulness in the superior sternal region is a characteristic sign in enlargement of the bronchial lymph nodes, it can be definitely stated that in the series of nontuberculous cases on which this communication is based, its incidence was definitely less frequent than either d'Espine's sign or interscapular dulness.

4. Changes in the regions to the right and left of the sternum between the clavicle and the third rib are not encountered as often as those previously described, but when present they are, to say the least, most striking. Dulness often begins at a definite point to the right and left of the sternum, and increases as the midline is approached. The limit of this dulness to the right or left can often be definitely marked by dropping a line from the clavicle, either at its midpoint or at the junction of the middle and inner thirds, to the third rib.

Auscultation over this area shows usually prolonged and harsh respiration, occasionally in both stages, but more frequently confined to the expiratory murmur. The degree of this may be so great as to make the breathing bronchovesicular or even bronchial. In some cases, on the other hand, the most striking sign is diminished breathing. At times, this diminished breathing may be bronchovesicular in character. Râles, in this region as in the interscapular space, are usually absent, except in the presence of bronchitis.

ROENTGEN-RAY DIAGNOSIS

It is not within the scope of this paper to enter into a full discussion of the problem of the roentgen-ray diagnosis, but accuracy in estimating the extent of bronchial lymph node involvement is so essential that certain details of the value of the roentgen ray must be considered. In establishing a positive diagnosis of bronchial lymphadenopathy, it is certain that the roentgen-ray examination is of less importance than either the history or the physical examination; but as an adjuvant its value cannot be overestimated. Furthermore, stress must be laid on the fact that there will always be cases of unexplainable malnutrition in which there is an absence of physical signs, and in which roentgen-ray examination and that alone will establish a positive diagnosis.

TUBERCULIN REACTION

It is perfectly obvious, without further comment, that the great problem in the management of this interesting disease is the exclusion of tuberculosis. Without entering into an argument as to the relative value of the Pirquet and intradermal reactions, it will suffice to quote no less an authority than d'Espine, who says, "Von Pirquet's sign, which I use daily, will settle the question." There can be no question that, in a vast majority of cases, this conclusion is correct. If doubt persists in spite of a negative Pirquet reaction, the problem can be further elucidated by the application of the intradermal test.

TREATMENT

The treatment of nontuberculous bronchial lymphadenopathy may be discussed under three main headings: rest, fresh air and diet. The details must vary with the individual case. The importance of avoiding fresh infection, particularly exposure to tuberculosis, cannot be overestimated. In a general way, it may be positively stated that there is no disease, the management of which is so difficult, on account of its tediousness, for both the mother and the physician. On the other hand, it is difficult to imagine any condition in which the results are as brilliant, if the family is made to realize that a disease is being combated in which the results are essentially slow, even though the outcome is practically always favorable. The rôle of drugs in the general management of these cases is, to say the least, a secondary one. Nothing further need be said on this phase of the subject, beyond calling attention to the fact that iron, iodin, cod liver oil and a few other less important preparations have been recommended. In cases with secondary anemia, they may be of some value; but even here it is doubtful whether better results cannot be accomplished by simple hygiene and dietetic measures. As in the treatment of lymph node disease in the cervical region, too much emphasis cannot be laid on the importance of removing foci wherever they exist. It may be well briefly to outline certain variations in the treatment, depending on the character of the individual case. In the malnutrition type of the disease, children must be kept in bed in the fresh air, preferably out of the city, until they are running a normal temperature, and until the behavior of their weight curve is such that one can be sure that the infection is under control. The treatment is a matter often of several months' duration. When it seems advisable to permit more liberty, the gradual assumption of the following regimen will be found most advantageous: (1) breakfast in bed; (2) arise at 10 o'clock; (3) rest one hour after mid-day dinner; (4) retire at 5 o'clock; (5) supper in bed; (6) at least twelve hours' sleep at night. How long these children must be kept out of school it is difficult to say. It is better that the child be absent from school too long than too short a time. In severe cases, the patient must be excluded from school at least a year. The reasons are obvious enough when one realizes how susceptible these children are to fresh infection. The diet in these cases must be a general one, except that it has been found beneficial to insist on the daily consumption of a quart of milk in all cases in which there is no idiosyncrasy.

The management of the pertussoid type of cases requires certain special methods of treatment. The degree of rest in bed depends on the temperature curve. Any of the drugs used in pertussis, belladonna, antipyrin or bromid, may prove of value, and, above all, the use of opium, particularly to prevent the irritating cough at night, which disturbs the sleep, is to be recommended. If the child vomits after eating, the mother must be instructed to feed him immediately, because no one element in these cases is so conducive to a chronic course as loss in weight. The methods of treatment outlined for the malnutrition and pertussoid type of case may be combined in handling these children in whom bronchial gland involvement is responsible for repeated or lasting upper respiratory infections, particularly bronchitis. The management of those cases running a chronic febrile course depends essentially on the stage of the disease at which the patients are first placed under medical observation. If they have been treated for an acute upper respiratory infection, particularly an influenza, and it is found after several days that a low degree afternoon temperature is persisting, they should be kept in bed until the chronicity of the temperature is well established. This direction may sound ambiguous, but it entails an absolute certainty that the general well-being of the child is not suffering as a result of the infection which is responsible for the rise in temperature. If there is progressive loss in weight or failure to gain, or if a secondary anemia develops which does not improve, absolute rest in bed is indicated. Otherwise, after two or three weeks' observation, these children should be gradually gotten up, following the scheme previously described in the treatment of the malnutrition type of case; and, eventually, in spite of their slight rise in temperature, which may last for months, they should be allowed to lead their normal lives and attend school.

The thermometer should be discarded because, if it is not conducive to the development of a neurosis in the child, it is in the mother, which is quite as serious. These children should, however, be seen by their medical advisers often enough that the latter may be certain that the chronic infection is in no way interfering with the general progress, the best criterion of which is normal gain in weight. Nothing beyond the general measures previously recommended can be advised in the treatment of the asthmatic type of bronchial lymphadenitis except the use of bacterial proteins, the specificity of which has been determined by previous skin tests.

CONCLUSIONS

1. Simple bronchial lymphadenitis, acute, subacute or chronic, is a distinct clinical entity in childhood.

2. It may be divided into five definite types, based on the clinical history and cardinal symptoms: 1. Malnutrition type. 2. Subacute bronchitis type. 3. Pertussoid type. 4. Chronic febrile type. 5. Asthmatic type.

3. When one considers the great incidence of respiratory infection to which bronchial lymphadenitis is secondary, the general conclusion can be reached that this type of disease, in contrast to tuberculosis, is the most common disease of the bronchial lymph nodes.

4. The diagnosis must be made by a combined consideration of the history, physical signs and roentgen-ray interpretations.

5. The most important question for differential diagnosis is the possible presence of tuberculosis, which can be established by the use of tuberculin.

6. The treatment may be briefly summarized under three heads: rest, fresh air and diet.

7. With accuracy in diagnosis and careful observation in the details of treatment, the prognosis is invariably good, unless a secondary infection takes place with the tubercle bacillus.

350 Post Street.

Complement Fixation in Exophthalmic Goiter.—The blood of some patients who show symptoms of exophthalmic goiter binds complement in the presence of an antigen made from normal thyroid glands. The reaction may be due to a specific thyroid substance which combines with an antibody in the blood of the patient.—J. Koopman, *Proc. New York Path. Soc.* **21**:55 (Jan.-May) 1921.

MEDICOLEGAL APPLICATION OF THE BLOOD GROUP

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The danger of using the blood group as a means of determining parentage in cases of suspected or known illegitimacy arises from the difficulty in establishing the origin of the particular blood group in each instance. The danger rests solely in the transmission of an unexpected blood group through the germ plasm of a heterozygous parent. The heterozygous status of a parent cannot be foretold today, except by a study of the offspring.

The criteria established by Ottenberg[1] to govern the medicolegal application of the blood group are incorrect in some instances, and based on insufficient evidence in others. They would lead frequently to the miscarriage of justice when applied by a court in the adjustment of a dispute concerning parentage. The families used by Ottenberg in formulating his criteria are too small in most instances to justify any conclusions.

Ottenberg has established certain definite laws in connection with the blood group by means of which he contends that the legitimacy of children can be determined:

1. If a child is in Group II, III or IV, when its parents are both in Group I, the child is illegitimate.
2. In unions of Group I and Group II, if a child is in Group III or IV, it is illegitimate.
3. In unions of Group I and Group III, if a child is in Group II or IV, it is illegitimate.

RESULTS OF CROSSING GROUP I WITH GROUP I

In a previous communication[2] on this subject, I published eight charts, which were representative of eight actual families. The blood of the families was grouped by myself. The Moss classification was used. The Group I of Jansky is the Group IV of Moss. The blood group of the family represented in Figure 1 of my previous paper, when classified according to the Jansky classification, shows, although both parents are in Group I, that there are two children who are in Group III, and four children who are in Group I. At that time I had completed grouping the blood of a family in which by the Jansky classification both parents are in Group I, but their twin daughters are in Groups I and II. Somewhat later, in grouping the blood of the Tink family,[3] I discovered two parents in Group I of the Jansky classification. Three of their children are in Group IV, and one child is in Group I.

In a family whose blood I have grouped, both parents are in Group II, but three of their children are in Group II, and one child is in Group I. The grouping of the blood of the grandparents in this family shows that the Group I could have arisen from either the maternal or the paternal side, as the parental stem on both sides consists of a cross between Groups I and II.

MEDICOLEGAL SIGNIFICANCE OF THESE FINDINGS

The first law of Ottenberg is invalid, as unions of Group I can result in children whose blood may be in

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[1] Ottenberg, Reuben: Medicolegal Application of Human Blood Grouping, J. A. M. A. **77**: 682 (Aug. 27) 1921; Hereditary Blood Qualities, J. Immunol. **6**: 363 (Sept.) 1921; Medicolegal Application of Human Blood Grouping, J. A. M. A. **78**: 873 (March 25) 1922.

[2] Buchanan, J. A.: Medicolegal Application of the Blood Group, J. A. M. A. **78**: 89 (Jan. 14) 1922.

[3] Buchanan, J. A.: A Consideration of the Laws of Heredity and Their Application to Various Conditions in Man, to be published.

Group I, II, III or IV. It is clear, since a Group I crossed with a Group I gives rise to groups other than itself, that it is unreasonable to contend that a Group I crossed with a Group II or Group III should not result in children in either Group I, II, III or IV. The groups possible in the offspring of any union depend on the groups present in the previous generations, and the heterozygous or homozygous status of the parents of the generation under consideration.

The blood groups possible from unions of Group III with Group III are undetermined, as there are not sufficient families on record in which this cross has been studied to justify any statements. From a study of the families in which it has been found that unions of Group II may result in children in Group I, and that unions of Group I may result in children in Group II, the suspicion has been aroused, since Group I parentage may transmit a Group III to the children, that Group III parents may transmit a Group I to the children. More crosses of Group III with Group III must be studied.

SIGNIFICANCE OF THE FAILURE OF THE CRITERIA OF OTTENBERG

The criteria of Ottenberg are built up on the belief that unions of Group I can breed only Group I children; and, when that belief is shown to be false, the theory on which he based his conclusions becomes untenable. The theory is still more erroneous in light of the knowledge of the segregative properties of the germ plasm. Ottenberg contends, as do many others, that Group IV is the result of the union of certain specific substances on which Groups II and III depend. If this theory is correct, if the blood group is hereditary, and if the theory of heredity is correct, all unions of Group IV, because of the segregative function of the germ plasm, would result in children who are in Group IV, Group II and Group III, as happens in the second filial generation of all plants, fowls and animals in which an hereditary character has been studied. The fundamental factors which enter into the make-up of the parents are segregated in the children. Unions of pure Group IV are on record.

The incorrectness of the statement of Ottenberg[4] that he could foretell the parents by studying the children resulting from unions of Groups IV and I is shown in the seventy-second family of von Dungern and Hirschfeld;[5] the twenty-ninth and thirty-eighth families of Learmouth,[6] and in the Tink family[3] of my own investigation. The union of pure Group IV and pure Group I of the Jansky classification results in children in Group IV and Group I, in the ratio of three of the former to one of the latter. Unions of heterozygous Group IV and heterozygous Group I result in the reappearance of the groups present in previous generations, as well as those present in the parents of the children under investigation, provided there are a sufficient number of children to permit of all the possible groups being segregated.

The entire data concerning the families on which my conclusions are based will be published in the near future.[3] Each family is uninvolved by any question of illegitimate children. My findings are in accordance with all the results of studies of the blood group in families that have been published; but by using a fairly fixed standard sized family, and by carrying the grouping into the third generation and even into the fourth, I was able to determine what groups might occur from most of the possible crosses of the blood group. The results show the fallacy of the theories concerning the two specific substances on which the blood group has been supposed to depend. The interesting studies of Learmouth show that the old theory of the two specific substances for the blood group and the mendelian inheritance of the blood group are at variance. The blood group is either not hereditary, or the laboratory experiments concerning the specific substances responsible for the blood group are being misinterpreted. The blood group follows in its transmission between generations the two laws of Mendel.

SUMMARY

The criteria of Ottenberg to govern legitimacy by means of the blood group are dangerous. The blood group cannot be used in the adjudication of medicolegal disputes concerning parentage without carrying the grouping back at least three generations, and even then there exists the possibility, because of the heterozygous status of a parent, of an unexpected, yet legitimate, group appearing without its definite origin having been determined.

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[4] Ottenberg, Reuben: Footnote 1, third reference.

[5] Von Dungern and Hirschfeld: Ztschr. f. Immunitätsforsch., Orig. **6**: 284, 1910.

[6] Learmouth, J. R.: The Inheritance of Specific Iso-Agglutinins in Human Blood, J. Genetics **10**: 141-148 (Aug.) 1920.

OBSERVATIONS ON THE ETIOLOGY AND PATHOLOGY OF CHOREA MINOR *

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Far reaching as have been the advances in modern methods of clinical and laboratory investigation, it cannot yet be said that a definite answer has been found to the problem of chorea minor. To the older physicians, it was a functional disorder of the brain; while to a younger generation, it may be of an infectious, a rheumatic, an organic, a toxic or even a syphilitic origin. Evidence may easily be found to support any of the above theories.

The disorganizing confusion which arose from classifying as chorea every morbid process which had as a distinguishing feature athetoid, bizarre or purposeless movements has, happily, long since been dispelled. To that extent, our problem is easier; but much unexplored ground remains to be covered before we can truthfully say what the actual causative factor is and what pathologic processes ensue.

In discussing the pathology of chorea minor, Poynton and Paine[1] emphasize the fact that we must not be satisfied with the plain statement that chorea minor may be the first manifestation of acute rheumatic fever. but must actually link them together as part and parcel of the same process. They further state that it will be a distinct advance in our knowledge when the answer to this is finally determined.

A step forward was made when Aschoff described the so-called submiliary nodules of rheumatic fever. These, it may be recalled, were focal lesions, most frequently found in the walls of the left ventricle and characterized by fan-shaped collections of giant cells,

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* Read before the Section on Diseases of Children at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Poynton and Paine: Researches on Rheumatism, London, J. and A. Churchill, 1913, p. 257.

recalling to some extent the giant cells of similar shape which Dorothy Reed has described in Hodgkin's disease:

> Besides these large cells, there are lymphatic and neutrophilic leukocytes as well as some containing eosinophil granules, concerned in the building up of the nodule. These infiltrations of small cells are continued as streaks into the surrounding tissue. The rheumatic nodules which are grouped around vessels are very small.

In the great majority of all his cases of valvular disease, Aschoff[2] "found no fresh inflammation at all, but only more or less numerous perivascular fibrous nodules, which are, in all probability, to be regarded as the healed remnants of the rheumatic nodules."

Coombs[3] agrees that these submiliary nodules are food for much thought. He believes that it cannot be doubted that they are inflammatory in type and represent the reaction of the connective tissue to an infection rather than an intoxication only, and that the infective agent itself comes in contact with the tissues at the points where the nodules form. He examined a number of hearts from cases of pneumonia, malignant endocarditis and suppurative pericarditis without finding anything at all like an Aschoff nodule.

Confirmation of these findings of Aschoff has been made by a number of observers abroad, especially Fraenkel,[4] who believes that, even in the absence of a history of rheumatic fever, the finding of Aschoff nodules is strong presumptive evidence of a preceding rheumatic infection. Rothschild and Thalheimer,[5] in their conclusions, make the definite statement that, in rheumatic myocarditis, foci, termed submiliary nodules of Aschoff, are present, which are characteristic of the rheumatic infection.

Bearing this fact in mind, the following case report is of extreme interest.

REPORT OF CASE

History.—G. R., girl, white, aged 20 months, was brought to the New York Nursery and Child's Hospital by her mother because of irritability and rapid breathing. The parents were in good health, although the mother had had acute rheumatic fever involving both knees. The maternal grandfather was reported as having had "rheumatism." One other child was alive and well, and there had been no miscarriages.

The infant had been born at term, and the delivery was normal. She had been breast-fed for one year and then put on the usual mixed diet. Up to the present illness, her general health had been good.

Six weeks before, she had become very irritable. For three days fever was present, and the family physician made a diagnosis of sore throat with a secondary adenitis. A throat culture was negative for diphtheria. The irritability continued, though the other symptoms subsided.

Five days before admission, the mother noticed that the child was breathing very rapidly, and for that reason brought her to the hospital.

Examination.—The salient features of the physical examination were a markedly enlarged heart, a systolic and an early diastolic murmur, a breathing rate of eighty a minute, a greatly enlarged liver, a slightly enlarged spleen, a red throat, and a temperature of only 99 F.

Fluoroscopic examination ruled out pericardial effusion and all disease of the lung.

During the first six days in the hospital, the only changes noted in the physical condition were the development of an inconstant to and fro friction rub in the third left interspace, a slight diminution in the size of the liver and a slight edema of the face. No petechiae were noted, there was no cyanosis and the blood culture was negative.

The spinal fluid was clear and under no increased pressure, and no globulin was found. The cells numbered 10 per cubic millimeter, and were all lymphocytes. The blood examination revealed a leukocytosis of 25,000, with a differential count of 69 per cent. polymorphonuclears, 21 per cent. small lymphocytes and 10 per cent. large lymphocytes.

It was the general opinion that we were dealing with an acute endocarditis and pericarditis, the origin of which was uncertain.

Course.—On the seventh day of her stay in the hospital, the patient developed a typical chorea minor, and the temperature, which had never gone above 100 F., rose to 101.5 F. We are not insensible to the difficulties often attendant on the correct diagnosis of true chorea in infancy, and we shall obey Sturges'[6] injunction that every case thus diagnosed needs the guaranty of a full description.

On the morning of the seventh day, it was noticed that the right arm was moved over the covers in a jerky, purposeless, incoordinate manner. Later, on the same day, the movements were noted in the left arm. The following day, both lower extremities were in a state of constant incoordinate movement. The facial muscles exhibited peculiar grimaces, and the shoulders were shifted about in an unmistakable manner. They were not the restless movements of a sick child.

These pronounced motor disturbances continued with varying severity until a fatal termination, three days later. At no time were any subcutaneous nodules seen, and they were searched for diligently; nor was there at any time evidence of joint involvement.

Pathologic Findings.—Two blood cultures having been negative, we were forced to the conclusion that the case was one of true rheumatic carditis and pericarditis. This diagnosis were borne out at necropsy; for the heart and pericardium were both involved, the mitral valve showing a number of very small vegetations, while the pericarditis, which, as is well known, is almost always of a rheumatic type in childhood, was nonpurulent.

Microscopic examination of the heart muscle revealed typical Aschoff nodule cells, although the arrangement of the majority of them was not fan nor rosette shape, owing, probably, to the short course of a fulminating infection.

Unfortunately, permission to examine the brain could not be obtained.

COMMENT

Since the middle of the last century, when Germain Sée first offered evidence that chorea minor and rheumatic fever were allied, and Roger, a few years later, grouped chorea, rheumatism and endocarditis together in the phrase "la chorée rheumato-cardiaque," all pediatricians have had occasion to verify their conclusions. Cheadle[7] quotes Trousseau as being the first to recognize a rheumatic sore throat; and, since that time, evidence has piled up which definitely links tonsillitis with rheumatic fever, and further proves that the sore throat as a rule precedes the acute attack.

All of these observations do not explain the cases of chorea which give no sign of rheumatism. These cases have been the great stumbling block to our full acceptance of the theory that chorea is mainly rheumatic in origin.

The case reported, occurring at an age when both chorea and rheumatism are extremely rare, tends to strengthen the belief that sore throat should be looked on as a possible manifestation of rheumatic fever, and that chorea minor should be considered, at least in childhood, as definite evidence of a rheumatic infection.

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[2] Aschoff, L.: Verhandl. d. deutsch. path. Gesellsch. **8**: 46, 1904.

[3] Coombs, C.: Rheumatic Myocarditis, Quart. J. Med. **2**: 26, 1908-1909.

[4] Fraenkel, E.: Beitr. z. path. Anat. u. z. allg. Path. **2**: 597, 1912.

[5] Rothschild, M., and Thalheimer, W.: On the Significance of the Submiliary Nodules of Aschoff in Rheumatic Fever, J. Exper. Med. **19**, No. 5, 1914.

[6] Sturges, O.: Chorea in a Child Under Three, Lancet **1**: 109, 1888.

[7] Cheadle, W. B.: The Rheumatic State in Childhood, London, 1889.

The most recent advances in our knowledge of the pathology of chorea minor are undoubtedly due to the impetus given by a more correct understanding of the physiology of the basal ganglions. Lesions of this area may certainly cause involuntary movements of the skeletal muscles, as has been shown by Hunt.[8] Wilson's [9] earlier work also proved that many involuntary motor movements were due to a lesion in the corpus striatum.

Another factor which has helped in our understanding of the pathology of chorea minor has been the interesting histologic studies of the brain in epidemic (lethargic) encephalitis. Alfaro [10] believes that chorea is the result of the action of bacterial poisons on the basal ganglions, particularly the striate body. He assumes that there is an encephalitis due to a rheumatic poison.

One of the most interesting contributions is an exhaustive study made by Marie and Tretiakoff [11] of the nerve centers of a 10-year-old girl who died at the height of an attack of chorea. They describe a typical encephalitis, involving to a slight degree the cortex, but showing marked and distinct changes in the corpus striatum. The only condition from which their findings were indistinguishable was epidemic encephalitis.

Schuster [12] reports four cases of chorea, in all of which the patients had an encephalitis, the chief lesions occurring in the thalamus and the red nucleus.

These findings are distinctly helpful in localizing the major pathologic changes. We may not agree that in the majority of cases such marked organic lesions occur, but it cannot be doubted that in those areas there are certain happenings which give us the typical picture of chorea minor.

It is conceivable that an encephalitis may be of such a transitory nature that it leaves no permanent damage; but when we seek support for this theory in the spinal fluid we are distinctly disappointed, as the majority of investigators report negative findings.

Quigley [13] has succeeded in getting positive cultures from both the blood and the spinal fluid in ten out of twenty-one cases and from either one or the other in fourteen cases. There was no increase in the cell content, and the globulin findings were negative.

Cobb [14] raises an objection to the organic theory, stating that there can be no doubt that chorea may follow fright or sudden emotion; but he asks the question whether or not an organic lesion, previously without overt symptoms, is suddenly able to be activated by an emotional shock. He believes that the records of many cases go to prove that it must be considered a reasonable possibility, although the physiologic and pathologic mechanisms are not understood.

If we accept the foregoing suggestion, which explains not only the cases of chorea minor due to shock but also those of chorea gravidarum, we are entitled to consider chorea minor as the manifestation of the action of toxins on the brain, particularly the basal ganglions.

These changes may produce a mild epidemic encephalitis, which usually does not but may cause permanent organic changes; and, in certain individuals, especially females, leaves on the personality, as Cobb says, "such indelible impressions of mental anguish of having lived through a period of lack of motor control that if, in later life, this individual is to have a psychosis, it may more easily take the form of chorea than any other type of symptomatology."

SUMMARY

Aschoff nodules have been demonstrated in the heart muscle of a 20-months-old child who had chorea and a fulminating rheumatic carditis and pericarditis.

Advances in the study of the physiology of the basal ganglions make it seem likely that the chief pathologic changes in chorea minor occur there.

39 East Sixty-First Street.

ABSTRACT OF DISCUSSION

Dr. H. F. Helmholz, Rochester, Minn.: The studies that have been made in large series of cases of encephalitis have thrown a great deal of light on the study of the so-called rheumatic cycle in its neurologic manifestations. The definite localization in the basal ganglions in encephalitis, particularly those in the lenticular nucleus, has produced a syndrome which, in the acute stage, is indistinguishable from what we call chorea. It is interesting to note that in a great number of these cases the choreic manifestations persist for only a short time. They seem to be only a transient stage. We have observed this last year a number of residues of encephalitis involving the basal ganglions. In about two thirds of these cases, we have had a definite history of an attack of choreiform movements lasting usually for a period of several weeks and then clearing up, the patient being perfectly well for a time and then having a secondary involvement which led ultimately to the so-called parkinsonian syndrome. In chorea, we are unquestionably dealing with an infection, and just as it is difficult to isolate the organism from the joints and heart valves, so it is difficult to isolate the organism in the brain. In the literature of encephalitis the world over, we find that many observers have been able to isolate organisms from patients who died of encephalitis, and have also been able to find those organisms in the area of inflammatory reaction. So it is not surprising that it is difficult to isolate organisms in chorea. There is no question that we are dealing with an encephalitis due to a specific organism which has a tendency to localize in the basal ganglions, but we also have very marked psychic disturbances which may indicate that there is involvement elsewhere. It may be that these changes are the cortical changes described by Marie. I wish to emphasize the importance of a careful histologic study of all cases of chorea that come to necropsy.

Dr. H. W. Cheney, Chicago: Clinical experience bears out the fact that infections are the cause of chorea, and my habit has been to look for the focus of infection in all cases, and I usually find it. One point is that, while the tonsils may be responsible for some of the cases, I have seen cases recently in which the only apparent sources of infection were bad cavities in the children's teeth, and the removal of those teeth cleared up the disease promptly and well. While the treatment was not brought out in the paper, bad cases of chorea can be controlled without the use of opium or bromids by administration of sufficient actetylsalicylic acid. I give several doses daily up to 10 grains at a time. That will control the involuntary movements.

Dr. Walter E. Simmonds, Chicago: With regard to the use of acetylsalicylic acid, in some experiments which are running parallel to the ones we did on arthritis in rabbits, we found that when we gave acetylsalicylic acid, inflamed kidneys resulted. So in the treatment of chorea I would hesitate to give this drug. I find that these patients respond quite as well to the arsenical preparations.

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Dr. Louis C. Schroeder, New York: What should be particularly interesting is to get an uncomplicated case of chorea with the demonstration of Aschoff bodies in the cardiac musculature.

GASTRIC FINDINGS IN CHILDREN WITH ANOREXIA *

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Much has been accomplished during the last few years with the child who is chronically underweight for his height. Through the efforts of Emerson[1] and others, the relation of "malnutrition" to physical defects, improper food habits, overfatigue and errors of home and school life has been pointed out. Many underweight children have been made "free to gain" by the removal of these handicaps.

In our clinical work with the underweight child, we occasionally encountered children who, although rendered free to gain, failed to increase in weight on account of a persistent anorexia. These children with poor appetite ate less than the required number of calories and were underweight because they ate insufficiently. Physical and laboratory examinations showed them to be free from tuberculosis, anemia, physical defects, diseased tonsils, adenoids and other known causes of anorexia. Their diets were like those on which our other underweight children thrived, containing an abundance of accessory food factors. Cases of poor home environment or lack of cooperation of parent or child are not included. All but three children had brothers or sisters who ate well. They were given only three meals a day, avoiding excess of fats.

TABLE 1.—GROUP A: CHILDREN WITH GOOD APPETITE

No.	Name	Sex*	Age, Yrs.	Weight, Pounds	Per Cent. Underweight†	Stomach Empty In	Acid		Date‡
							Total	Free	
1	R. A.	♂	7	50¼	+10	5 hr.	80	34	12/ 6/21
						4	47	21	3/28/22
2	S. L.	♀	8	50	1	5	30	6	12/16/21
						5	40	4	4/ 1/22
3	B. L.	♀	7	56	0	5	55	24	12/16/22
						3½	68	30	4/ 1/22
4	G. B.	♂	8	49½	5	4½	90	34	12/16/21
						3½	46	22	3/25/22
5	H. H.	♀	9	65	+6	5	31	23	12/28/21
						4½	38	10	4/ 1/22
6	I. M.	♀	11	74½	+3	3½	55	23	12/28/21
							67	24	4/ 1/22
7	H. A.	♂	7	47¼	9	4½	64	36	12/28/21
							45	17	3/25/22
8	S. L.	♂	8	50	5	4	74	42	12/28/21
						4½	72	36	4/ 1/22
9	G. M.	♂	7	63	+14	4	73	40	12/30/ 1
							69	34	3/25/22
10	J. W.	♀	8	54½	10	4	64	26	12/31/21
							72	35	4/ 1/22
11	N. D.	♂	7 5/12	54	+9	4	55	18	1/ 4/22
						4½	51	19	3/25/22
12	E. P.	♂	7	46	4	5	44	10	1/14/22
							47	16	4/ 1/22

* In this column, ♂ indicates male, ♀, female.
† Computed according to the average weights for heights of Boas and Burke.
‡ Date refers to gastric analysis; roentgen-ray examinations were made several days earlier.

The present study deals with the gastric motor and secretory functions of two groups of children: Group A, twelve normal children with good appetite; Group B, twenty-one more or less underweight, but otherwise normal, children with poor appetite.

Observations were made on the former group in order to establish a basis for comparison. Observations were repeated: (*a*) in a number of subjects of both groups after a few days; (*b*) in most subjects of both groups after a lapse of several months.

The early repetition was deemed necessary to detect any variations which might be due to technic or to individual variations which might occur from day to day. The repetitions, some months later, served to show any variations which might occur after such a lapse of time, as well as changes which might occur when improvement had taken place.

METHODS

The motor meal[2] consisted of 240 c.c. of warm milk, 30 gm. of barium sulphate, 4 gm. of sugar and two slices (45 gm.) of white bread (without crust). These were well mixed, and fed at 9 a. m., following a fast of about fifteen hours. The entire meal was given within fifteen minutes. Serial films were taken four hours later, and each succeeding hour, until the stomach was empty. The pictures were taken with the subject prone on the cassette, with the tube at the back. The subjects were kept more or less occupied with games and ordinary indoor activities, and were not permitted to take anything by mouth or to lie down (except for the roentgen-ray examination) until the examination was concluded.

TABLE 2.—GROUP B: CHILDREN WITH ANOREXIA

No.	Name	Sex	Age, Yrs.	Weight, Pounds	Per Cent. Underweight	Stomach Empty In	Acid		Date	Inches Below Aver.
							Total	Free		
1	P. R.	♀	2½	24	7	7 hr.	..	..	9/30/21	
2	A. S.	♂	6½	39	17	7	..	..	11/11/21	
3	M. G.	♀	6	41	5	7	52	16	11/ 2/21	
						8	..	..	12/27/21	
4	K. B.	♂	6⅙	42	3½	7	37	12	11/16/21	
						7	..	..	11/31/21	
				45	..	5½	61	17	4/ 8/22	
5	B. F.	♀	6	43	11	6	..	..	11/26/21	
6	T. G.	♀	6	40	3	6	61	11	12/27/22	1.3
				41½	..	6½	65	20	4/ 1/22	
7	C. C.	♂	7	45	2	5½	39	5	12/27/21	1
				49	..	3½	66	11	4/ 1/22	
8	P. C.	♂	8½	45	0	4	55	22	12/27/21	4.8
				46¾	..	3½	76	33	4/ 1/22	
9	G. A.	♂	6½	40½	10	5½	55	14	12/30/21	
				41¾	..	4½	77	22	3/25/22	
10	W. S.	♂	11½	54	10	7	60	22	1/10/22	
				57½	..	4½	66	24	4/22/22	
11	A. C.	♂	4⅙	30¾	4	6	20	0	1/18/22	2.5
				30¾	..	5	30	0	4/ 8/22	
12	L. N.	♂	7⅓	52	0	3½	45	17	1/28/22	
				52	..	4½	63	30	4/ 8/22	
13	M. C.	♀	11	69	12	5	14	0	2/ 8/22	
				69	..	3½	22	0	4/18/22	
14	M. A.	♀	6¼	37	17	8	36	5	2/10/22	
				38½	..	5½	45	16	4/ 1/22	
15	E. K.	♂	10⅓	53½	14	6	58	25	2/11/22	
16	R. P.	♂	6	47	0	6	83	23	2/18/22	
17	J. R.	♂	8⅙	53¾	14	5	57	23	2/18/22	
				53¾	..	5½	82	26	4/18/22	
18	G. C.	♂	6	42½	10	7	43	15	3/ 4/22	
				42½	..	5½	75	30	4/ 8/22	
19	C. P.	♂	7	45½	16	8	77	38	3/10/22	
						7	69	34	3/13/22	
20	F. M.	♂	1 7/12	21¾	5	7	40	8	3/10/22	
							39	6	3/13/22	
21	P. M.	♀	1⅔	26	0	5	56	13	4/26/22	
							41	6	4/29/22	

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* From the department of pediatrics and roentgenology of the Evanston Hospital.

* Read before the Section on Diseases of Children at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Emerson, W. R. P.: Nutrition Clinic in the Public School, Am. J. Dis. Child. **17**: 251 (April) 1919.

[2] This meal (except for the amount of barium sulphate) is recommended by the Royal Society of Medicine as standard for radiographic examination of the alimentary canal.

A few days later, a test breakfast, consisting of five arrowroot crackers, 240 c.c. of warm water and 4 gm. of sugar, was given at 9 a. m., after a fast of about fifteen hours. One hour after ingestion, the stomach was emptied with a Rehfuss tube, suction being applied with a syringe. Aspirations were usually limited to about ten minutes. Subjects were not permitted to take anything by mouth, nor to lie down until the aspiration was completed. They were asked to expectorate freely and not to swallow saliva during aspiration.

Total and free hydrochloric acid determinations were made on the mixed, unfiltered gastric contents according to the Toepfer[3] method.

RESULTS

Serial roentgenograms on the twelve children with good appetite showed all stomachs empty within five hours, with an average emptying time of four and one-half hours. Similar motor function tests on the twenty-one children with poor appetite showed that their stomachs usually emptied much more slowly—in only one of the twenty-one children was it empty within the time found to be the average for the former group. A repetition of the motor function tests within a few days in a number of subjects gave results which checked very closely.

TABLE 3.—SUMMARY OF THE FIRST SERIES OF MOTOR FUNCTION TESTS

	Number of Cases	Number of Cases in Which Stomach Emptied in								Average Emptying Time
		3½ Hrs.	4 Hrs.	4½ Hrs.	5 Hrs.	5½ Hrs.	6 Hrs.	7 Hrs.	8 Hrs.	
Group A (good appetite).....	12	1	4	2	5	..	..	..	..	4.5 hrs.
Group B (poor appetite).....	21	1	0	0	4	2	5	7	2	6.1 hrs.

Before our work had progressed very far, we noticed that many of the underweight children with anorexia belonged to the types Mills[4] so clearly describes as hyposthenic and asthenic. We found the habitus of children to conform with the four types he found in the adult: hypersthenic, sthenic, hyposthenic, and asthenic. Eleven of the twelve children with good appetites were of the sthenic habitus; whereas, only five of the twenty-one with poor appetites were sthenic, the other sixteen being hyposthenic or asthenic. Mills shows that the person with the hypersthenic habitus has the most rapid gastric motility; the asthenic, the slowest—the stomach frequently not being empty six hours after the standard opaque meal.

In Table 4, the original emptying time of the stomachs of seven children of Group A and thirteen children of Group B are compared with the findings a number of months later. Seven of the children of Group B had improved in appetite and weight, as shown in Table 2.

The hydrochloric acid determinations were usually performed from three to seven days after the roentgen-ray examinations. In order to detect possible errors in technic or individual daily variations, these analyses were also repeated in a number of instances within a few days, with rather good agreement. Duplicate acid determinations were always made. After several months, the gastric analyses were repeated in the twelve children with good appetite and in twelve of the twenty-one with poor appetite. Table 5 gives the averages of total and free acid at the first analysis.

The most striking difference was found in the amount of free hydrochloric acid. For the children with good appetite it averaged 26.3; for the children with poor appetite, 14.9. Hurwitz,[5] who has recently worked with German children from 2 to 15 years of age, found an average of 48.8 for total acid and 14.3 for free acid.

TABLE 4.—A COMPARISON OF THE ORIGINAL EMPTYING TIME WITH THAT FOUND SOME MONTHS LATER

	Number of Cases in Which the Stomach Emptied in								Average Emptying Time
	3½ Hrs.	4 Hrs.	4½ Hrs.	5 Hrs.	5½ Hrs.	6 Hrs.	6½ Hrs.	7 Hrs.	
Group A (7 cases)									
First examination	0	2	1	4	..	..	..	..	4.6 hrs.
Later.............	2	1	2	1	1	..	..	..	3.6 hrs.
Group B (13 cases)									
First examination	1	..	..	3	2	2	..	4	5.9 hrs.
Later.............	3	..	3	1	4	..	1	..	5.0 hrs.

In Table 6, the original and subsequent average acid findings of the twelve children with good appetite are compared with those of twelve of the children with poor appetite who were reexamined. The appetite and weight of seven of the latter had improved.

It will be seen that the average total and free acid for the former group was somewhat lower when determined a few months after the first analyses; whereas, the average total and the free acid for the children of Group B were higher at the subsequent examination. Two of the children (Table 2, Cases 11 and 13) showed no free hydrochloric acid. On reexamination some months later, free hydrochloric acid was still absent. They had not improved.

The gastric return varied from 40 to 140 c.c., and averaged about 80 c.c. The amount of material recovered at the end of one hour bore no relation to the degree of acidity.

DISCUSSION

While the habitus (relation of the general "build" to the topography of the viscera) predetermines to a marked degree the motor function of the stomach, our results show that even the child with the asthenic habitus and long emptying time can so improve that the time is markedly shortened. Carman[6] says, "The function of the stomach is in proportion to the degree of asthenia present, and the greater the asthenia, the poorer the tonus and the longer the time required for the stomach to rid itself of its contents." Kerley[7] points out that one of the pronounced effects of delayed emptying is a loss of appetite, and that a child will not be hungry with a portion of a previous meal in the stomach. In our first series of examinations, all of the children with an emptying time of five

TABLE 5.—SUMMARY OF SECRETORY FUNCTION

	Number of Cases	Average Acidity	
		Total	Free
Group A (good appetites)......................	12	61.2	26.3
Group B (poor appetites)......................	18	49.4	14.9

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[3] Hawk: Practical Physiological Chemistry, Philadelphia, P. Blakiston's Son & Co., 1916.
[4] Mills, R. W.: Am. J. Roentgenol. **4**: 155 (April) 1917.
[5] Hurwitz, quoted by Bruning: Deutsch. med. Wchnschr. **46**: 883, 1920.
[6] Carman: Roentgen Diagnosis, Philadelphia, W. B. Saunders Company, 1920.
[7] Kerley, C. G.: New York State J. M. **20**: 345 (Nov.) 1920.

or more hours (twenty of the twenty-one) had very poor appetites, and sixteen were hyposthenic or asthenic. The influence of a few months of careful supervision in seven of the thirteen children with poor appetites who were reexamined is reflected in the shortening of emptying time (Tables 2 and 4), increase in the amount of hydrochloric acid (Tables 2 and 6) and increase in their appetites and weights. The two children without free hydrochloric acid (Table 2, Numbers 11 and 13) were of the asthenic habitus, but had no delayed emptying times. They failed to improve in spite of treatment. The seven children with poor appetite who improved after several months show that the motor and secretory function can be improved by simple measures.

TABLE 6.—COMPARATIVE STUDY OF GASTRIC SECRETORY FUNCTION

	Number of Cases	Average Acidity	
		Total	Free
Group A (good appetites)			
First examination	12	61.2	26.3
Later	12	55.1	22.3
Group B (poor appetites)			
First examination	12	43.5	12.1
Later	12	60.6	19.0

Our observations lead us to conclude that children of the hyposthenic and asthenic habitus are much more likely to have poor appetite, slow emptying time and low free acid than are those of the sthenic habitus, but that the emptying time can be shortened, and the hydrochloric acid, appetite and weight increased by proper measures.

SUMMARY

1. The average emptying time of the stomach for twelve children with good appetite was four and one-half hours; that for twenty-one children with poor appetite was six and one-tenth hours. The stomachs of the twelve children in Group A were empty in five hours; while sixteen of the twenty-one of Group B still had retention at the end of five hours.

2. All but one of the twenty-one children with poor appetite had an original emptying time longer than that found to be the average for the children with good appetite.

3. The average total hydrochloric acid for the twelve children with good appetite was 61.2, the free acid 26.3; for eighteen with poor appetite, the total acid was 49.4; the free acid 14.9.

4. In two children of the group with poor appetite, free acid was absent on examination and on reexamination months later, while their emptying times were not especially long.

5. Eleven of the twelve children of the former group were of the sthenic habitus. Sixteen of the twenty-one children of the latter group were of the hyposthenic or asthenic habitus.

6. In a number of asthenic children, the emptying time of the stomach and the amount of acid were influenced beneficially by proper measures, and this was reflected by an increase in appetite and weight.

ABSTRACT OF DISCUSSION

Dr. W. McKim Marriott, St. Louis: Dr. Sauer's paper is interesting, as it points out that there is not such a great deal of difference in the physiology of digestion in children and in adults. The paper is important because it points the way to the treatment of certain types of digestive disturbances in children. A number of deductions may be drawn from Dr. Sauer's paper, and some of these he has already mentioned. His results make very evident the fallacy of attempting to build up these malnourished children by stuffing them with food at frequent intervals, so that the stomach never has time to empty completely. Furthermore, in children of the type described, who are suffering from a deficit of hydrochloric acid, it is a mistake to give large amounts of cow's milk, as this food, more than any other, neutralizes the acid in the stomach. Cow's milk will neutralize about an equal volume of tenth-normal hydrochloric acid. We have recently been interested in the gastric secretion in infants, and our results are in entire accord with those of Dr. Sauer with older children. Malnourished infants who fail to gain and have a poor appetite often show marked deficiency in the hydrochloric acid of the stomach. We have found also that infections of any sort were likely to result in decreasing the acid secretion. I should like to ask Dr. Sauer if he has studied the effect of infection on the children studied by him.

Dr. Leon T. LeWald, New York: This work is exceedingly valuable and fits in with observations on younger children, young infants and young adults. In regard particularly to the emptying time of the stomach from the roentgen-ray standpoint: I am glad that Dr. Sauer gave his exact technic as to the quantity of food ingested, and while I find that this is not of great importance, as we have tried out various types of feedings and even the ingestion of a simple watery suspension of barium, yet the quantity given by him to a child of the age stated gives us something to go on in future studies. Also, I am glad to see that he checked his observations later. I should like to ask him two questions: First, if he has any explanation for the increased weight and appetite of the children? It has been suggested that the roentgen ray does stimulate the gastric and intestinal glands, and it is not unusual to find a few months after roentgen-ray examination that these persons have decidedly improved. The second question: Did he observe any other pathology than the slow emptying of the stomach to account for the condition of anorexia? In other words, did he find pyloric obstruction or pylorospasm or lesions farther down in the digestive tract, such as redundant conditions in the colon, that might account for the slow emptying of the stomach reflexly?

Dr. John A. Foote, Washington, D. C.: Dr. Sauer has made a very valuable contribution to what we know about nutrition in the older child. The scattered cases which do not respond to treatment and which show no other physical reason for not gaining are explained in a way. There are so many factors which have to do with the gain or loss of weight in the older child that it sometimes seems impossible to check up and correlate all of the conditions which might have an influence on the metabolism or the organization of food. Dyer of London is more impressed with improvement in the vital capacity of the child as a factor in improving weight. I wondered on hearing this paper whether Dr. Sauer had made any observations on the history of these children—what the heredity might have been, and what the earlier history might have been. Some years ago, Dr. Abt spoke of the nervous type of infant, the same type which has been described by Heim, who found that many of these had hyperacidity and belonged to the pylorospasm group. These children were very energetic and of neurotic parents; and as they grew older they were a matter of great concern to the family. They were neurotic and developed reactions to food, which showed bad adjustment to environment. They acquired food likes and dislikes, and sometimes insisted on having foods that did not agree with them, such as meats and sweets. It is quite possible that children who exhibit anorexia, impaired motor function and lowered hydrochloric acid, might have belonged to this hypertonic group in earlier life; that there might have been both a congenital condition and improper handling which resulted in the accentuation of the degree in which the children remained undernourished. The earlier treatment of such children should be psychologic—the prevention of negativism, and especially these little tryants should not be allowed to learn that they can intimidate the household by refusing foods.

Dr. Park J. White, St. Louis: Dr. Marriott has mentioned the application of what Dr. Sauer has said to chemical findings in infants. Dr. Sauer's remarks about gastric and intestinal motility in older children may also be applied to certain conditions in infancy. Dr LeWald mentioned pylorospasm in infants. When there is pylorospasm, there is in all probability also enterospasm. It is commonly accepted that the whole thing is probably due to overactivity of the vagus, which explains the good effects obtained with atropin. The condition should really be called pyloro-enterospasm. In such cases, once the vomiting has been overcome, and with it the starvation and constipation, the food is hurried through the intestines; and thus, once the pylorus has been passed, the intestines empty with considerable rapidity. These infants undoubtedly require more food than normal infants do.

DR. ALFRED L. KASTNER, Milwaukee: In regard to older children with poor appetites, I see no other conclusion to arrive at than that the three-hour feeding interval is a common cause. The school child eats at 7 a. m., comes into school and has a glass of milk at 10 o'clock and then has lunch at 12. Now, in children who are properly nourished, why impose such an extra load? It is true the child needs the extra food, but is he able to handle it in three-hour intervals?

DR. LOUIS W. SAUER, Evanston, Ill.: I am sorry not to have made observations on older children with poor appetites during illness, fever and infections. Of course, it is a well-known fact that infants in hot weather secrete less free hydrochloric acid than on cold days. I agree that it is not a good thing to give these children milk between meals. Children who will not eat breakfast should not be expected to drink milk between breakfast and the noon lunch. I am not speaking of the child with good appetite who is underweight. I am sorry not to have mentioned the work of Drs. LeWald and Kerley. Dr. Kerley, a year ago, pointed out that one of the pronounced effects of delayed emptying time is loss of appetite and that a child will not be hungry with a portion of a previous meal in the stomach. In one of his cases, the stomach was not empty for thirteen hours. If such a child eats breakfast at 8 a. m., and something is still in the stomach six hours after that, it will not eat a hearty lunch. In regard to Dr. Foote's question—sixteen out of twenty-one were of the asthenic habitus. The significance of habitus is greatly neglected in pediatrics. Many children who are frequently ill belong to the "slender" type. The stomach is normally below the umbilicus. Roentgenologists show that normal stomachs of this type may have an emptying time not of four but of six hours. For that reason they set up six hours as the normal emptying time. Normal persons of this type may have a long emptying time. Children who come into this group are not children who have food dislikes. With regard to the treatment, we made the children "free to gain," fed them on foods rich in vitamins (lettuce sandwiches, carrots, spinach and, at times, cod liver oil), and tried to get them to take a quart of milk a day, giving 8 or 10 ounces at each meal. If we found the hydrochloric acid low, we gave 1 dram of essence of pepsin with 3 drops of dilute hydrochloric acid with each meal. The two children without free hydrochloric acid are interesting in that neither of them showed free hydrochloric acid in spite of the administration of 3 drops of the dilute hydrochloric acid for a period of several months.

Preparation of Chaulmoogra Oil Derivatives.—The working details of methods used at the University of Hawaii for the preparation of certain derivatives of chaulmoogra oil are described by Dean and Wrenshall in *Public Health Reports*, June 9, 1922. The chaulmoogra oil used is obtained through dealers, and varies greatly in quality, some lots being clear and liquid at laboratory temperature, other lots being dark, muddy looking oils with large quantities of precipitated material. The differences in appearance seem to have no correlation with differences in rotation of polarized light, which is the distinguishing characteristic of these oils. The valuable oils show specific rotations around plus 50 degrees. The first step in the preparation of derivatives for therapeutic use is to break up the glycerids into glycerol and the sodium soaps of the fatty acids by saponifying the oil with sodium hydroxid under pressure. These crude mixed fatty acids are then treated in different ways, the details of which are given as noted, and the following products obtained: (1) mixed ethyl esters, (2) ethyl hydnocarpate, (3) ethyl chaulmoograte, and (4) ethyl dihydrochaulmoograte.

THE QUINIDIN TREATMENT OF AURICULAR FIBRILLATION *

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Since the report by one of us (W. W. H.[1]) in December, 1921, of eight cases of auricular fibrillation in which quinidin sulphate was administered, we have observed and treated ten additional cases. In this paper we shall present (1) a further study of the cases previously reported; (2) the details of treatment and observation in ten new cases, and (3) the results and conclusions obtained from our experience with these eighteen cases in connection with a critical survey of the literature up to the present time.

In spite of lack of complete knowledge of the pharmacology of quinidin, its indications and contraindications in practice, and the occasional reports of serious untoward effects (paralyses, embolism and death), interest in its therapeutic use continues to grow. Reports and studies in quinidin therapy have appeared so fast during the past year, especially during the past six months, that it is well-nigh impossible to keep up with the constantly growing literature on the subject. One gets the universal impression that, in spite of the accidents referred to above, it is rapidly establishing a place for itself in modern cardiac therapy. Appreciating that our knowledge of the drug is as yet most incomplete, it must be borne in mind that its use in auricular fibrillation dates back only four years, since Frey's[2] work in 1918. It is interesting in this connection to reflect, as Jackson, Friedlander and Lawrence[3] have recently pointed out, that "Witherington introduced digitalis in 1783, while the year 1922 finds us still willing to learn more than we at present know about the foxglove."

Before presenting our own cases, it may be worth while to review very briefly the subject itself and its present status. Auricular fibrillation, the most frequent serious irregularity of the human heart, may be converted, in approximately 50 per cent. of the cases, to a normal cardiac mechanism by the administration of quinidin, one of the four better known alkaloids of cinchona bark, a stereo-isomer of quinin. In a recent compilation of the literature by Oppenheimer,[4] in a total of 461 reported cases, 53 per cent. of the patients were restored to a sinus rhythm. Of our series of eighteen cases, eleven patients (61 per cent.[5]) have secured, for a time at least, a normal rhythm, and in five (27 per cent.) it has lasted three months or more. The introduction of quinidin in the therapy of auricular fibrillation dates from Wenkebach's[6] accidental discovery of the use of quinin in 1914 and Frey's work in 1918, at which time he showed the greater suitability of quinidin. Since this time a large number of papers have been contributed on this subject and have served to throw considerable light on the exact mechanism, indications and contraindications, dangers, mode of action and selection of cases.

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* From the Medical Services and Electrocardiographic Laboratory, Michael Reese Hospital.

* Read before the Section on Practice of Medicine at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Hamburger, W. W.: Effects of the Administration of Quinidin Sulphate in Auricular Fibrillation, J. A. M. A. **77**: 1797 (Dec. 3) 1921.

[2] Frey, W.: Ueber Vorhofflimmern beim Menschen und seine Bezeitigung durch Chinidin, Berl. klin. Wchnschr. **55**: 417, 1918; Weitere Erfahrungen mit Chinidin bei absol. Irregularität, Ebenda **55**: 849, 1918.

[3] Jackson, Friedlander and Lawrence: J. Lab. & Clin. Med. **7**: 311 (March) 1922.

[4] Oppenheimer: Paper read before the American Society for Clinical Investigation, Washington, D. C., May 1, 1922.

[5] Our slightly better percentage is due to the fact that eight of our cases were of the acute or paroxysmal variety and that, from a larger experience, more effective dosage and treatment were possible.

[6] Wenkebach: Die unregelmässige Herztätigkeit und ihre klinische Bedeutung, Leipzig, Engelmann, 1914.

CASES PREVIOUSLY REPORTED

Our first eight cases, reported last year, have been kept under observation, and the patients have reported back from time to time for examination and treatment.

TABLE 1.—CASES PREVIOUSLY REPORTED

Case*	Diagnosis	Duration of Auricular Fibrillation	Quinidin, Gm.	Duration of Sinus Rhythm
A. Cases in Which Normal Cardiac Mechanism Was Restored				
1. I. B. ♀	Mitral stenosis; chronic A. F.	3-4 years	1.8	11 months
2. M. B. ♂	Gen. arteriosclerosis; diabetes mellitus; chronic A. F.	Unknown	1.8	14 days
3. J. M. ♂	Mitral stenosis; chronic A. F.	2 years	3.2	6 days
4. J. K. ♂	Hyperthyroidism; acute A. F.; M. B. R. 50.4+	Paroxysmal	1.4	10 days
B. Cases in Which Auricular Fibrillation Persisted				
5. I. G. ♂	Postinfec. myocarditis; chronic A. F.; adv. heart failure	2 months	3.7	
6. S. ♂	Chronic myocarditis; chronic A. F.; adv. heart failure	2 years	2.0	
7. M. P. ♂	Postpneu. myo. and end.; mitral sten. and insuffi.; adv. heart failure; chronic A. F.	3½ years	10.6	
8. M. ♂	Chronic inter. nephritis; adv. heart failure; chronic A. F.	1½ years	24.4	

* For sex, ♂ indicates male and ♀ female.

Table 1 shows in brief the details of these cases. As stated in our original paper, only four of these eight patients (50 per cent.) secured a normal cardiac mechanism, and only one of the four has maintained a normal rhythm for any considerable period (eleven months). The remaining three, in spite of various dosages and combinations of quinidin and digitalis, have experienced frequent returns of fibrillation so that, finally, quinidinization was discontinued, as no permanent benefit could be secured. Patient 2 has died, eight months after treatment, from increasing intoxication from his diabetic gangrene. Patient 4, with hyperthyroidism (metabolic rate 51.8 +) is at present undergoing roentgen-ray treatment for his thyroid hyperfunction with the expectation that, when this is controlled, quinidin therapy will be more effective.

The four cases that failed to respond to quinidin were all cases of advanced heart failure and have continued to pursue a progressively downward course. One patient has died; the remaining three are seriously handicapped in their cardiac reserve and in their ability to carry on sustained activity.

Summarizing our experience with our first group of cases after an interval of one year, it must be stated that the results are not particularly gratifying, as only 50 per cent. of the total number of cases responded, and in only 25 per cent. of these, or 12.5 per cent. of the whole, has there been a permanent result. Patient 1, whose sinus rhythm has persisted eleven months, underwent in March a gynecologic plastic operation necessitating a general ether anesthetic, lasting one hour, with no evidence of return of fibrillation. It may be recalled that this patient, at the time of the restoration of normal rhythm, showed a disappearance of right heart preponderance with coincident relief of clinical signs of heart failure.

NEW CASES

The new cases which we have to report comprise ten. Seven of these (Tables 2 and 3) responded to quinidinization with the establishment of a normal rhythm; three cases were not responsive. Of the seven responsive cases, three have maintained a normal rhythm for three months or more; the remaining four have had one or more recurrences of fibrillation. Three may be classified as acute auricular fibrillation undergoing their first attack of irregularity, and three as recurrent paroxysmal fibrillation. The contributory causes that were probably important etiologically were: acute respiratory infection, paratyphoid fever, pneumonia, menopause, hypertension, toxic goiter and generalized arteriosclerosis. The duration of the fibrillation varied from a few hours to several weeks. The amount of quinidin necessary to control varied from 0.2 to 3.8 gm.; the total amount of quinidin administered to any one patient was 23.2 gm. While it is well known that the paroxysmal type of fibrillation often ceases of its own accord, these cases were so controlled that it appeared likely that the restoration of sinus rhythm was brought about as a result of quinidin administration. It is probable, too, that the drug materially shortened the paroxysm of irregularity, for in one and the same case, in which for various reasons certain attacks were allowed to continue untreated, the giving of quinidin was promptly followed with a restoration of normal cardiac mechanism. Four of these seven cases were private cases under careful and repeated observation and control and, with the patients' intelligent cooperation and insight into their own problems, they themselves were convinced of the controlling action of quinidin. One of them, a physician, administered the capsules to himself and controlled the paroxysms of irregularity largely at his own discretion.

TABLE 2.—NEW CASES, IN WHICH NORMAL CARDIAC MECHANISM WAS RESTORED

Case	Diagnosis	Duration Auricular Fibrillation	Quinidin Necessary for Sinus Rhythm	Total Quinidin, Gm.	Duration Sinus Rhythm
9 W. S. ♂	Acute A. F. occurring 5th day; acute grip infection	1 parox. attack lasting 12 hrs.	0.4 gm.	0.6	3 months
10 M. L. ♀	Recurrent parox. A. F.; menopause; hypertension	Variable: few min. to several hours	Variable: from 0.2 gm. to 1.2 gm.	5.6	Variable: 1st attack 1 year, 2-4 months
11 M. F. ♂	Recurrent parox. A. F.; hyperthyroid; M. B. R. 72.2+	Variable: from several hrs. to 2 wks.	Variable: from 1.2 gm. to 2.0 gm.	8.4	Var.: sev. hrs. to 3 wks.; earlier attacks, sev. months to sev. years
12 H. R. ♂	Recurrent parox. A. F.; postinfec. myo.	Variable: from 1-4 days	0.2 gm.	4.0	Variable one to sev. years
13 M. C. ♂	Acute A. F.; gen. arteriosel.; chr. myocarditis; begin. heart failure	3 weeks	3.8 gm.	23.2	7 days
14 B. W. ♂	Acute A. F.; postpneum., myo. and endocarditis; mitral sten.	24 hrs.	1.2 gm.	10.2	3 months
15 B. C. ♀	Chr. A. F.; mitral sten. and regur, adv. recurr. heart fail.—8 yrs.	4 yrs.	1.0 gm.	7.4	24-48 hrs.; 7 days during contin. adm.; prompt relapse after discontinuing

There is little to be said regarding the three cases of auricular fibrillation which failed to respond to quinidin. In contrast with the nonresponsive cases of the first series, none of them were cases of advanced heart failure, although one was classified as moderately advanced and the others early heart failure. In one case, quinidin was discontinued after a dosage of 8.4 gm., covering a period of eight days, because of complaints of spots before the eyes, dizziness and ringing in the ears. In a second case, after 12 gm. had been given, quinidin was discontinued because of the production of a bradycardia varying between 40 and 52 apex beats a minute. One or two other of our patients have experienced a similar bradycardia. Curves of this patient showed a continuance of the high auricular rate with the very slow ventricular, suggesting that in large amounts over a prolonged period, quinidin does affect the auriculoventricular bundle, producing a rather high degree of partial heart block. The effect of quinidin direct on the heart muscle and on the vagus must also be considered in this connection. These patients, in spite of showing evidence of heart failure, were all cases of relatively long fibrillation, so that we conclude that this factor is probably of greatest constancy in the nonresponsive cases.

TABLE 3.—NEW CASES IN WHICH AURICULAR FIBRILLATION PERSISTED

Case	Diagnosis	Duration of A. F.	Quinidin
16. S. E. ♀	Chronic A. F.; chr. myocar. and interst. neph.; mod. adv. heart failure	1-2 years	1st. ser. 10.2 gm. 2d. ser. 7.0 gm. Total 17.2 gm.
17. D. S. ♂	Chronic A. F.; early heart fail.; chr. myocard.	2-3 years	24.6 gm.
18. T. ♂	Recurrent parox. A. F.	Recurrent 7 years	12.0 gm.

Rather than present the details of these cases, we shall discuss certain of the more important and obscure problems in connection with a critical survey of the literature up to the present time. We shall discuss these in this order: (1) favorable cases and indications for quinidin therapy; (2) unfavorable cases and contraindications; (3) dosage and method of administration; (4) digitalis; (5) subjective symptoms, clinical value, effects on compensation and decompensation; (6) toxic effects, accidents occurring during administration, respiratory paralysis, skin lesions; (7) effect on auricular and ventricular rate, vagus, venous, arterial and pulmonary pressure, peripheral vessels; (8) changes in P-R interval, QRS complex, T wave, heart block.

FAVORABLE CASES AND INDICATIONS FOR QUINIDIN

It is generally agreed that patients with fibrillation of short duration and with relatively good heart muscle, with no signs of decompensation, are most favorable for the administration of quinidin. Bock[7] and Cheinisse[8] believe that it is particularly valuable in patients with hyperarterial tension and with peripheral arteriosclerosis. Wolferth's[9] case of hyperthyroidism showed the most striking improvement. Pardee[10] inclines to patients with relatively good heart muscle and fair compensation. Our best results have been obtained in the acute and paroxysmal varieties, although our instance of restored sinus rhythm of longest duration occurred in a chronic case in which fibrillation had been present for three or four years. Our two hyperthyroid cases responded easily to small amounts of the drug, but quickly relapsed to fibrillation, although one of them could be controlled for weeks at a time with daily small amounts of quinidin (Fig. 1). We are hopeful that reducing the hyperthyroidism by roentgen-ray treatment will result in a more permanent cure. Our experience with patients with peripheral arteriosclerosis is that, while they respond promptly, they relapse equally so, and permanent results are difficult to obtain.

UNFAVORABLE CASES AND CONTRAINDICATIONS

The literature is fairly in agreement in the fact that the most unfavorable cases are those of long duration with moderately advanced or advanced heart failure. Our experience is in accord with this, although there are many exceptions to it. Ellis and Clark-Kennedy[11] believe that those which do not respond to digitalis will not respond to quinidin. Smith[12] believes that patients with large hearts are unfavorable. Jackson, Friedlander and Lawrence, from results with experimental aconite poisoning, suggest that there may be two types of fibrillation, the early aconite poisoned animals responding, the late not. White[13] believes heart failure and long duration are unfavorable cases. Bock and Cheinisse speak of acute and recurrent endocarditis as contraindications. Thomas Lewis[14] warns against patients in whom there is any history or findings of previous embolism and patients with advanced heart failure as evidenced by an engorged, tender liver and dilated veins of the neck. While we have been fortunate in experiencing no serious mishaps, we share in general the statements of the foregoing observers. However, it is certainly difficult to predict whether a given case will be successful or not, although, in general, we now feel fairly safe in stating that the case with a single acute attack or a recurrence can usually be controlled promptly with quinidin.

DOSAGE AND METHOD OF ADMINISTRATION

All observers are using practically the same amounts of quinidin, varying from 0.2 to 0.4 or 0.6 gm., three or four times a day. Lewis recently spoke of using as a test dose 0.8 gm., the largest amount of which we know. In general, we are using frequent small doses, and find that they are as advantageous as the larger amounts. In a few recent cases we have omitted the preliminary idiosyncrasy dose, starting with 0.2 gm. every two hours with careful, frequent examinations of the patient, and find that many attacks can be controlled immediately in from two to twelve hours by this method. If such dosage is ineffectual, after a three or four day attempt, we increase the amount to 0.4 gm. every two hours. In our last cases we have been accustomed, after the establishment of sinus rhythm, to continue giving 0.2 gm. once or twice a day for a considerable period, decreasing only gradually, believing, with Eyster and Fahr,[15] that, since in most cases the conditions tending to produce auricular fibrillation are still present even after a normal rhythm is restored, subsequent administrations of the drug are necessary to avoid recurrence. If stoppage of the drug is followed in a short time by a relapse, we start a second series of quinidin administration, continuing it practically indefinitely, meanwhile making every possible attempt to diagnose and treat the probable underlying causative disease. It is remarkable how long and uneventfully patients can take small amounts of quinidin. Several of our patients are continuing now in their second and third month taking one or two capsules (0.2 gm.) a day without apparent harm.

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[7] Bock: Med. Klin. **17**: 1052 (Aug. 28) 1921.
[8] Cheinisse: Presse méd. **29**: 748 (Sept. 17) 1921.
[9] Wolferth, C. C.: Am. J. M. Sc. **162**: 812 (Dec.) 1921.
[10] Pardee: Discussion, New York Acad. of Med., Nov. 17, 1921.
[11] Ellis, A. W. M., and Clark-Kennedy, A. E.: Lancet **2**: 894 (Oct. 29) 1921.
[12] Smith, F. M.: Quinidin in Cardiac Irregularities, J. A. M. A. **78**: 877 (March 25) 1922.
[13] White, P. D.: Boston M. & S. J., Dec. 17, 1921.
[14] Lewis, Thomas: Paper read before the Institute of Medicine, Chicago, May 10, 1922.
[15] Eyster, J. A. E., and Fahr, G. E.: Quinidin in Auricular Fibrillation, Arch. Int. Med. **29**: 59 (Jan.) 1922.

DIGITALIS

The rôle of digitalis has been and continues to be a much discussed one. Pardee believes there is no effect either way from its administration. Wolferth had an interesting experience in which the administration of digitalis was effective in restoring a sinus rhythm temporarily; later, quinidin was not successful. Robert Levy[16] believes that digitalis is not essential to successful treatment. Fred Smith feels that it is contraindicated, as both digitalis and quinidin may produce heart block. White concludes that digitalized cases are more likely to respond, but that it is better not to give the two together. Lewis believes that there is little difference in the auricular response, although possibly the undigitalized cases may be a shade more likely to respond than the digitalized; but he strongly feels that digitalis effects are desirable, especially in the rapid type of fibrillation, and shows graphically in one and the same patient the relative slowing of the ventricular rate in the digitalized cases. We have had three interesting experiences. To one patient, in whom, in spite of evident decompensation (cyanosis and orthopnea) digitalis was certainly indicated, we gave quinidin first without digitalis, and a prompt restoration of sinus rhythm occurred, with a simultaneous disappearance of signs of heart failure. The second case, reported last year, showed without digitalis and with small amounts of quinidin a clearing up of early heart failure and disappearance of evidences of right heart embarrassment (right preponderance). In the third case, an exophthalmic goiter patient with an extremely rapid type of fibrillation, we had great difficulty in maintaining, without digitalis, a normal rhythm for more than a few hours until a time when he was completely digitalized, after which the same or even smaller amounts of quinidin were successful in holding his heart regular for three weeks. As a result of these experiences, our practice at present is to give quinidin at once in a properly selected case without preliminary digitalization, in spite of a moderately rapid heart and signs of early or moderately advanced heart failure. If, on securing a normal rhythm, the ventricular rate remains over 100, or if the signs of heart failure have not disappeared entirely, or if the restoration of a regular pulse is of short duration with frequent and early tendencies to relapse, we then digitalize the patient in the usual way.

SUBJECTIVE SYMPTOMS; CLINICAL VALUE; EFFECTS ON COMPENSATION AND DECOMPENSATION

The symptoms mentioned most frequently in the literature as due to the administration of quinidin are palpitation, weakness and dizziness, dyspnea, oppression and tachycardia. A few have noticed epigastric distress, ringing in the ears, headache, nausea, hemoptysis and hot flashes. Some of these complaints have been voiced by our patients; others have noticed no subjective effects of any sort.

From the standpoint of the effect on subjective complaints, that is, the value of the treatment from the patient's standpoint, the literature contains such statements as "no striking change"; "no more than ordinary rest and diet"; "relief experienced in slow type of fibrillation"; "relief from palpitation"; "general improvement." Lewis makes the interesting observation that, although several of his patients showed no immediate improvement and experienced no immediate change with restoration of normal rhythm, they experienced later improvement in strength, in general well-being and in ability to carry on. In our experience, the private cases have experienced decidedly more personal satisfaction from the change than the ward cases, not only patients with exophthalmic goiter but also those with acute fibrillation following infection; they are extremely grateful when the irregularity has been stopped. Our easy-going, phlegmatic patients noticed little if any change; our nervous, apprehensive, frightened ones were intensely frightened during the attack and strikingly relieved when it was over, and insisted on having their capsules near them day and night. One patient with goiter, whose attacks often come at night, puts his capsules at his bedside and helps himself when his attacks rouse him from his sleep.

Several men have reported that quinidin caused decompensation in a previously well-compensated fibrillating heart; or, at least, with the restoration of sinus rhythm by quinidin, decompensation occurred. We have fortunately had no such experience.

TOXIC EFFECTS; ACCIDENTS OCCURRING DURING QUINIDIN THERAPY (EMBOLISM); RESPIRATORY PARALYSIS; SKIN LESIONS

Wilson and Herrmann[17] group the accidents occurring under quinidin therapy under six headings: (1) increased cardiac failure; (2) apparent respiratory paralysis; (3) embolism; (4) failure of the sinus node to resume function; (5) depressed intraventricular conduction; (6) increased ventricular rate. Embolism is, of course, the most serious, has resulted in several sudden deaths, and has caused infarcts in the kidney, lung, spleen and brain. It has caused transitory paralyses.

We have been fortunate up to the present time in having no embolic cases, at least none that we recognized. We have had several scarlatiniform rashes, dizziness and ringing in the ears, spots before the eyes, and sudden rise of temperature to 101.6 with severe headache, diarrhea and abdominal pain. Such results as these are frequent findings throughout the literature. The less serious findings are undoubtedly cause for immediate discontinuance of the drug. We fully agree with Sir Thomas Lewis that any evidence of embolism is an absolute contraindication. It is striking that several clinics report a much greater number of these accidents than others. In this connection, it might be recalled that embolism is not an infrequent occurrence in fibrillation without quinidin; witness the reports of paralysis, infarcts, hemoptysis, etc., in the older literature.

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[16] Levy, Robert: Proc. Soc. Exper. Biol. & Med. **19**: 88, 1922.

[17] Wilson, F. N., and Herrmann, G. R.: Cerebral Embolism Following Arrest of Auricular Fibrillation by Quinidin, J. A. M. A. **78**: 865 (March 25) 1922.

EFFECT ON AURICULAR AND VENTRICULAR RATE, VAGUS, VENOUS, ARTERIAL AND PULMONARY PRESSURE, AND PERIPHERAL VESSELS

Acceleration of the ventricular rate (ventricular tachycardia) is a frequent experience in patients undergoing quinidin treatment. Drury and Iliescu,[18] by using sternal leads, have shown clearly the progressive depression of auricular rate, falling sharply from a single dose and only very gradually resuming its original rate. We have taken sternal leads in connection with the regular leads in a number of cases, and have estimated the auricular rate (Fig. 3). Table 4 shows the typical result of such estimation, showing the gradual depression of an original auricular rate of 460 during fibrillation to 260 during flutter, and finally to 75 with the restoration of sinus rhythm. In contrast to Lewis' findings, the ventricular rate in this case likewise progressively decreased, as it has in one or two other cases, resulting finally in a fairly high grade bradycardia. This rapid early irregularity is usually followed by a rapid regular rhythm (auricular flutter), the *"Transition* rhythm" of Eyster and Fahr. The rate estimations in three cases, given in Table 5, show the initial ventricular, the transition rhythm and the final sinus rhythm rates.

TABLE 4.—REGULAR AND STERNAL LEADS, CASE 11

Date	Hour	Leads	Auricular Rate	Ventricular Rate	Rhythm
3/7/22	8 p.m.	Regular before quinidin	461 (approx.)	171	Irreg. (fibrillation)
3/8/22	8 a.m.	0.2 gm. Q.			
	10 a.m.	0.2 gm. Q.			
	11 a.m.	Sternal	428 (approx.)	141	Irreg. (fibrillation)
	12 noon	0.2 gm. Q.			
	1:40 p.m.	Sternal	260	130	Reg. (flutter)
	2 p.m.	0.2 gm. Q.			
	3 p.m.	Regular	260	130	Reg. (flutter)
	4 p.m.	0.2 gm. Q.			
	5:30 p.m.	Regular	240	120	Reg. (flutter)
	6:00 p.m.	0.2 gm. Q.			
3/9/22	8.00 a.m.	0.2 gm. Q.			
	9:45 a.m.	Regular	100	100	Normal (S. R.)
	4:30 p.m.	Regular	75	75	Normal (S. R.)

TABLE 5.—RATE ESTIMATIONS IN THREE CASES

Initial Ventricular Rate	Rate of Transitory Rhythm	Sinus Rhythm Rate
111	130	65
85	133	73
94	107	75

In regard to the effect on the vagus, White believed that quinidin has a paralyzing effect, while Jackson, Friedlander and Lawrence believe that the vagus endings are not paralyzed and that the inhibitory action, if anything, is increased. Lewis, Drury, Iliescu and Wedd [19] conclude that it causes a partial, rarely complete paralysis of the vagus. From our experiences we have no evidence as to the vagus effect unless the acceleration of ventricular action under quinidin can be offered as evidence of such action. Eyster and Fahr found the venous pressure increased as a result of the drug. Cohn [20] found a fall in arterial blood pressure, and the Cincinnati workers describe a general fall in the systemic blood pressure. Dilatation of pulmonary arterioles and capillaries resulting in a fall in pulmonary pressure has been described, as well as dilatation of peripheral vessels from direct action on the capillaries.

CHANGES IN P-R INTERVAL; QRS COMPLEX; T WAVE; HEART BLOCK

Levy found the P-R interval lengthened in one patient. White found it slightly lengthened. Wolferth believes that it increases above the normal with the restoration of sinus rhythm, but that this is not necessarily due to quinidin. We have found no constant effect, but have one strikingly prolonged interval in an unfavorable case. Several observers have noted a lengthening in the QRS complex, with the production of transient intraventricular block and changes in R and S. Several of our cases have shown slight prolongation and notchings in the initial complexes, and in two cases inversion of T. The latter is in accord with several observers in this country. White records one case of complete heart block. Lewis concludes that it depresses auriculoventricular conduction as part of the uniform influence of the drug on the rate of conduction in all three tissues — auricle, ventricle and junctional tissues.

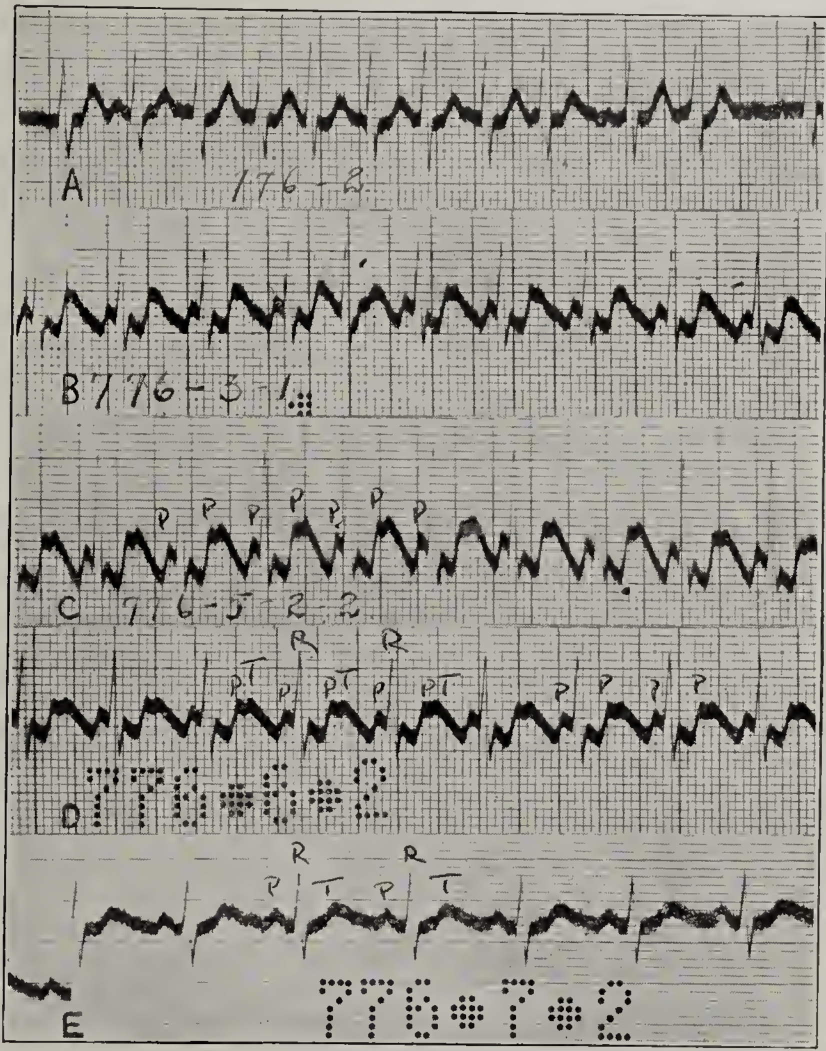

Fig. 1 (Case 11, man, aged 54).—Recurrent paroxysmal auricular fibrillation; change from auricular fibrillation to flutter and to sinus rhythm with slowing of auricular and ventricular rates; exophthalmic goiter. *A,* March 7, 1922, 8 p. m.: auricular rate, approximately 461; ventricular rate, 171; fibrillation; no quinidin. *B,* March 8, 11 a. m.: approximate auricular rate, 286; ventricular rate, 150; fibrillation; 0.4 gm. quinidin. *C,* March 8, 3 p. m.: auricular rate, 260; ventricular rate, 130; flutter; 0.8 gm. quinidin. *D,* March 8, 5:30 p. m.: auricular rate, 240; ventricular rate, 120; flutter; 1 gm. quinidin. *E,* March 9, 9:45 a. m.: auricular rate, 100; ventricular rate, 100; sinus rhythm; 1.4 gm. quinidin.

SUMMARY

It is difficult to reach final conclusions regarding the exact rôle of quinidin in auricular fibrillation. This difficulty arises from several sources, because (1) of our comparatively short acquaintance with the phenomenon; (2) our lack of knowledge concerning the exact mechanism and underlying cause of fibrillation itself, and (3) the new experiences and findings from each fresh case undergoing treatment.

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[18] Drury, A. N., and Iliescu, C. C.: Brit. M. J. **2**: 511 (Oct. 1) 1921.

[19] Lewis, Thomas; Drury, A. N.; Iliescu, C. C., and Wedd, A. M.: Heart **9**: 55 (Dec. 14) 1921.

[20] Cohn, Alfred: Discussion, N. Y. Acad. of Med., Nov. 17, 1921.

Stating first our general impression, in spite of our relatively few cases of permanently established sinus rhythm (27 per cent.), we feel that quinidin is establishing a permanent place for itself in cardiac therapy and that no case of auricular fibrillation should be treated at the present time without at least thoughtful consideration of its therapeutic possibilities. Starting, then, from this general favorable impression, which are the cases that are most likely to respond, either permanently or temporarily? Judging by our experience up to the present time, we feel that patients with acute fibrillation or recurrent paroxysmal fibrillation are those most likely to react favorably and promptly to quinidin. While in these patients fibrillation often ceases spontaneously, administration of the drug controls the paroxysms more promptly and without danger. The duration of the response is more likely to be permanent in acute self-limited illnesses (acute respiratory infections, pneumonia) than in cases of hyperthyroidism, generalized arteriosclerosis, etc.

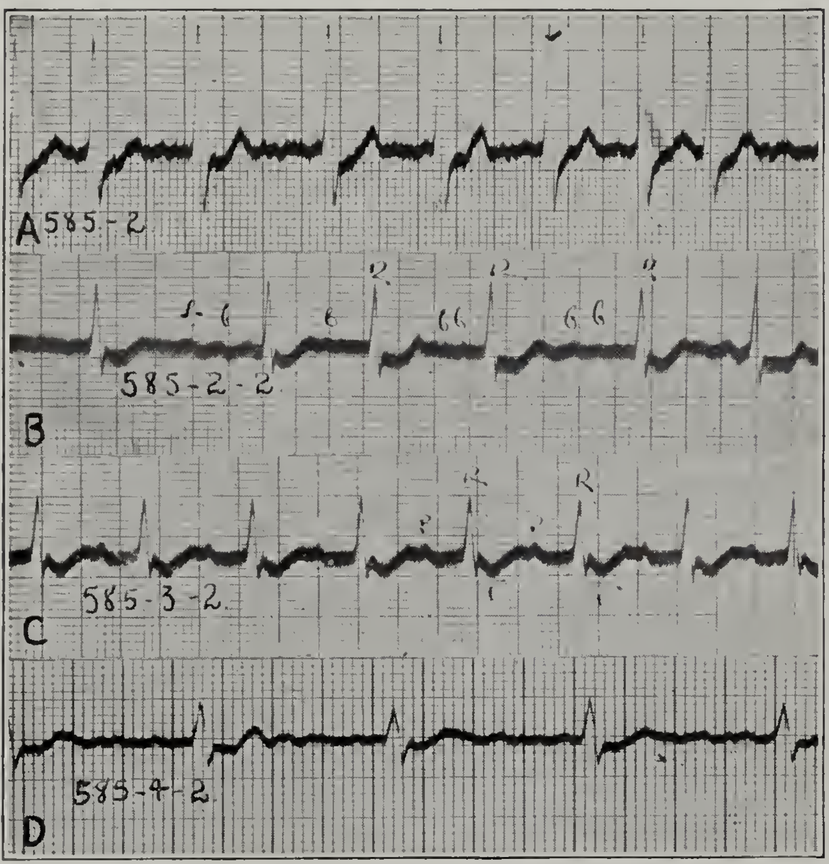

Fig. 2 (Case 15, woman, aged 50).—Chronic auricular fibrillation; mitral stenosis; regurgitation; advanced recurring heart failure. Quinidin response brief; early relapse to fibrillation; prolonged P-R: example of contraindication. Following 0.2 gm., temperature, 101.6 F. Died suddenly one week later. *A*, Aug. 19, 1921: rate, 94; no quinidin. *B*, August 23: rate, 75; no quinidin. *C*, September 2: rate, 107; 2.6 gm. quinidin. *D*, Feb. 8, 1922: rate, 79; total quinidin, 7.4 gm.

The next most favorable type of case is the patient with fibrillation of relatively short duration without signs of heart failure or evidence of embolism, in whom the administration, so far as we know, is unattended with serious consequences.

The third group, in which the outlook for response is probably as good as the second, but in which the possibilities of danger are somewhat greater, comprises those patients with signs and symptoms suggestive of beginning or early heart failure (cyanosis, dyspnea, palpitation and tachycardia), but without the signs of advanced heart failure (engorged tender liver, pulsating veins of the neck, dropsy, etc.). In these the response is often remarkable. These cases suggest that the cyanosis, dyspnea and palpitation are due to the mechanical effects of the rapidly beating ventricle, and not to ventricular muscle failure.

We come now to the fourth group, the unfavorable cases or those in which quinidin is absolutely contraindicated. They may be listed briefly as those patients suffering with moderately advanced or advanced heart failure, signs or history of embolism, acute or subacute endocarditis, auriculoventricular or intraventricular block, angina pectoris, coronary disease, idiosyncrasies for quinin and its derivatives, or prolonged chronic fibrillation. In these patients, the results of quinidinization are not sufficiently striking to justify the potential risk involved.

The drug should not be given without a careful history and complete examination of the patient. If possible, a preliminary electrocardiogram should be made, for without it there must always exist some uncertainty as to the exact type of irregularity or the presence of additional irregularities (extrasystoles), the relative balance of the right and left heart, and the integrity of the ventricular muscle (disturbance in ventricular conduction). The patient should be put at complete rest in bed, given a preliminary idiosyncrasy test of 0.2 gm., and then starting the following day the same amount every two hours with continuous observation and control, including the electrocardiogram if possible. Digitalis should be given later if the ventricular rate remains high, if heart failure persists, or if frequent relapses to fibrillation occur.

CONCLUSIONS

1. Quinidin sulphate has been administered to eighteen patients suffering with auricular fibrillation. In eleven (61 per cent.) a normal cardiac mechanism has been established, which, in five (27 per cent.), has persisted three months or more. One patient has maintained a sinus rhythm uninterruptedly for eleven months.

2. Cases of acute fibrillation or recurrent paroxysmal fibrillation are most amenable to quinidin treatment. In these patients the duration and frequency of the paroxysm can be promptly controlled without undue risk.

3. The following is offered tentatively as a means of selecting cases of auricular fibrillation in the order of their decreasing suitability for quinidin treatment: (*a*) patients with acute fibrillation or recurrent paroxysmal fibrillation; (*b*) patients with fibrillation of short duration without history or findings of heart failure or embolism; (*c*) patients with signs and symptoms of early or apparent heart failure, but without evidence of advanced heart failure.

4. In patients with moderately advanced or advanced heart failure, and history or findings of embolism, endocarditis, heart block, angina pectoris, coronary disease, quinin idiosyncrasy or prolonged chronic fibrillation, quinidin is contraindicated.

5. Equally good results are obtained with small amounts of quinidin (0.2 gm.) given frequently (every two hours), to be continued in most cases once or twice daily after restoration of sinus rhythm.

6. Quinidin may usually be given at once without preliminary digitalization. If, after restoration of

normal rhythm, the ventricular rate remains high, signs of heart failure continue, or frequent relapses to fibrillation occur, digitalis should be subsequently administered.

ABSTRACT OF DISCUSSION

Dr. Fred M. Smith, Chicago: Every one has been impressed by the remarkable action of quinidin in auricular fibrillation. The beneficial effects of this drug in this disorder are not, however, as promising as it was thought they might be. It is apparently generally agreed that quinidin will ultimately be established as a valuable drug in the treatment of certain cardiac disorders. So far the results seem to be much better in instances of auricular fibrillation of short duration in which the heart is well compensated. A few fatalities have been attributed to the administration of quinidin. In most instances, cardiac failure or emboli have been responsible for the unexpected results. Lewis recommends that patients be well digitalized prior to the administration of quinidin. His reason for this is to ward off the possibility of embolic accidents. At present, it would thus seem that the dangers incident to this method of treatment would not permit its being recommended to the general practice. Observations would seem to indicate that quinidin may, perhaps, be of value in the treatment of permature contractions. It is commonly known that the premature beat may be a very disturbing condition to the patient and often not influenced by the measures that have been employed in the past. In several instances, we have obtained very satisfactory results with quinidin in persons who did not respond to other forms of medication. I well recall one patient who came to the clinic because of an irregular action of the heart that had occurred daily for an interval of more than five months. His general condition was very poor. He was unable to continue his work. He had lost 20 pounds (9 kg.) in weight, was unable to sleep and had a poor appetite. He was instructed to take 3 grains of quinidin three times a day. The irregularity was eliminated. He began to sleep, regained his appetite and in one week gained 10 pounds (4.5 kg.) in weight. At present his weight has increased more than 25 pounds (11.3 kg.), he is back at his former work and feels better than he has in months.

Dr. John Wyckoff, New York: Dr. Hamburger said that quinidin was not indicated in cases of severe, long standing decompensation. I agree, but I think there are two reasons why it is contraindicated: first, as Dr. Hamburger has said, because in this type of case quinidin is most dangerous; although it is interesting to note that in the twenty-four cases of auricular fibrillation which I have observed the only death occurred in a patient who had no symptoms of heart failure at the time he received quinidin; and, second, because the clinical improvement after quinidin is very much less than that which we obtain after digitalization. It has been our practice to place patients with auricular fibrillation with heart failure into two groups. In one group, we gave digitalis first; and after we had obtained full digitalis effect, we gave quinidin. In the other groups, we gave quinidin first, followed later by digitalis. Patients were given a preliminary rest period of seven days with limited fluid intake, so that these factors could be eliminated as a cause of improvement. They were ordered rest for a week, and then given quinidin. Though some of these patients resumed sinus rhythm, none of them showed further clinical improvement. The other group were given quinidin first. Those who returned to normal rhythm usually showed some slight clinical improvement. After seven days' continued rest with the normal rhythm, these patients were digitalized, and every one of them showed marked further improvement. For example, one patient with a ventricular rate of 160, with signs of advanced heart failure, after receiving quinidin, resumed a normal rhythm with a ventricular rate of 90. The only clinical improvement was that palpitation disappeared. The patient was given a further rest for one week. During this time, dyspnea and orthopnea persisted and there was no loss of weight. He was then digitalized with an immediate clearing up of his symptoms. He passed 4 liters of urine in the first twenty-four hours and lost 15 (6.8 kg.) pounds weight in the first forty-eight hours. This, I believe, shows that quinidin cannot take the place of digitalis in this type of case.

Dr. Arthur E. Strauss, St. Louis: Quinidin has certainly come to be experimented with, even if it has not come to stay. The use of quinidin is still in an experimental stage. As with all drugs, it must undergo a period of study and our final analysis must depend on this study. Dr. Hamburger has emphasized that quinidin apparently is most effective in the cases of transitory auricular fibrillation. In that connection, I think it important to say that we are not certain that all so-called chronic fibrillations do not begin first as periods of transient fibrillation. Certainly, if one takes careful histories, one will often see cases develop as transient fibrillation; and it is not infrequent to see such cases develop later into the chronic forms. If quinidin is valuable in the temporary fibrillation, it is valuable in the chronic fibrillations at the onset. Dr. Hamburger has stated that it is often necessary to continue the administration of quinidin. We are not yet certain of the effects of the long-continued use of quinidin. We have seen quinin used in malaria for long periods of time, and in the majority of cases we have noted no harmful effects. However, in a number of my cases of fibrillation in which quinidin has been used for long periods the patients have complained of weakness when they had no symptoms of idiosyncrasy to quinidin. Therefore, there is some doubt as to how long quinidin can be continued. It must further be emphasized that there are some dangers incident to the administration of quinidin. Therefore, it must be used only after due consideration and with the idea that it should be as carefully controlled as are all experiments. One final word, as to the reason we should not use quinidin in the decompensated hearts. We know that digitalis in the decompensation of fibrillation is almost invariably beneficial. We know that quinidin is beneficial in restoring normal rhythm

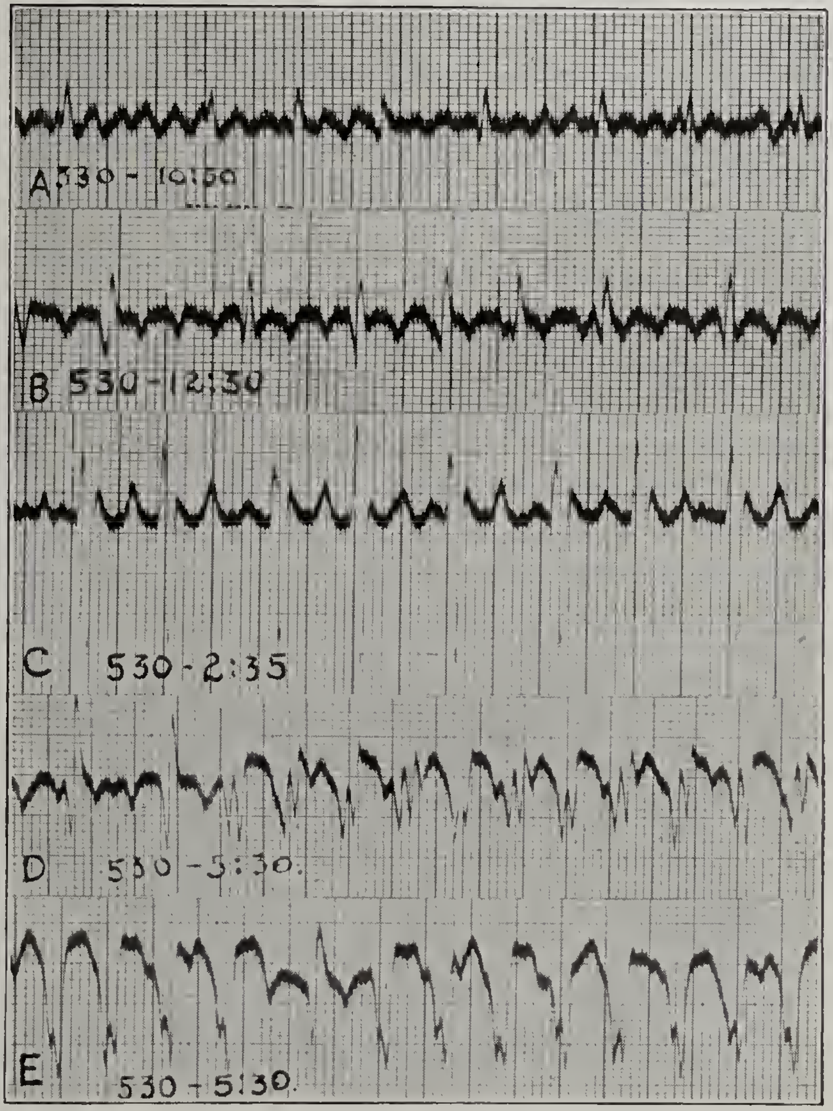

Fig. 3 (Case 5).—Sternal lead curves, showing effect of quinidin on auricular and ventricular rate; Nov. 28, 1922: *A*, 10:30 a. m., no quinidin; auricular rate, 424; ventricular rate, 124. *B*, 12:30 p. m. after 0.1 gm., auricular rate, 382; ventricular rate, 150. *C*, 2:35 p. m., after 0.2 gm., auricular rate, 363; ventricular rate, 124. *D*, 5:30 p. m., after 4 gm., auricular rate, 375; ventricular rate, 230.

in no more than 60 per cent. of cases on the average. That alone is sufficient reason for using digitalis in the decompensated fibrillators, rather than quinidin.

Dr. Alexander Lambert, New York: I have tried quinidin in thirty cases. In one patient, the fibrillation stopped and the rate fell to normal. In all the others, with careful electrocardiographic control, there was no effect.

Dr. L. F. Bishop, New York: Dr. Hamburger has probably made the best observations and written the best literature on quinidin. So that, in discussing his paper, I do not wish to add to the experimental side of it, but rather to give my own impressions founded on a rather unusual group of patients. For a number of years, I have been using the electrocardiograph in private practice, and I have instructed my patients to come to the office when they have palpitation and have a picture taken of the heart beat. Thus, I have accumulated a number of examples of temporary fibrillation which did not recur again for a long time or did not recur at all. It seems to me that a very important element in appraising the value of quinidin is a knowledge of the natural history of fibrillation. I believe that nearly every example of fibrillation, except in the very advanced broken-down heart, begin in this way. The vast number of fibrillators commence by short attacks which become more frequent and last longer. It is almost a joke on medical science that the best example of therapeutic effect should be disturbed by the introduction of a new treatment. There is no treatment in all medicine as brilliant as the treatment of fibrillation of the auricle with digitalis, and I would say as a matter of experience that the patients do not feel any better when they are treated by quinidin than when they are treated by digitalis. In other words, the chronic fibrillator carries fibrillation comfortably if he takes enough digitalis or if he develops heart block which balances the fibrillation. I have seen persons who have continued very well with fibrillation for fifteen years or more. There is no doubt that there often exist clots in the paralyzed auricle in fibrillation, and it is cerainly dangerous to restore the contraction of that auricle if it is going to throw out an embolus which may kill the patient. I do not believe that quinidin is a valuable general heart tonic, and I believe that men in general practice will do well if for the present they leave the use of quinidin to men who are experimenting with it in hospitals. I think it is unwise to use it in ambulatory patients in private practice.

Dr. Walter W. Hamburger, Chicago: I agree with Dr. Bishop in the main. I think his warning in the advanced cases should be emphasized. The real danger is, of course, embolism. If there is any sign or history of embolism, quinidin should not be given. One of my patients is a surgeon who has had paroxysmal attacks of fibrillation for fifteen years. He gets attacks once a year or so, sometimes while operating; once while swimming, and the last time while working in his garden. The attack last year lasted about a week and was associated with severe anginal pains. He was worried about it and was quite ill. After a week's rest in bed, the fibrillation stopped of its own accord, and he has had no attack until a week ago. I immediately gave him 3 grains (0.2 gm.) of quinidin and another dose in two hours. Within three hours this attack was over; and he is confident the drug shortened the attack. Likewise in the paroxysmal attacks of exophthalmic goiter, quinidin undoubtedly controls the attacks. It should not be given to ambulatory patients, and it should not be given as a routine until we know much more about it than we do at the present time. Embolism occurs in fibrillation without quinidin and sometimes without the establishment of a normal rhythm.

Purpose of Operation for Epilepsy.—In operating on epileptics, and in choosing cases for operation, we should like to have a clear idea of the purpose of the operation, based on some reasonable conception of that relationship. The surgeon who merely removes a disk of bone from the cranium of an epileptic patient places himself on a level with the practitioner of the stone age, the marks of whose handiwork on the skulls, probably of the epileptic or the insane, are to be seen in museums of ethnology.—Percy Sargent, *Brain* **44**:314, 1921.

THE CAUSE AND RELIEF OF ACUTE INTESTINAL OBSTRUCTION *

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ROCHESTER, MINN.

Ileus is one of the most serious conditions that confront the medical attendant, since if it is not relieved death is inevitable. In order to lower the death rate in such conditions, much depends on early diagnosis, judgment and promptness of action. Relief is by no means possible in all cases; for instance, there is necessarily a high mortality in cases of mesenteric embolism and thrombosis. Therefore, the discussion of the subject of acute intestinal obstruction, from time to time, is of value, not so much for the older practitioners as for those who have more recently entered the profession, so that they may acquire knowledge without encountering the tragedies which fixed the memory of such conditions in the minds of those long in practice.

Cases of acute intestinal obstruction may be regarded as falling naturally into four groups: (1) apparent obstruction, really intestinal stasis, a reflex symptom occurring with slight abdominal distention, the pulse and temperature changes being such as are caused by the primary lesion, which is often renal; (2) the obvious hernia; (3) acute obstruction from an intra-abdominal lesion, and (4) postoperative obstruction.

The obvious hernias, inguinal, femoral, umbilical and ventral, which formerly caused a considerable proportion of obstructions through strangulation, have now largely been taken from this group, as even laymen appreciate the safety of modern surgery over that of a few decades ago. Hernia repaired at an elective period prevents the high percentage of strangulations formerly seen, when a reasonable fear of surgery led to prolonged taxis which often aided in the development of gangrene. The wasted opportunity, added to the seriousness of preantiseptic surgery, gave a high mortality which resulted in making acceptable this vicious circle of delay. Gangrene, or wet death of tissue, especially abdominal, and when sepsis is possible, furnishes toxins which are most difficult to counteract without the removal of the destroyed tissue or without adequate drainage.

Obstructions within the abdomen are those which cause the greatest apprehension, as there are added difficulties of diagnosis, some of which have been overcome by fluoroscopic observation or roentgenograms revealing obstructions after the opaque material has been given by mouth or by rectum. Volvulus from the twist of an extra long mesentery, usually of the sigmoid, produces not only obstruction but also the toxins of tissue death. Various forms of internal hernia, beneath bands, through congenital or unnatural mesenteric openings or through the diaphragm, usually cause degrees of partial, chrcnic, rather than acute, obstruction, which, however, may suddenly supervene. A second form of toxin concerning which much has been written is still under discussion. It is observed in obstructions high in the jejunum, blocking the duodenum, and, although the exact cause of retention is not always known, the condition is recognized. Such an obstruction around the duodenojejunal juncture, with paresis and dilatation of the duodenum, may cause alkalosis with tetany, in which there is loss of the chlorids and a great general loss of calcium which chokes the renal tubules. This is most serious and is attended by vomiting of green fluids having but little odor. At first, the vomitus is usually watery and contains undigested food particles, and later bile; but the green vomitus probably originates largely in the upper duodenum. In obstruction of the jejunum or ileum, the green vomitus may be noted the second day, followed later by regurgitant brown and darker colored fecal or foul smelling fluids. The true toxin of pancreatic and duodenal ferments is most difficult to counteract; but relief is obtained or life is prolonged by removing the fluid at regular and frequent intervals with a stomach tube. The mortality is high because efforts to relieve the obstruction surgically are made late. The operation must drain the duodenum below by jejunostomy and a tube passed to the duodenum, or through the stomach, by gastrostomy and a tube through the pylorus, or by duodenojejunostomy.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

Obstruction of the stomach at the pylorus causes death from inanition, yet if fluids can be supplied subcutaneously, by rectal tube or nutritional jejunostomy tube, life can be prolonged for a considerable period. Obstruction below this point becomes serious early because of the toxemia, although danger of this is less acute, the lower down the obstruction occurs; and if the obstruction is in the large bowel, several days may be added to the possible period of surgical relief over that if the obstruction is in the small intestine. In the latter case, the later the operation, the higher the mortality for any given procedure. After the first day each hour increases the danger of the condition. The toxemia then from colonic obstruction is of less relative importance than perforation, peritonitis and inanition, if the stomach is kept empty by regular tubation.

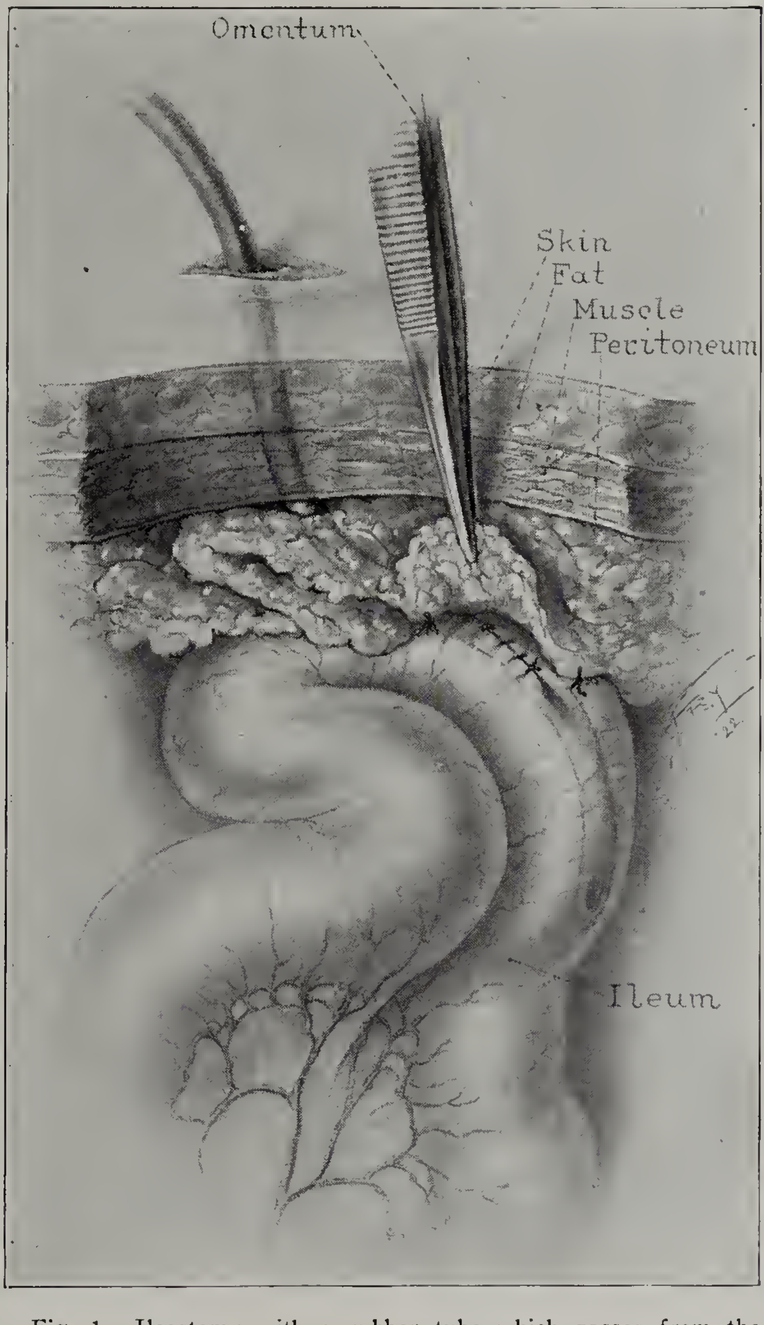

Fig. 1.—Ileostomy with a rubber tube which passes from the lumen of the intestine through the intestinal wall, omentum and abdominal wall.

Intussusception, with its sudden onset, cramps and pain, with blood and mucus, may often be located by a palpable tumor, especially in children under 1 year of age, among whom from one third to one half of such conditions are found. In adults intussusception is often started by a tumor, benign or malignant, of the small intestine. The papilloma or adenoma becomes grasped in peristaltic action, the bowel being drawn in behind as it moves forward within its lumen, usually thus producing a tumor of palpable size. An inverted Meckel's diverticulum may act in the same way, or a stiff infected area on the cecum around the base of the appendix may become the invaginating head. Operations are rarely performed early enough that the intussusception may be milked back, and it is usually necessary to perform some degree of resection of the bowel and intestinal anastomosis. Gross tuberculosis in the small or large bowel occasionally causes complete obstruction following a series of chronic, recurring incomplete obstructions. In the large bowel, malignancy accounts for the great majority of these conditions; the obstruction is rarely due to the pressure of tumors except those that are usually obvious or palpable; and even in cancerous obstruction, in most instances, there are recurring attacks of incomplete obstruction which are characterized by the passage of blood streaked mucus before it becomes complete. Sudden, severe pain with shock usually signifies the completion of obstruction, especially if due to a twist or to mesenteric thrombi or emboli, the latter, as a rule, being secondary to endocarditis.

In hernia, gangrene, volvulus or vascular obstruction, there is usually a rapid increase in the leukocyte count. A large gallstone may ulcerate through the gallbladder and duodenal walls, and, after passing through the upper intestine, cause a block in the lower ileum. While a previous history of probable gallstone disease may be elicited after operation, indication for exploration in acute ileus will continue, and the procedure will disclose many causes of obstruction that are relievable and some that are unrelievable. Promptness of action is essential in making an exact diagnosis of the cause.

In many years of active surgical work I have not seen death occur as the result of an unnecessary exploration. I have seen many patients saved and some die of disease, but many died solely because exploration was undertaken too late.

TREATMENT

Most patients are moribund or nearly so at the time procedures are undertaken for the relief of obstruction of the large bowel. If the obstruction is the essential feature, I should warn against any endeavor to make the operation other than a life-saving drainage procedure, as colostomy, enterostomy or appendicostomy. The last is of little value and becomes absolutely dangerous, unless the appendix is large and patulous and will admit the passage of a large catheter without tension; otherwise cecostomy is indicated.

Exploration must be made to determine whether or not the obstruction is malignant or is due to congenital diverticulitis. Sometimes this is impossible because of adhesions and infections. Acquired diverticulitis is rarely so small in area or confined to so few or to such small pockets that the diverticula will not show in the barium shadow. True congenital diverticula are more rare, resemble malignancy and may even develop malignancy. If the condition is malignant, examination of the liver, glands and intestines should be made in order to ascertain whether future operation is advisable and just what procedure should be carried out.

An endeavor to make the primary operation complete, with removal of the growth, probably doubles the danger over that of a two-stage procedure.

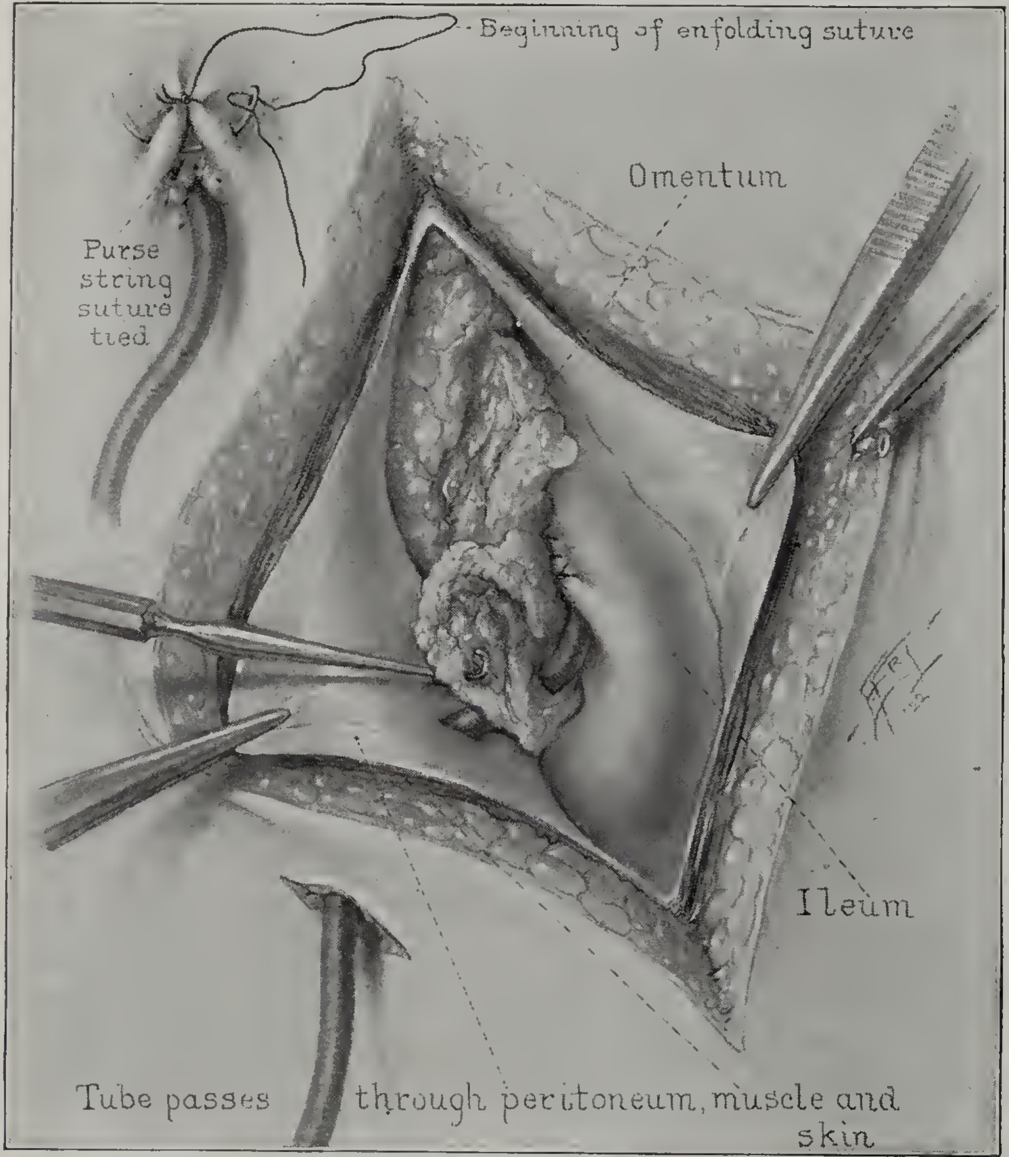
Beginning of enfolding suture
Omentum
Purse string suture tied
Ileum
Tube passes through peritoneum, muscle and skin

Fig. 2.—Abdominal wound showing position of rubber tube in relation to the ileum in its course as it passes through the omentum and abdominal wall.

Obstruction following operative procedures such as gastro-enterostomy, or the removal of pelvic infections is a real tragedy. While we blame the patient and the medical attendant for delay in calling council in the obscure cases of obstruction, the same delay occurs in hospitals in postoperative cases, and there is a lack of promptness of action, because of the hope that the obstruction is partial and will "clear up tomorrow."

In diagnosing localized peritonitis with the stethoscope, one may hear some tinkling movement of fluids and gases which is not noted in general peritonitis with attendant obstruction from paresis. General peritonitis is accompanied by an even distention, as compared with the irregular distention accompanying peristaltic activity of the stomach and small intestines, which is more manifest the lower the obstruction.

When complete obstruction supervenes, several small, loose, natural, but painful, movements may occur, and there is violent peristaltic action above in the endeavor first to overcome the obstruction, and failing in this to reverse peristalsis and empty the bowel contents into the stomach. Usually vomiting and rarely dilatation occurs. The latter doubles the danger if unrecognized. Therefore, the use of the stomach tube is the most valuable test we have for the purpose of determining the condition of the stomach and the amount of intestinal contents therein, and it must be used repeatedly to prevent dilatation. I should prefer to see a stomach tube rather than a stethoscope hanging around the neck of my surgical intern.

If local obstruction occurs following gastro-enterostomy, turning the patient on his face or on the left side sometimes aids in the passage of gastric contents into the intestine, probably because the opening is on that side, or possibly because of a change in circulation of the superior mesenteric vessels. In postoperative obstruction, if the abdomen is opened within twenty-four or thirty-six hours after the beginning of symptoms, the filmy adhesions causing kinks or twists can be separated with little difficulty, and with immediate benefit. Later, but little exploration is advisable for the purpose of ascertaining the cause or exact location of the obstruction, and enterostomy, as advised by Nélaton, should be made for relief. If the obstruction has followed pelvic operation, an ileostomy may afford marked relief; a high obstruction demands jejunostomy for drainage or for nutritional purposes, and if the obstruction follows a gastro-enterostomy, the passage of a catheter into the stomach and down the jejunum through the gastro-enterostomy will accomplish the same results without narrowing the lumen of the jejunum. In the presence of tetany, the tube must traverse the duodenum, being passed through the pylorus, and the patient saturated with lime.

Early operation may be performed by reopening the abdominal incision. Operation for obstruction after five days is best performed through a separate incision (Figs. 1 and 2), as the cause of obstruction may be infection in the primary wound, with attachment and kink of the bowel at the infected point, and reopening the incision may spread the infection within the abdomen. This may be prevented by working through a new incision. The enterostomy tube for drainage or nutrition should also be passed through the omentum; and if infection was the cause of the trouble, the tube should be brought through a separate perforation of the abdominal wall at the point of election, permitting a better closure of the working incision. This layer of omentum serves the same purpose as does the cellulose layer in the outer wall of battleships, closing the opening and preventing leakage after removal of the tube. It also gives greater freedom than a direct adhesion of the intestine to the abdominal wall permits. Such operations should be performed as far as possible under local anesthesia, or, in exceptional cases, under combined local and general anesthesia.

In operations for relief of obstruction, it is often advantageous to be able to distinguish the proximal from the distal end of a loop of bowel. Monk has suggested that the bowel be held in line with the spine, the thumb and finger enclosing the intestine. If they are slipped down the mesentery, and if they pass directly to the mesenteric attachment without being reversed, the upper end is known to be proximal. In order to distinguish the part of intestine to which an individual loop probably belongs without handling a great part of it, one should remember that the jejunum is much thicker and has a larger lumen than the lower ileum; also, the upper, thicker bowel has a thinner mesentery with translucent spaces, and there is much fat in the mesentery of the ileum which becomes thicker nearer its termination.

ABSTRACT OF DISCUSSION

Dr. George W. Crile, Cleveland: Dr. Mayo has covered the subject, but I wish to emphasize three points which are most important: 1. Intestinal obstruction demands immediate action, and yet the most careful and gentle action compatible with the relief of the obstruction. It is essential not to do too much. 2. It is extremely important in these cases to build up the water equilibrium of the patient who has been vomiting and has not been absorbing water. Large amounts of water, even 7,000 c.c., subcutaneously, are indicated the first twenty-four hours. 3. In order that the patient may have the proper oxidation within the tissues of the body, it is important, unless the circulation is good, to give a blood transfusion, and to give it in advance of the indication of failure of the patient's organism. If necessary, morphin should be prescribed. I am not afraid of giving large doses of morphin after the obstruction is relieved.

Dr. C. H. Mayo, Rochester, Minn.: Twenty-five or thirty years ago appendicitis was discussed at every meeting of the American Medical Association. Ochsner, Deaver, McBurney, Murphy and others did a great deal to show that operation for appendicitis is safe in the first twenty-four hours, and that the danger is in the second, third and fourth days. Ochsner's method of treating appendicitis, seen too late for a safe early operation, and too early for a safe late operation, saved many hundreds of lives. It appears to me that the mortality from appendicitis is greater today than it was twelve years ago, when we stopped discussing the subject. The important point to teach the younger men in the profession is that no time should be lost in examining such patients and in operating while it is safe to do so, instead of waiting for thirty-six or forty-eight hours. Appendicitis is easily handled if it is attended to early. A patient will never be lost because of a necessary exploration, and many may be saved.

Excessive Accident Fatalities in United States.—The statistical bulletin of the Metropolitan Life Insurance Company announces that the number of deaths from accidents in the United States is twice as high in proportion to the population as that prevailing in England and Wales. In the year 1920, which was characterized by lower accident rates than any year in the decade, there were 30,000 more deaths than would have been reported if the death rates of England and Wales had prevailed. For the entire country, this means an excess of nearly 37,000 deaths. The subjoined table presents the death rates per hundred thousand from principal external causes of death, 1920, in the United States registration area and in England and Wales:

External Cause of Death	United States Registration Area	England and Wales
Total external causes	88.7	46.7
Accident and unspecified violence	71.4	36.9
Burns (conflagration excepted)	7.6	4.7
Drowning	5.7	5.0
Traumatism by firearms	2.6	.3
Traumatism by fall	11.8	7.7
Traumatism by other crushing accidents	21.6	10.2
Suicides	10.2	9.1
Homicides	7.1	.8

PRIMARY CHANGES IN EYES OF RATS WHICH RESULT FROM DEFICIENCY OF FAT-SOLUBLE A IN DIET*

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Of recent years, several investigators have described the eye disease which occurs in rats as the result of diets deficient in fat-soluble A. Various names have been given to this condition. McCollum and Simmonds [1] termed it xerophthalmia. They chose this name after careful study of the development, symptoms and treatment of xerophthalmia as it occurs in rats and man. Osborne and Mendel [2] preferred to use the more general term ophthalmia. Goldschmidt [3] studied the pathology of the disease as it occurred among young

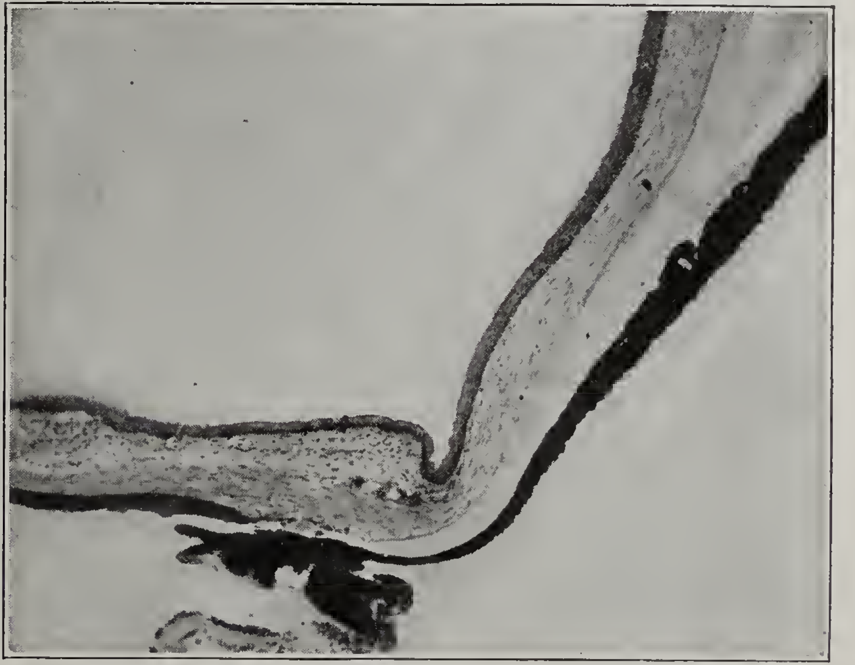

Fig. 1.—Section through the normal eye in the region of the limbus.

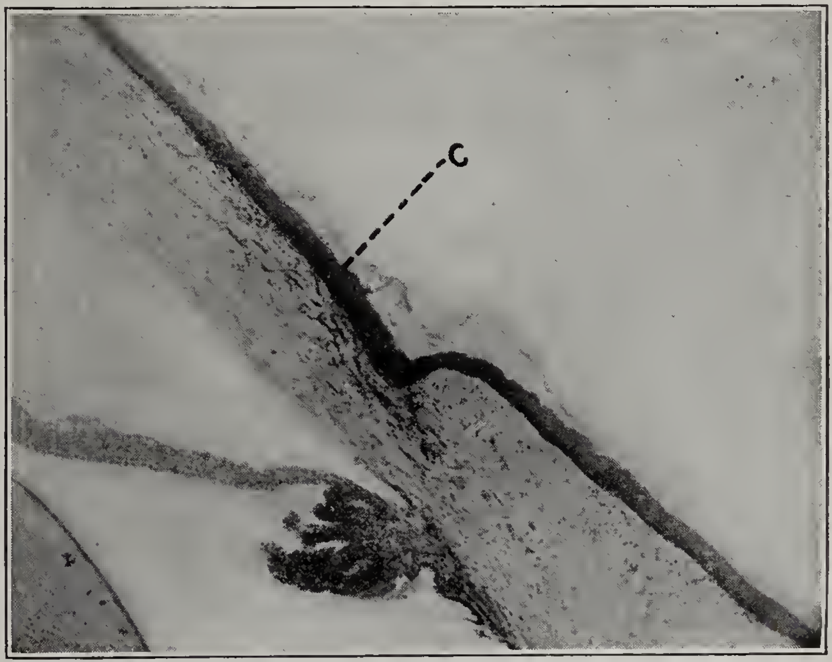

Fig. 2.—Section through cornea and conjunctiva to show the beginning xerosis corneae and conjunctivae, and the cornification (*c*) and thickening of the epithelium. The substantia propria is thickened and infiltrated.

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* From the Laboratory of the Department of Chemical Hygiene. School of Hygiene and Public Health, Johns Hopkins University.

[1] McCollum, E. V., and Simmonds, Nina: J Biol. Chem. **32:** 181 (Nov.) 1917.

[2] Osborne, T. B., and Mendel, L. B.: Ophthalmia and Diet, J. A. M A **76:** 905 (April 2) 1921.

[3] Goldschmidt, M.: Arch. f. Ophth. **90:** 345, 1915.

rats on Hopkins' diet. His studies convinced him of the identity of the lesion with keratomalacia in man, and he proposed giving this name to the disease in the rat. Stephenson and Clark [4] also preferred this term to xerophthalmia, for the pathologic condition in the eyes of rats seemed to them to resemble keratomalacia more closely than xerophthalmia. The reported incidence of the disease among animals in different laboratories on deficient diets varies a great deal. Stephenson and Clark produced the disease in 28 per cent. of forty-six rats. Osborne and Mendel observed the ophthalmia in forty-nine out of 136 animals. Walker [5] found five cases in his first group of sixty-four animals. In his second group of thirty-eight rats, six developed sore eyes. Emmett,[6] on the other hand, has stated that out of his 122 rats 120, or 98.3 per cent., sooner or later showed positive signs of xerophthalmia. The incidence of the disease in any group of rats will depend on whether the diet is entirely or only partially deficient in fat-soluble A, and on the age of the animals.

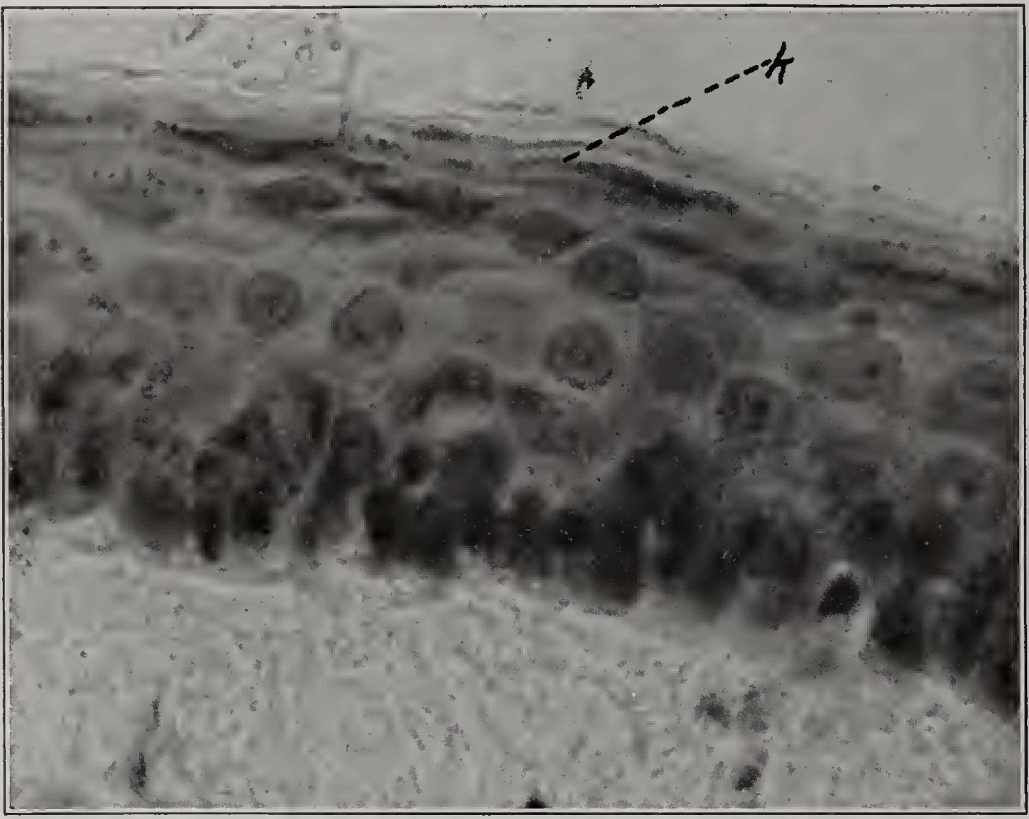

Fig. 3.—Conjunctival epithelium showing keratohyaline (*k*) granules in the cells; × 1,000.

The pathologic changes in the eyes of experimental animals which were reported by Goldschmidt, Stephenson and Clark, Wason, and Walker, were for the most part those which result from inflammation and destruction or necrosis of the cornea. No one has as yet described any specific preliminary alteration which is characteristic of this condition. Stephenson and Clark [4] state that "the only criterion we possess for determining the preliminary change caused by the deficient diet is the appearance of the secondary symptoms caused by bacterial invasion," and they failed to demonstrate with certainty any histologic change in the cornea which preceded bacterial infection. Wason [7] concluded that "no fundamental data concerning the etiology of ophthalmia in rats on deficient diet or the cause of the cornea localization have been derived from these anatomic studies."

The knowledge which we possess of ophthalmologic pathology, especially of the pathology of xerophthalmia and keratomalacia, would lead one to suspect that, if specific preliminary changes occur in the tissues of the eye before invasion by bacteria takes place, they will be found in the epithelium of both the cornea and the conjunctiva. Therefore, if the disease in rats is to be identified with xerophthalmia or keratomalacia as they occur in man, the conjunctiva as well as the cornea must be the object of careful comparative study. Such a comparison between the lesion of xerophthalmia in man and the eye disease produced in the rat by diets deficient in fat-soluble A was the object of my investigation. The purpose of this paper is to report the early changes in the corneal and conjunctival epithelium which characterize the disease in the rat.

Preparations were made from (*a*) the eyes of rats on a normal diet; (*b*) sore eyes without demonstrable affection of the cornea from rats on deficient diets; (*c*) eyes from animals showing clouded corneas on one or both sides, and (*d*) eyes with corneal ulcerations in several stages of development. The eyes were fixed in 4 per cent. solution of formaldehyd and embedded in celloidin, and stained with hematoxylin-eosin or with iron hematoxylin.

The epithelium of the normal conjunctiva bulbi and the cornea consists of a superficial layer of flattened squamous epithelium, a deeper layer of polygonal cells, and beneath these a basal layer of columnar cells (Fig. 1). Under normal conditions, the cells in the superficial layer retain their nuclei. They are kept constantly moist by secretions. The eyes of rats which have been fed on a diet deficient in fat-soluble A show two distinct and characteristic changes at the onset of the disease. One of these is the cornification of the outer layer of epithelial cells of the conjunctiva bulbi, and the other the formation of granules of keratohyalin in the cytoplasm of the second layer of these cells. The same cornification is also found in the corneal epithelium, but keratohyalin is not formed in the cornea except at the limbus. In the process of cornification, the cells of the

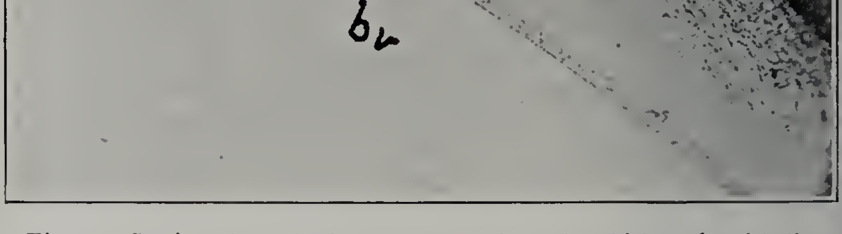

Fig. 4.—Section through the cornea to show the thickened epithelium, destruction of Bowman's membrane, infiltration in substantia propria and vascularization; *bv*, new formed blood vessels.

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[4] Stephenson, M., and Clark, A. B.: Biochem. J. **14**: 502, 1920.

[5] Walker, Sydney: The Relationship Between Xerophthalmia and Fat-Soluble A, J. A. M. A. **78**: 273 (Jan. 28) 1922.

[6] Emmett, A. D.: Science **52**: 157, 1920.

[7] Wason, Isabel M.: Ophthalmia Associated with a Dietary Deficiency in Fat-Soluble Vitamin (A), J. A. M. A. **76**: 908 (April 2) 1921.

conjunctival epithelium become flattened and loosened from the layer beneath. They lose their nuclei and stain heavily with eosin. At the same time, very fine granules appear, surrounding the nucleus in the cytoplasm of the second layer of cells. These granules are deeply stained by hematoxylin, and by the Gram-Weigert stain, and are called "keratohyalin" (Figs. 2 and 3). These two changes were shown by Leber[8] to be caused by dryness of the conjunctiva, and they are the characteristic changes of the xerosis conjunctivae of human beings. Besides this cornification and the formation of keratohyalin, the epithelium of the conjunctiva is always somewhat thickened. As the disease advances, cornification and keratohyalinization spread from the region of the limbus, where they first appear, throughout the conjunctiva bulbi to the fornix, and the conjunctiva palpebrae. As was stated above, the epithelium of the cornea also becomes cornified. The superficial cells near the limbus first become horny (keratinized), and their attachment to the thickened epithelium beneath, which is often infiltrated by pus cells, becomes loosened. Keratohyalin formation is usually absent from the corneal epithelium except where that tissue joins the conjunctiva limbi. The substantia propria shows a slight cell infiltration as a reaction to the epithelial change.

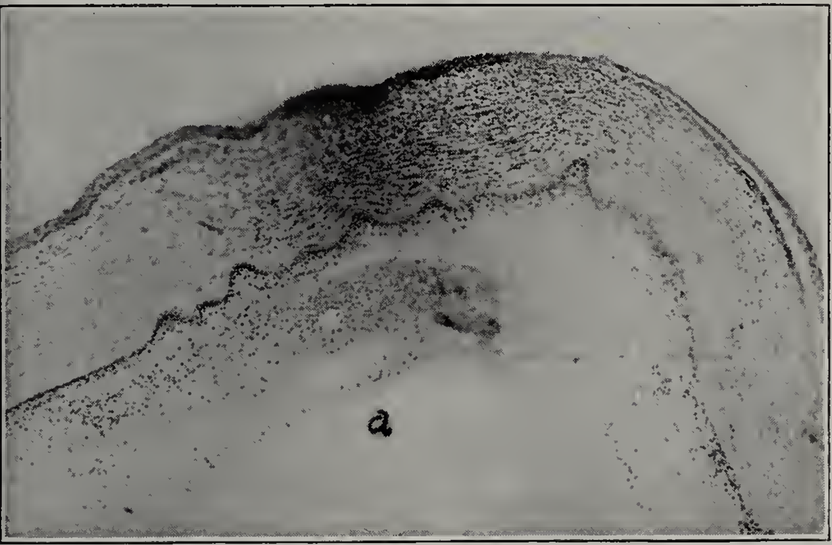

Fig. 5.—Section through the cornea showing epithelial necrosis, followed by infiltration in the substantia propria and anterior chamber (*a*).

In later stages of the disease, either one of two alterations may take place in the corneal epithelium. The one consists of the destruction of Bowman's membrane and the abnormal thickening of the layers of epithelial cells, the superficial layer of which becomes cornified. At the same time the number of corneal corpuscles is much increased in the propria. The infiltration of the substantia propria by pus cells becomes more and more dense, and new blood vessels are formed in the tissue (Fig. 4).

These xerotic changes, which, like the ones described above, have been shown to be the result of drying of the cornea, constitute a keratosis in the pathologic sense. Another type of epithelial alteration is necrosis, which results from disturbance because of dryness in the nutrition of the cornea. The corneal epithelium from the limbus to the center gradually loses its thickness. The cells lose their nuclei, and the boundaries between the cells become indistinguishable. The epithelium usually becomes infiltrated by pus cells. At the same time the propria shows marked edema and diffuse cell infiltration as the result of the condition of the epithelium. At last in some cases the epithelium is lost entirely over small areas of the central portion of the cornea, and the substantia propria is left bare. In these cases the infiltration of the substantia propria by pus cells becomes very dense, and cellular exudates appear in the anterior chamber and the iris (Fig. 5).

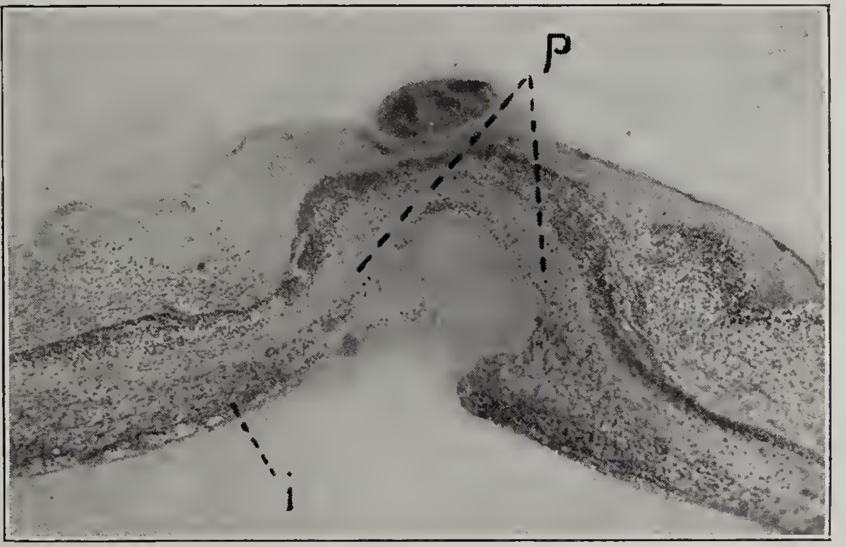

Fig. 6.—Section through an ulcer (perforated) in the central portion of the cornea which was destroyed; the perforation (*p*) is closed with fibrin and pus cells; the iris (*i*) is adherent to the cornea.

These pictures are similar to those found in cases of keratitis e lagophthalmo in human beings, and are the result of drying of the epithelium of the cornea. Very often in the course of the disease the rats' eyes show ulcers which frequently perforate (Fig. 6).

As is the case in xerosis and keratomalacia in man, smears from the sore eyes of rats usually contain an enormous number of micro-organisms, such as the streptococcus, staphylococcus, pneumococcus, xerosis bacillus, and gram-negative bacilli, and cocci. None of these, however, can be shown to have a specific relation to the disease. Paraffin sections were made of eyes from different cases, normal and diseased, and these were stained with Gram-Weigert's stain and thionin to show, respectively, the gram-positive and gram-negative organisms. The study of these sections reveals that, unless there are corneal ulcers, no invasion by bacteria of the cornea or conjunctiva takes places. Enormous

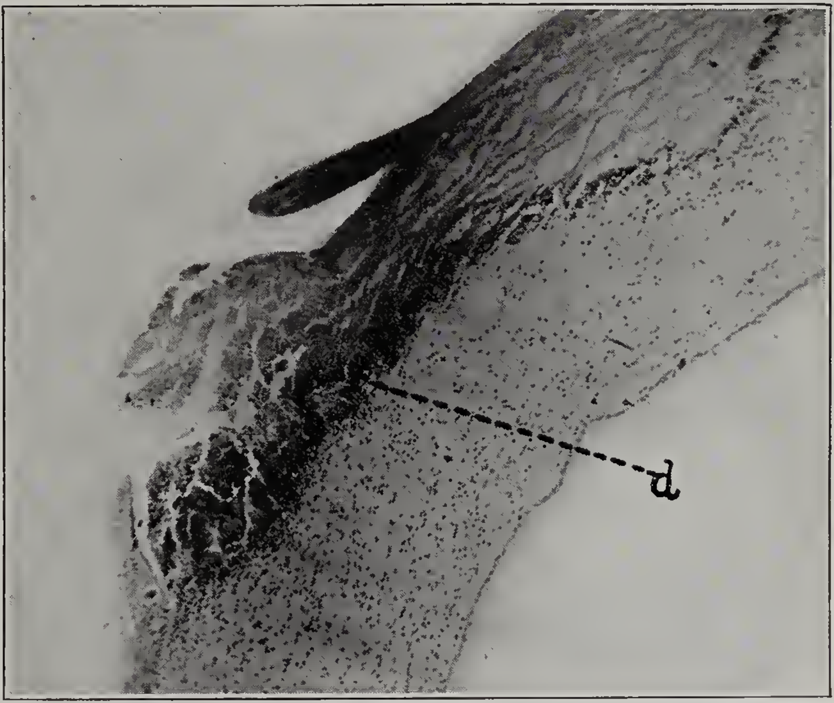

Fig. 7.—Section through a corneal ulcer showing necrosis of the upper layers; the necrotic area is surrounded by a line of demarcation (*d*).

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[8] Leber, Theodor: Arch. f. Ophth. 29: 225, 1883.

numbers of cocci were to be seen on the surface of the ulcers. Where the epithelium is lost, the propria becomes necrotic and the necrotic area is surrounded by a line of demarcation. Sections stained with thionin show gram-negative bacilli deep in the corneal tissue beyond this ring of infiltration. The same conditions obtain in the so-called keratomalacia of man (Fig. 7). The study of this material indicates that the changes of xerosis of the conjunctiva and cornea are not the result of bacterial invasion, but that, on the other hand, ulceration of the cornea in these animals is due to infection, and that the infection is secondary to the primary changes I have described.

Many observers have reported that in many of their animals the eye disease was apparently unilateral, and that it was not produced at all in some rats. The histologic study of my material shows that at a period during the feeding of a deficient diet the conjunctiva in both eyes of all animals undergoes the microscopic changes of xerosis. Eyes which show these changes in the conjunctiva may be apparently intact on clinical examination, since the cornea is apparently normal.

In a later paper I shall discuss the relation between the deficiency of fat-soluble A in the diet and the dryness of the conjunctival sac, and I shall describe the defects in the normal secretory mechanism which result in the desiccation of the cornea and conjunctiva.

SUMMARY

The eyes of rats on diets deficient in fat-soluble A show xerosis conjunctivae and xerosis corneae (xerophthalmia). Xerosis is the essential change and is caused only by the dryness of the tissue. The ulcers of the cornea (keratomalacia) are secondary, and are due to secondary infection by micro-organisms.

MUSCLE INTERPOSITION

A CAUSE OF DELAYED UNION IN FRACTURE OF THE FEMUR *

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AND
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DETROIT

Stimulated by the demands of the war, methods of treatment of all fractures have vastly improved during the last few years. With these improvements of methods worked out by experts, there has been a gradual raising of the standards of results demanded by the general public. Insurance companies, state compensation boards, employers of labor, and the injured men themselves are beginning to inquire more and more closely into the underlying reasons for prolonged or permanent disability following fractures. They are beginning to feel that most fractures should leave behind little or no disability, instead of feeling, as they used to do, that serious fractures must produce cripples.

These changes have thrown an added responsibility on all who essay to treat fractures. They have made it more and more difficult for the general practitioner or the busy general surgeon to care for fractures, and have led to a growing tendency to the establishment of fracture clinics directed by experts, and to the attempts of employers, and the insurance companies, to place their fracture cases in the hands of men who have made fractures their especial care.

All this is particularly true of fractures of the femur. These, above all others, require a large amount of apparatus, a knowledge of many methods of treatment, an especially trained personnel, and ingenuity, if a sufficiently high percentage of perfect results is to be obtained. These requirements are too great to be found in the home or to be given the patients scattered through the wards of the general hospital. They can be found only when considerable numbers of patients are grouped in properly equipped wards under the continuous care of an especially trained force. Whether the man in charge of this force is a general surgeon or an orthopedist makes little difference, if we assume that the general surgeon has the time and patience to devote to the necessary detail and that the orthopedist knows how to operate. It is only by the grouping of cases in such surroundings that we are going to be able to satisfy our public, and it is only thus that improvements in treatment and analysis of error will lead to ultimate standardization and perfect results.

Thorough belief in the foregoing statements justifies us in presenting a small group of cases which call attention to one of the causes of unsatisfactory results in fractured femur, which has received comparatively little attention. This is the interposition of muscle between the ends of the fragments. The cases are from our fracture service at the Detroit Receiving Hospital, a city institution which cares only for the poor, except in emergency, when patients from all walks of life are accepted. In such an institution only the victims of accident who are poor remain under its roof till the final result is obtained. Those who are well-to-do and who come under the employers' liability act are removed as soon as possible to the care of their private physician or to other hospitals. Thus it is difficult to follow all cases to their final results.

From January, 1921, to April, 1922, there were treated in the fracture service a large number of fractures of the femur. Seventy-one of these patients survived their injuries or remained in the hospital for more than one week. All of the seventy-one stayed in the hospital long enough to provide records which will show the final results. These results will be made the subject of a later paper. All of the seventy-one were treated primarily by some modification of Balkan suspension and Thomas splint, with adhesive tongs or Steinmann pin traction combination, with or without prompt active mobilization of the adjacent joints. So far as we know, these are the methods used in all the large fracture clinics, except when some individual patient has insisted on some special operative procedure. In the seventy-one cases, open operation was done for only three reasons: (1) interposition of muscle tissues between the fragments; (2) for débridement of fresh compound fractures, and (3) for previously existing sepsis in cases treated elsewhere before entrance to the hospital.

Of the first class, interposition of muscle, there were six cases. This, according to accepted standards, is an extraordinarily high percentage. It is certainly high if we compare it to fractures resulting from war wounds. In a very large number of war fractures of

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* Read before the Session on Orthopedic Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

the femur, both fresh and old, which came under my personal observation overseas and later in this country, I saw only one in which delayed union resulted from this cause. This particular case was that of a soldier whose femur had been broken by the kick of a mule and not by a true war wound. In talking with other surgeons, I have found that their experiences coincide with mine. The reason for the fact that muscle interposition figured rarely in the healing of war wound fractures of the femur, we believe to be twofold: 1. The high velocity rifle or machine gun bullet did not displace the main fragments to any great extent. 2. The shell wounds which did cause much displacement were always accompanied by great damage to soft parts which required immediate exploratory operation and direct replacement of the bone.

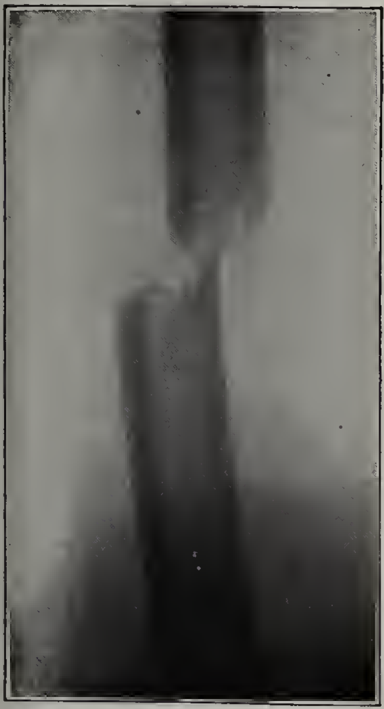
Fig. 1 (Case 1).—Overextension but persistent displacement.

In civil life, however, most of the forces which cause fractures of the femur involve great lateral or twisting displacement without necessarily causing large, open wounds. Such forces are the fall from a great height, the automobile smash, and the crush under heavy weights. They displace the fragments largely, thus giving the muscle masses an opportunity to slip between them and be held there by their own elastic quality.

All of our cases, of which a brief protocol follows, were the results of automobile injuries, or falls from heights, etc.

REPORT OF CASES

Case 1.—H. P., aged 20, received a simple fracture of the middle and upper third of the right femur in an automobile collision. Jan. 22, 1921, roentgen-ray examination revealed an outward and forward displacement of the upper fragment, with shortening. Three days later the shortening was overcome, but the upper fragment was still displaced as before. Two weeks later the shortening was completely overcome, and lateral alinement was good, but anterior displacement of the upper fragment persisted. One month later, the shortening was overcorrected. Five days later the same condition existed. Six weeks later there was increased anterior displacement of the upper fragment. March 17, there was no union, and anterior displacement persisted. Operation was performed through a lateral incision. There was no callus; the whole body of the biceps was interposed between the fragments and held by jagged fragments of bone. The muscle was freed, whereupon reduction of the fragments became easy. They were held by kangaroo tendon. A plaster cast was applied. Convalescence was very slow, bone formation being delayed. There was recurrence of outward bowing. In February, 1922, union was firm, with outward bowing. There was three-fourths inch shortening. The knee had 35 degrees of motion.

Case 2.—M. Y., a man, aged 31, sustained a simple fracture of the middle third of the right femur by falling from a scaffold. May 23, 1921, roentgen-ray examination revealed the upper fragment displaced anteriorly, with some shortening. Four days later the shortening was overcome, but anterior displacement of the upper fragment persisted. June 10, lateral alinement was good, and there was no shortening; but the upper fragment was still displaced anteriorly. June 23, a mass of muscle tissue between the fragments was freed. The ends were brought together easily and held with kangaroo tendon. Slow convalescence ensued, not due to sepsis, but to mental and circulatory disturbances. The wound healed by first intention, but the fragments slipped because of the patient's violence. August 3, there was no union, and there was forward displacement of the upper fragment. Since then the patient has been treated at another hospital with a Lane plate, but nonunion persists. The fragments did not unite ultimately for reasons outside the muscle interposition.

Case 3.—B. T., a man, aged 33, received a simple fracture of the middle and lower third of the left femur by a fall from a scaffold. Oct. 1, 1921, roentgen-ray examination revealed persistent backward displacement of the lower fragment to a mild degree. At the end of eight weeks of treatment, including manipulation under an anesthetic, no callus had formed. In an open operation, November 22, a mass of muscle between the fragments was freed with great difficulty. The fragments were held with kangaroo tendon. A plaster spica was applied. Two weeks later they slipped out of position in spite of the plaster. December 20, a Lane plate was applied. It was removed in five weeks. Position was perfect, but there was no bony union. In April, 1922, union was gradually forming.

Case 4.—L. M., aged 21, received a simple fracture of the middle third of the right femur in an automobile crash. Roentgen-ray examination, Nov. 28, 1921, revealed a fracture of the upper third of the right femur. The lower fragment was displaced slightly to the inner side and posteriorly. There was slight shortening. A roentgenogram taken December 8, ten days later, in the anteroposterior position, revealed the alinement as being very good. A lateral view disclosed posterior displacement of the lower fragment. There was no shortening. A roentgenogram, December 28, five weeks after the injury, revealed no union and no shortening. Posterior displacement still persisted. Operation, Jan. 3, 1922, revealed the lower fragment displaced backward with separate fragments between it and the lower end of the upper fragment. Large muscle bands were found intertwined among the fragments, holding them apart. These were cleaned away, and anatomic reposition of the fragments was obtained. A Gallie beef bone plate held the fragments well. Convalescence was slow; callus formation was delayed, but this may have been due to the fact that the patient was pregnant. May 9, a roentgenogram disclosed a large amount of callus. Position was good. The patient was up and about. A caliper splint was employed.

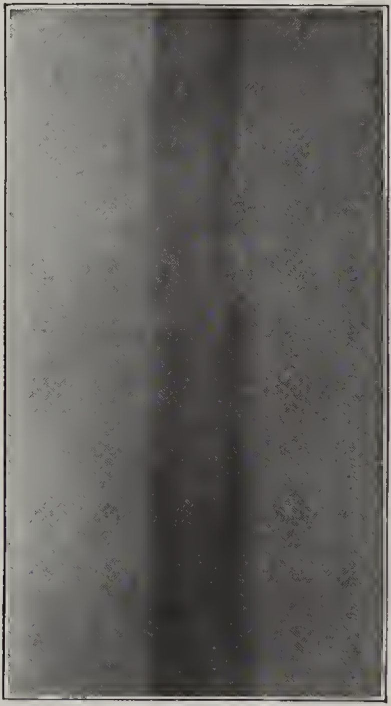
Fig. 2 (Case 1).—Reduction after operation for removal of interposed muscle.

Case 5.—G. B., a man, aged 27, received a simple fracture of the lower third of the left femur. Roentgen-ray examination, March 21, 1922, revealed a transverse fracture of the left femur 4 inches above the left knee joint. The lower fragment was displaced posteriorly, with about one and one-fourth inches overriding. A roentgenogram, March 27, revealed the lower fragment still considerably displaced posteriorly. At operation, March 30, the lower fragment was found displaced backward into the popliteal space. It was held there by a dense band of fascia and a tendon of the semitendinosus. It was freed with some difficulty and brought forward into perfect apposition with the upper fragment. It was held by a Gallie beef bone plate and screws. A roentgenogram, April 4, revealed good position. Another, taken May 11, revealed a considerable amount of callus, but the bone plate did not hold firmly. There was forward and inward bowing. This was easily corrected by lateral and longitudinal traction.

Case 6.—M. H., a woman, aged 23, entered the hospital, Oct. 27, 1921, with a simple fracture of the lower third of the left femur. The lower fragment was displaced inward and backward. October 18, a roentgenogram revealed the lower fragment still displaced posteriorly and inward. There was no apposition. October 25, a roentgenogram revealed the same position. Shortening had been entirely overcome. November 15, the patient was operated on at another hospital. Muscle interposition was cleared. A Lane plate was applied. Union was prompt.

CONCLUSIONS

1. If the fragments of a fracture of the femur are not brought into actual bony contact, as shown by the roentgenogram taken in two places, by properly applied traction within three or four days, the case should be viewed with suspicion.

2. If specially worked out methods are not immediately thereafter successful, manipulation under an anesthetic should be employed. This attempts to disengage the fragments from the muscle. Such disengagement can usually be recognized by the clean, clear-cut rubbing of the fragments on each other.

3. If, after such manipulation and the reapplication of traction, apposition is absent at the end of two or three days, as disclosed by roentgen-ray examination, open operation should be undertaken.

4. At open operation, the muscle or fascia bands must be cleaned from the fragments and good apposition obtained. If this apposition is of the end-to-end, interlocking type, then only external fixation splinting is necessary. If there is a tendency of the fragments to displace again, some solid forms of internal splint must be used. Gallie's beef bone plates or Magnusen's ivory plates and screws or pegs will usually suffice. Both are more simple of application than Albee's grafts. When they will not hold, metallic plates or bands are occasionally necessary.

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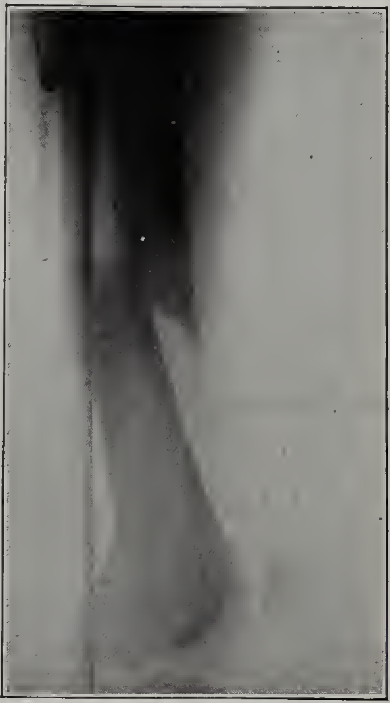
Fig. 3 (Case 3).—Persistent backward displacement with full length after use of various forms of traction.

ABSTRACT OF DISCUSSION

Dr. William R. Cubbins, Chicago: I have never seen muscle directly between the fragments of bone when the limb has been extended on a Hawley table. The tension made in extending the limb will make the muscles taut, so that while there may be a few ragged fragments of muscle tissue between the ends of the bone, there is not sufficient quantity of muscle between the bone to interfere with union. It is well to remember that a little muscle tissue subjected to pressure will rapidly disappear. In my opinion, the greatest catastrophe in cases of fractured femur is an operation and infection. Disability will continue from six months to six or seven years, fragments of bone being discharged at intervals. If the wound is clean and a foreign body is inserted, the area surrounding the site of implantation has an increased amount of heat, which can easily be detected by the examining hand. Some persons do not pay much attention to this heat, but a sensitive individual has sufficient cause for claiming disability, and the industrial boards before which I have appeared believe this to be sufficient cause for disability. When a surgeon is forced into an operation and a plate must be used, by all means use a long, strong plate, with plenty of screws to insure stability, and remove the plate when union has been obtained. In my opinion, there is no difference in the degree of insult to tissues from steel, ivory or boiled bone. They are all foreign bodies. I have not been able to see any difference in the degree of insult to tissues by screws through the medullary cavity or merely into the cortex. An autogenous bone graft should always be used when possible, and this graft should be made to fix the fragments without the addition of any foreign body. Intramedullary bone pegs act well in young persons; very poorly in the aged. If an infection occurs with an autogenous bone graft, it is not uncommon to see the bone graft live in spite of the infection. My results in treating fractures of the femur by conservative methods during the last three years have been so satisfactory that I sometimes doubt whether I will ever employ an open operation.

Dr. C. B. Francisco, Kansas City, Mo.: Dr. Kidner limited the indications for open operation to three particulars: muscle tissue between the fragments, débridement and sepsis. There is one guide in this connection that has helped me, and that is, that usually there is a comminution of the fragments and a fragment of bone is knocked across to the opposite side, carrying with it fascia or muscle tissue which is interposed between the fragments. I think that one should, as Dr. Kidner says, determine this factor reasonably soon because the delay in waiting until union should occur is a great hindrance to throwing out of the callus, and, as he stated, those cases that have gone along for six or eight weeks and were then treated by operation showed a definite delayed union. I think also it is very much easier to reduce cases if one tries traction continuously. I think the more we try the fewer the number of cases in which open operation is required.

Dr. Philip H. Kreuscher, Chicago: In the management of any other fracture, the personal equation of the surgeon comes into play. Some of us can get very good results with external fixation methods, and some can get better results with internal fixation. We cannot lay down any law saying one must use Parham-Martin bands, Lane plates or any other appliance in a given case. We have been criticized for making walking hardware stores out of our patients because we put in too much metal. In a way, the criticism is justified. I sometimes think we go around looking for fancy splints, external and internal, which are unnecessary, when we could use the simpler methods already at our disposal. There is a definite indication for the Parham-Martin band, when there are two or three fragments to hold together. In the ordinary spiral fracture, it is also of value. We should use the Lane plate more than we are using it. Some of us do not use the Lane plate properly. In the first place, we do not put it in cleanly, the screws become loose, the blood clot becomes infected and the plate has to be taken out. If we keep our fingers and the fingers of our assistants out of the wound we are going to do that operation cleanly. If we tear muscles, we are going to have a certain amount of postoperative trauma and postoperative heat. If we expose the bone by following a line of cleavage and do not use heavy retractors, but use instead the Farr spring retractors when we are putting on a Lane plate, we will get better results with less trauma. Do not try to put it under the periosteum. Do not try to put a rectangular screw into a triangular drill hole. Use the Sherman screw that will fit down in the hole in the bone and you will have little trouble. I disagree with Dr. Cubbins when he says that transplants are indicated for fixing the fragments in place. I do not believe they stabilize the fracture. In the second place, I believe it is too excessive an operation when you have so many other methods you can employ.

Dr. H. D. Wood, Fayetteville, Ark.: I use an improved Hodgen splint. It is a splint that can be used in transporting the patient from the place of injury to the home or hospital with as much or more comfort than when the Thomas splint is used. I treated my first case of fractured femur more than fifty years ago. As Hodgen said, "If you put the fractured limb in a swing and make slight continuous extension, the muscles will relax and permit the fragments to fall in place." He also said, "When you put your patient's limb in this type of splint or swing, motion will occur at the place of least resistance, which is the hip joint." I have found that to be the case. I have found it a convenient way to treat a compound fracture of the femur when there is an abscess discharging pus. You can release one of the bands coming under the limb and dress the wound without disturbing the fracture.

Dr. P. B. Magnuson, Chicago: I think Dr. Kidner has expressed the views of most of us when he said that he had tried all methods and none of them worked all the time. I think most of us who have done fracture work fully appreciate that. We condemn the Lane plate and the ivory plate and the bone plate; but when we operate we ought to have them all handy so that we can use whatever is necessary for the case. We cannot tell from the outside what we are going to have on the inside. I disagree very materially with Dr. Cubbins' statement that the Lane plate does not cause any more traumatism or irritation than bone or ivory. In the first place, I do not think that it is proper from a purely mechanical standpoint. In the second place, those of you who have taken out Lane plates know that many of them have a collection of serum about them. I disagree with Dr. Kreuscher that the infection is primary. Many of them show a little swelling and a seepage of fluid six weeks after. Dr. Cubbins took out a plate six years ago that Mr. Lane put in eight years ago, because it was bothering the patient. It is true that all these things loosen up. You can say what you like about dead bone, ivory or autogenous graft, they all loosen up at some point in the procedure. After that they may tighten up if they are not warped, but I never saw a Lane plate tighten up after it was once loosened. If you were to be operated on, you would not care to have to undergo a second operation later to take out something that was put in to do the first job, when you could have had something put in to stay.

Dr. Frederick C. Kinder, Detroit: I must disagree with what Dr. Cubbins says about muscle interference in fractures with traction. I have operated and found muscle intervening no matter how hard I pulled, even on the Hawley table. I agree we should use every effort to get the fragments together without open operation. As to bone grafts, I do not think they are better than any other means of internal fixation. They do not give the rigidity in difficult cases that metal, ivory or beef bone often does. They are very useful, perhaps, in ununited fractures. The longer we wait in these muscle interposition cases, the slower will be the convalescence following the operation. Therefore, I am learning to try to recognize these cases and get my open operation done by the end of a week or ten days. The matter of Lane plates becoming septic is to my mind dependent on the surgeon only. I do not believe it is any wiser or more necessary to operate on bone with long instruments without the use of fingers than it is in the abdomen. I think the resistance of muscle and bone to infection is just as great as the resistance of the abdomen. I still believe that the use of gloved fingers does less harm and causes less traumatism than does a strictly instrumental technic.

Complete Hospital Data Lacking.—In no American city of any size is it possible to give the total number of cases admitted to the hospitals, both public and private, the diseases for which entrance was sought, the age and sex distribution of the patients, the duration of treatment and the result of the treatment. It is a blemish on the excellent work done by hospitals that this phase of their activities has been left undeveloped almost without exception in the United States.—H. Emerson, *Hosp. Soc. Service* **4**:271 (Nov.) 1921.

A COMPARATIVE STUDY OF ETHMOIDAL AND SPHENOIDAL OPERATIONS *

J. J. SHEA, M.D.
MEMPHIS, TENN.

The appreciation that the posterior ethmoidal cells and the sphenoidal sinus are the causative factors in many of the optical nerve disorders has centered attention on this region. Formerly, the anterior ethmoidal cells held the center of the stage in our attention because of their relationship to the frontal sinus. The older operations were so designed that the anterior cells were first attacked and were more thoroughly exenterated at the expense of an uncertainty of thoroughness in the posterior region. If the sphenoidal sinus and the posterior ethmoidal cells are the important factors, then the successful operation must be based on thoroughness in their exenteration. In like manner, the curet, guided by the sense of touch, must give way to the trustworthy biting forceps, controlled by the sense of sight. The fundamental law of safe ethmoidal and sphenoidal surgery is to work by sight only, avoiding tearing by accomplishing each removal with a clean bite. It is intended to compare the intranasal operations and not to consider the radical operations.

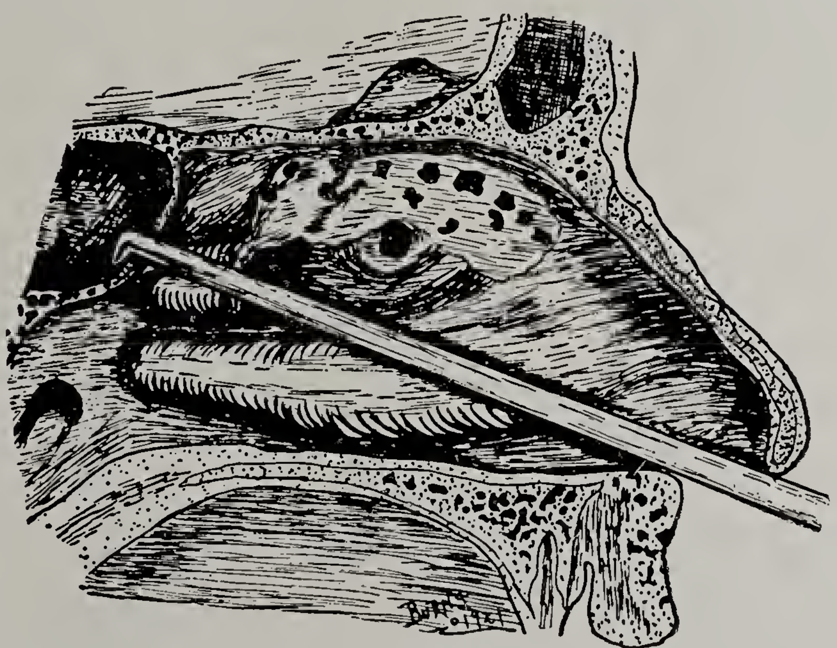
Fig. 1.—Fleshy posterior tip of the middle turbinate being used as a landmark for the puncturing of the sphenoidal sinus.

ANATOMY

The ethmoidal and sphenoidal sinuses are so closely articulated as to be considered one structure. The division between the anterior and posterior cells cannot be made out surgically, nor can the posterior cells be completely exenterated without removing the pars ethmoidalis, which will open the sphenoidal sinus. The middle and superior turbinates are only specialized portions of the ethmoidal bone. The optic nerve is in close relation with the lateral and superior aspect of the sphenoidal sinus and usually with the postero-external angle of the last posterior ethmoidal cell. Its course forward in the orbit carries it farther away from the inner orbital wall the farther it goes forward, so that it is increasingly removed from the possibility of contact with the anterior ethmoidal cells. Hence, in disturbances of the optic nerve, the usual or logical site of a causative nasal lesion is in the sphenoid or posterior ethmoidal cells.[1]

The middle turbinate is so situated that its posterior end is anterior to the sphenoidal sinus and is a reliable landmark in locating the sinus.

There is a type of spheno-ethmoidal labyrinth similar to the persistent infantile type of mastoid, that is, the cells are small and their walls firm, and this condition may be due to an arrested development. When this type is encountered, the pathologic condition present is chronic, and the postoperative healing is slow.

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* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Loeb, H. W., and Wiener, Meyer: Ann. Otol., Rhinol. & Laryngol. **30**: 74 (March) 1921.

PHYSIOLOGY

The special sense of smell is a subject for consideration in ethmoidal surgery. The protection of the membrane lining the superior turbinate and the septum opposite to it will preserve this sense. It is very embarrassing to the surgeon for the patient to lose this sense, but this will happen if the membrane lining the superior turbinate is totally destroyed.

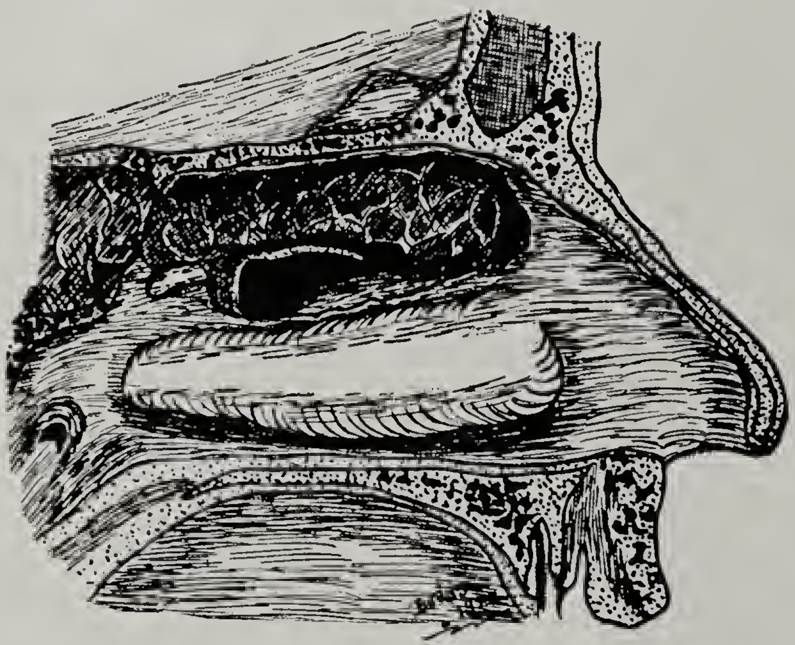

Fig. 2.—Completed operation: thoroughness of the exenteration of the posterior ethmoidal cells.

OPERATION

A description will be first given of a composite operation that has for its advantage a greater chance of thoroughness in resecting the anterior wall of the sphenoid and exenterating the posterior ethmoidal cells; and then a comparison of its advantages with the usual textbook operation will be considered. The operation is based on the good points of operations discussed. Through the courtesy of Dr. Loeb I will use for illustration and description the operations as outlined in his book.[2]

The patient, having been thoroughly anesthetized (local preferred), is placed in a semiprone position or upright, with an assistant supporting the head. The position assumed by the patient should not be allowed to distort one's surgical anatomy. The middle turbinate is completely removed. This will always leave a fleshy tag at its postero-inferior attachment. The sphenoidal sinus is situated immediately posterior to this tag, and at all times this tag may be used as a landmark in orientating oneself in this region.

By passing the sphenoidal punch alongside this tag the sphenoidal sinus can be directly entered at its safest point (the inferomesial aspect). The pars nasalis is resected with due reverence to the position of the posterior branch of the nasopalatine artery. Yankauer has given us a method of attacking this vessel and eliminating it as a complicating factor. This is detailed under his operation. The resection is carried outward and, by the removal of the pars ethmoidalis, the posterior ethmoidal cells are entered. If there are any atypical ethmoidal cells surrounding the sphenoid or any extending laterally, they are easily entered and their partitions removed. A small piece of gauze is now placed so as to fit against the nasopharynx and lessen the amount of blood that will run down into the throat. The exenteration of the ethmoidal cells is accomplished with suitable biting forceps, starting from behind and working forward at the level of the attachment of the middle turbinate. The cells are thus reduced in layers from above downward. The cells which lie above the attachment of the middle turbinate are removed by using the forceps in such a position that the longer blade is toward the median line. This will prevent injury to the cribriform plate. The mucous membrane covering the uncinate is reduced, and with suitable forceps the anterior cells are removed. Occasionally it will be necessary to use a curet in this anterior position to expose the foremost cells, but their removal is accomplished with biting forceps. If there has occurred a hypertrophy of the ethmoidal cells, to such a degree that they obstruct the vision of the posterior region, then the obstruction must be reduced before the more delicate posterior surgery is undertaken. In like manner, if the septum is deflected and will interfere with free instrumentation at the time of operation or in the after-treatment, it should be resected.

As all the operating is done by sight, the field must be kept clean of blood. The use of a suction tube will expedite matters. At first we used a glass drinking tube by attaching it to the suction side of the ether suction machine, but it was found to be too large to enter many of the sphenoidal cavities, so Mr. V. Mueller made us a removable tip for the instrument described by Walker.

Yankauer[3] recommends irrigation of the nares with iced saline solution when the action of the epinephrin has died away.

PRATT'S OPERATION

Dr. J. A. Pratt[4] presented in 1919 an operation in which the middle turbinate was allowed to remain. His description of the technic is given below.

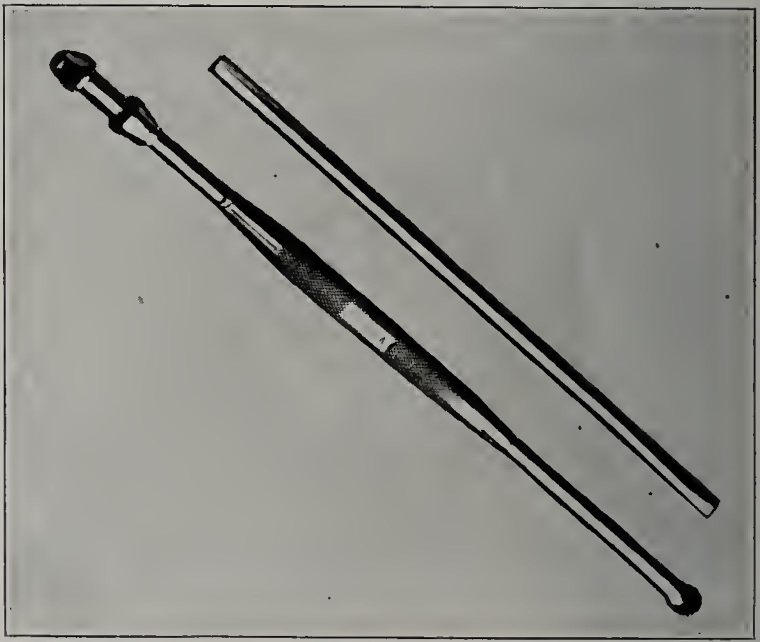

Fig. 3.—Suction instrument for intranasal use, made by modifying the tip of the instrument designed by Walker.

The anterior cells are opened with the nasal cutting forceps, biting just under the anterior end of the middle turbinate, pointing toward the corner of the eye and continuing backward and upward as long as there is soft bone encountered. . . . We take the straight end of the curet and, with a firm but gentle stroke in every direction, curet out all of the partitions of the soft cells. . . . With the angle end of the curet any anterior cells are now removed, enlarging the space upward toward the frontal sinus. We now cut out the floor of the capsule back to the sphenoid sinus, giving a free open space under the entire length of the middle turbinate. . . . If, after a suitable length of time, the discharge does not cease, the nose can be recocainized and the operation easily extended into the sphenoid, or by the use of a Thompson-Good rasp, a large opening can be made into the frontal sinus.

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[2] Loeb, H. W.: Operative Surgery of the Nose, Throat and Ear, St. Louis, C. V. Mosby & Co.

[3] Yankauer, Sidney: The Complete Spheno-Ethmoid Operation, Laryngoscope **31**: 831 (Nov.) 1921.

[4] Pratt, J. A.: Tr. Am. Acad. Ophth. & Oto-Laryngol., 1919.

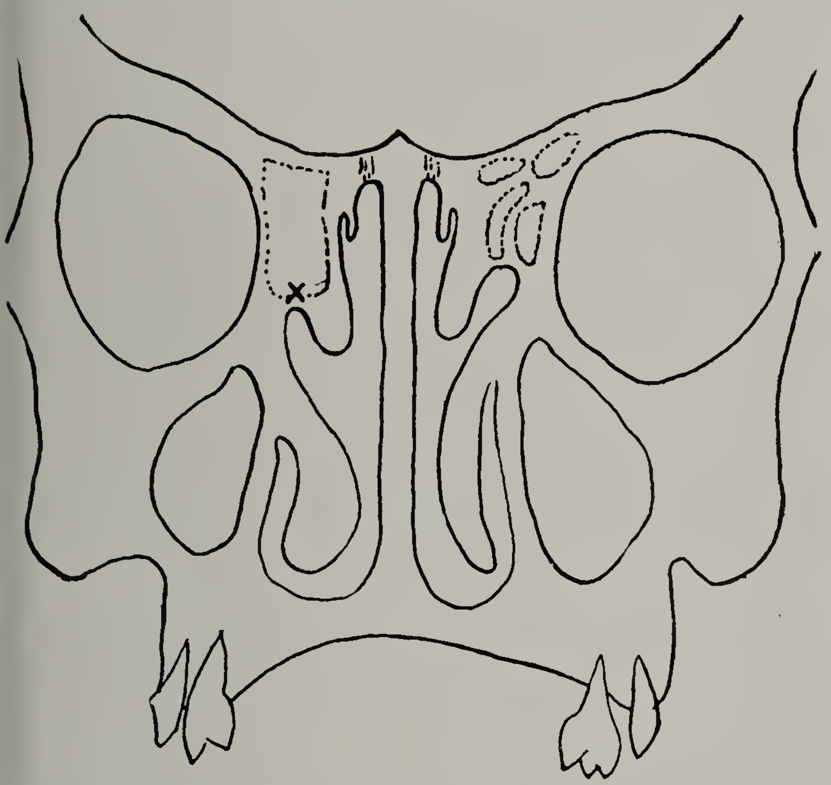

Fig. 4.—Pratt's operation: protection provided by the middle turbinate for the cribriform plate during the exenteration.

Pratt also states that he has not yet found it necessary to remove any part of the middle turbinate in order to exenterate the ethmoids or open the frontal or sphenoidal sinuses, intranasally.

Comment.—The sphenoidal sinus and the posterior ethmoidal cells are possible of being opened in this manner, but it is very difficult to keep them open. The débris will pile up as one works back and detract from one's security while exenterating the posterior cells, especially if there are any atypical cells, such as often encircle the sphenoidal sinus. The capsule of the persistent infantile type of the spheno-ethmoidal labyrinth is often firmer, and the posterior cells are smaller han normally, and the presence of the middle turbinate will interfere with the precision necessary for accurate exenteration of the posterior cells. Any sphenoid that equires a resection of its anterior wall should be accesible to postoperative treatment, and even the remains f the fleshy posterior attachment of the middle turinate will block the drainage of the sinus.

MOSHER'S OPERATION

Mosher removes that portion of the middle turbinate which lies below the summit of the superior meatus with scissors and enters the ethmoidal labyrinth at the pper overhang with a sharp curet. The curettement s continued through the opening thus made and the uret is carried first forward against the ascending rocess of the superior maxilla and then downward nd backward between the orbital plate and the middle urbinate as far as the ethmoid cells extend:[2]

> The middle and lower half of the superior turbinate bones e then carefully removed by cutting straight backward as high above the middle turbinate as the scissors punch can be made to engage. One blade is placed in the exenterated labyrinth and the other follows backward in the olfactory slit. When the scissors punch has cut its way to the front wall of the sphenoidal sinus, the middle turbinate and the lower part of the superior turbinate are removed with a snare or twisted out with a small pair of Luc forceps. The sphenoidal sinus is punctured with the curet as close to the septum as possible if the ostium cannot be located. A probe bent at a right angle is introduced into the sinus and turned outward and brought forward against the external part of the front face of the sinus, and its width ascertained. This will show how much of the anterior wall can be removed. With a small right angle punch the anterior sphenoidal wall is resected. Avoid curetting the outer superior angle of the posterior cell. As a finishing touch, the curet is carried outward to os planum posteriorly and brought forward along its inner surface.[5]

Comment.—This operation did more for the future of ethmoidal surgery than any other operation. It meets the needs of anterior work, but has the same disadvantages as the Pratt operation, of being a curet operation, and that the operative approach is from before backward. Some of our best results were obtained with this method, but the number of failures to obtain and retain a dry naris was too great. These failures were due to the missing of some of the cells by the piling up of the débris and the tearing of the curet. When the frontal sinus is to be drained through the ethmoids, the knowledge of the distribution of the anterior cells about the frontal duct is imperative, and to Dr. Mosher belongs the credit of orientating us in this region.

BALLENGER'S OPERATION

Ballenger's operation is selected to represent the group of operations devised with the idea of removing the ethmoidal labyrinth *en masse.* With a specially designed knife the ethmoidal labyrinth was carved free around its posterior, superior and anterior borders, and the resected mass withdrawn from the nose.

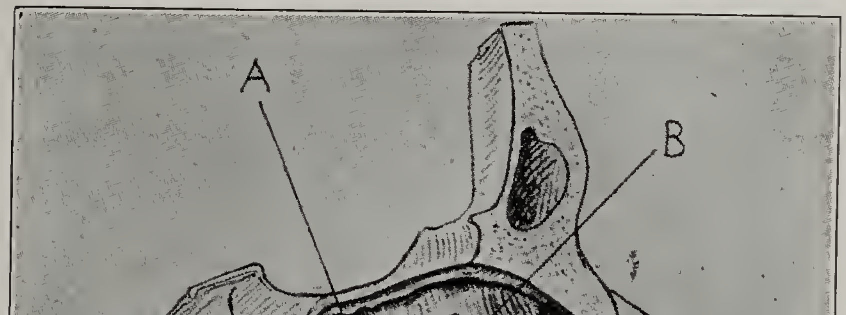

Fig. 5.—Mosher's operation: point of entrance into the ethmoidal labyrinth.

Comment.—The spheno-ethmoidal labyrinth is too delicate, and its relationship with the meninges is too

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5. Mosher, H. P.: Laryngoscope, September, 1913.

close, to sanction such radical procedures *en masse*. Then, too, there are so few perfect labyrinths, and the anatomic variations are so great, that the method is limited to only selected cases, in the hands of a very few surgeons.

HAJEK'S OPERATION

Hajek resected the middle and superior turbinate with his hook and reduced the anterior wall of the sphenoid and the posterior ethmoidal cells with the same hook, by inserting the hook posteriorly and drawing it forward and removing the shreds with forceps.[1]

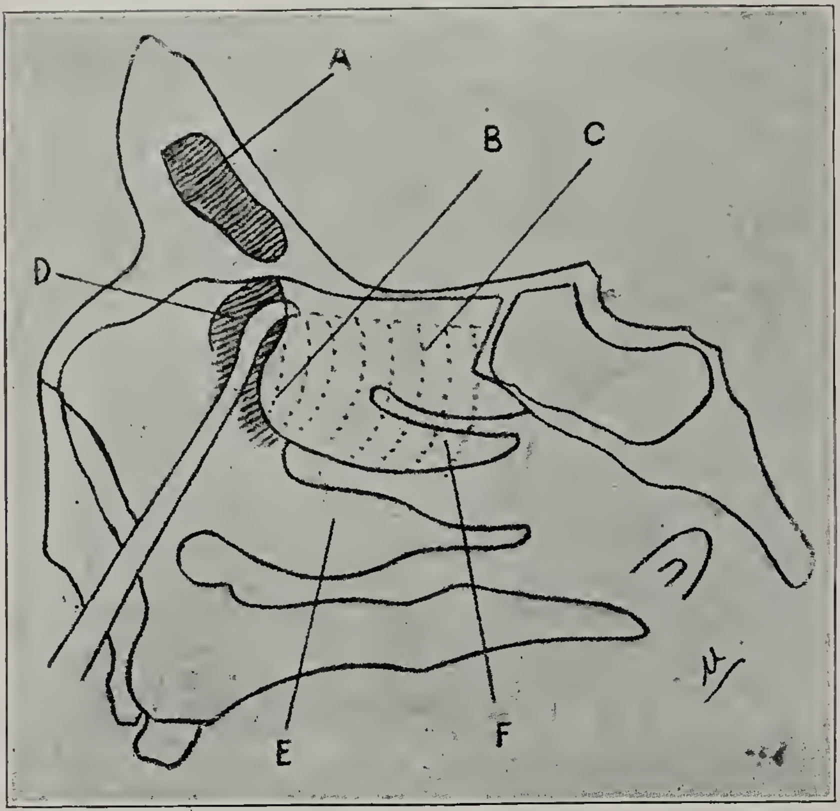

Fig. 6.—Mosher's operation: exenteration of the ethmoidal cells from before backward.

Comment.—This was the first operation which attacked the sphenoid primarily, and which worked from behind forward.

SLUDER'S OPERATION

Sluder's technic is an improvement on that of Hajek's, and the hook is replaced by a Sluder ethmoid knife, so constructed that the cutting edge is turned at right angles to the shaft and sharpened so as to cut on the pull, with the lower part of the shaft supporting a sharpened edge. The middle and superior turbinates are removed with the knife. The sphenoid is attacked directly, and the pars nasalis and the pars ethmoidalis are resected, thus exposing the posterior ethmoidal cells. The ethmoidal capsule is resected by a series of strokes from behind forward, and working away from the roof. With suitable forceps, the fragments are removed and the field is made surgically clean.[2]

Comment.—The same may be said of this method as of the method of Hajek, that the sphenoid and the posterior ethmoidal cells may be thoroughly exenterated. Early attention to the posterior region insures the success of the operation.

REAVES' OPERATION

Reaves,[6] in 1919, emphasized the value of sharp biting forceps, and the fact that the only acceptable operation is one that completely exenterates all the cells and resects the anterior wall of the sphenoid. He also calls attention to the fact that the mucoperiosteum curetted or stripped by dull forceps from the roof and wall will be covered over by granulation tissue, which becomes scar tissue or a boggy mass to harbor infection. Reaves removes "the middle turbinate, the vertical plate of the ethmoid with the superior turbinate and lower half or two thirds of the ethmoid cell with his ethmoid knife," the roof is orientated, and "then follows the removal of the ethmoidal cells forward and backward or vice versa with forceps adapted in size to engage the cells which are even higher than the nasal roof."

Comment.—Reaves has given us not only a method but also the necessary instruments to accomplish our purpose. He also brought out thoroughly the fact that the lining mucoperiosteal membrane should be protected and sufficient time taken to completely exenterate all cells possible of reaching by sight.

YANKAUER'S OPERATION

Yankauer, in 1920, gave an encouraging outlook to the modern spheno-ethmoidal operation, and added several very valuable points to its technic. The isolation of the posterior branch of the nasopalatine artery as it crosses the face of the sphenoid and by crushing, eliminating it as a complicating factor, is worthy of notice. The use of iced physiologic sodium chlorid solution as a douche during the operation to check the oozing after the epinephrin has ceased to act, and the use of bone wax to plug the anterior ethmoidal artery when it is a source of hemorrhage, are worthy of praise. Yankauer[3] thus describes a very sensible and thorough operation: The middle turbinate is removed with a Holmes scissors and snare. "The most prominent cell is attacked with forceps. From this point the opening of the cells proceeds in a backward direction until all of the cells of the posterior group

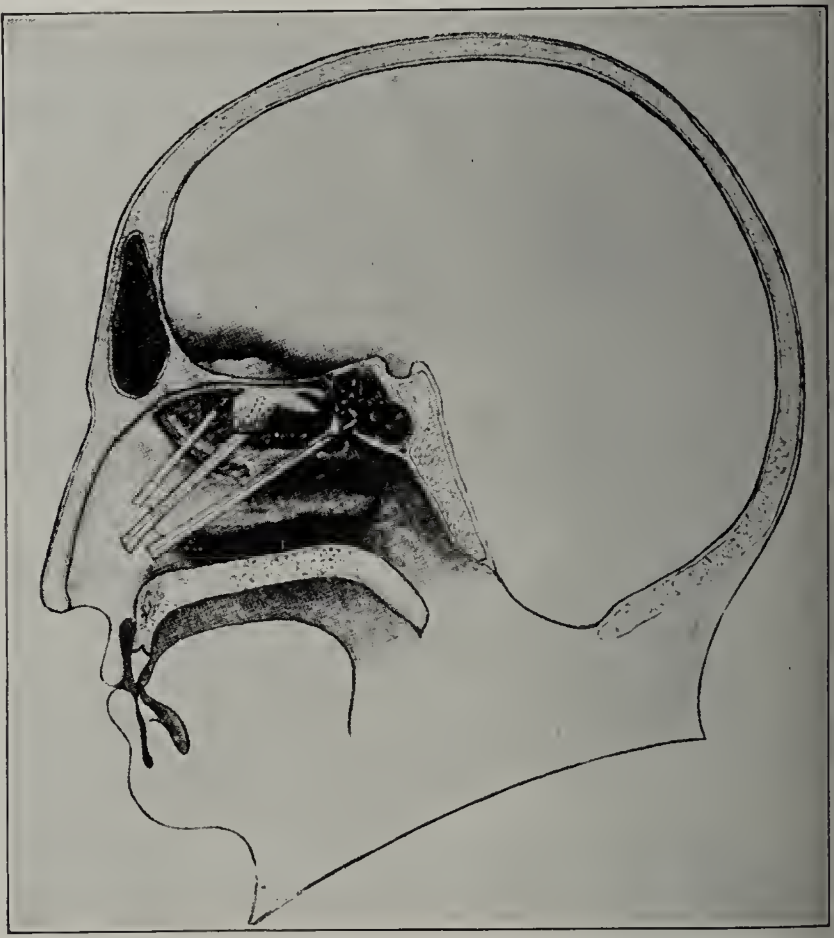

Fig. 7.—Reaves' operation: use of the 15 degree angle ethmoidal forceps in removing the middle turbinate; position of the sphenoidal punch while resecting the anterior wall of the sphenoid.

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[6] Reaves, Perry: Ethmoidal Operation for Pansinusitis, Tr. Acad. Ophth. & Oto-Laryngol., 1919.

and the sphenoid cell have been opened, their entire inner walls and the partitions which separate them being completely removed and all converted into one single cavity." The sphenoid is attacked early in the operation and its anterior wall resected, exposing any hidden posterior cell. Yankauer localizes his roof by utilizing the upper limits of the sphenoid or the posterior ethmoidal cell. "The anterior cells are opened from behind forward, until the anterior limiting line has been reached, which is the rounded border of the nasal process of the superior maxilla."

Comment.—This operation is full of wisdom and, if followed, will render favorable results and be a source of benefit to the chronic ethmoidal cases.

ABSTRACT OF DISCUSSION

DR. FRANK L. DENNIS, Colorado Springs, Colo.: Dr. Shea has emphasized that it is much better to work from behind forward, because one has the advantage of seeing what one is doing. The method of proceeding from before backward has the disadvantage of obscuring the field, not only by blood, but the entire front of the nose is filled with a mass of débris. Another point he brought out that is of importance is that it is necessary first to create a passageway for the operation. In other words, if the septum is deflected to one side, if the anterior end of the turbinate is enlarged, one must first create room for operating. The impression is given that the ethmoid operation does not amount to much. That is not true. There is too close a relation of too many important structures for any one to operate in the ethmoid region without the greatest care and without being able to see what he is doing. Not only should a roentgenogram be made of the sphenoid and ethmoid, but the nose itself should be studied beforehand. Dr. Shea did not say anything about hemostasis or anesthesia. Both are very important in the success of the operation. Another point is the importance of the after-care of these patients. The general idea is to leave in place as much as possible of the lining membrane; but whether that is practicable in many cases is a question in my mind. Many times one must take out much more membrane than one thinks desirable. Therefore, I think that in all these ethmoid operations the importance of the after-care should not be overlooked.

DR. T. E. CARMODY, Denver: The one point we must keep in mind is that we are coming to recognize the value of controlling hemorrhage. The nasal operations that we saw up to two or three years ago were bloody operations. The control of hemorrhage as brought out by Yankauer and Shea is simple and will help a great deal. I have found that an ordinary large sized eustachian catheter will answer the same purpose as the suction apparatus or Shea's instrument. In some cases the middle turbinate can be left, but we ought to be careful about leaving it when there is marked enlargement in the middle turbinate, because it will close the space and we shall be unable to take care of after-treatment as well.

DR. JOHN A. CAVANAUGH, Chicago: It is a difficult proposition to make roentgenograms that show positively whether the sphenoid is a definite size unless one injects it. I have injected these sphenoids with barium solution suspended in malted milk. I was surprised at the variations these sinuses revealed. The ethmoids on one side are always superimposed on the ethmoids of the opposite side, and it is difficult to separate them in the picture. In the last year I have been cocainizing the nose and introducing small films into the nasal cavity between the middle turbinate and the septum, placing markings on the anterior wall of the sphenoid and various points of the ethmoids and along the lower edge of the middle turbinate. This work is not completed. I hope that something will come of it. Regarding the sphenoid operation, and the picture showing the removal of the anterior wall of the sphenoid, some of you may have seen the burr I devised for removing this wall. I have not been able to find biting forceps to take down this wall of the sphenoid completely. But with my burr one can remove the entire wall and floor, which gives perfect drainage.

DR. EDWIN MCGINNIS, Chicago: When Dr. Mosher first brought out the anatomy of the ethmoid region with complete exenteration, curettage and cleaning up afterward with biting forceps, it seemed that we had reached very satisfactory results in operative surgery. A year later Dr. Shambaugh gave some data of exenteration which seemed to emphasize the result. During the last year, however, I have had three or four patients who had had complete exenteration of the ethmoid and who had reinfection of the cells that remained. If we could exenterate the sphenoid and antrum, I think that exenteration of all the cells would be the ideal operation. Of course, it is impossible to eradicate the antrum—Killian used to obliterate the frontal, but it is impossible to eradicate the sphenoid. One gets very enthusiastic about this thing, because if one can clear up the olfactory region in the narrow space between the middle turbinate and the turbinal plate, very often these patients will recover. A high septum operation will clear it up in many cases. Many of the patients do not do well. Study of the ethmoid region will reveal that the middle turbinate divides the two groups of cells, anterior and posterior, and the posterior cells are larger and have larger openings. But it is hard to examine these posterior cells; the anterior group are easy to observe. I proposed a drainage operation two or three years ago. I made an incision into the anterior ethmoid cells up to the frontal sinus, extending this through the posterior cells and back to the anterior wall of the sphenoid. Dr. Yerger gave the statistics in regard to infection of the sphenoid at the county hospital in the cases that came to postmortem. The sphenoidal sinus was the least infected of all of the nasal accessory sinuses. If one drainage operation does not do any good, one can do another; and, if the second drainage operation does not give results, one can then exenterate. For two years I have not disturbed the middle turbinate and have not exenterated the ethmoid labyrinth, and the patients do just as well as those who have had exenteration of the ethmoid.

DR. FRED J. PRATT, Minneapolis: I want to protest against removing the middle turbinate. The middle turbinate is a good thing to have as a guide during an ethmoid operation. The openings in the cribriform plate are between the middle turbinate and the septum, and if one removes the turbinate one opens an avenue for infection into the brain which can be avoided if one keeps the middle turbinate and works under it. Speaking of cleaning out the ethmoid, every one knows that there are accessory cells. Often we cannot find these the first time. The only thing to do, after exenterating the ethmoid, if the case does not clear up, is to go back and find out where the trouble is. The doctor spoke about not being able to keep the space open under the turbinate if it is left in place. Granulations form even if one removes the turbinate; and, if the turbinate is left, all that is necessary to do is to follow around the opening and bite off the granulations. One can do this just as well by leaving the turbinate as by removing it. Another thing tending to prove that the middle turbinate is of some use is that one will find in cases in which the turbinate was removed years before that Nature has put soft hypertrophies on the lateral wall and septum, trying to narrow the space. I think that this is proof that the middle turbinate is of some use.

DR. JOHN J. SHEA, Memphis, Tenn.: It requires from six to twelve months to obtain permanent results after an exenteration of the ethmoids in many of the cases, and during this period the patients should be treated carefully. Unless the sight is at stake, an ethmoidal case should be treated a month or two before operating, unless gross pathologic conditions are present. The discharge will change its character after the cells have been exenterated, but will not cease entirely. If the discharge remains purulent, scabs will be formed; but the cases are not troubled by dryness, as one would expect. A method of outlining the sphenoid of one side, when inspection fails to be satisfactory, is to insert the Holmes nasopharyngoscope into the other sphenoidal cavity and transilluminate the questionable cavity. The paper did not deal with the indications for the operations. Dr. Carmody spoke of the eustachian catheter as a suction instrument. The one I improved is the outgrowth of using first a catheter and then glass drinking tubes. The latter are the more serviceable.

A CONSIDERATION OF ACUTE AURAL DISEASE IN CHILDREN *

A. SPENCER KAUFMAN, M.D.
PHILADELPHIA

Acute infections of the middle ear are met with at all times, but from December to April of each year they are exceedingly numerous, and as surely as they appear in succeeding years they vary in symptomatology and severity. In the past season, for instance, the number of cases of acute otitis media was greater than usual, and the severity of the symptoms was out of proportion to the morbidity of the disease.

It is indeed surprising how seldom aural examinations are practiced routinely; and it is well to emphasize at the beginning that, when such an examination is made and reveals trouble, and the proper methods of treatment are instituted, we have not only treated the existing condition, but have also applied prophylaxis against permanent loss of function and the dangerous intracranial complications.

ETIOLOGY

Considering the causative factors, we find the most common source of acute middle ear inflammation in local infection of the nose and throat, as well as in the general infections in which nose and throat involvement is more or less constant. We have but to remember that the mucous membrane lining the nose and throat continues up the eustachian tube; lines the middle ear cavity, attic and mastoid antrum, and forms the internal layer of the tympanic membrane, to realize with what ease infections involving the nasopharynx may, in turn, infect the ear. Influenza, measles and pneumonia are the most important general infections; but all of the other exanthemas and acute infectious diseases play important parts. In this class of cases, a routine inspection of the ears should be made, as one would examine the chest and abdomen for evidence of new developments. Local causes are the infections confined to the upper respiratory tract, such as acute rhinitis and obstructive conditions. Anything that interferes with the proper ventilation of the nasopharynx and eustachian tubes is a direct or indirect causative factor. Adenoids, by their direct blockage, and hypertrophied tonsils, by the upward pressure exerted on the tubes, are, of course, the most common factors. The removal of diseased tonsils and adenoids is the best prophylactic measure at our command in the prevention of aural involvement. This is true not only in the acute form, but also in the chronic suppurative and nonsuppurative.

It must be borne in mind, however, that, while the susceptibility to infectious processes is materially reduced by this operation, the possibility of their occurrence still exists when we have an acute nasopharyngitis, either primary or secondary. The vicious habit of teaching children to blow their noses by holding one or both nostrils tightly closed and applying expulsive force should be discouraged as dangerous to the ear. Chronic general diseases, such as tuberculosis, syphilis, scurvy, diabetes and nephritis, are often underlying conditions; but, except in the case of tuberculosis, in which we recognize a distinct type of otitis, middle ear involvement is probably due to lowered resistance, rather than to a distinct local manifestation. We all must agree that purulent otitis media occurs too frequently during dentition in infants to be a mere coincidence. The probable explanation is that, at the time of teething, there is general congestion of the entire mucous membrane of the nose and nasopharynx, causing a blockage of the tubes.

PATHOLOGY

The pathology in a direct infection does not vary from that of a condition involving the mucous membrane of any other structure; but there is a distinct difference in that class of cases that might be called secondary infection. By that, I mean those in which the eustachian tube is sealed off and the air in the tympanic cavity becomes absorbed. With its gradual disappearance, there is an outpouring of mucus, and we then have a condition termed hydrops exvacuo. If this fluid remains sterile, it will be gradually absorbed as the inflammation subsides and ventilation of the tympanic cavity is again established. This will clear up with proper treatment applied to the nose and nasopharynx; but, if it is of longer duration, active surgical treatment, such as will be spoken of later, must be applied.

SYMPTOMS AND TREATMENT

It is well to consider the symptomatology and treatment of the catarrhal and purulent otitis together, because, although we have a distinct disease in the acute catarrhal otitis media, every case of the suppurative variety must pass through the catarrhal first. No matter how brief this stage may be, it exists nevertheless and the symptoms that present themselves in the suppurative type are, with few additions, exaggerations of those that we find in the catarrhal.

First and foremost is the development of pain, which is usually worse at night. This varies from a slight discomfort to an exceedingly excruciating earache. The ordinary "earache of childhood" is attended by pain which is very severe but of short duration; and little can be seen on examination except, possibly, some redness along the handle of the malleus or of Shrapnell's membrane. Tenderness can also be elicited by pressure in front of the tragus and immediately below the lobe. An important thing to remember is that, in the acute infectious diseases, there may be an absence of pain; and we often see, during the convalescence, that the temperature goes up for some unknown reason. If the ear has not been examined, it is not an infrequent occurrence to have a discharge from the external auditory canal as the first evidence of middle ear involvement. Symptoms of impaired function, such as tinnitus, are rarely complained of, even by older children, although the parents may notice a loss of hearing. Fever is always present in the suppurative variety, but is usually absent in the catarrhal, when the etiologic factor is afebrile. Two significant symptoms of acute ear disease in infants are the attempt to get the hand up to the side of the head affected, and rolling of the head from side to side. The latter symptom has been spoken of so much that an occasional diagnosis of ear disease is made without careful examination, and later it is found that this action is due to other causes.

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Occasionally, actual convulsions, followed by coma, are seen in young children suffering from an acute middle ear condition. This is caused by an irritation of the dura through a dehiscence in the roof of the attic, due to an open petrosquamosal fissure. With the development of pus, the redness becomes intense; there is bulging of more or less of the entire membrane and an obliteration of all the landmarks, and it is exceedingly difficult to decide where the posterior wall of the bony canal ends and the tympanic membrane begins. In a case that was originally sterile, as a hydrops exvacuo, and in which the fluid has become infected or present in such quanity as to cause bulging, we will see a rather faint yellow discoloration of the ear drum, with bulging in the posterior half. I wish to emphasize this particular point, as, in a casual examination of the ear, this may possibly appear as a normal ear drum, when one has in mind the more usual picture, with the intense redness or dusky discoloration. In this type of case, the cone of light also will often be present, which is likewise misleading. Complicating some of the acute infectious diseases, particularly influenza, there are frequently formed hemorrhagic blebs, either on the membrane proper or on the adjacent wall of the canal. A mere pricking of these blebs is frequently done, the operator feeling that he is incising the membrane, but procures no relief from the pain and other symptoms.

By far the best treatment for acute catarrhal otitis media is rest. Accompanying this, eliminative treatment should be given and, if the case is seen early enough, small doses of aconite, and powder of ipecac and opium (Dover's powder) in doses depending on the age of the patient. Locally, heat, applied in one of several ways to the tympanic membrane, is by far the best means of relieving inflammation. Hot irrigations with physiologic sodium chlorid solution, or just plain sterile water, every two or three hours, will give prompt relief. The best method of administering these hot douches is to use an irrigating can with a small glass tip, having the can held not higher than the level of the patient's head when it is in position to receive the treatment. This point should be made emphatic to the nurse or attendant. The amount of solution used should be from 1 to 2 quarts (liters), and the temperature about 110 F. The commonly used 10 per cent. of phenol in glycerin is an admirable composition and accomplishes good in three ways: (1) by the heat, as all such drops should be thoroughly warmed before instilling into the canal; (2) by the hydroscopic action of the glycerin, and (3) by the anesthetic and antiseptic effect of the phenol. The ear should be protected from cold air at all times during an inflammatory process, and I usually advise wearing a light cap with a pad of cotton over the ears.

In addition to the general treatment and that applied directly to the ear, we must not forget the source of infection—the nose and throat. For this purpose, any of the several drugs that have an astringent action, sprayed or dropped into the anterior nares, will usually accomplish the desired effect. My own preference is either a camphor-menthol solution in the strength of 3 grains each to the ounce of liquid petrolatum, or a mixture of cocain alkaloid, 2 grains, camphor, 1 grain, and 4 drops of oil of lavender or rose geranium to the ounce of liquid petrolatum. Flushing of the nose, I feel, is liable to scatter the infection into the eustachian tube and the accessory sinuses; but, if the swelling of the mucous mebrane is reduced, the nose will usually take care of its own drainage. In my observations, I have found that the colloidal silver preparations which are so commonly used in nasal conditions of this type are more of an irritant and will increase the flow of mucus; and the harm thus done outweighs any beneficial results gained from their antiseptic powers. Postnasal irritation can be relieved by local application of the camphor-menthol solution. It would be exceedingly advantageous when adenoids and hypertrophied tonsils are present to remove them; but, except in cases due to these causes alone, we must forego this procedure, as it is obviously impossible to operate during the course of an acute infectious disease or in the presence of a general involvement of the upper respiratory tract.

When we find that we are dealing with a purulent otitis media or large collection of fluid in the middle ear, there is but one treatment and that is free incision. I use the word incision in contradistinction to paracentesis, as a mere puncture will but drain for the time being and will later on probably have the same effect as a spontaneous rupture. We must remember that a rupture of the ear drum is not a wound with even edges, and it is not caused by pressure, just as a toy balloon will burst when blown beyond its limit of elasticity; but, layer by layer, the membrane sloughs, and the result is a ragged-edged wound, which is more liable to remain a permanent perforation. This operation is preferably performed under general anesthesia; but, unfortunately, many of these conditions arise in bedridden patients in whom the underlying causes contraindicate ether or chloroform (and nitrous oxid is not readily obtainable in private homes), so that we must use a local anesthetic or none at all. The local anesthetic that I use is composed of equal parts of cocain, menthol and phenol, the solid drugs being rubbed together to form a syrupy liquid. My experience is that the membrane can be incised with no more discomfort to the patient than is caused by introducing a local anesthetic. The place to make the incision is over the point of greatest bulging, which is almost always in the posterior part. This is also the correct position from the anatomic standpoint, as there is more room between the handle of the malleus and the tympanic ring, and the distance between the internal wall of the cavity and the tympanic membrane is greatest in this quadrant. Furthermore, it will give a direct route for drainage from the mastoid antrum. Incision should be carried to the floor and slightly curved. Following incision, it is of great advantage to remove the secretions from the middle ear by means of a small suction apparatus.

I have mentioned that this operation should be performed in all cases of acute suppurative otitis media and in cases in which there is bulging of the membrane from fluid in the middle ear, even though it be sterile; but there is still another important indication; namely, the more violent cases of acute catarrhal otitis media, arising during the course of acute infectious diseases. Under these circumstances it is safe to incise the membrane without waiting for bulging, as we can be definitely certain that infection will occur and spontaneous rupture may take place in an incredibly short time.

The after-treatment is of the utmost importance. After the membrane has been incised, the ear is best left alone until the discharge becomes purulent or very profuse (which usually takes place in twenty-four hours); and then irrigations should be started. For this purpose, I prefer a 1 : 5,000 solution of mercuric chlorid, more for the purpose of insuring a sterile solution than for the antiseptic effect on the suppurative process. The object of the irrigation is two-fold: (1) it reduces inflammation by the application of heat, and (2) it keeps the canal clear so that the flow of secretion from the middle ear will not be impeded. When the patient is visited by the physician, the canal should be thoroughly wiped dry and a 2 per cent. silver nitrate solution applied to the membrane, particularly in the region of the orifice. After the purulent stage has subsided and the discharge becomes mucoid, an astringent solution should be dropped into the ear after irrigation. For this purpose, zinc sulphate, lead acetate or copper sulphate in 2 per cent. aqueous solutions is very useful. Here, again, the colloidal silver preparations are frequently used; but I have failed to see any beneficial results, and the staining of the tissues is often misleading to the eye. The usual duration for discharge from the ear varies from a few days to four or six weeks, although in some cases it may keep up longer.

COMPLICATIONS

In every case of middle ear infection, there is an involvement of the mastoid process. This may be confined either to the mastoid antrum or diffused over the entire process. It would be difficult to conceive of an infective process attacking the middle ear without extending by continuity of structure through the aditus ad antrum into the antrum. Fortunately, the percentage of surgical involvement, i. e., necrosis, is very small. Two years ago, when the type of infection met was exceedingly virulent, of eighty cases of acute suppurative otitis media that came under my care during a period of two months, and which were seen from the onset and before spontaneous rupture of the membrane had occurred, but four required surgical treatment of the mastoid; so that I believe we can safely count on recovery in from 97 to 98 per cent. of the cases without opening the mastoid, provided the patients receive the proper care from the beginning. The mastoid tenderness that is almost always present during the early stage of acute suppurative otitis media can usually be promptly relieved by the application of cold, in the form of either a Leiter coil or an ice bag. This treatment should be kept up continuously for from twenty-four to forty-eight hours. If continued for a longer period, it will accomplish nothing further but may mask other symptoms that might arise.

When to operate and when to procrastinate are not always easy questions to decide. Of course, when there is swelling, redness and tenderness over the process (the so-called classic symptoms of mastoiditis), indicating an erosion through the cortex; or when, with a profuse purulent discharge, there is a septic temperature after the first week that is not assignable to other conditions, then the indications for surgery are obvious. The mastoids which do not present these symptoms, however, and yet demand surgical interference, are more usual than is ordinarily supposed. It is not unusual to find an extradural or perisinus abscess at operation in a patient who has had neither tenderness nor rise of temperature, and who is apparently well except for the discharging ear. Drooping or bulging of the superior and posterior wall of the bony canal adjacent to the tympanic membrane and the presence of discharge are sufficient indications for surgical intervention, regardless of the absence of other signs and symptoms. The character and duration of the discharge must also be considered; as a persistent purulent otorrhea, which perhaps is not immediately dangerous to life, carries with it the possibility of becoming chronic and thereby destroying, to greater or less extent, the sense of hearing, and producing, at some future time, one of the dreaded intracranial complications. If a case is at all doubtful, it is better to subject the child to post-auricular drainage, as we are fairly safe in counting on complete recovery in practically 100 per cent. of the cases. If the discharge is mucoid in character, without giving evidence of progressive destruction of the tympanic membrane, it can usually be cleared up (after the removal of adenoids and hypertrophied tonsils) by the administration of a mixed catarrhal vaccine. I have had almost universal success with this line of treatment in this particular class of cases.

The roentgen ray has become a strong factor in mastoid diagnosis. When this work was first attempted, not much reliance could be placed on it; but with improved technic, and with careful comparison, by the roentgenologist and otologist, of the picture with the operative findings, the value has been established; and many cases in which the findings are obscure can thus be correctly diagnosed. The blood picture is of value when it shows a leukocytosis and increase in the polymorphonuclears, but should be ignored as a negative diagnostic point. The explanation of this is easily found in the fact that the pus lies in a bony cavity from which there is little absorption until the lateral sinus or dura is exposed by erosion.

Of the trinity of intracranial complications of suppurative middle ear disease, diffuse purulent meningitis is almost always fatal. The majority of these cases can be prevented by a mastoid operation before such a condition arises. There are, however, rapidly fulminating cases which nothing can stop, and in this class there is usually very little necrosis of the mastoid. Brain abscess is a less common complication in the acute otorrhea, and here again prompt surgical intervention in a case of mastoiditis will usually prevent its appearance; but when we do meet it, it is more amenable to treatment than meningitis. Lateral sinus thrombosis is far more common in children than is generally supposed; and it is more difficult to diagnose in children than in adults. The percentage of recoveries is fairly high if the condition is relieved by operation before other organs become involved or a general septicemia of a severe type manifests itself.

CONCLUSIONS

1. Examination of the ear in children should be made routinely, whether or not there are local evidences of involvement.

2. The early recognition and proper treatment of acute suppurative otitis media will prevent the majority of cases of mastoid necrosis.

3. Early surgical treatment of mastoid necrosis is the only means of preventing chronic otorrhea or the intracranial complications.

Sixteenth and Spruce Streets.

ABSTRACT OF DISCUSSION

Dr. Walter E. Simmonds, Chicago: I have found that there is danger in having any one other than the physician, or a nurse in whom I have the utmost confidence, irrigate the ear because the infection will spread in a tube which is more or less closed. When there is moisture, try the dry treatment, swabbing the ear with alcohol, and then instilling phenol (carbolic acid) and glycerin. It seems to work better. Considerable experimental work has been done on the effect of draughts and cold on infected ears. Dr. J. J. Moore and I found that rabbits that were exposed to the electric light rays in a closed box under a proper regulated temperature controlled by a thermostat either did not develop lesions or had fewer or less severe lesions than those that were not so treated. I found that children would readily get otitis media when exposed to drafts after colds or grippal infections. I attended three families in succession in the same flat, which was cold and damp. I had a child with acute otitis media and told the parents that I did not think we would get good results from treatment unless we removed the child to a hospital. The child was taken to a hospital, and the first night the symptoms subsided, the temperature went down, and the pain disappeared. After about ten days, the child was returned to the flat and the next day there was a complete recurrence of pain and symptoms. I apply heat to the part by using an electric bulb, hot boric acid applications or a hot water bottle. A hot salt bag is very useful. Any one can apply the rays from an electric light bulb continuously to the region of the ear.

Dr. Oliver W. Hill, Knoxville, Tenn.: I would urge a routine examination of every child that comes under observation if it shows any sign of coryza or upper respiratory tract infection. Many otologists are not certain as to when to interfere with an acutely infected ear and when to practice watchful waiting. I should like to hear some one who has had experience explain how to determine, by the physical appearance of the ear, the type to interfere with and the type to let alone.

Dr. Henry Dietrich, Los Angeles: As to the time to interfere with ears, I do not believe that the physical appearance of the ear drum alone can determine that. Another factor is that the virulence of the infection varies from year to year. An ear which must be incised during one epidemic need not be incised during another. During the epidemic two years ago, It was found advisable to incise almost every ear that showed any particular change, and at that time complications on the part of the mastoid and sinuses were common. This year our experience is quite different; that is, an ear drum which had the appearance of the ear drum of two years ago would heal under proper medical care.

Dr. Clifford D. Sweet, Oakland, Calif.: Too much emphasis cannot be placed on the routine examination of the child's ear. It is important to impress on parents and general practitioners the importance of this as part of the general examination, and that there is no symptom on which you can depend to make the diagnosis. I have seen the most virulent infection, with no sign from the child that would call attention to the ear. One must be able to recognize the normal drum and also the appearance of the drum as the inflammatory process recedes or progresses. With regard to the question as to whether to incise or to wait: First, if there is any doubt, a skilfully done paracentesis can do no harm; but it should be remembered that if the paracentesis is made too early before the process in the ear has progressed sufficiently, the incision will close up in from twenty-four to thirty-six hours, only the upper part remaining open, and you will have to repeat the paracentesis. Of course, all of the clinical symptoms of the condition must be taken into consideration in deciding when to interfere and when not to interfere. The question as to when to interfere in mastoid involvement requires more skilful team work than any other single point. No ear discharges very long without involvement of the mastoid, and I think that as soon as it can be definitely decided that the mastoid is involved, it should be interfered with surgically because of the serious consequences which may follow. I was on the advisory board through which men passed in the draft, particularly from such communities as San Francisco Bay, where the climate is damp, and 4 per cent. of the men were rejected because of chronic ear conditions. We found that they had chronic ear disease which lighted up with colds. It was apparent that these cases could have been cleared up by operations on the ear or tonsils and adenoids at the proper time.

Dr. W. McKim Marriott, St. Louis: I would like to draw attention to two points in the symptomatology of otitis media in infants. One is that the otitis media may occur without any rise in temperature, even when there are definite signs of pus in the middle ear. The only symptom noted may be a failure to gain in weight. The second important symptom which may also occur, even in the absence of fever, is vomiting. This symptom is often promptly relieved following paracentesis.

Dr. S. Herman Lippitt, Milwaukee: Something was said about the child's holding the hands to the ear or rolling the head from side to side in middle ear disease. I have found those symptoms absolutely untrustworthy. The only way to make a diagnosis is by the routine use of the electric otoscope. I have found that following cases of tonsillitis and upper respiratory infections, many cases of otitis media developed one year, and the next year, following the same types of infections, cases of pyelitis were numerous.

Dr. A. Spencer Kaufman, Philadelphia: With regard to the indications for incision, there is one point to which I want to call attention, and that is, a retraction of the membrane with redness in an acute catarrhal otitis media is really a contraindication to incision; and, when a membrane is incised too early, the slight hissing sound is caused by the air rushing into the vacuum that has been created by the sealing off of the tube. I was glad to hear Dr. Dietrich mention the varieties of infection one meets in different years. This year it was not an uncommon thing to see a septic temperature (such as one would expect to find in a sinus thrombosis) accompanying a simple otitis media which cleared up without a surgical mastoid involvement. The experience in examining the draft men very forcibly brings to our attention the necessity of the early care of these cases. There is no excuse for a chronic discharging ear. If the discharging persists, postauricular drainage will, in practically all cases, clear it up. I think the class of cases that Dr. Marriott referred to, the afebrile cases of otitis with discharge, usually comes during the period of dentition in infancy. We all must recognize that infection of the middle ear comes too frequently during dentition to be a mere coincidence, and very often the first symptom will be the evidence of discharge.

SEQUELAE OF EPIDEMIC (LETHARGIC) ENCEPHALITIS *

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Recent literature on epidemic encephalitis has been so extensive that any addition may be a bore. Nevertheless, such a probability is here risked in the hope of presenting a reasonably simple working classification of the sequelae of that disease. H. G. Wells, writing of the education of the middle part of the last century, recently said, "The test of a good style was its abundance of quotations, allusions and stereoptyped expressions." With all deference to the extensively reviewed writing and opinions of others, the practice that Wells scorns will be avoided on the ground that the literature is readily available and that time limits will permit of few excerpts. These remarks are based on an examination of 145 patients with epidemic encephalitis, ninety of whom were examined during acute and fifty-five during chronic stages of the disease or because of sequelae. Many of the patients were examined at remote distances and under circumstances that prevented detailed records. Accordingly, an exact statistical study will not be attempted, nor is it essential for present purposes. Be it sufficient that no case was included that seemed diagnostically doubtful; but, conversely, that to the list might be added a considerable

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number of cases insufficiently investigated which were probably due to epidemic encephalitis.

Of the ninety acute cases, twenty-four are known to have been fatal, giving a known mortality of 26 per cent., with six or seven cases that may have terminated and probably did terminate fatally, so that it is quite likely that the total mortality was nearer 33 per cent. The cases here discussed were taken from the remainder of these ninety cases plus the group of fifty-five cases seen during chronic stages or because of sequelae, which cases were themselves the residue of other groups whose mortality is unknown. All of these cases occurred between late October, 1919, and January, 1922. The epidemic which furnished them moved in waves, the first lasting during October, November and December, 1919, with lesser waves in January and March, and complete subsidence by May, 1920. During this period, fifty-four acute cases were examined. From October, 1920, to April, 1921, there was an almost continuous series numbering thirty-six acute cases which were much less severe than those of the preceding winter, with a death rate little more than half as great.

The succeeding remarks will be limited to the subject matter predicated by the title of the paper.

COMPLETE RECOVERY

So many patients have been left with disagreeable sequelae that doubt has often been expressed as to whether any patient with epidemic encephalitis ever fully recovers. Apparently many have been left little the worse as a result of this infection. After deducting the fatal cases, probably one third of the patients are now well, though with rare exceptions convalescence was prolonged and he was indeed fortunate who, having suffered from encephalitis, was quite well at the end of a year, though many resumed work in from three to six months. The remainder are still uncomfortable, many of them helpless, more in a condition of semi-invalidism which permits of some activities but robs life of much of its joy. These unfortunates may be divided into four principal groups. For descriptive purposes, the order of grouping is that of increasing ratio of interest rather than of numbers.

FOUR GROUPS

Group 1: This group is least numerous, though not without interest, and is composed of those who in the acute stages exhibited myoclonus symptoms and who still suffer from muscular jerking and twitching, though in steadily decreasing severity. There are but two pronounced cases in the nonfatal group, and in each, stabbing, lightning, neuritic pains characterized the early stages of the disease, and the patients still have considerable twitching but without pain. They exhibit neurasthenic symptoms, have performed no continuous labor, and belong also in Group 3. They will not here be further discussed.

Group 2: This is composed of those who exhibited definite psychoses. The most common characteristics of these were suggestive of dementia praecox, with one paranoid case.

Group 3: This is composed of those who showed symptoms suggestive of neurasthenia or psychoneurasthenia. No attempt will here be offered to theorize on the pathologic reasons for the persistence of symptoms as between organic lesion, toxic condition, or pure psychopathy. This is the largest of the four groups.

Group 4: This group is composed of those who exhibited signs of gross organic lesion of the brain or cord. It may be divided into three subgroups, the symptoms of which suggest:

(*a*) A single unilateral brain lesion producing some such disorder as hemiparesis.

(*b*) Lesions limited to the pons or medulla or both, causing persistent oculomotor or bulbar disturbances.

(*c*) Disseminated lesions, most classically revealed in the production of parkinsonian symptoms with many attendant and variable side effects.

PSYCHOSES

Psychoses (Group 2) were, of course, present in a large number of the acute cases. They persisted or developed as sequelae in not less than five cases, but had no pathognomonic characteristics. The symptoms suggested that the patients were predisposed to mental disorders and that the psychoses were excited rather than caused by the infection. Four of these patients were constitutional psychopathic inferiors, and in each the manifestations were typical of dementia praecox with plainly discernible hereditary elements.

In one instance, a child, aged 6 years, had the daily habit of getting into a catatonic position late in the afternoon with his body curved forward, his neck backward and his eyes directed upward as if toward some picture high in the air and maintaining this position continuously throughout the night until 7 or 8 o'clock the next morning, when he would go to sleep, only to resume the strange position the following afternoon. This he continued for about two months, when he was first brought for study. There was a definite history of encephalitis with double vision and other clinical concomitants four months preceding the psychosis, which was accompanied by partial speech inhibition, unwillingness to take food and other commonplace symptoms suggestive of catatonic dementia praecox. The spinal fluid contained 8 cells per cubic millimeter, with no other changes, and puncture was followed by temporary recovery with resumption of the catatonic position two months later. Further track of him has been lost. The mother of this child was a psychopathic inferior, and the father a nonentity.

Three other cases of well defined dementia praecox type were noted, each following seemingly indisputable attacks of epidemic encephalitis. In all of these cases there was good reason to believe that the psychosis was that of dementia praecox and that the encephalitis acted as an excitant of predisposed patients, just as war shock or other unusual experience acts on psychopathic personalities.

The most disastrous psychosis occurred in a man, aged 59, who, following a personally observed prolonged typical attack of epidemic encephalitis, returned a year later. At this time he suffered from typical paranoidal delusions of persecution, with hallucinations of sight and hearing. He believed that his wife was conspiring against him and that she was untrue to him. He transferred his life insurance to other members of the family, changed his will, made an unsuccessful attempt to kill his wife by shooting her, and then committeed suicide. Prior to his infection they had lived amicably, but he had always been penurious in proportion to his wealth, peculiar in certain ways, and there was a strong suggestion that the encephalitis acted as an excitant rather than the entire cause of his psychosis.

NEURASTHENIA AND PSYCHASTHENIA

The largest group (Group 3) was made up of those who became neurasthenic or psychasthenic or both. The exact number so affected is not definitely ascertainable for, on the one hand, they departed from the normal so little and, on the other hand, shaded so gradually into the territory of the psychoses that it would be hard to say where neurasthenic and psychasthenic sequelae began or ended. Almost constant subnormal blood pressure, anemia, vertigo, fatigability, deranged appetite, gaseous eructations, spinal weakness, tachycardia and palpitation, difficulty in mental concentration, poor memory, restlessness and insomnia (especially severe in two cases) form an unmistakable complex. Of interest in connection with the preceding double vision was the persistence of oculomotor asthenia, in some cases still present at the end of three and one-half years since the original infection. These patients uniformly complained of difficulty in reading, typified in the statement of one of them made three years after infection, who said, "I can use my eyes very well, but they do not want to work." With ordinary test cards his vision was good, there was no difficulty in distinguishing words or letters, but after reading a short time he wanted to quit, the type blurred, his eyes were fatigued, his mind would not concentrate, and he soon gave up reading as an unpleasant and laborious task. Though previously a capable electrician, he is still unable to work except part time and on small, unimportant jobs. Most of the patients with this oculomotor fatigue dislike moving pictures, bright lights, undue exposure to light, and any labor which involves prolonged and concentrated thought or action. In a word, they are typical psychoneurasthenics with predominance of oculomotor symptoms. It is hard to escape the conviction that some of them were neurasthenics in advance of the affection. In fact, with several of the worst cases this is known to have been the case. In varying degree these neurasthenic symptoms remain in a large percentage of the entire group which forms the basis of this discussion. Many belonging to Group 3 should recover.

Fundus examination in many cases suggests certain changes which, owing to apologetically acknowledged lack of real expertness with the ophthalmoscope, may be imperfectly described, consisting of slight blurring and indistinctness of the outlines of the disks and of the retinal blood vessels, both veins and arteries. There was no case of true papillitis or papilledema or optic nerve atrophy, and such changes as persist are comparatively slight and might escape notice were one not looking for them. Pupillary inequalities and sluggish reactions, especially in the parkinsonian cases, were common, and in at least three cases rigid pinpoint (Argyll Robertson?) pupils were noted.

ORGANIC LESIONS

Hemiparesis.—Two patients remain hemiparetic. One was distinctly hemiplegic for six months, after which his gait and faulty hand position slowly improved. The leg is still slightly rigid, and the forearm and hand seek a somewhat flexed position across the lower part of the abdomen in a manner suggestive of hemiplegia. The minds of both these patients have lost their flexibility, and they meet with difficulty in creating new thoughts or new ideas, though both pursue their businesses reasonably well but without the vigor and enthusiasm of bygone days.

Pontile Symptoms.—Several patients still exhibit weakness of one or more ocular muscles accompanied by slight strabismus which they are able to overcome temporarily by an effort. One man has a rather complete ophthalmoplegia, with marked limitation of motion of the eyeball in all directions. A woman, one year after an attack of fever accompanied by double vision from which she recovered, suddenly without warning developed inability to raise her eyeballs above the horizontal level, that is, she has paresis of both superior rectus muscles. There is some ptosis, and her habitual attitude is one in which the eyeballs turn down as if she was reading a book in her lap. All of the patients with oculomotor palsies excepting the last one belong to the parkinsonian group, but this one has no other symptoms suggestive of that disorder. These oculomotor symptoms seem clearly to point to a chronic poliencephalitis superior.

Bulbar Symptoms.—Those who present sequelae suggesting lesions of the medulla were relatively few, probably because lesions of the medulla were usually fatal, except as medullary symptoms were present in certain of the parkinsonian cases. Three patients with typical parkinsonian symptoms periodically find difficulty in swallowing, and suffer from excessive salivary secretion and constant trembling about the lips and tongue which suggest incipient bulbar paralysis. Since there has been a steady advance in the symptoms of these over many months, there is justification for the fear that they will eventually die from involvement of the bulb.

Parkinsonian Cases.—Twelve patients with a marked parkinsonian syndrome remain, 10 per cent. of the nonfatal group. At least four of the fatal cases were of the parkinsonian type, so that the total number of cases of this complex was approximately 11 per cent. In addition, some of those classified as neurasthenics showed slight blankness of expression, rigidity of movement and other mild parkinsonian symptoms, which have gradually diminished. The parkinsonian disorder was characterized by the early development of loss of expression, staring, unwinking eyes, muscle rigidity and gait difficulties, all of a type similar to the second stages of paralysis agitans but without the characteristic tremor. Three patients suffer from excessive and annoying salivary secretion. In addition to the more or less characteristic rigidities there was, on occasion, a tendency to the assumption of strange and unusual positions, in a sense not dissimilar from that already described in the child who appeared to suffer from catatonic dementia praecox. A man, aged 23, who is excessively rigid, has lain for many months face downward on a couch with his hands drawn forward under him in characteristic parkinsonian fashion. When erect, he finds difficulty in turning his body, moves slowly, and walks with a rigid gait. When left alone he resumes the prone position. His mind acts slowly but clearly, and his speech is hesitating.

It was early noticed that these patients lacked the characteristic tremor of agitans. Some tremor has been present in most of the cases, but with one exception has never been constant. It has sometimes appeared in one hand or one leg, sometimes has been under control, and sometimes has suggested the intention type; but, in the main, when patients were under observation it has been absent, that is, controlled. An exceptional tremor occurred in a patient already described as suffering from ophthalmoplegia. This man suffers from continuous tremor involving his entire body, including his vocal cords, so that his voice has a bleating sound. The tremor lacks the characteristic pill rolling motion, and is much more rapid than agitans.

Parkinsonian symptoms appeared in patients from 21 to 65 years of age. In only one of this group were the characteristics typical of paralysis agitans. This was in a man, aged 65, who gave a clear-cut history of onset with double vision, fever and lethargy, but was unable to tell when he first began to shake. It seems reasonable to suspect that here was a patient with incipient paralysis agitans who also had the misfortune to contract epidemic encephalitis.

A final curious result of complication of the parkinsonian sequelae occurred in a woman, aged 48, who now, nearly three years after the date of infection with typical epidemic encephalitis, is expressionless, rigid in gait, and has a blood picture of pernicious anemia.

COMBINED AND ATYPICAL SEQUELAE

Though an attempt has been made to separate the different types of sequelae of epidemic encephalitis, it has not been easy to classify every patient, for the reason that some patients could be classified in two or even three groups. Some of the neurasthenic patients had partial ophthalmoplegic disturbances. A violently agitated patient, twice discussed, suffered from parkinsonian syndrome, ophthalmoplegia and pronounced psychosis and muscular jerking; in fact, he might have been classified in any of the groups.

Occasionally, patients have complained of atypical sequelae, such as neuritic pains which were not of sufficient frequency or distinctness to warrant separate classification. No postencephalitic convulsions occurred. There was apparently complete absence of visceral lesions as distinct sequelae, though in two cases, after the acute onset of the disease, glycosuria of marked degree was observed, and it is possible that search over the entire group might reveal other cases showing visceral lesions. It is probable that in both these cases the glycosuria was due to irritation of the fourth ventricle, but it is not unreasonable to assume that, if long continued, such irritation might result in permanent changes in the glycogen-forming organs.

306 Selling Building.

ABSTRACT OF DISCUSSION

Dr. M. A. Bliss, St. Louis: Among the sequels of epidemic encephalitis as observed in St. Louis, the most striking thing we noted was the great similarity to the remissions and exacerbations of multiple sclerosis. We have patients who improve so markedly that we think they are well on toward recovery, and then the symptoms recur. That has happened in our experience many times.

Dr. F. E. Coulter, Omaha: We are very frequently asked: Will these patients recover? How long are they going to be ill? Are they going to be as well as before they were attacked with this disease? Sufficient time has probably not yet elapsed to answer those questions accurately. I was glad to hear the optimistic views expressed by Dr. House. My own experience has not been quite so optimistic, especially with those persons who have had this disease in early life. I wish he would tell us concerning these results in children. The cases in children seem to have resulted in the most havoc, for the greatest destruction to the mental and nervous apparatus is found in the children. The longer the duration, the more severe the condition has been; also, the longer the period of lethargy, the more serious has been the result so far as sequels are concerned, especially in connection with children.

Dr. Walter L. Timme, New York: I believe that the death rate is not nearly so high as Dr. House represents his to have been. I think the reason for the high death rate reported by him is that a great many persons with the disease in a very mild form seldom come under the observation of the specialist or go to the hospital. These cases are seen by no one at all, or by a family practitioner, who sees the patient for a day or two in a mild febrile state, prescribes some therapeutic treatment, and the patient recovers. I am convinced that a great many cases of this kind escape us entirely, and hence our mortality statistics must be taken with that reservation. Dr. House mentioned the Argyll Robertson pupil. I have never seen in these cases a true Argyll Robertson pupil. It is a pupil which reacts perhaps not at all to light, or possibly very sluggishly, but is also accompanied by an accommodation spasm, so that we have a definitely fixed pupil rather than one that reacts to light and not to accommodation. Occasionally we see a case that shows the marked effect of the infection on the vegetative nervous system and the related organs. In a certain number of cases these patients become very adipose as a result of the attack, an increase in weight of 60 or 80 pounds in the course of six months being not at all uncommon. Another type of case seen only seldom is one in which there is a bronzing of the entire body within four or six months after the attack of encephalitis. The intense asthenia seen in true Addison's disease is also present.

Dr. George A. Moleen, Denver: I do not think any disease has been fraught with so many difficulties particularly directed to the neurologist as epidemic encephalitis. I am frank to confess that that has been my experience, and I have derived a great deal of consolation from the fact that both the French and the German journals are replete with instances of the same kind. The widest divergence in syndromes is evident in these reports, in conformity with my own experience. I was interested in the classification brought out by Walsh, in which he segregated the cases into two groups, in accordance with the positive and negative classification of other conditions by Hughlings Jackson. By the positive cases he referred to those which had active muscular contractions with the active mental symptoms, the nystagmus, and the irritative sensory disturbances, particularly pain. The negative types included the anesthesias and paralyses with the associated atrophies, the somnolence and lethargy, and the pupillary or eye paralyses with them. He stated that the prognosis was universally better in the paralytic types than in those which showed the muscular or mental activities, and that has been my experience. Also in the active motor types the sequels are more likely to occur. At the New Orleans session I related a case which had not terminated at that time. The patient was admitted with a bulbar paralysis, the inability to swallow, and paralysis of the tongue. Atrophy of the tongue with sagging of the palatine pillars was followed by paralysis of the shoulder girdle, and a poliomyelitic type paralysis of the lower extremities. Recovery occurred in the same order, and I remember mentioning that his ability to swallow recurred with the presentation of a dish of strawberries. The man went on to complete recovery, and not a single evidence of his condition remains. This is only one case in conformity with Walsh's contention.

Dr. W. A. Jones, Minneapolis: We see so many cases that resemble encephalitis that I think for a time we were inclined to diagnose almost every neuropsychiatric condition as encephalitis. I distinctly regret that in one case I emphatically decided that a woman who had a few psychiatric symptoms had an encephalitis. She was sent to the hospital, and within twenty-four hours developed a stuporous state that resembled the stupor of a lethargic encephalitis; she wakened for her meals and was conscious of the activities of the nurse. A puncture of the spinal canal revealed that she had a four plus Wassermann reaction. Her stupor became intensified, and she died in a week. The necropsy revealed nothing in the way of an encephalitis. Aside from her Wassermann reaction she had a large intraventricular tumor of the brain. Previous to seeing this case I had a similar case in which there was the same attitude of somnolence without symptoms of encephalitis, and, singularly, the woman had a large brain tumor. With this confusion of symptoms in the cases that we see now we should be reasonably careful in coming to a definite conclusion.

Dr. Leo M. Crafts, Minneapolis: One thing that has impressed me is the uncertain chronicity of this condition. I do not think that we yet know how long the process may continue, either directly or its sequels. I have in mind a case of encephalitis in which there was a quite typical attack with paralysis of the left face and arm, with lethargy. The patient apparently made a fair recovery, but was not in really good condition. The following winter he presented the same clinical picture again and died. I am now observing a young ex-service man who had an attack of influenza in the fall of 1918 and was never well afterward. More than a year later he developed the active picture of epidemic encephalitis. He gradually improved, but has continued to show the parkinsonian picture since that time, without tremor, but with the boardlike expression and automatic movement. He is now steadily retrograding. I believe that he has a continued encephalitis, either a chronic process without the activity of a germ or with it. The cases that have impressed me most have been those that resembled brain tumor. In one case the condition began as a simple nervous prostration, but gradually retrograded. The patient continually spat, an unusual symptom. Later he developed an active cephalalgia that did not yield at all to treatment. He lost motion on the left side, which symptom disappeared. He developed double choked disk, but this definitely receded after spinal puncture and one drainage, and did not recur. In the light of experience with this case I think that this fact, together with the rapid qualitative change in the reflexes from normal to abnormal and back, are the best differential points between actual brain tumor and encephalitis. In the case referred to, resembling brain tumor, with cerebellar nystagmus and falling backward, a double decompression was done at the occipital level. Microscopic examination of the brain revealed some of the characteristic signs of cell infiltration about the blood vessels, but nothing else. I have seen one case simulating spinal cord tumor, beginning with a definite zone of pain in the lower back and only after several months developing delirium, diplopia and the ordinary progress. One of the many striking things is the almost unfailing marked elevation of temperature toward dissolution, usually going to 106 F. or above.

Dr. Julius Grinker, Chicago: The question of tumor that may be diagnosed when there is an encephalitis, and, on the other hand, the diagnosis of encephalitis when there is a tumor, was strikingly brought out by a case of encephalitis with choked disk. A colleague had a case with choked disk, which he presented as a case of encephalitis, characterizing it as the second case of encephalitis with choked disk, mine being the first—choked disk being a very unusual symptom of epidemic encephalitis. My colleague's patient died, and the condition proved to be a true tumor of the brain. My patient exhibited choked disk and also showed symptoms which Dr. Crafts referred to and form which he would have made a diagnosis of tumor, but the patient made a perfect recovery. His was a true case of encephalitis. This goes to show that we are likely to mistake organic disease of other types for encephalitis, and vice versa. An interesting point is this: Recently I saw a number of sequels of encephalitis in cases which were never diagnosed as encephalitis at all. These sequels were mostly in the form of postencephalitic rigidity and parkinsonian tremors. I have seen many cases which exhibited this syndrome. These cases occur with preference in young persons. A young boy had what was undoubtedly an encephalitis lasting for six months, during which he was apathetic, drowsy and in bed most of the time—the case was not diagnosed as encephalitis. The condition began with ocular phenomena, a little fever, and undoubtedly must have been encephalitis, though I had no opportunity of seeing the case myself at that time. This boy now presents the following complications, which some one called a genuine sequel of encephalitis: Every alternate morning, sometimes every morning, the boy, after awaking, would run about the room in a frenzy, swear at his mother and jump at her. Aside from these attacks, he was a very well behaved child. This sequel was directly attributed to the encephalitis. The diagnosis appeared doubtful to me. The mother described his attacks as being accompanied by blanching at the lips with change in color of the face, and the suggestion arose: May this not be a form of epilepsy? I gave him phenobarbital (luminal) and he did not improve. Finally, after studying the case I found that at times he did not swear, especially when something harsh was said to him. I then advised the mother to spank the boy every time he had an attack, and he has not had any more. The case was evidently a neurosis of the hysteria group.

Dr. Charles R. Ball, St. Paul: I remember the first time I saw one of those parkinsonian types of encephalitis. It was at Base Hospital 9, at Chateroux, in 1918. I was called in consultation to see a young soldier who was sitting up in bed with a perfectly masklike expression on his face, and a marked degree of muscular rigidity. I was told that he had recently had a rather severe attack of influenza in which he had been delirious for a number of days. I recognized immediately that here was something new in my experience, something entirely different than I had ever seen before. A few weeks later at Base Hospital 214 at Savaney, at one of our weekly clinical conferences, we were able to show seven cases of this type of encephalitis. The literature has since been filled with a protean symptomatology of the various types of this disease, which present definite somatic findings. At present, because of this extensive literature on this subject, when there are somatic symptoms, the recognition of the nervous sequelae of this disease is not difficult. But what about the other sequels, when there are no objective symptoms, when the history of the attack is vague, and when we have to deal simply with changes in the personality, or with symptoms entirely referable to the vegetative nervous system? We are called on in such cases to explain strange and unfamiliar nervous and mental conditions, which we have previously classified under hysteria and psychoneuroses. We see undoubtedly many such cases among ex-service men, that at present, because of our lack of understanding of these sequels, we are classifying as shell shock. It is in this type of postencephalitic sequel that our most difficult problems in nervous diagnosis are to be found at present.

Dr. J. C. Michael, Minneapolis: A case which interested me very much was that of a young man who had delirium for about three weeks. He became quite markedly parkinsonian for a year and a half. Then he suddenly developed acute symptoms again and died. At necropsy the usual pathologic changes of epidemic encephalitis were presented.

Dr. Frank A. Ely, Des Moines: I wish to report one case treated by thyroid. A girl, aged 17, became ill one year before I saw her. She was a pitiable object, unable to continue her work in high school, a typical parkinsonian end-result. As an empiric treatment I asked her physician to give her from 3 to 5 minims of 1:1,000 epinephrin solution hypodermically every other day, and to administer small doses of thyroid, beginning with 1 grain a day and increasing the dose to 5 grains. Within sixty days this girl had regained her usual alert state; her mentality improved; she was able to go about and resume her studies, and recently, about six months after institution of the treatment, I received a report that she was apparently perfectly well. I realize that one case means nothing: it is simply a report for the sake of stimulating observations along that line. I have had one other typical parkinsonian case in a service man who had peculiar respiratory phenomena in which he snorted all the time, a peculiar forcible exhalation. He was very much improved as long as we kept him on the thyroid and epinephrin. As soon as the treatment was discontinued, his respiratory difficulty would return.

Dr. William House, Portland, Ore.: Dr. Bliss refers to multiple sclerosis cases. Dr. Bassoe first called attention to the hope that in encephalitis we might find the etiology of paralysis agitans and multiple sclerosis. I think that his hope has not been fulfilled. The results of encephalitis do not appear to be typical of agitans or multiple sclerosis. Dr. Coulter speaks of my optimism in prognosis. I pointed out the difference that existed in opinions, and think my prognoses not too optimistic. I believe that the last group that I presented, Group 4, will have no recoveries, but that the neurasthenic and myoclonus cases will recover. I saw very few children. Most of the cases of encephalitis in children that I saw were fatal. Answering Dr. Timme's comment on the high death rate, six of my first thirteen cases were fatal, but as the epidemic advanced the cases seemed less virulent, in this respect corresponding to experiences with poliomyelitis in which the first epidemic was always much more severe than the recurrences of the following winter. In the second series of cases of encephalitis there were many of the mild type described by Dr. Timme, patients with a temperature of about 101 or 102 F., some delirium and a few days of double vision followed by lethargy and recovery. In regard to the Argyll Robertson pupil, I think that Dr. Timme made a just correction. These pupils are not Argyll Robertson; they are simply contracted pupils in which responses to both light and distance are greatly diminished. Dr. Moleen speaks of nystagmus. It seems to me that there is no true nystagmus in these cases. The wavering motions that exist are due to muscle weakness, and are a pseudonystagmus and not a true one. As to prognosis in paralytic cases: Mine were severe cases. The patients have not done well, and all of them have some sequel. Of the myoclonus patients, some have died and others have severe mental and physical sequels, except the two mentioned. In regard to the difficulties in diagnosis, I found some trouble in differentiating between brain tumor and encephalitis, especially tuberculous meningitis and encephalitis. In most cases it should be fairly easy to make an accurate diagnosis. A final suggestion in connection with the association between encephalitis and various psychoses may be of interest. Most of my patients were in poor health when they developed encephalitis. They were subnormal, and, in view of my belief that the psychotic cases occurred in psychopaths, it seems to me that subnormal persons are more predisposed to the disease than normal persons.

Clinical Notes, Suggestions, and New Instruments

DEAFNESS FROM PRESENCE OF INSECT IN EAR

Paul A. Higbee, M.D., Minneapolis

A man, aged 36, stumbled and fell, Feb. 18, 1922, striking on his chin. He was unconscious for a few seconds and, on recovering, experienced a sharp pain in his right ear. After the chin wound was dressed he was referred to me for examination of the ear. The external canal was blocked. A large amount of débris was removed, disclosing tightly packed cerumen, which was removed with difficulty. Following this came the remains of a dead cockroach, 18 mm. in length and perfectly preserved in every detail.

The patient in April, 1908, while preparing for a bath, felt a sudden pain and buzzing in the right ear, which drove him almost frantic. While his wife was telephoning for a physician, he put his head under the water in the tub, and the pain soon ceased. Later, on the advice of his physician, the ear was syringed, but nothing was washed out of the ear, and it was supposed that the trouble was due to a small mite which had been lost in the washing. The patient gradually became deaf in this ear, but never consulted a physician, believing that some irreparable damage had been done to the ear by the insect. After removal of the insect and cleansing of the canal, hearing was fully normal, and the only evidence of injury was a slight abrasion of the drum.

It seems probable that, following the original injury in 1908, the canal became gradually filled with wax, thus entombing the insect in an air-tight space and preserving it in toto for nearly fourteen years.

221 Meyers Arcade.

MODIFIED EINHORN THREAD TEST

Edward Steinfield, M.D., Philadelphia

The equivocal results in the use of Einhorn's thread test in the diagnosis of gastric ulcer and malignancy have been due in part to the difficulty in the recognition of the stains as blood. Though other objections have been advanced from time to time by various observers, it has appeared that modifications tending to render the test more sensitive would be of material aid in increasing the usefulness of the procedure. The outlining, by chemical methods, of the areas on the thread impregnated with blood, renders the identification of faint or doubtful blood stains less difficult. A method utilizing this principle has been used recently, and the results are sufficiently encouraging to warrant its trial as a source of added information in suspected lesions of the stomach and duodenum. The entire procedure is as follows:

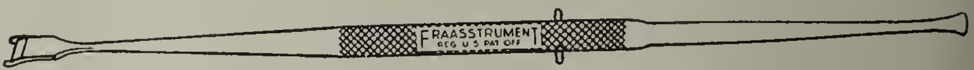
The patient abstains from meat on the day the test is done, or for a longer preceding interval if symptoms of pyloric obstruction are present. A "pearl" button (from 7 to 8 mm. in its greatest width) attached to a thread of braided silk is swallowed by the patient at 9 p. m. and washed down by a glass or two of water. A knot at 75 cm. marks the limit to which the thread is allowed to travel. The next morning a mark is made at the part in contact with the teeth, and the thread and button are removed before any food has been given. Successive strips of 10 cm. each, starting from the external dental mark, are tested in a small porcelain dish with the benzidin and hydrogen peroxid mixture which is commonly used for occult blood tests. Stains due to blood assume a green color, and the proximal stain, counting from the mouth end, may be taken as the probable distance of a bleeding area. However, it is not advisable to regard the calculation of this possible site as being positively established. A sensitive benzidin is of value, and a hydrogen peroxid solution not containing acetanilid is preferable. It is possible to make a preliminary trial, using a two or three hour interval only; in some cases this is sufficient to give enough blood impregnation to react definitely. In case of doubt, however, the longer time given above is the method of choice. Oxidations of the benzidin due to the presence of oxydases have not been noted in this technic.

2035 Chestnut Street.

A NEW SEPTAL CHISEL *

Creighton Barker, M.D., New Haven, Conn.

This instrument is designed for the removal of the base of the nasal septum and septal ridges. It has been used by a number of rhinologists with gratifying results. Essentially, the instrument is a Freer chisel to which tiny rounded knobs have been added to protect the sharp corners of the blade. The advantage of this protection are clear—it is practically impossible to injure with it the overlying mucous membrane. The projections at the sides of the blades also make it easier to hold the cutting edge against a narrow projection without slipping, and its use with the blade vertical, as in severing a spur, is facilitated thereby.



Septal chisel.

66 Trumbull Street.

A FILTERING ADAPTER FOR THE ADMINISTRATION OF NEO-ARSPHENAMIN

Jay F. Schamberg, M.D., Philadelphia

During the World War, the practice became common abroad of administering neo-arsphenamin in concentrated solutions in a small Luer syringe. This practice has likewise been adopted by many physicians in this country. It possesses the advantage of simplicity of administration and of time economy, factors which are important when large numbers of patients in clinics are treated.

When concentrated solutions are used with a Luer syringe, and even when larger quantities of water are employed, it is quite possible for minute fragments of glass dust, dust in the water or undissolved particles of the drug to be carried through the needle. Such particles, while not large enough to be readily visible to the eye, may still be of sufficient size to cause an embolism in the minute capillaries of the lungs or possibly other organs. It is probable that the nitritoid and similar immediate reactions which follow the administrations of arsphenamin are due to embolic processes. It is now common knowledge that solutions of neo-arsphenamin

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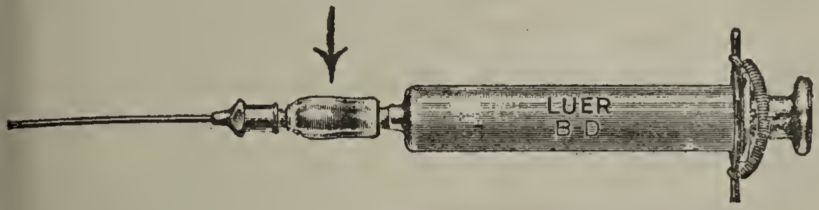
* From the Ear, Nose and Throat Service, Grace Hospital.

which are turbid or cloudy will produce immediate symptoms, characterized often by flushing followed by weakness and sometimes collapse. It is known that acid solutions of arsphenamin produce emboli in the vessels of the lungs, a fact which may be definitely demonstrated in experimental animals. The monosodium salt of arsphenamin injected in the strength of 0.4 gm. in 20 c.c. of water has been followed by the development of embolic bronchopneumonia. The use of the disodium salt, which is produced by neutralizing with excess of alkali, appears to lessen the liability of embolism by reason of the fact that the blood serum is less likely to be precipitated in the presence of the increased amount of alkali. These considerations lend some support to the thought that occasional nitritoid and immediate reactions after injections of neo-arsphenamin may be due to the presence of unsuspected small particles of the character described, which might be readily removed by filtration.

While some physicians filter solutions of neo-arsphenamin, the practice is generally not carried out. If it could be performed without any undue exposure of the neo-arsphenamin to contact with air and increased liability to oxidation, it would be an advantage. The filtering adapter which has been made up for us by the Becton-Dickinson Company gives us an opportunity to secure filtration without increased exposure to air. The adapter consists of a small glass tip about 30 mm. in length which snugly fits the tip of the syringe. Inside the lumen is placed a small pledget of absorbent cotton. When the solution of neo-arsphenamin is poured into the barrel of the syringe, it is readily filtered by passing through this pledget of cotton. After filtering in this way, if one removes the pledget of cotton and examines it with strong magnifying lenses, one may often note the presence of minute particles of solid material representing particulate matter of one kind or another, which would otherwise have gone through the syringe from the needle into the vein. One may readily insert the cotton and sterilize the tip in a sterilizer at the same time that the syringe is rendered sterile. The filtering adapter likewise answers the purpose of a safety device, insuring the presence of the needle in the vein when injecting dark solutions of any kind, for the solution remains in the syringe, and the blood may be seen mounting through the filtering adapter.



Filtering adapter, indicated by arrow, for administration of neo-arsphenamin.

1922 Spruce Street.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

EPINEPHRINE (See New and Nonofficial Remedies, 1922, p. 108).

Epinephrin-G. W. C. Co.—A brand of epinephrine-N. N. R.

Manufactured by the G. W. Carnrick Co., New York. No U. S. patent or trademark.

Epinephrin-G. W. C. Co.: Vials containing epinephrin-G. W. C. Co. (base), 1 grain.

Epinephrin Chloride Solution-G. W. C. Co.: A solution containing epinephrine hydrochloride, equivalent to 1 part of epinephrine in 1,000 parts of physiologic solution of sodium chloride and preserved with hydrochloric acid (equivalent to HCl, 0.02 per cent.).

PITUITARY EXTRACT-LEDERLE (OBSTETRICAL).—An extract of the posterior lobe of the pituitary body of cattle, approximately two and one-half times the strength of solution of hypophysis, U. S. P., preserved by the addition of chlorbutanol, 0.5 per cent. It is standardized according to the method of G. B. Roth, as modified by R. A. Spaeth (Bull. 115, U. S. Hygienic Laboratory).

Actions and Uses.—See general article, Pituitary Gland (New and Nonofficial Remedies, 1922, p. 213).

Dosage.—From 0.5 to 1.0 Cc. (7 to 15 minims).

Lederle Antitoxin Laboratories, New York. No U. S. patent or trademark.

Ampules Pituitary Extract-Lederle (Obstetrical) 0.5 Cc.
Ampules Pituitary Extract-Lederle (Obstetrical) 1 Cc.

PITUITARY EXTRACT-LEDERLE (SURGICAL).—An extract of the posterior lobe of the pituitary body of cattle, approximately five times the strength of solution of hypophysis, U. S. P., preserved by the addition of chorbutanol, 0.5 per cent. It is standardized by the method of G. B. Roth, as modified by R. A. Spaeth (Bull. 115, U. S. Hygienic Laboratory).

Actions and Uses.—See general article, Pituitary Gland (New and Nonofficial Remedies, 1922, p. 213).

Dosage.—Usually 1 Cc. (15 minims).

Lederle Antitoxin Laboratories, New York. No U. S. patent or trademark.

Pituitary Extract-Lederle (Surgical) 5 Cc. vial.

TYPHOID VACCINE (See New and Nonofficial Remedies, 1922, p. 310).

Parke, Davis & Company, Detroit.

Typhoid Vaccine (Prophylactic).—Marketed in packages of three ampules (*Bio. 427*), one containing 500 million, and two, 1,000 million, killed bacteria each; also in packages of three syringes (*Bio. 426*), one containing 500 million and two, 1,000 million, killed bacteria each.

GONOCOCCUS VACCINE (See New and Nonofficial Remedies, 1922, p. 301).

Parke, Davis & Company, Detroit.

Gonococcus Vaccine.—Marketed in packages of four 1 cubic centimeter bulbs (*Bio. 271*), each containing 1,000 million killed bacteria; in packages of four 1 cubic centimeter syringes (*Bio. 273*), each containing 1,000 million killed bacteria; also in 5 cubic centimeter (*Bio. 274*), and 20 cubic centimeter (*Bio. 275*), bulbs, containing 1,000 million killed bacteria per cubic centimeter.

STAPHYLOCOCCUS VACCINE (See New and Nonofficial Remedies, 1922, p. 306).

Parke, Davis & Company, Detroit.

Furunculosis Vaccine.—Marketed in packages of four 1 cubic centimeter bulbs (*Bio. 255*), each containing 2,000 million killed *Staphylococcus aureus* obtained from furuncular lesions; in four 1 cubic centimeter syringes (*Bio. 257*), each containing 2,000 million killed staphylococci; also in 5 cubic centimeter (*Bio. 258*) and 20 cubic centimeter (*Bio. 259*) bulbs, each containing 2,000 million killed staphylococci per cubic centimeter.

Staphylococcus Vaccine (Combined).—Marketed in packages of four 1 cubic centimeter bulbs (*Bio. 376*), each containing 1,000 million killed *Staphylococcus albus* and 1,000 million killed *Staphylococcus aureus;* in four 1 cubic centimeter syringes (*Bio. 378*), each containing 1,000 million killed *Staphylococcus albus* and 1,000 million killed *Staphylococcus aureus;* also in 5 cubic centimeter (*Bio. 390*) and 20 cubic centimeter (*Bio. 391*) bulbs, each containing 1,000 million killed *Staphylococcus albus* and 1,000 million killed *Staphylococcus aureus* per cubic centimeter.

VACCINE VIRUS (See New and Nonofficial Remedies, 1922, p. 290).

Parke, Davis & Company, Detroit.

Vaccine Virus.—Marketed in packages containing one capillary tube (*Bio. 560*) for one vaccination with a rubber bulb for ejecting the vaccine and a needle for scarifying, and in packages containing five capillary tubes (*Bio. 561*) for five vaccinations, with a rubber bulb for ejecting the vaccine and a needle for scarifying.

ERYSIPELAS AND PRODIGIOSUS TOXINS (COLEY) (See New and Nonofficial Remedies, 1922, p. 316).

Parke, Davis & Company, Detroit.

Erysipelas and Prodigiosus Toxins (Coley).—Marketed in packages containing five 1 cubic centimeter bulbs (*Bio. 451*) and in 15 cubic centimeter bulbs (*Bio. 455*).

First Practical Clinical Instruction.—Prof. C. Fedeli of Pisa has found records which establish that an Italian physician named Da Monte opened at Padua in 1543 in the Franciscan Hospital a school for practical instruction in clinical medicine. This, he says, was the pioneer institution of the kind. Boerhaave founded a similar one in Leiden in 1714, and Van Swieten at Vienna in 1745. Then came Prague, 1781; Göttingen, 1786; Jena, with Hufeland, 1793; Edinburgh, 1741; Oxford, 1780, and Paris, 1795.

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SATURDAY, JULY 15, 1922

PURER FOODS AND DRUGS

Great reforms are seldom accomplished over night. They are usually the outcome of a slow but unfailing evolution due to prolonged educational effort, sometimes coupled with the vigorous enforcement of new measures. By reason of the gradual appearance of the changes brought about, evidence of actual reforms is often difficult to secure when it is sought at too frequent intervals. This is likely to lead to discouragement at times, unless the searcher takes occasion to let longer periods of efforts at improvement pass in review so that the total accomplishment can more readily be envisaged.

The foregoing comments apply in large measure to the history of the attempts to improve the situation with respect to the marketing of foods and drugs. In this country the cumulative effect of national and state legislation, together with the propaganda of various agencies and the police powers exerted by the proper authorities, has not failed to manifest itself in the last decade. The Food and Drugs Act, the net-weight package laws, and the now numerous local enactments directed to secure similar benefits have left their imprint in a better situation. Nevertheless, in the counsel of perfection the doctrine of eternal vigilance still finds a place. This is illustrated in the latest report of the chemical laboratory of the Connecticut Agricultural Experiment Station at New Haven,[1] to which reference has often been made in relation to pioneer work in the detection of adulteration and fraud in American food and drug products. Thanks in considerable measure to the persistent effort of such laboratories, together with the Council on Pharmacy and Chemistry of the American Medical Association, so-called diabetic foods especially recommended for a class of patients including, in this country alone, a million persons peculiarly susceptible to improprieties of diet no longer continue to be offered for sale in so many instances with utter disregard of the content of carbohydrates, which are supposed to be greatly reduced for the benefit of the sufferers. Only a few years ago there were extremely few "honest" diabetic foods. Today the number of reputable products with truthful claims is largely increased. Yet Bailey's report [1] shows the sale of a "starchless breakfast food" containing more than 64 per cent. of starch, not to mention the additional sugar content. There are "glutenized" cereal products containing 50 per cent. of starch and soluble sugars, yet recommended for diabetic patients. Gluten products containing more than 65 per cent. of available carbohydrate, and therefore no more suitable than ordinary wheat bread for the diabetic, are advertised still; but they have lost their former prominence in the face of an educated medical profession and a cautioned purchasing public.

It is encouraging to note that out of nearly four hundred specimens of U. S. Pharmacopeia drugs examined by the Connecticut Station in 1921, only sixty-two were found adulterated, below standard or otherwise illegal. Most frequently, derelictions were found in the case of bay rum, essence of peppermint and similar products, which have no great significance in therapy. Even solution of calcium hydroxid, which so often has left the druggist's shelf as moderately pure water, having parted company with its content of lime during a prolonged sojourn there, is found to be up to standard with reasonable frequency.

The situation is not ideal, by any means; but the curve of progress is showing an upward tendency.

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[1] Bailey, E. M.: The Twenty-Sixth Report on Food Products and the Fourteenth Report on Drug Products, 1921, Bull. 236, Conn. Agric. Exper. Station, January, 1922.

ANHYDREMIA AND FEVER

The part played by water in the regulation of bodily heat and the equalization of temperature in the living organism is not as well appreciated as it deserves to be. L. J. Henderson [1] has pointed out that water ranks high with respect to three qualities: specific heat, heat of evaporation, and conductivity. The first favors the storage of heat; the second permits of very rapid elimination when necessary, as when environmental temperature exceeds that of the body; the third allows rapid equalization of heat within the fixed tissues of the body, minimizing the possibility of injury from local overheating within or without.

In this country, both Woodyatt and Barbour [2] have emphasized the part which the distribution of water in the body plays in relation to the phenomena of fever, which has been defined as "any condition of positive heat balance not due solely to food, exercise or environment." An increasing number of investigations in recent years are beginning to demonstrate that noticeable alterations in the water content, that is, the concentration of the blood, occur where they were formerly not suspected. The untoward effects of such "anhydremia" have already been referred to in The Journal.[3] Balcar, Sansum and Woodyatt[4] have demonstrated in a striking way how intravenous injections of strong glucose solutions may lead to high temperatures, which they attribute to the concentration of the blood, and the lack of water for giving off heat. Anhydremia in children is attended with serious febrile symptoms, which Marriott[5] has clearly described. In influenza, loss of fluid from the blood prognosticates a temperature rise and a change for the worse, which may often be averted by intravenous administration of fluids.[6]

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[1] Henderson, L. J.: The Fitness of the Environment, 1913.

[2] A review of the subject is given by Barbour, H. G.: The Heat Regulating Mechanism of the Body, Physiol. Rev. **1**: 295 (April) 1921.

Facts seem to be accumulating rapidly to help establish these newer views on a firm experimental basis. Water constitutes more than 70 per cent. of protoplasm, the structural basis of organic life.[7] Various drugs seem to modify the water balance, or at least the distribution of water in the body, and thereby affect the regulation of body temperature. A new instance has been described lately by Barbour and Moise[8] in the case of the fever produced experimentally by injections of cocain. The percentage of blood solids and the red blood cell count increase coincidently with the temperature. The return of the temperature to normal is accompanied by dilution of the blood. Antipyretic drugs also have been demonstrated in numerous instances to act in harmony with the ideas just outlined. The problem of the water content of the blood is truly attaining a new significance in many fields of clinical medicine.

RECENT FEATS OF MOUNTAINEERING

The latest news from the Mount Everest Expedition records an ascent by Capt. Geoffrey Bruce and George Finch to an altitude of 27,200 feet. At this point they were only 1,941 feet below the summit. It is stated in the New York *Times* that the mountaineers just mentioned climbed only 400 feet higher than Mallory, Somewell and Norton did on May 21 without oxygen. The latter group broke the record of the Duke of the Abruzzi made on Bride's Peak, which was 24,600 feet. From a physiologic standpoint alone, these are stupendous personal feats. The passive ascent by railway to the top of Pike's Peak at an altitude of only 14,110 feet is productive of noticeable physiologic reactions and, in some persons, of symptoms of respiratory distress. Strauch,[9] who has reviewed the experiences of early explorers with mountain sickness, calls attention to the fact that this malady befalls some persons at a lower, and others at a higher altitude; but that for all there is a critical line beyond which escape is impossible. In some it may occur at 10,000 feet, while only a very few can venture to 19,000 feet without the experience.[10]

The usual explanation of the exchange and distribution of the respiratory gases in the lungs and tissues has involved the view that the gases diffuse from regions of high tension to those of lower tension, and that the membranes interposed are entirely passive in the process. This purely physical hypothesis has not passed entirely unchallenged. The apparent adaptation of many persons to life under conditions of oxygen tension seemingly too low for the normal functions has long attracted attention and led to speculation. Haldane of Oxford has been the foremost scientist to express the belief that an essential factor in acclimatization to altitude consists in a secretory activity for oxygen on the part of the lungs. Obviously, if diffusion is the sole force in the interchange, the oxygen pressure in the arterial blood cannot exceed that in the alveolar air.

The Anglo-American Pike's Peak Expedition[11] of 1913, however, reported oxygen tensions in the arterial blood greater by from 7 to 44 mm. than in the alveolar air. This seemed like clear-cut evidence for active oxygen secretion by the lungs into the blood. The technic of this work has been assailed. Schneider has pointed out that the Scandinavian physiologist Dr. Marie Krogh[12] in 1915 established a new diffusion coefficient for the passage of oxygen through a membrane and showed that, if the figures were correct, it was possible for diffusion to account for the passage of a sufficient amount of oxygen to supply the body needs up to such altitudes as 24,000 feet.

The proponents of the secretory theory have assumed that, although the capacity for oxygen may always exist, it is called forth only during extreme oxygen lack. C. W. and C. H. Greene[13] have given it a rigorous test by studying the arterial blood in animals under conditions of breathing air at a greatly reduced oxygen tension. The lowest inspired oxygen in one experiment corresponded to an equivalent altitude of 53,000 feet, or 10 miles. No evidence was secured in any case to indicate the presence of a higher oxygen tension in the arterial blood than was present in the alveolar air. When alveolar air was exposed to a simultaneous sample of arterial blood, oxygen was absorbed by the blood. Hence Greene concludes that the current conception of a purely physical mechanism regulating the passage of oxygen through the pulmonary epithelium is confirmed for all stages of anoxemia. These now available experimental facts make the performance at Mount Everest all the more remarkable. In the absence of "secretory" aids, the supreme importance of a state of high circulatory and respiratory efficiency in order to secure the maximal degree of saturation of arterial blood with oxygen becomes emphasized more than ever for the balloonist, the aviator and the mountaineer.

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[3] Diarrhea and Anhydremia in Infancy, editorial, J. A. M. A. **76**: 794 (March 19) 1921.

[4] Balcar, J. O.; Sansum, W. D., and Woodyatt, R. T.: Fever and Water Reserve of the Body, Arch. Int. Med. **24**: 116 (July) 1919.

[5] Marriott, W. M.: Some Phases of the Pathology of Nutrition in Infancy, the Harvey Lectures for 1919-1920, Philadelphia, J. B. Lippincott Company, p. 121.

[6] Underhill, F. P., and Ringer, Michael: Blood Concentration Changes in Influenza, J. A. M. A. **75**: 1531 (Dec. 4) 1920.

[7] Rowntree, L. G.: The Water Balance of the Body, Physiol. Rev. **2**: 116 (Jan.) 1922.

[8] Barbour, H. G., and Moise, M. D.: The Mechanism of Cocaine Fever, J. Pharmacol. & Exper. Therap. **19**: 270 (April) 1922.

[9] Strauch, A.: Am. J. M. Sc. **142**: 105, 1911.

[10] Schneider, E. C.: Physiological Effects of Altitude, Physiol. Rev. **1**: 635 (Oct.) 1921.

[11] Douglas, C. G.; Haldane, J. S.; Henderson, Yandell, and Schneider, E. C.: Phil. Tr. Roy. Soc. London, Series B **203**: 271, 1913.

[12] Krogh, Marie: J. Physiol. **49**: 271, 1915.

[13] Greene, C. W., and Greene, C. H.: The Partial Pressure of Oxygen in the Blood During Progressively Induced Anoxemia, J. Biol. Chem. **52**: 137 (May) 1922.

Current Comment

THE ALLEGED INSUSCEPTIBILITY TO INTOXICATION BY POISON IVY

With the advent of the season when rhus dermatitis, following contact with poison ivy, becomes common, a recrudescence of the myths regarding the effects of this plant is certain to ensue. The failure of many persons to exhibit symptoms following apparent exposure to toxic species of rhus has presumably been responsible for the widespread belief that some individuals are not susceptible to the poison. An investigation by Brown [1] in the Department of Pharmacology at the University of Minnesota justifies the conclusion that there is probably a personal variability in susceptibility depending on temperature, condition of the skin, and many other factors which are not yet understood; [2] but he is also convinced that there is no conclusive evidence of such a state in man as entire insusceptibility to the poison. Contrary to the theory of "desensitization" by internal administration of tincture of rhus, it appears that the susceptibility may be increased with successive intoxications.

ROENTGEN-RAY INTOXICATION FROM INJURY TO INTESTINAL EPITHELIUM

Nausea, vomiting, weakness and diarrhea, frequently observed in patients after exposure to large doses of hard roentgen rays, have been ascribed to the action of the rays on the blood and blood-forming organs, because leukopenia, marrow changes and destruction of lymphoid tissue often follow roentgenization. Others have thought, however, that the constitutional reaction results from damage to the kidneys, especially since Warthin [3] described changes in the kidneys of patients treated with roentgen rays. Recently Warren and Whipple [4] have reported the results of experiments on dogs which indicate that systemic intoxication may be due primarily to injury of the epithelium of the small intestine. They found that a unit dose (350 milliampere minutes), given over the thorax with the abdomen shielded, caused no disturbances in the dog, while a subsequent exposure to the same unit dose, in the same animal, over the abdomen, caused a fatal intoxication in four days. The time of the appearance of the symptoms of the intoxication coincided with the cell disintegration, becoming pronounced in the second twenty-four hours. The changes, which affected chiefly the small intestine, were varying stages of necrosis of the epithelium covering the villi and lining the crypts. Only a slight inflammatory reaction was present, and there was little injury to the lymph follicles and Peyer's patches. Warren and Whipple believe that the absence of symptoms after thoracic exposure indicates that the blood and bone marrow cells are not primarily concerned in the intoxication because a greater number of these cells are subject to exposure in the thoracic region than in the abdominal. In other experiments, McQuarrie and Whipple [5] found that large doses of roentgen rays over the renal region of dogs did not cause any changes in the kidneys or any appreciable disturbances of renal function. These experiments on dogs reveal the intestinal epithelium as vulnerable to roentgen rays with resulting intoxication, and the probability is that the epithelium of the small intestine in man may be vulnerable in somewhat the same way. In order to avoid harm, these facts should be borne in mind, when roentgen therapy is being administered.

DOES THE BLOOD CONTAIN CREATININ?

To this question, the student of physiologic chemistry has been taught to give an affirmative reply. The occurrence of creatinin as a normal constituent of the urine is well known, the isolation of the compound being a routine procedure in many laboratories. Whence should this demonstrated urinary creatinin come if not from the blood brought to the kidneys? And have not the blood analysts instructed and entertained us with numerous accounts of the variations of the creatinin content of the blood in health and disease, pointing out the diagnostic or prognostic significance of undue concentrations of this nitrogenous product? Strangely enough, biochemists seem to have been content for the most part to accept color reactions in blood filtrates as proof for the actual existence of creatinin in the blood, despite numerous anomalies and discrepancies that have arisen to perplex the analysts. It has remained, however, for Behre and Benedict,[6] of Cornell University Medical College, boldly to question the current teachings. They are convinced, from analytic evidence which is impressive, that creatinin does not exist in detectable quantities in blood. This conclusion seems somewhat revolutionary, though it helps to bring greater clarity to a much confused subject. The blood does contain creatin which Behre and Benedict have actually identified by direct methods of examination. Moreover, the creatin content increases in the blood when the renal functions are held in abeyance. Creatin in abundance is always found in muscle tissue. We may therefore assume for the present that the creatin in the blood represents a waste product discharged into the circulation and awaiting excretion by the kidneys, which convert it into creatinin in the process of elimination. The new view "fits the known facts." It explains the increase in blood creatin content when the kidney activities are impaired. It renders conceivable that creatin may occasionally escape unchanged into the urine, as has so often been asserted. We venture to believe that a new chapter in the solution of the difficult problem of creatin-creatinin metabolism has at length been opened.

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[1] Brown, E. D.: Experiments on the Variability in Susceptibility to Poison Ivy, Arch. Dermat. & Syph. **5**: 714 (June) 1922.

[2] McNair, J. B.: Susceptibility to Dermatitis from Rhus Diversiloba, Arch. Dermat. & Syph. **3**: 625 (May) 1921.

[3] Warthin, A. S.: The Changes Produced in Kidneys by Irradiation, Am. J. M. Sc. **133**: 736, 1907.

[4] Warren, S. L., and Whipple, G. H.: Roentgen-Ray Intoxication, J. Exper. Med. **35**: 187 (Feb.) 1922.

[5] McQuarrie, Irvine, and Whipple, G. H.: A Study of Renal Function in Roentgen Intoxication, J. Exper. Med. **35**: 227 (Feb.) 1922.

[6] Behre, J. A., and Benedict, S. R.: Studies in Creatine and Creatinine Metabolism, IV, On the Question of the Occurrence of Creatinine and Creatine in Blood, J. Biol. Chem. **52**: 11 (May) 1922.

THE HIGHER EDUCATION OF CHIROPRACTORS

What is your favorite light literature? Detective stories? Mystery stories? Humor? Have you ever read the publications issued by the various species and subspecies of the chiropractic cult—for there is, as you know, a lack of unanimity among the chiropractors. One particularly choice piece of contemporary journalism is issued by a chiropractor factory in Fort Wayne, Indiana. Its July, 1922, issue makes good hot weather reading. The editor discusses a "model bill," recently drawn up by those chiropractors of Indiana who belong to a different subspecies from those represented by the publication in question. This Fort Wayne journal views the bill with disfavor. It says, with refreshing naïveté:

> To begin with there is absolutely no need of a Chiropractic licensing and examining board in Indiana today. The existing lot of Chiropractors in Indiana cannot be improved upon. You are not being persecuted or prosecuted, you are left severely and strictly alone to practice your profession without let or hindrance from any source or any group of any kind. In fact, Indiana today is the best Chiropractic state in the entire country. Chiropractic conditions are as near ideal as it is humanly possible to approach that condition.

But the fact that Indiana is the home of the free, chiropractically speaking, is not the only objection this journal has to the proposed bill. It seems that the bill would require applicants for chiropractic examinations to submit satisfactory proof of the possession of a preliminary education, equal to that of a high school. Perish the thought! As the editor says:

> How many Chiropractors in Indiana today could qualify under that rule? Of all the Chiropractors in Fort Wayne, I do not happen to know of ONE that is a high school graduate. In fact, I believe that the total number in Indiana able to comply with that ruling would be less than two per cent. of all the Chiropractors in the state.

From the point of view of the owner of a chiropractic "college" the sentiments just quoted are eminently logical. It would be entirely unfair to chiropractic schools to insist on matriculants being educated human beings. What educated human being would ever attend a chiropractic school? Of course, from the point of view of public interest—but that's another story.

Insanity in London.—The total number of insane patients in London, reported January 1, was 18,349 (7,423 males and 10,926 females), as compared with 17,916 on Jan. 1, 1921.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Health Board to Use Ex-Service Men.—In the fight against malaria and typhoid in Alabama, the state board of health is planning to use former service men who are entitled to vocational training and desire to learn sanitary engineering work. These men will be placed in charge of the work of drainage, clearing mosquito breeding places, and other activities. Arrangements have been made with the U. S. Veterans' Bureau for training a limited number of ex-service men for this work.

ARKANSAS

Hospital News.—Bids have been opened for the construction of the new St. Edward's Infirmary, Fort Smith.——A hospital will be erected at Conway at a cost of $50,000.——The St. Bernard Hospital annex, Jonesboro, has been torn down and a brick structure will be erected to replace the frame annex.

CALIFORNIA

Physicians Mobilize to Aid Veterans.—Six thousand physicians of the state, with 300 first-class hospitals at their disposal, mobilized, June 29, to aid the disabled war veterans of California in conjunction with the California State Medical Association and the League for the Conservation of Public Health. These physicians have offered their services to the soldier organizations and welfare bodies, and have recommended a new system of medical treatment for disabled soldiers that will be put into operation at once. It will furnish every wounded veteran in the state with the highest class of medical aid and hospital treatment and will guarantee individual attention and care. It is the plan of the physicians to mobilize those affiliated with the two organizations into groups in every community in the state, first for the care of ambulatory sick. Any wounded soldier will be privileged to call on any physician in his community, affiliated with the mobilization movement, and ask for service. If the individual case cannot be cared for by the physician called on, the case will be transferred to a diagnostic and clearing house hospital. The third division of the system will be devoted to the therapeutic hospitals for the treatment of chronic troubles, such as neuropsychiatric cases and tuberculosis. These hospitals have already been established and will be manned by officers of the U. S. Veterans' Bureau, the California physicians furnishing consulting staffs and assisting in the organization and management of the hospitals. For those patients who cannot be aided by the three means outlined, and who would be classed as hopeless chronic invalids, the final resort will be care for the rest of their lives in comfortable invalid homes for incurable disabled veterans. Dr. A. E. Musgrave, secretary of the state medical association, officially offered the plan for the physicians at a luncheon called by C. J. Sullivan, secretary of the League for the Conservation of Public Health, June 28, in San Francisco. Col. Charles R. Forbes, director of the U. S. Veterans' Bureau, accepted the offer of mobilization of the physicians for himself and President Harding. The offer was also officially accepted by Commander Marx in behalf of the Disabled American Veterans of the World War and by State Commander Quinn of the California division of the American Legion.

COLORADO

Hospital Dedication.—With delegations from many states, the Jewish Consumptives' Relief Society dedicated the new $500,000 building of the sanatorium of the Jewish Consumptives' Relief Society at Edgewater, July 9. This new structure was erected where the central building of the sanatorium was destroyed by fire several years ago. Dr. I. D. Bronfin is superintendent of the institution.

Denver Tuberculosis Society.—Under the auspices of the society, a long desired outdoor school has been established, in Denver. The school board voted for the school, with the understanding that the tuberculosis society should furnish any extraordinary equipment and direct the extracurriculum side of the undertaking. Provision is made for measuring all children in the grade schools of the city and in arranging for the serving of milk to children who are underweight. The Modern Health Crusade has been extended, and, in September, the school board has agreed to bear half the expense of the crusade in the schools.

CONNECTICUT

Epidemic of Typhoid.—Thirty cases of typhoid fever are reported from New Haven and several from New Britain. The health department has issued a warning against eating raw clams and has offered inoculation to those desiring it.

DISTRICT OF COLUMBIA

Personal.—Dr. Thomas Hugh Scott, U. S. Public Health Service, Washington, who recently announced his retirement from the race for Republican candidate for governor of Oklahoma, has accepted the appointment of medical adviser to the U. S. Veterans' Bureau.

Cancer Committee Appointed.—At a meeting of the District of Columbia Medical Society, July 1, a cancer committee was appointed to act with the local committee of the American Society for the Control of Cancer, which is to conduct an educational campaign in Washington during the summer, ending with "Cancer Week," throughout the country, in November. Dr. Edwin A. Merritt was named chairman, the other members being, Dr. Albert L. Stavely, Dr. Thomas A. Groover, Dr. Edward M. Parker and Health Officer William C. Fowler.

FLORIDA

Medical Meeting Held on Ship.—The Florida Railway Surgeons Association held their third annual meeting on board the S. S. *Cuba,* while en route to Havana for the annual meeting of the Florida Medical Association. The session was held under the presidency of Dr. James H. Pittman, Jacksonville.

GEORGIA

Children's Code Commission.—An act to create the Georgia Children's Code Commission will be presented to the next session of the Georgia legislature, also to provide for the appointment of ten members to the commission who shall be selected by the governor of Georgia. Section 2, reads:

> That it shall be the duty of said Georgia Children's Code commission to study the existing laws of Georgia which in any way affect child life; to study conditions of child welfare in the state, to study the laws of other states, and to consult authorities in this and other states, and to draft for presentation to the succeeding legislature such laws or amendment to the existing laws as will better safeguard the welfare of children in this state.

The commission, whose members will hold their term of office for five years, shall consist of one superior court judge, one member of the house of representatives, one state senator, and a member or representative from each of the following organizations: Federation of Women's Clubs, League of Women Voters, State Council of Social Agencies, state board of health, state board of public welfare, state federation of labor and the state department of education. The members of the commission will receive no salary or remuneration for their services.

ILLINOIS

Free School Clinics.—Drs. Elizabeth B. Ball and Elmer M. Thomas, of the state department of health, held a series of clinics in the Kane County schools, June 12-27. These clinics were held daily and were free to the public.

Chicago

Chicago Physician to Aid Russians.—Dr. George B. Hassin, neuropathologist and professor in the University of Illinois Medical College, left July 1, for New York, and will sail soon for Russia to aid in relief work of the American Medical Aid Society. Dr. Hassin formerly practiced in Siberia.

INDIANA

Hospital News.—Bids have been let for the new Adams County Hospital to be erected at Berne.——The cornerstone of the children's building at the state sanatorium, Parks Lodge, was recently laid.——The new sanatorium at Dillsboro was formally opened, June 24. The new building was erected at a cost of $200,000, and has 120 rooms fitted with modern conveniences.

Riley Hospital for Children.—This week ground will be broken on the first unit of the James Whitcomb Riley Hospital for Children, which is to be erected on a site between the Robert W. Long Hospital and the City Hospital. Arrangements have been made for the purchase of the ground lying between these institutions, so that all of the buildings in the hospital group will be joined, and the intervening space will be available for use as a convalescent park. In the first unit, provision will be made for the care and treatment of one hundred bedridden children, and the first building, when completed and equipped, will represent an expenditure of $500,000. Credit for the initiation of this plan is given to Dr. Lafayette Page, president of the Indianapolis Medical Society, who first called a committee to outline a campaign in 1917. The entire project will cost approximately $2,000,000, the money to be raised through popular subscriptions conducted throughout the state. When completed, the hospital will have facilities for the care and treatment of 350 children. According to the plan, the hospital will be maintained by the state, and children from any county, legally resident of the state, may be admitted for treatment by the judge of any circuit, juvenile or criminal court. In preparing the plans, the committee of architects and physicians visited all of the well known children's hospitals in the country and it is hoped to have the new institution representative of the best type of hospital in its special field.

IOWA

Banquet for Physicians.—The Van Buren County Medical Society recently gave a complimentary banquet, at Des Moines, in honor of Dr. George R. Neff and Dr. Thomas G. McClure, to celebrate their fiftieth year of active practice in Iowa. Dr. Roger N. Cresap was toastmaster.

County Society Anniversary.—The fiftieth anniversary meeting of the Marion County Medical Society was held in Knoxville, June 22. In the afternoon, the physicians and dentists met in scientific session. Dr. John W. Martin, Des Moines, read a paper on "Diagnosis of the Acute Abdomen," and W. L. Harlan, D.D.S., Knoxville, spoke on "Our Relation from the Dental Viewpoint."

Personal.—Dr. Charles S. Chase has resigned as professor of materia medica at the University of Iowa, Iowa City, following thirty years of service. Dr. Chase will retain his connection with the dental college and the school of pharmacy. Dr. O. H. Plant will succeed Dr. Chase in the department of materia medica.——Dr. Lucius F. Hoyt, Jefferson, has just returned from the Methodist Hospital, Des Moines, where he had his left arm amputated just below the shoulder.——Dr. George L. Prentice, Pulaski, has been appointed physician to the Indiana State Soldiers' Home, Layfayette, effective, July 1.

KANSAS

Kansas State Board of Health.—At the annual meeting of the board held in Topeka, June 30, Dr. Joseph E. Hawley, Burr Oak, was elected president, Dr. Jacob J. Entz, Marion, vice president, and Dr. Samuel J. Crumbine, Topeka, was elected secretary of the board.

KENTUCKY

Traveling Trachoma Clinic.—A fully equipped hospital wagon, drawn by four mules, is the conveyance used by Dr. Charles B. Kobert, director of the bureau of trachoma and prevention of blindness of the state board of health, for his six months' trip through western Kentucky. Dr. Kobert, who started on his trip early in June, will give free treatment to all persons suffering from eye diseases. On the trip made in the summer of 1921, Dr. Kobert operated in eastern Kentucky on more than 4,000 patients having trachoma. Congress has made an appropriation of $200,000 for a new trachoma hospital at Pikeville.

LOUISIANA

Personal.—Dr. Henry Ladd Stickney, U. S. Veterans' Hospital, Dwight, Ill., and formerly in charge of the surgical service at Fox Hills Hospital, Staten Island, N. Y., has been appointed superintendent of the Presbyterian Hospital, New Orleans, and reported for duty, July 1.——Dr. Ernest S. Lewis was recently elected president of the Louisiana Antituberculosis Association at the annual meeting in Baton Rouge.

MAINE

Fund for Medical Scholarships.—At the recent meeting of the Maine Medical Association, it was announced that the interest accruing on a bequest made some years ago to the Bowdoin Medical School, now out of existence, will be used in providing medical scholarships for students from the state of Maine. The president of Bowdoin College is charged with the management of the fund and applications for the scholarships are to be made to him.

Public Health News.—Under the auspices of the Maine Public Health Association, a luncheon conference was held recently in Augusta, under the presidency of Dr. Elmer D. Merrill, Foxcroft, at which more than thirty organizations were represented. The health program for the next three years in Maine was outlined by Dr. Merrill, who stated that this will include an extension of the visiting nurse service throughout the state, the holding of clinics for Maine physicians, the extension of the Modern Health Crusade in the schools, the development of fresh air schools, industrial nursing and special campaigns for the eradication of tuberculosis, cancer and social disease, and for the promotion of dental and child hygiene, baby welfare, and the conservation of vision. Among those who attended the conference were Dr. Clarence F. Kendall, state health commissioner; Dr. Benjamin L. Bryant, secretary of the Maine Medical Association; Dr. A. Thomas, state superintendent of schools, and Dr. Donald B. Armstrong, executive officer of the National Health Council, who was the guest of honor.

MARYLAND

Drive Against Diphtheria Started.—In an effort to make diphtheria a negligible menace to public health in Baltimore city, the health department has sent to Baltimore physicians communications urging general use of toxin-antitoxin, in order to convey immunity to the disease. Under the direction of Dr. C. Hampson Jones, health commissioner, and Dr. John F. Hogan, head of the bureau of communicable diseases, a plan of procedure has been worked out to make diphtheria as light a factor in the health problem as smallpox has become through similar preventive measures. Dr. Jones made it clear that no immediate serious diphtheria situation exists. The reason for the campaign at this time is to secure wide use of the department's plan now so that schoolchildren may obtain immunity before school begins and the active season for the disease returns. While adults can obtain the same treatment, children are the chief concern because of their susceptibility to the disease.

MICHIGAN

Michigan Health Officers Association.—At the annual meeting of this association, the following officers were elected for the ensuing year: president, Dr. Guy L. Kiefer, Detroit; vice president, Dr. David Littlejohn, Ishpeming, and secretary-treasurer, Dr. William J. V. Deacon, Lansing.

Michigan Association of Industrial Physicians and Surgeons.—At the annual meeting of the association in Flint recently, Dr. Guy Kiefer, Detroit, was elected president; Dr. Clarence S. Gorsline, Battle Creek, vice president, and Dr. Grover C. Penberthy, Detroit, secretary-treasurer.

Hospital Merger.—The University Homeopathic Hospital of the University of Michigan Homeopathic Medical School, Ann Arbor, was merged with the University of Michigan Hospital, July 1, following the merging of the Homeopathic Medical School with the University of Michigan Medical School.

Chiropractors Convicted.—The July number of the *Journal of the Michigan State Medical Society* states that four chiropractors, C. L. Tennant, Z. B. Mead, H. F. McKnight and Florin Palmer, were recently convicted in the Detroit Municipal Court of practicing medicine without a license. They were sentenced to pay a $200 fine each, or to serve four months in the house of correction, by Judge Keidan, June 15.

MINNESOTA

Prevention of Blindness.—The governor of Minnesota recently appointed seventeen citizens of the state to serve as a commission to investigate the work being done for the blind by the state, and the activities for preventing blindness. Charles A. Prosser, Dunwoody Institute, is chairman of the executive committee. The commission has already appointed the committee for the prevention of blindness, with Dr. Elmer as chairman.

MISSOURI

Hospital News.—Plans have been completed for the $200,000 addition to St. John's Hospital, Springfield.——Bids have been called for the erection of the $1,000,000 hospital to be built by the government at Jefferson Barracks, St. Louis.——Dr. Ola Putnam, Marceline, has completed plans for the erection of a hospital in Marceline, to be erected at a cost of $25,000.

Medical Society Buys Site.—The St. Louis Medical Society has purchased 150 feet of frontage near the Moolah Temple for the construction of a building to house its activities. The present auditorium has a seating capacity of 250, while the membership of the society is 1,012, and the 21,000 volume library of the society has outgrown its present quarters. The new building will provide an auditorium seating between 500 and 1,000 persons, and adequate room will be provided for the present library needs and for future growth.

NEW JERSEY

State Tuberculosis Clinic.—Through the efforts of the New Jersey Antituberculosis League, an appropriation of $10,000 has been secured for the establishment of a state clinic, to be under the direction of the state sanatorium at Glen Gardener. This will providing clinic facilities for a number of counties.

NEW YORK

Smallpox Epidemic.—It is reported from Niagara Falls that there are forty-one cases of smallpox in the city. All of the cases are mild in character, but orders for vaccination have been issued; and unless the school students are vaccinated they are to be quarantined for three weeks.

Government Hospital to Be in Dutchess County.—A 228-acre farm near Beacon, Dutchess County, is to be the site of one of the three hospitals in this state for the care of disabled veterans. The site has been acquired at a cost of $100,000, and a $1,000,000 hospital will be erected there. It is planned to use this institution as a reclamation hospital.

Public Health Certificates.—Twenty-three physicians who had completed the Albany graduate course in infectious diseases and public health were presented with certificates by Dr. Matthias Nicoll, Jr., deputy commissioner of the state department of health, at the annual dinner of the Eastern New York Public Health Association in Albany, June 22.

Personal.—Dr. Kenneth Gabriel Jennings, Brooklyn, who recently graduated from New York University Medical College, was awarded the Glover C. Arnold Prize for students, awarded for the best surgical examination paper.——Dr. Livingston Farrand, president of Cornell University, Ithaca, was given the degree of doctor of laws recently by Princeton University.——Dr. Edward A. Spitzka, Washington, D. C., has been appointed district medical officer, second district, U. S. Veterans' Bureau. This district embraces the states of New York, New Jersey and Connecticut.

Lead Lined Roentgen-Ray Rooms.—The committee on applications of the bureau of institutional inspection of the health department recently learned that there are numerous laymen operating roentgen-ray machines and making diagnoses, which is contrary to law. The committee ascertained that many persons operating roentgen-ray machines claim that they are not conducting laboratories and for this reason do not need a permit. One of the most important regulations of the new roentgen-ray law concerns the protection of rooms adjoining the laboratories. It is required that the walls and ceiling of the roentgen-ray laboratories be lined with lead. Metal screens and filters for the protection of patients and operators are also required.

State Sanitary Officers' Association.—At the annual conference of the sanitary officers and public health nurses of New York, held in Saratoga Springs, July 27-29, the following officers were elected for the ensuing year: president, Dr. Stanton P. Hull, Grafton; first vice president, Dr. Garys Masillon Lewis, Vernon; second vice president, Dr. Charles D. Kline, Nyack, and third vice president, Dr. Albert C. Johnson, Gloversville; treasurer, Dr. Myron M. Metz, Williamsville, and secretary, Dr. Montgomery E. Leary, Rochester. Dr. Florence L. McKay, director of the new division of maternity, infancy and child hygiene of the state department of health (under the terms of the Davenport-Moore law adopted by the legislature as a substitute for the federal Sheppard-Towner Act), announced that the department is now ready to offer assistance to cities, villages or districts that may desire to undertake local campaigns for the protection of the health of mothers and children.

Rockefeller Institute.—The board of scientific directors of the Rockefeller Institute for Medical Research announces promotions and appointments as follows:

Dr. Wade H. Brown, hitherto an associate member in pathology and bacteriology, has been made a member; Dr. Homer F. Swift, hitherto an associate member in the department of the hospital, has been made a member; Dr. Carl A. L. Binger, hitherto an assistant in the department of the hospital, has been made an associate; Dr. Albert H. Ebeling, hitherto an assistant in experimental surgery, has been made an associate; Dr. Laura Florence, hitherto an assistant in the department of animal pathology, has been made an associate; Dr. Albert B. Hastings, hitherto an assistant in the department of the hospital, has been made an associate; Dr. Philip D. McMaster, hitherto an assistant in pathology and bacteriology, has been made an associate; Dr. Louis A. Mikeska, hitherto an assistant in chemistry, has been made an associate; Dr. Ida P. Rolf, hitherto an assistant in chemistry, has been made an associate; Mr. Fred A. Taylor, hitherto an assistant in chemistry, has been made an associate; Dr. Hugh J. Morgan, in the department of the hospital, has been appointed resident physician at the hospital; Dr. David I. Hitchcock, hitherto a fellow in general physiology, has been made an assistant; Mr. James M. Neill, hitherto a fellow in the department of the hospital, has been made an assistant; Mr. Henry S. Simms, hitherto a fellow in chemistry, has been made an assistant

The following new appointments are announced:

Prof. Karl Landsteiner, member in pathology and bacteriology; Dr. Christen Lundsgaard, associate in the department of the hospital; Dr. Thomas M. Rivers, associate in the department of the hospital; Miss Lillian E. Baker, chemical assistant in the division of experimental surgery; Dr. Edmund A. G. Branch, assistant in the department of the hospital; Dr. George R. Brow, assistant in medicine and assistant resident in the hospital; Dr. Harry W. Dahl, assistant in medicine and assistant resident in the hospital; Dr. Douglas R. Drury, assistant in pathology and bacteriology; Dr. Geoffry C. Linder, assistant in medicine and assistant resident in the hospital; Dr. Henry A. Murray, Jr., assistant in the department of the hospital; Mr. Frederic M. Nicholson, assistant in pathology and bacteriology; Miss Ida W. Pritchett, assistant in pathology and bacteriology; Dr. Harold A. Salvesen, assistant in medicine and assistant resident in the hospital; Dr. Harold J. Stewart, assistant in medicine and assistant resident in the hospital; Dr. Chester M. Van Allen, assistant in pathology and bacteriology, and Miss Helena A. M. Tibbetts, fellow in the department of animal pathology.

Dr. Francis Peyton Rous, member in pathology and bacteriology, has been appointed coeditor of the *Journal of Experimental Medicine.* Dr. Harold L. Amoss, hitherto an associate member in pathology and bacteriology, has accepted a position as associate professor of medicine at Johns Hopkins Medical School. Dr. Lloyd D. Felton, hitherto an associate in pathology and bacteriology, has accepted a position as assistant professor in preventive medicine and hygiene at the Harvard Medical School. Dr. Raymond G. Hussey, hitherto an associate in biophysics, has accepted a position as assistant professor in pathology in Cornell University Medical College. Dr. Robert L. Levy, hitherto an associate in the department of the hospital, has accepted a position as associate in medicine at the College of Physicians and Surgeons, Columbia University, and assistant visiting physician at the Presbyterian Hospital. Dr. Edgar Stillman, hitherto an associate in the department of the hospital, has accepted a position as associate in medicine at the College of Physicians and Surgeons, Columbia University, and assistant visiting physician at the Presbyterian Hospital. Dr. Goronwy O. Broun, hitherto an assistant in pathology and bacteriology, has accepted a position as assistant in the Thorndyke Laboratory, Boston, Mass., and assistant resident physician at the Boston City Hospital.

New York City

Seagoers.—Dr. Stuart L. Craig and Dr. Henry Hall Forbes sailed for Europe on the White State Liner *Majestic,* July 8. ——Dr. and Mrs. Horatio Pollock sailed for Europe on the *President Wilson,* July 8.——Dr. and Mrs. Charles H. May sailed for Naples on the *Conte Rosso* of the Lloyd Sebaudo Line, July 5.

Banquet for Physicians.—A banquet was tendered Dr. William H. Park and Dr. Abraham Zingher, director and assistant director of the bureau of laboratories of the department of health, respectively, at the Pennsylvania Hotel, June 29. The banquet was given on the occasion of the completion of the Schick diphtheria prevention work in the public schools of Manhattan and the Bronx, in which more than 100,000 children had been tested, and those found to be susceptible injected with toxin-antitoxin, during 1920-1922. The dinner was given by the staff of physicians and nurses who had been engaged in the work.

City-Wide Diphtheria Immunization Campaign.—During the summer months, the health department has in view the Schick testing of all children of preschool age and immunization against diphtheria of those that require it. A supply of circulars in three languages, describing the need and advantages of the procedure, has been printed, and a supply will be sent to every physician who is willing to distribute them to his patients. Physicians who do not care to Schick test children and to administer toxin-antitoxin to such as require it are urged to refer children to the nearest health department station, where the work will be done. Seven doctors and seven nurses, under Dr. Abraham Zingher, have been assigned to this work by the health department.

NORTH CAROLINA

Graduate Course in Internal Medicine.—Under plans developed by the University Extension Division and the medical department of the University of North Carolina, a graduate medical course in internal medicine was given in twelve communities of the state, during the week June 19-24. Centers were established at Charlotte, Salisbury, Ashboro, Lexington, High Point, Greensboro, Durham, Selma, Goldsboro, Wilson, Rocky Mount and Tarboro. Once each week, a lecture and clinic will be given in every center. Dr. F. D. Adams, Harvard University, has charge of the groups in the East and Dr. Frank Amos Chapman, Rush Medical College, Chicago, has charge of the groups in the West.

OHIO

Pure Food and Health Exposition.—With the cooperation of the Babies' Milk Fund Association, the Association for the Welfare of the Blind, the Milk Commission of the Cincinnati Academy of Medicine, the Milk Exchange of the Chamber of Commerce, the Boy and Girl Scouts and the Antituberculosis League, a pure food and health exposition will be held in Cincinnati, July 18-30. Dr. William J. Graf, chairman of the Milk Commission of the Academy of Medicine, will be in charge of the clinic for malnourished children, with a staff of physicians and nurses. The U. S. Pure Food and Drug Laboraory, the state health department, the street cleaning department, the tenement house inspection bureau and the fire department, among others, will take part in the exposition.

PENNSYLVANIA

Addition to State Hospital.—An addition to the State Hospital, Ashland, will be named in honor of Dr. Jonathan C. Biddle, who has served as chief surgeon for many years. The dedicatory exercises were held, July 12. The presentation was made by Mr. E. White of Mount Carmel and the acceptance, on behalf of the state, was made by Hon. William G. Sproul, governor of Pennsylvania.

Statue to Physicians.—The war record committee of the Allegheny County Medical Society met, June 26, in the studio of Giuseppe Moretti, Pittsburgh, to inspect the model for the medical society memorial statue, which will be erected in Schenley Park to commemorate the services of local physicians in the World War. The memorial will be cast in bronze and mounted on a granite pedestal.

Camp for Physicians.—The annual camp for medical directors and division chiefs was opened, June 26, at Mont Alto Sanatorium, by Col. Edward Martin, commissioner of health. The school will be conducted on military lines, the physicians occupying tents placed near the administration building. Lecturers from the foremost universities will be present and give addresses. Motion pictures dealing with public health, playlets illustrating the enforcement of existing health laws and regulations, and instruction showing how adequate milk control, a pure water supply and proper sewerage systems can be obtained by municipalities will be given.

UTAH

State Medical Meeting.—A special session of the Utah State Medical Association was held in Salt Lake City, June 30 and July 1, with an instructive program, including motion pictures. Dr. Joseph Colt Bloodgood, Baltimore; Dr. William Englebach, St. Louis; Dr. Alfred W. Adson, Rochester, Minn., and Dr. Robert H. Millwee, Dallas, Texas, were among the visiting physicians who delivered lectures and held clinics during the session. A trip to Saltair, including bathing and dinner, was made, July 1.

WISCONSIN

Hospital News.—Bids for the construction of the $65,000 addition for St. Mary's Hospital, Rhinelander, were opened June 30, and construction work will be commenced immediately.——A hospital will be erected on the south side, Milwaukee, at a cost of $500,000.——In connection with the observance of Hospital Day in Ashland, two tablets commemorating the dead physicians and nurses who were associated with St. Joseph's Hospital were dedicated.——The new nurses' home, built in connection with St. Joseph's Hospital, Marshfield, was opened for inspection, May 12.

Personal.—Dr. F. M. Shultz has resigned as superintendent of the Milwaukee County Hospital, Wauwatosa, because of ill health.——Dr. Gustave C. Wichman, Rib Lake, has resigned as secretary of the Price-Taylor County Medical Society and has left for California. Dr. Edgar B. Elvis, Medford, has been elected for the unexpired term.——Dr. William A. Rauch has been appointed resident physician at South View Isolation Hospital.——Dr. Herman Gilbert, Madison, is seriously ill.——Dr. F. Eigenberger, Prague, Czechoslovakia, has arrived in Sheboygan to take up his new duties as pathologist of the Sheboygan Clinic.——Dr. Carroll D. Partridge has resigned as city health officer of Wausau.——Dr. Harry B. Moe, Blanchardville, was recently elected president of the Lafayette County Medical Society.

WYOMING

Wyoming State Medical Society.—At the twentieth annual meeting of the society held in Sheridan, June 20-22, under the presidency of Dr. Elmer A. Kell, Rawlins, the following officers were elected for the ensuing year: president, Dr. Galen Adis Fox, Cheyenne; counsellor, Dr. Jesse de Leon Lewellen, Powell; secretary, Dr. Edwin Earl Whedon, Sheridan, and treasurer, Dr. Chester Ellis Harris, Basin.

CANADA

Medical Society Reorganized. — The Cumberland County Medical Society of Nova Scotia, which has been inactive since 1913, was recently reorganized, with the following officers: president, Dr. Daniel MacIntosh, Pugwash; vice presidents, Drs. William Rockwell, River Hebert; Moncon J. Wardrope, Springhill, and Murdock D. McKenzie, Parrsboro; secretary-treasurer, Dr. Walter T. Purdy, Amherst. It was furthermore decided that the society should affiliate with the Medical Society of Nova Scotia.

Quebec Medical Association.—The inaugural meeting of the Province of Quebec Medical Association was held in May at Montreal under the presidency of Dr. Simeon E. Grondin, Quebec. The following officers were elected: president, Dr. Simeon E. Grondin, Quebec; vice presidents, Drs. Louis de L. Harwood, William G. Reilly, Charles F. Martin; secretaries, Drs. D. Grant Campbell and Ernest Gariepy, and treasurer, Dr. E. E. Trottier. The president and secretary of each medical society of the province is ex-officio a member of the general committee. There were 200 members in attendance. The distinctive character of these reunions is that they are devoted exclusively to clinical work, with presentation of patients, roentgenograms and specimens. The *Bulletin Médical* for June gives the address of the president, at the meeting held in Laval University before the two days of the clinical demonstrations in four hospitals. Some of the hospitals gave lunch to the guests, and the University of Montreal organized a concert smoker.

GENERAL

Operating Room on Liner.—A modern dispensary and operating room are included among the facilities of the refurnished *Mongolia* of the American Line, which sailed for Hamburg, June 21.

Mobilization of English-Speaking Physicians.—The American Chamber of Commerce at Berlin has recently completed the mobilization of all English-speaking physicians in the city, who will be available in case of sudden illness or emergencies for Americans unable to speak German.

Proposed Bill on Counterfeiting Liquor Prescriptions.—Imprisonment for from one to ten years in a federal prison and a fine of from $1,000 to $10,000 are the penalties imposed by a bill introduced in the senate by Senator Willis of Ohio on those counterfeiting physicians' prescription blanks to secure intoxicating liquor. The title of the proposed act reads as follows: A bill making it unlawful to forge or counterfeit permits or other papers used in connection with the enforcement of the National Prohibition Act and providing penalties for the violation thereof. The bill has been referred to the Senate Committee on the Judiciary.

Donation for Relief Work.—The food packages distributed to Russian physicians have thus far amounted in value to $70,000. The latest allocation of $20,000 for that purpose was made possible through a gift of $35,000 by William Bingham, Jr., an American. Two thousand American Relief Administration food packages have been set aside for the benefit of starving physicians who are aiding the relief administration in its inoculation program. Inoculation against typhoid, two types of paratyphoid, cholera and smallpox is being carried on at every point to which American food is distributed. More than 10,000,000 Russians will be immunized following the completion of this program.

Foreign Students and the Immigration Law.—The executive committee of the American Association of University Professors recently adopted a resolution urging that Congress be petitioned to amend the existing 3 per cent. immigration act by exempting from its provisions all bona fide foreign students, stating that the actual operation of the present law has been attended with such deplorable annoyance to incoming students as to lower the prestige of the United States as a center of education. The resolution further states:

> Whereas, The omission to exempt bona fide students desirous of entering American institutions of learning from the operation of the present immigration law is probably due to inadvertence, inasmuch as such students are expressly exempted from the operation of the Chinese exclusion act and the agreement with Japan, and that in case such amendment be not made effective before September 1, the government be petitioned to cause the adoption by the Bureau of Immigration of such administrative rulings as will preclude the possibility of incoming students being sent to Ellis Island or other detention stations.

To Renew Fight on Cancer.—The American Society for the Control of Cancer has received its certificate of incorporation in New York State. Dr. Francis Carter Wood, one of the incorporators, announces that the society's field representative will confine his efforts for some months to Pennsylvania, Iowa and Illinois, which have not yet been fully organized. The society has increased its membership more than 200 per cent. during the last three years, and now has about 2,000 members. A grant of $26,750 has been made to the society by the Commonwealth Fund which made possible the organization of the field work, and Mrs. M. Lasker and family have set aside $50,000 as a permanent endowment fund. Five new names have been added to the board of directors: Melville E. Stone, Dr. Frank Billings, Chicago; Dr. W. W. Keen, Philadelphia; Postmaster General Dr. Hubert Work, and Dr. W. T. Huntington, San Francisco. Dr. Edward Reynolds of Boston was named as chairman of the council.

Hearings on Social Hygiene Board Bill.—Hearings before the House Committee on the Judiciary on the bill introduced by Representative Kahn of California for the transfer to the Department of Justice of the law enforcement functions formerly discharged by the Interdepartmental Social Hygiene Board, with reference to the repression of prostitution in localities where armed forces of the United States are stationed, brought out a practical unanimity of opinion in support of the measure. The recognized fact that the board would cease its activities on June 30 because of the absence of any appropriation for carrying forward its work limited discussion closely to advisability of continuing its law enforcement activities under federal auspices and, if so continued, of vesting them in the Department of Justice. There was unanimity as to the desirability of such activities being continued and substantial agreement as to the expediency of charging them to the Department of Justice rather than to either the Army, the Navy, or the Public Health Service. Among the speakers in support of the measure were Major-Gen. W. M. Ireland, Surgeon-General of the Army, Dr. Hugh S. Cumming, Surgeon-General of the United States Public Health Service, Dr. Valeria H. Parker, executive secretary of the Interdepartmental Social Hygiene Board, and Dr. William F. Snow, secretary of the American Social Hygiene Association.

LATIN AMERICA

Argentine Physicians.—According to a recent article in the *Boletin del Sindicato de Médicos de la República Argentina,* there are at present in that country about 5,000 physicians. Assuming generously a population of 10 million, this would make one physician for each 2,000 inhabitants. Since 1914, 1,508 physicians have graduated from the Buenos Aires Medical School and, since 1921, fifty at Cordoba.

Personal.—Dr. Filiberto Rivero of Havana is visiting clinics in this country.——Dr. Eliud García Treviño and Dr. Aliber García Treviño of Monterey are taking postgraduate courses in Chicago and Philadelphia, respectively.——Dr. Franklin P. Pyles, an American physician, now practicing at Rio de Janeiro, Brazil, is visiting in Chicago. It is claimed that Dr. Pyles is the only English-speaking physician at Rio.

Retirement of Professor Coronel.—The *Anales de la Sociedad Médico-Quirúrgica del Guayas,* of Guayaquil, commenting on the fact that Dr. J. Coronel has resigned his chair of internal medicine in the University of Guayaquil, relates that he has been in practice in Guayaquil for forty-seven years and on three occasions has been given the official thanks of the national public health service for his various services. He was also awarded a gold medal, "por Mérito Profesional," by the first national medical congress held in Ecuador, which met at Guayaquil in 1915. He recently founded a scholarship in medicine and in law at the University of Guayaquil, and is honorary president of the Sociedad Médico-Quirúrgica del Guayas.

FOREIGN

Royal College of Surgeons of Ireland.—At the annual meeting of the college Sir William I. de C. Wheeler was elected president; Dr. Robert C. B. Maunsell, vice president, and Sir A. H. Ormsby, secretary.

Posthumous Tribute to Keating-Hart.—The French government has published a statment citing the devoted services during the World War of Dr. Keating-Hart, the well known specialist in electrology and radiology, who introduced fulguration, and who died last January at Paris. He continued his work although suffering from the effects of roentgen injury, requiring two operations. The *Journal Officiel* of June 20 announces that his name has been placed on the records as chevalier of the Legion of Honor. It is said of him that he "wedded the long electric spark to the high frequency current."

Dramatization of Pasteur.—A play by M. Sacha Guitry entitled "Pasteur" has recently been produced in London. This play was originally produced in Paris in 1919. The scenes depict Pasteur in his study in 1870; in the Paris Academy of Medicine, where he vigorously combats an attack on his theories; with the boy Joseph Meister, who has been bitten by a dog, and comes for treatment to Pasteur, who sends for a physician to perform the inoculation; at his home in the country, and finally in the crown of his career, at the reception given him by the president of the republic, in the amphitheater of the Sorbonne.

Postponement of Second International Congress on Comparative Pathology.—This often postponed congress, which was finally definitely appointed for Sept. 20, 1922, has been postponed again till next spring. The reason is said to be "difficulty in organization," which means, probably, difficulty in making the congress truly international in scope. The topics appointed for discussion are regeneration of nerves; cancer; deficiency diseases, and diseases with a filtrable virus, but communications on a large number of other subjects have already been announced. The *Paris Médical* of June 24 contains a list of fifty-five.

Socety for the Study of Venereal Disease.—The Medical Society for the Study of Venereal Disease was formed in London, June 9. Dr. David Watson, Glasgow, presided at the meeting. It was agreed that the society should not express its corporate views on any subject of administrative or political interest, unless invited to do so by the government, and that, in the event of such invitation, the views expressed should be those of 80 per cent. of the members voting on a referendum. The annual general meeting will be held each year in July. Local divisions of the society will be formed and appoint their own officers. Dr. Robert Forgan agreed to act as secretary until the first regular meeting of the society this month.

Laryngeal Tuberculosis in the Netherlands.—The Netherlands Laryngologic Society has been collecting data on the prevalence of laryngeal tuberculosis, and has found that it is overlooked in an amazingly large percentage of cases. In Leiden, where laryngologists are connected with the consulting dispensaries, the proportion of laryngeal tuberculosis cases was 6 per cent., while it was reported from other towns as only 0.4 per cent. in 15,240 tuberculous examined by nonspecialists. In the sanatoriums that responded, the proportion was reported as 13 per cent. They urge the necessity for specialist examination of the larynx in the preventoriums as a routine practice, regardless of whether the applicants complain of throat symptoms or not.

Personal.—Dr. Edwin Bramwell has been appointed to the Moncrieff-Arnott chair of clinical medicine at the University of Edinburgh, to succeed the late Prof. Francis D. Boyd.——Dr. Hugh Norton has been appointed to the chair of medicine at Anderson College of Medicine, Glasgow, to succeed Dr. John M. Cowan, who resigned recently.——Mr. Thomas H. Openshaw, senior surgeon of the London Hospital, has retired from the active staff after forty-five years' connection with the medical school.——Prof. Hijmans van den Bergh delivered a London University Lecture, June 21, on "The Pathology of Hemoglobin."——Dr. John C. McVail has been awarded the Jenner Medal of the Royal Society of Medicine.——Mr. Evelyn D. Telford, lecturer in practical surgery at the University of Cambridge, England, has been appointed professor of systematic surgery at the University of Manchester to succeed Prof. J. W. Smith, who will vacate the chair in September.

The Graduate Courses in Heliotherapy at Leysin.—The Journal mentioned on page 1932, June 17, 1922, Rollier's courses which are held in August each year. The next course opens Aug. 15, 1922, and consists of twelve lectures on the various aspects of heliotherapy and roentgenographic control, with practical demonstrations in some of the various sanatoriums in his charge. The course is gratuitous; the charge for room and board is 12 francs a day. The lectures are given by Rollier and six of his assistants. Rollier's own subjects are "The Practical Application of Sunlight in Treatment of Tuberculosis"; "Heliotherapy of So-Called Surgical Tuberculosis"; "Work in the Treatment of Tuberculosis, and the Future of the Convalescents"; "Preventive Heliotherapy," and demonstrations of results in the "Sun School." American physicians are welcomed. Applications are received up to the two weeks before the course opens. Address Dr. Rollier, Leysin-Village, Switzerland. This is the second year of these courses.

Tribute to Marchiafava.—Prof. E. Marchiafava, having reached the age of 75, retired, June 5, from the chair of pathologic anatomy at the University of Rome after forty-eight years of continuous incumbency. A fund has been endowed in his name by contributions from royalty, the city of Rome, the Italian Red Cross, the public health service, the hospitals and banks, and others, to found scholarships at the University of Rome. A number of addresses were made by delegates from various scientific societies and Marchiafava's numerous contributions to science were enumerated, his initial research on malaria and his leadership in the campaign against malaria in Italy, his discovery of the estivo-autumnal parasite, of the cause of melanemia, and his studies in syphilis, tuberculosis, alcoholism, etc. The city of Rome has always regarded him as the one responsible for having freed it from malaria. One of his latest works was the foundation of the Asilo Antimalarico Communale as a home in Rome for the children of families living in the malaria infested marshy districts in the region. A tablet was placed on this building by the community when it was inaugurated last year, paying tribute to Marchiafava as the originator of the project.

American University Union.—George E. McLean, director of the American University Union in London, announces that, since the British universities have recently given renewed attention to advanced and research work and have established the Ph.D., or D.Phil. degree (with American graduate students in mind), the union is now able to advise and introduce American graduate students so that, without loss of time, they may proceed with their work in the British universities and gain admission to the reading room of the British Museum, the public record office and other archives and collections. Among the functions of this office are the receipt and forwarding of mail, keeping a list of boarding houses, and posting notices of public lectures and amusements. Round table conferences are held by British scholars and public men during the season. The Universities' Bureau of the British Empire, the Office National des Universités et Ecoles Françaises and the Danish Students' Bureau are housed in the same building with the American University Union. A common library and reading room is located in the building, and visiting American scholars are advised to register, free of charge, immediately on their arrival in London.

The New Journal, "Social Defense."—The foundation of the Italian Institute of Hygiene by Prof. E Levi. of Rome has been already mentioned and the wide scope of its efforts commented on. It aims to compile statistics, coordinate efforts of all kinds of organizations, public and private, and maintain propaganda to promote public and private health, safety, and moral and physical well being. Most of the leading statesmen and clinicians of Italy are on the committee in charge, and pamphlets and films to aid in the work are being published, and the monthly journal, *Difesa Sociale*, has been founded. Professor Levi desires to emphasize in this publication American methods of public health administration and personal hygiene, in addition to its other aims. The first two numbers contain among other articles one by Grassi on "The Present Status of Malaria," and others by Levi on "The Value of the Race and Social Defense" and "The Human Balance-Sheet of the World War." The agitation on behalf of the defense of human beings against avoidable ills is reviewed as it proceeds in various countries. The subscription to the *Difesa Sociale* is 50 liras. The official title of the institute is the Istituto Italiano d'Igiene, Previdenza ed Assistencia Sociale. The address is Via Condotti 8, Rome.

Deaths in Other Countries

Prof. **C. U. Zanetti**, director of the Institute of Pharmacological Chemistry of the University of Parma.——Prof. **Jenö Holzwarth**, who held the chair of radiology in the University of Budapest.——Prof. **Edmund Weil** of Prague, died of typhus contracted by infection in his laboratory at Lemberg, where he was working in response to an appeal from the Polish government.——Dr. **Eladio Eguren,** of Rosario, Argentina, member of the municipal council.——Dr. **A. de Barros,** professor of nervous diseases at the medical school of Bello Horizonte, Brazil.——Dr. **N. Coppola,** professor of radiology and electrotherapy at the University of Naples, another victim to the early zeal in the application of the roentgen rays, aged 42. Parts of both hands were amputated at various times and the dermatitis finally became malignant, rebellious to all treatment.——Dr. **Armand Imbert,** of the medical faculty at Montpellier.

CORRECTION

Seattle Health Officer.—In The Journal, July 1, it was stated that Dr. Rowe France would succeed Dr. Hiram M. Reed as city health officer. Dr. Reed writes that his term of office will not expire until March, 1924.

Government Services

Organization of Reserve Hospitals of the Army

June 30, Surgeon-General Ireland authorized the organization of a general hospital to be known as General Hospital No. 21, Organized Reserves, at the Washington University School of Medicine, St. Louis. This unit served during the World War as Base Hospital No. 21 with the British Expeditionary Forces. Lieut.-Col. Malvern Bryan Clopton, M. O. R. C., is to command this unit and is now engaged in enrolling the number of reserve officers necessary to fill the positions of the unit called for by tables of organization. This is pursuant to the policy of the Surgeon-General to revive and perpetuate in a general way the units that served in the World War, originally organized by the Red Cross. New units will be given new numbers. During the war, these units served as mobile hospitals and base hospitals, and they will now retain their former numbers as surgical hospitals and general hospitals. They are no longer Red Cross units but pertain to and are part of the military establishment. This is the first new reserve hospital to be authorized by the Surgeon-General to meet the medical needs of the military establishment in case of emergency.

The Surgeon-General of the Army is now required to organize, largely with medical department reserve officers, the evacuation and surgical hospitals that will function under the control of tactical armies and the general hospitals, convalescent hospitals, convalescent camps, station hospitals and the laboratory and medical supply services of the communications zone and home territory. It is the desire of the War Department that these reserve hospitals take on a local distinction which will pertain to the medical college or approved internship hospital that is to foster the unit. The officers of these units are to be selected within the foster institution or in the community, subject, of course, to the laws and regulations as to eligibility for appointment in the Officers' Reserve Corps. The nurses of these units will be taken from the enrolled nurses of the Red Cross nursing service, which constitutes the nursing reserve of the army. It is not intended at this time to recruit the reserve enlisted men nor to issue property, the idea being that there will be a reserve organization of commissioned personnel at the parent institution, which can readily be expanded, in case of necessity, to an army hospital.

LIABILITY FOR SERVICE

Considerable misunderstanding exists as to the liability of reserve officers being called to active duty. The law of June 4, 1920, provides that, except in time of a national emergency expressly declared by Congress, no reserve officer will be employed on active duty for more than fifteen days in any calendar year without his own consent. The War Department does not contemplate calling reserve officers to active duty for training or other purpose for fifteen days each year. For some time to come, the training must be voluntary, owing to the limited appropriations. A reserve officer called to active duty for training purposes during any calendar year, and on whom such duty for business or other good reason would work a hardship, will on request be exempted from such tour of duty. The Surgeon-General recognizes the drawback to membership in the Medical Reserve Corps, if professional and business men who have had war service are inconvenienced by call to compulsory duty in time of peace each year, and does not contemplate any such policy.

REQUIREMENT FOR PROMOTION

Training, however, is a requirement for promotion to field rank and higher grade, if the applicant has held no position commensurate with the position he is required to fill on promotion. In organizing these units, it is to be understood that reserve officers are not required to hold the rank called for in tables of organization, as office and rank are separate and distinct.

Personnel of the Reserve Corps

The Medical Department Reserve Corps now numbers approximately 12,000 officers, and applications are coming in rapidly. A great many former officers have recognized the advisability of joining the reserve corps at this time, owing to the regulations in regard to promotion, and also in view of the provisions of the Pay Act of the army, which gives a reserve officer one-half time credit for all inactive service in the reserve corps when called to active duty, in addition to the base pay of his grade.

Units to Be Organized

The Surgeon-General is now undertaking the organization of the following units, pursuant to instructions of the Secretary of War: three army medical headquarters; one general medical headquarters; two section medical headquarters; one specialist group; thirty-six surgical hospitals (former mobile hospitals); forty-five evacuation hospitals; 165 general hospitals; twenty-four station hospitals (former camp hospitals); three convalescent hospitals; twelve hospital center headquarters; twelve convalescent camps; thirty-seven hospital trains; three air service physical examining units; five general dispensaries; three army medical laboratories; twelve hospital center laboratories; two communications zone medical laboratories; one general medical laboratory; nine medical supply depots; two intermediate medical supply depots, and two base medical supply depots.

Summer Camp for Veterans

Disabled veterans of the World War, Chapter 1, Minneapolis, in cooperation with the U. S. Veterans' Bureau, have taken over the management of the Big Island Summer Camp at Big Island, Minn., for the season. A large radio outfit, additional boats and a swimming instructor and recreational supervisor have been added to the camp, which opened June 19 and will stay open until September 2. There are accommodations for 180 men each two weeks, and the charge for all expenses is $15 for that period.

Reduction in Army Medical Corps

Reduction of the commissioned personnel of the army as a result of the War Department appropriation act, fixing the minimum number at 12,530 and providing for a board to select officers to be discharged or eliminated from the service, will result in the reduction of the medical corps by 145 officers. The present personnel of the corps is 1,128, and there is no doubt that many efficient officers will be involved. The dental corps will suffer a severe blow also, although only seventy-seven officers will be eliminated from this service. Included among these officers will be two or three colonels, from five to seven lieutenant-colonels, from twenty to twenty-two majors and the remainder the captains and lieutenants. None of these officers have sufficient active service to their credit to permit their transfer to the retired list; and, unless retired for physical disability, they will have to be discharged with a year's pay. The medical administrative corps also will have a disastrous blow in this proposed elimination. The corps will lose sixty-six of its 138 officers. All of them were noncommissioned officers of long-service and most of them could have retired with more pay than is now possible, since they now have only the choice of being discharged with a year's pay or being demoted to warrant officers and retired as such. Some of them have been in the medical corps of the army from thirty to thirty-five years, and could have retired as enlisted men at $110 a month or after June 30 at $135 a month. Now the best they can hope for is retirement as warrant officers at $75 a month. The provision of the act stopping all promotions in the army for six months has also served to lower the morale of the Medical Department.

Contract for Jefferson Barracks Hospital Awarded

The contract for supplying the complete mechanical equipment for the U. S. Veterans' Bureau hospital to be erected at Jefferson Barracks, Mo., has been awarded to the S. Faith Company, Philadelphia, for $311,000. The hospital will cost a million dollars. According to Assistant Secretary of the Treasury Clifford, the contract will be given for the construction of the buildings in the near future.

Foreign Letters

PARIS

(From Our Regular Correspondent)

June 16, 1922.

Medical Treaty Between France and Italy

On account of their proximity to Italy, the cities of Lyons, Nice and Marseilles admit many Italian patients to their hospitals, and for a similar reason the hospitals of Bordeaux are crowded with Spanish patients. The great number of Spanish women entering the obstetric clinics had already excited curiosity before the war, and an inquiry revealed that many of these women left their country during the last months of pregnancy to be delivered in France, especially in Bordeaux. The Italian colony of Marseilles comprises more than 100,000, and 52 per cent. of the total number of patients treated in its hospitals are of that nationality. This is a heavy financial burden on the city. Thus, a Franco-Italian treaty has been ratified to settle the question. According to the terms of the treaty, the citizens of the two nations who, on account of pregnancy or confinement, or for any other reason, are in need of help and any other medical assistance will be treated in the territory of the other contracting party, as far as the application of social welfare laws are concerned, in the same manner as the citizens of that country, either at home or in hospitals. Money expended for treatment by the country in which the patient resides will not be reimbursed in any case by the country, department, province, commune or public institution to which the patient belongs, as long as an acute disease, certified by the attending physician as such, renders medical assistance necessary. In other cases, including relapses, reimbursements will be made for the period following the first forty-five days of treatment. The country in which the patient lives will continue to bear the cost of medical care without reimbursement in cases concerning: (1) the care at home or in hospitals of the elderly, cripples and incurables having at least fifteen years of constant residence in the country in which they enjoy the benefit of a relief pension or the gratuitous shelter of the home for the aged (this will be reduced to five years when the incapacitation is due to an occupational disease), and (2) all those who are ailing, the insane and other patients having five weeks' residence in said country. As to those who cannot fulfil the residence requirements indicated, the government, after the forty-five days have elapsed, will, as it sees fit and upon advice from the other government, either deport the patient, if his condition permits, or charge the cost of the treatment to the country from which he comes.

The two governments agree each to see that industrial centers having a large number of workmen of the other nationality are equipped with all the necessary means to take care of those who are ill or suffering from accidents, as well as their families. When the cost of treatment given at home, in hospitals or infirmaries is borne by the employer, workers will have the right to take advantage of it without any reimbursement by either country. Benevolent or social welfare associations organized by Italians in France and by the French in Italy, and mixed associations in one or the other country, organized according to the laws of the country, will enjoy the rights and advantages guaranteed to French and Italian associations of the same nature.

Protest by Antipornographic Societies

The Fédération des sociétés antipornographiques recently held its third congress in Lyons and commented on certain formulas printed in the folders pertaining to prophylactic education delivered to young recruits at the time of their medical examination. The federation believes that the best prophylaxis against venereal diseases is a prophylaxis having a character essentially moral. Therefore, it requested the minister of war not to deliver this literature "that seems to make young men believe that debauch is inevitable at their age and that venereal diseases are without importance as long as medicines ward off danger," stating, further, that this procedure is not scientific. The minister of war transmitted the request to the Société de prophylaxie sanitaire et morale, and it was easily demonstrated that in the folders in question moral prophylaxis has not been neglected. For instance, one may read the following advice: "Above all things, be fearful of ruining your health and future in debauch, for heedless sexual intercourse outside of marriage may entail dreadful diseases." Therefore the society emphasized the necessity of continuing this prophylactic education of recruits, which in no way can be considered as immoral.

The Fight Against Cancer

The minister of hygiene, charity and welfare recently appointed a commission to combine the works and efforts pertaining to the etiology, pathogenesis, clinical study, therapeutics and prophylaxis of cancer. The honorary president of the commission is Dr. E. Roux of the Pasteur Institute. The president is Professor Quénu, and the vice presidents are Professors Calmette, Roger, Letulle, Delbet and Hartmann.

The French and American Medical Standpoints

In previous letters, I had the opportunity of showing the striking differences existing between French and American institutions and customs. In the United States, public interest is placed above all, but, unfortunately, in France individualism is the dominant spirit. I recall what Dr. E. Roux of the Pasteur Institute said regarding the slowness of the propagation of hygiene in France: "The Frenchman's individualism does not lend itself to general social movements and concerted and continued efforts. Hygiene requires that an individual submit to discipline for the common welfare."

The same spirit of individualism is also an obstacle to the realization among our professional associations of movements similar to that of the American Medical Association. In a letter published in the last number of the *Gazette des hôpitaux*, Dr. Faxton E. Gardner of New York shows also by a few examples "how often the medical standpoint differs in France and America." For instance, the medical syndicate of the department of the Seine recently adopted the following resolution concerning consultations of pregnant women: "Visiting nurses would only constitute a new type of functionaries that the people would have to pay. France having need of raising its birth rate, it is preferable to encourage these women to fulfil the duties of motherhood. Not only are these functionaries useless, but they could also be harmful to expectant mothers and physicians." It is with reason that Dr. Gardner remarks that not one medical association could be found in the whole United States that would even partly agree with a declaration of that kind, in which women are told rather disdainfully and without circumlocution not to compete with men, and to be satisfied with the duties to which the stronger sex has always been pleased to confine them, those of motherhood and housekeeper.

Gardner gives another example in which American opinion differs absolutely from French opinion. He refers to the problems concerning bovine tuberculosis which have been recently taken up again in France, following a request by the council of hygiene of the department of the Aisne asking the compulsory application of the tuberculin test to cows whose milk is sold to the public and demanding that all cows with positive reaction be sent to the slaughter houses. This proposition was not accepted by the Academy of Medicine, and it stated that the only way of warding off the transmission of tuberculosis by milk was to boil the milk. Dr. Gardner compares this with the radical legislation of the state of New York, and remarks that once more in France principles of hygiene have been obliged to give way to considerations of economic opportunism.

A New Hospital Society

Physicians and surgeons of the Saint-Antoine Hospital in Paris have just organized a society called the "Amis de l'hôpital," the aim of which is to make wards more attractive and the stay of patients less distressing by decorating the wards with flowers and plants, by giving better food to patients, and by performances similar to those soldiers enjoyed in the war hospitals. Moreover, the society helps families of patients who are very often deprived of resources through the sickness of one of the heads of the family, and takes care of convalescents after they leave the hospital.

NETHERLANDS

(From Our Regular Correspondent)

June 7, 1922.

Hospital Congress

Several members of the board of directors of the largest hospitals in the country gathered in Utrecht under the presidency of Mr. Wortman to discuss the various advantages that might be derived from a general congress in which questions pertaining to hospital organization would be taken up. It is probable, judging from present reports, that the project will mature.

Medical Directory

The "Geneeskundig jaarboekje voor Nederland" for 1922 has just been published. This directory gives a list of hospitals and sanatoriums and all information that may be of interest to the medical profession. The Netherlands today has 3,495 physicians, 381 dentists, 925 midwives and 635 druggists. The number of students in various medical faculties reaches 2,079, including 267 women students.

Annual Meeting of the Netherlands Medical Association

The Nederlandsche Maatschappij tot Bevordering der Geneeskunst will hold its session at Maestricht, July 2-4. On account of the proximity of this city to the Belgian frontier, the organizers will take the participants to Spa during the congress.

The Cancer Institute

Judging from advices received from Bandong (Dutch East India), it seems that the project of constructing a research institute for cancer is making progress. This institute is to be annexed to a large public hospital, where patients will be sheltered. The laboratory will be kept up by the income derived from an endowment of 50,000 florins.

The Fight Against Malaria in Northern Holland

The committee appointed to combat malaria has made some interesting reports, among which is one from Professor Swellengrebel who, during 1920-1921, made researches on infection by anopheles. A careful examination of 5,093 mosquitoes obtained near contaminated houses has shown that the insects were infected, particularly during the months of September and December. During that period, 6 per cent. of the insects are infected, and this serves to prove that the killing of mosquitoes must be done in the fall. On the whole, the fight seems to be successful, as the number of malaria cases dropped from 5,000 in 1918 to 500 in 1921.

Home for Convalescent Railroad Employees

The railway administration intends to purchase the Villandry property of forty-nine acres near Nimeguen, for the erection of a home for convalescent railroad employees. A temporary sanatorium was built in 1921 on the same site, and it sheltered this year 180 homeless men.

PRAGUE

(From Our Regular Correspondent)

June 28, 1922.

Death of Edmund Weil

Prof. Edmund Weil of the German medical faculty in Prague died, June 15, of typhus fever. Science loses in him one of the best students of the problems of immunity. He has become known through his researches on the rôle of white blood cells in the mechanism of immunity, in which he followed the lines indicated by his teacher, Prof. Oskar Bail. He devoted most of his life to the study of typhus fever, and was one of the discoverers of the Weil-Felix reaction, which has become an invaluable means of diagnosis in the fight against typhus fever. During the World War, he was engaged in these studies, and he continued them after the armistice. Having succeeded in cultivating the virus, he began studying in detail the lice and the processes which the virus undergoes in their bodies. He was just about to make the final step in his discoveries and proceed to the immunization of man. He went to Lemberg in order to have fresh typhus material always available. When inoculating an animal intraperitoneally, he sprinkled his eye with an emulsion of the intestines of infected lice which he was injecting. He paid no attention to the accident and, having finished his experiment, returned home. Exactly on the eleventh day after the accident, he developed typhus fever. He died in three days. His death is the more tragic in that he left his life's work unfinished just at the stage when it promised to achieve its final aim in the immunization of man against one of the most deadly diseases. His assistant, Dr. F. Breinl, who has been working with him for several years, is preparing his material for publication and will continue the research as Professor Weil had outlined it.

Congress on Social Medicine

A social medicine congress was organized, June 4-7, in Ruthenia, by Czechoslovak physicians who went to Ruthenia two years ago, when it became a part of the Czechoslovak republic, subsequent to the World War. The territory has been neglected, so that it has become a focus of endemic infectious diseases, such as typhus fever and smallpox. Two years of hard work has brought very fruitful results. The contagious diseases have been stamped out; and now social diseases form the most important problem in the public health campaign. Because the local workers felt that they were not competent to deal with these problems, they called the best of the public health workers to Ruthenia to familiarize them with the local conditions and to seek their advice how to attack the social diseases most efficiently. The congress held its session in five sections, the child welfare and tuberculosis sections being the most important ones. In the child welfare section, the discussion turned on the question as to where child welfare work should be concentrated. Some of the members felt that it should be concentrated around institutions like hospitals, while others emphasized the importance of preventive child health centers as they have been developed by the American Red Cross. The second group has been able to defend its stand, so that the final resolution, which was accepted almost unanimously, recommends that all child welfare be concentrated in health centers and that institutions be looked on as necessary, but less important adjuncts in the struggle for better health of children. The chief topic for discussion in the tuberculosis section was the fight against tuberculosis among railroad employees, which has been inaugurated on a large scale by the health section of the ministry of railroads. An extensive survey of tuberculosis among this group of employees has been made, resulting in a number of specific recommendations for constructive work against tuberculosis. The congress has been well organized and will certainly be a source of encouragement to the local workers. On the other hand, it has been a rare opportunity for the guests from the other parts of the Czechoslovak Republic to acquaint themselves with the local conditions in Ruthenia, which differ greatly from the conditions prevailing elsewhere in the Czechoslovak Republic.

Tuberculosis Congress

The Czech Scientific Tuberculosis Society will hold a congress in Prague on the scientific problems of tuberculosis in the spring of 1923. This society, which was founded two years ago for promoting the research in tuberculosis, has done a valuable piece of work in promoting interest in the scientific questions connected with the fight against tuberculosis. It holds its sessions regularly every fortnight, and a specific topic is discussed. It has succeeded in acquiring a considerable sum of money for the support of scientific research in tuberculosis. A special research laboratory of the society is being equipped in the bacteriologic institute of Prague University. The initiative of this society has been proved, since there is scarcely a department at the Prague medical faculty in which there is not someone at work on a special topic which he is preparing for the tuberculosis congress in 1923.

BERLIN

(From Our Regular Correspondent)

June 17, 1922.

Adulteration of Pharmaceuticals

At a time like this, when deception and graft are found on every hand, it is not surprising to note that pharmaceuticals are adulterated. Repeatedly, the discovery has been made here that, in place of cocain, arsphenamin, santonin and other drugs, preparations of inferior value are sold. Instead of arsphenamin, gypsum colored with brickdust is furnished in ampules, and as a substitute for santonin a buyer may receive magnesium sulphate. Recently, acetylsalicylic acid was replaced by sodium bicarbonate. These tablets presented the same outward appearance as the genuine tablets, even as to the style of type used on the wrapper and the trademark of the manufacturer; also the glass tubes were of the same size; the outer capsule, with the name of the manufacturer stamped on it, and the label were close imitations of the original. As certain quantities of these adulterated products have been sent to foreign countries, this word of warning may not be superfluous.

"Diabetes Bacilli"

As the readers of The Journal doubtless know, the English bacteriologists Renshaw and Fairbrother recently *(British Medical Journal,* April 29, 1922) set up the hypothesis that the bacillus which was found by them in the stools of nine diabetics and which seemingly possessed the capacity to hydrolyze starch (named by them *Bacillus amyloclasticus-intestinalis)* may have an etiologic significance in diabetes—suggesting that diabetes is due to an intestinal infection. Von Noorden makes the following critical comment:

1. Withdrawal or restriction of carbohydrates, the essential nutrients for the growth of *Amylobacter,* has played, for many years, an important part in the treatment of diabetes. It has been repeatedly observed that restriction can be carried only to a certain degree and only in certain cases can it be pushed very far, since otherwise the body becomes flooded with acetone bodies. This clinical observation is thus sharply opposed to the theoretical conclusions reached by Renshaw and Fairbrother.

2. Of the various foodstuffs containing carbohydrate in large quantities, the most marked sugar-forming effect, but, at the same time one strongly opposing the formation of acetone, is found in sugar and finely milled flours, the carbohydrates of which are early absorbed into the blood from the small intestine; whereas the large intestine, which is the abode of intestinal bacteria, receives only a very insignificant remnant, from which no considerable quantities of acetone bodies can be formed. On the other hand, a less marked sugar-forming effect with a greater tendency to acetone formation is observed in foods which contain carbohydrates in a not easily absorbable form, for which reason a considerable portion of them reach the large intestine, the seat of bacterial activity. To this class belong graham bread and many of the vegetables. In moderately severe cases of diabetes, we can keep down the acetone by generous quantities of graham bread, although such bread offers rich nutrient material for *Amylobacter.*

3. The digestion and assimilation of starch proceeds so rapidly that, from the average amount of starch (about 80 gm.) which diabetics consume daily, with excretion of acetone, only a few grams enter the region of intestinal bacteria. Since, under especially favorable conditions, for 100 gm. of starch only 9 gm. of acetone is developed, it is evident that only a few decigrams can be formed for *Amylobacter* from the remnants. However, in more severe types of diabetes, the body excretes from 50 to 80 gm., or even 100 gm. of acetone bodies, daily, and the quantity commonly increases in proportion as the supply of starch is reduced. The theory of the British investigators thus encounters unsolvable quantitative difficulties.

4. In the presence of diarrhea, when starch, etc., reaches the region of intestinal bacterial flora much more quickly than usual, the excretion by the diabetic of sugar and more particularly acetone will generally be lessened; whereas, according to the theory of the British writers, one would rather expect an increase. On the other hand, it seems very probable that in the acetone excretion of infants with diarrhea (without simultaneous excretion of sugar: no diabetes) *Amylobacter* may possibly play a very important part. If this should be confirmed, our English colleagues have made a very important discovery in the field of pediatrics.

5. The prospects of getting at intestinal bacteria by means of disinfectants or by the introduction of antagonistic bacteria are very slight. All the experiments conducted thus far, some of which were carried out on a large scale in intestinal infections of various kinds, have failed of their purpose. Even the Metchnikoff method, which seemed to have the best theoretical foundation (lactobacillin), accomplished only a very small part of what it was expected to accomplish, ten or twenty years ago. Only the withdrawal of nutrients that favor the growth of definite groups of bacteria has proved of value, and this is the basis of the modern therapy of intestinal catarrh. But the method is no

applicable to *Amylobacter,* since we must bear in mind that the withdrawal of carbohydrates favors the formation of acetone in diabetics. As regards the statement of the writers that by mixing other bacteria with *Amylobacter* the latter's acetone-forming power is lessened, that is only what would naturally be expected. In the large intestine, there are not only ferments (diastase) but also other bacteria that attack the starch-containing material and its cleavage products, leaving for *Amylobacter* only a portion of the food that reaches that region.

6. That infections may cause diabetes is generally assumed. The causation is ascribed to a toxic injury of the pancreas, with resulting impairment of its secretion. Similar toxic njuries of other organs are associated with infectious diseases; for example, the kidneys, the heart muscle and the nerves.

It becomes evident from the foregoing that von Noorden akes a very skeptical attitude toward the hypothesis of the English investigators.

Marriages

George Marshall Lyon, Huntington, W. Va., to Miss Virginia Berkley Sutherland of Washington, D. C., at Elkins, W. Va., June 24.

Francis D. Ellis, formerly of Brooklyn, to Miss Carolyn A. Welles of Hartford, Conn., at Mahableshwur, India, April 5.

John Gilbert Null, San Carlos, Calif., to Mrs. Jeannette rene Glackin of San Francisco, at San Jose, June 21.

Ora C. Strickler, New Ulm, Minn., to Miss Carrie E. Purdy of Grand Rapids, Mich., in Chicago, May 6.

George Beatty Burwell, Renfrew, Ont., Canada, to Miss De Vee Oliphant of Cedar Rapids, Iowa, June 15.

John Edward Tyler, Worcester, Mass., to Miss Frances Mary Slade of Roland Park, Baltimore, June 28.

Robert Fritz Tobias Jaenichen, Detroit, to Miss Dorothy Thompson Longstreet of Saginaw, Mich., June 22.

Robert Martin Grier, Pleasantville, N. J., to Miss Virinia McCleavy of Harrington, Del., June 24.

Albert Franklin Shrier, Reisterstown, Md., to Miss Estelle R. Weiss, at Elizabeth, N. J., June 7.

Wendell Lanphear Downing, LeMars, Iowa, to Miss Marion Klenk of Easton, Minn., June 22.

Frank L. Krampert, Omaha, to Miss Grace Drinnen of Columbus, Neb., in Omaha, May 30.

Hosie Frank Magee, Jackson, Miss., to Miss Jim Haley f Crystal Springs, Miss., June 28.

Rowland Foreman Webb to Miss Lois Mary Lillie, both f Grand Rapids, Mich., recently.

Felix Revielle Brunot, New Orleans, to Miss Mary Bankerd Wagner of Pittsburgh, June 9.

Harley N. Gould, Wake Forest, N. C., to Miss Mary Raymond of New Orleans, June 9.

Charles Michael Collins to Mrs. Mattie M. Coady, both f Providence, R. I., June 21.

Karl Doege, Marshfield, Wis., to Miss Helen Ramsey of Rock Rapids, Iowa, June 11.

William Elbert Faris to Miss Martha Ann Law, both of Birmingham, Ala., June 30.

Albert S. Hoheb to Miss Katherine Augusta Rader, both f Baltimore, June 29.

Otto John Seifert to Mrs. Hedwig Henle, both of New Ulm, Minn., May 15.

Clarence E. Rice, Odell, Neb., to Miss Irene Drcdla, Crete, Neb., May 6.

Arthur Max Kohn, Detroit, to Miss Rose Simon of Chiago, June 25.

Walter J. Connell to Miss Lucy Riggs, both of Dubuque, owa, June 22.

Herman Bick to Miss Belle Bogen, both of New York, une 4.

Deaths

Ernest Keys Cullen ⊕ Detroit; University of Toronto Faculty of Medicine, Toronto, Canada, 1903; professor of gynecology, Detroit College of Medicine and Surgery; died, July 5, from uncontrollable hemorrhage from ruptured varicose veins of the esophagus. Dr. Cullen, a brother of Dr. Thomas Cullen, Baltimore, was born in Belleville, Ontario, May 14, 1878. Following his graduation he took three years' graduate work at Johns Hopkins Hospital, Baltimore, and served his internship at the Toronto General Hospital. He later entered Dr. Howard A. Kelly's service at the Johns Hopkins Hospital and afterward became resident gynecologist. About 1912 he moved to Detroit and served as gynecologist to the City of Detroit Receiving Hospital, the Harper Hospital and St. Mary's Hospital. Dr. Cullen served during the World War with the Harper Hospital Unit, and was honorably discharged in 1919 with the rank of major. He was a member of the Detroit Surgical Society and of the American Association of Pathologists and Bacteriologists.

John Stanton Blackmar ⊕ Norwich, Conn.; Columbia University College of Physicians and Surgeons, New York, 1898; veteran of the Spanish-American War; captain in the M. C., U. S. Army, during the World War; president and formerly secretary of the New London County Medical Association; member of the city council; on the staff of the William W. Backus Hospital; died, June 24, aged 47, from angina pectoris.

George E. Hyde ⊕ Provo, Utah; University of California Medical School, San Francisco, 1895; superintendent of the State Mental Hospital at Provo since 1916; formerly president of the state board of health of Idaho for two years, and superintendent of the Idaho State Mental Hospital; died, June 22, aged 57, at a hospital in Salt Lake City, following an appendectomy.

Howell Shoener Zulick, Philadelphia; Medico-Chirurgical College of Philadelphia, 1909; member of the Medical Society of the State of Pennsylvania; clinical professor of dermatology at the University of Pennsylvania; lecturer on dermatology at Temple University; was found dead in his chair, June 23, aged 39, from heart disease.

Frederick Augustus Rand, Parrsboro, N. S.; Medical Department of the University of the City of New York, 1885; for thirty years county coroner and for six years chief magistrate of Parrsboro; died, April 25, aged 66, from heart disease, following overexertion.

Charles William Cullen, Cincinnati; Medical College of Ohio, Cincinnati, 1900; served in the M. C., U. S. Army; also a civil engineer; superintendent of the Ohio Budget Commission; member of the board of education; died recently in Denver, aged 46.

Charles Washington Bray ⊕ Portland, Me.; College of Physicians and Surgeons in the City of New York, 1874; formerly on the staffs of the Maine Eye and Ear Infirmary, and the St. Barnabas Hospital; died, June 22, aged 71, from heart disease.

Charles Douglas ⊕ Detroit; University of Toronto Faculty of Medicine, Toronto, Ont., Can., 1864; emeritus professor of pediatrics at the Detroit College of Medicine and Surgery; consulting physician at the Harper Hospital; died, May 26, aged 78.

Edward Ager Diggins, Antioch, Calif.; Cooper Medical College, San Francisco, 1897; served for several years as surgeon in the M. C., U. S. Army, and also during the world War; died, June 30, aged 46, at the Weimer Hospital at Martinez, Calif.

Sidney Worth, San Francisco; New York Homeopathic Medical College, New York, 1874; formerly professor of pediatrics at Hahnemann Medical College of the Pacific, San Francisco; died, May 20, aged 76, from heart disease.

Robert Lloyd Williams ⊕ Statesan, Wis.; Jefferson Medical College, Philadelphia, 1906; superintendent of the Wisconsin State Tuberculosis Sanatorium; aged 41, was killed, June 25, at Cleveland, Ohio, when struck by a street car.

Mary Virginia McCune Rossa ⊕ Martinsburg, W. Va.; Woman's Medical College of Pennsylvania, Philadelphia, 1895; proprietor and superintendent of the Shenandoah Valley Sanatorium; died suddenly, May 15, aged 63.

Irving I. Sternman, Richmond Hill, N. Y.; University and Bellevue Hospital Medical College, New York, 1921; on the

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⊕ Indicates "Fellow" of the American Medical Association.

staff of the St. John's Hospital, Long Island City; died, June 28, aged 27, from bronchopneumonia.

Harvey Hinchman Pettry ⊕ Colcord, W. Va.; Maryland Medical College, Baltimore, 1905; died, June 20, aged 53, from gunshot wounds received when a pistol carried in his holster accidently exploded.

Thomas Caruth Dunn, Fountain Run, Ky.; Medical Department, University of Tennessee, Nashville, 1889; member of the Kentucky State Medical Association; died, June 8, aged 62, from arteriosclerosis.

George Wright, Glasgow, Scotland; Trinity Medical College, Toronto, Ont., Can., 1890; resident of Michigan, U. S. A., from 1898 to 1915; died, June 20, aged 65, from heart disease following influenza.

William Jacob Haymaker, Export, Pa.; Jefferson Medical College, Philadelphia, 1890; member of the Medical Society of the State of Pennsylvania; died, June 21, aged 57, following a long illness.

Edward Payson Stimson ⊕ Tiverton, R. I.; Dartmouth Medical School, Hanover, N. H., 1874; for several years medical examiner at Tiverton; died, July 5, aged 73, from heart disease.

Charles H. Ludwig, Chicago; Hahnemann Medical College and Hospital of Chicago, 1875; practitioner in Chicago for more than forty years; died, July 7, aged 71, from carcinoma of the rectum.

John Smicle Turner, Monticello, Ga.; McGill University Faculty of Medicine, Montreal, Canada, 1910; died, June 6, aged 42, at Washington Park, Ga., from chronic nephritis.

William Edmund St. Michael Raw, Hamilton, Ont., Can.; M.R.C.S., England, L.R.C.P., London, and L.S.A., London, 1885; died, April 15, aged 62, following a long illness.

Samuel Budd Page Knox, Santa Barbara, Calif.; University of Pennsylvania Medical Department, Philadelphia, 1866; died suddenly, June 30, aged 84, from heart disease.

James Webster Shannon, San Diego, Calif.; Victoria University, Manchester, England, 1890; L.R.C.P., London, and M.R.C.S., England, 1890; died, June 19, aged 55.

Calvin A. Bonner, Dayton, Ohio; Medical College of Ohio, Cincinnati, 1890; for several years city health officer; died, June 23, aged 64, following a long illness.

Robert Ormsby, Manhattan, N. Y.; Medical Department of the University of the City of New York, 1876; died, June 9, at Flushing, aged 67, from heart disease.

James H. Proudlock, Danbury, Wis.; College of Physicians and Surgeons, Keokuk, Iowa, 1887; died, May 24, aged 59, at the St. Luke's Hospital, Duluth, Minn.

David Winslow Hunt, Glendale, Calif.; University of Michigan Medical School, Ann Arbor, 1871; died, June 25, aged 76, from cerebral hemorrhage.

George Sheldon Bingham, Hamilton, Ont.; Victor University Medical Department, Toronto, Ont., Can., 1881; died, April 6, aged 64.

Paul J. Faber ⊕ Chicago; Chicago Medical College, 1890; died, July 7, aged 55, at the Augustana Hospital, from carcinoma of the liver.

William Riley Jamison, Sacramento, Calif.; California Medical College, San Francisco, 1895; died, June 30, at Watsonville, aged 64.

James Harper, Gimlet, Ky.; Barnes Medical College, St. Louis, 1899; formerly health officer of Elliott County; died, April 1, aged 57.

Harry Lee Courtright ⊕ Keokuk, Iowa; Keokuk Medical College, 1901; died, June 24, aged 45, following an operation.

William H. Raasch ⊕ Chicago; Chicago College of Medicine and Surgery, 1913; died, July 10, aged 35, from nephritis.

Ralph H. Williams, Bosworth, Mo.; Missouri Medical College, St. Louis, 1881; died, June 21, aged 63, from peritonitis.

Edward Graeff West ⊕ Boston; Medical School of Harvard University, Boston, 1880; died, June 10, aged 66.

George W. Sellers, Mount Moriah, Mo.; American Medical College, St. Louis, 1878; died, June 18, aged 80.

John M. Crenshaw, Liberty, S. C.; Atlanta Medical College, Atlanta, Ga., 1882; died, June 2, aged 65.

Charles Newton, Floral, Ark. (licensed, Arkansas, 1903); died recently, aged 77, from cystitis.

Gustav Jack, Waco, Texas; University of Zurich, Switzerland, 1884; died, June 14, aged 59.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

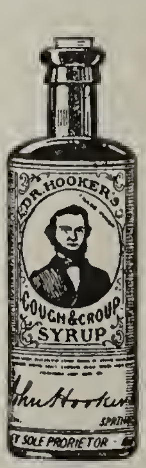
MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Madam LeRoy's Regulative Pills.—The LeRoy Chemical Co., Baltimore, shipped in January, 1919, a quantity of "Madam LeRoy's Regulative Pills" which were misbranded. The federal chemists reported that analysis showed the pills to contain aloes, with traces of pennyroyal and tansy. The product was labeled in part:

> "A Menstrual Regulative . . . an excellent formula for regulating the menstrual flow. We have been selling them for many years with the most satisfactory results . . . for . . . suppressed or scanty menses, . . . will assist in restoring a normal condition."

These and similar claims were declared false and fraudulent and, in May, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9854; issued Feb. 21, 1922.*]



Hooker's Cough and Croup Syrup.—Charles B. Kingsley, Northampton, Mass., shipped in August, 1919, a quantity of "Dr. Hooker's Cough and Croup Syrup," which was misbranded. The federal chemists reported that analysis showed the stuff to contain oil of anise, oil of wintergreen, alcohol, sugar, water, bloodroot and a balsam, probably tolu. The preparation was falsely and fraudulently represented as an effective remedy for croup, catarrh, whooping cough, asthma, incipient consumption, and all diseases of the blood and lungs. In June, 1921, Charles B. Kingsley entered a plea of *nolo contendere* and the court ordered the information placed on file. The government report does not explain why this individual was let off without even a fine.—[*Notice of Judgment No. 9851; issued Feb. 21, 1922.*]

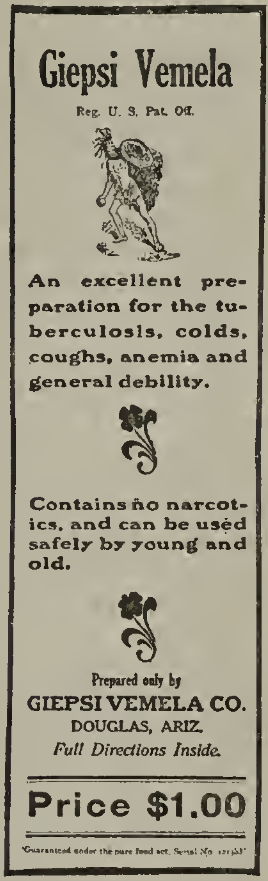
Naptholene.—In May, 1920, Dr. E. E. Sonnanstine, La Junta, Colo., shipped from Colorado to Missouri a quantity of Naptholene which was misbranded. The Bureau of Chemistry reported that analysis showed the stuff to contain gasoline, kerosene and a small quantity of resin of red pepper. It was sold under the claim that it was a cure for rheumatism, diphtheria, diabetes, appendicitis, toothache, all skin diseases, piles, Bright's disease and a number of other conditions These claims were declared false and fraudulent and in February, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9856; issued Feb. 21 1922.*]

Homosan.—The International Toilet Co., Brooklyn, N. Y. shipped during 1920 and 1921 from New York to Porto Rico a quantity of "Homosan" which was misbranded. The federa chemists reported that analysis showed it to consist of tablets containing a trace of strychnin. The preparation was sold as a remedy for "weakness of the testicles, atrophy of the prostate gland, spermatorrhea and impotence," and was recommended as an aphrodisiac. These claims were declared false and fraudulent and, in May and August, respectively, 1921 judgments of condemnation and forfeiture were entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9875; issued Feb. 21, 1922.*]

Haskin's Cough Medicine.—The Haskin Medicine Co, Binghamton, N. Y., shipped in January, 1921, a quantity of "Haskin's Cough Medicine" which was misbranded. Analysis by the Bureau of Chemistry showed that this preparation was a dark brown liquid carrying tar, chloroform, sugar and water. It was falsely and fraudulently recommended as a cure for all diseases of the throat and lungs, consumption, pneumonia, croup, asthma, etc. In June, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9877; issued Feb. 21, 1922.*]

Apollo Brand Sexual Pills.—The S. Pfeiffer Mfg. Co., St. Louis, Mo., shipped in November, 1920, a quantity of "Apollo Brand Sexual Pills" which were misbranded. The Bureau of Chemistry reported that analysis showed these pills to contain extracts of nux vomica and damiana and phosphorus. The aphrodisiac effect claimed by inference for this product in the name was declared by the government to be false and fraudulent and in August, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9894; issued Feb. 21, 1922.*]

Giepsi Vemela.—The Giepsi Vemela Co., Douglas Ariz., shipped a quantity of this product in February, 1921, which the federal authorities charge was misbranded. The Bureau of Chemistry reported that analysis showed the preparation to consist of vegetable extractives, sugar and water. The stuff was falsely and fraudulently recommended as an effective treatment and cure for tuberculosis, sore throat, weak stomach, tumors, ulcers, buboes and various other conditions. In October, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 10036; issued May, 1922.*]



Giepsi Vemela

Reg. U. S. Pat. Off.

An excellent preparation for the tuberculosis, colds, coughs, anemia and general debility.

Contains no narcotics, and can be used safely by young and old.

Prepared only by
GIEPSI VEMELA CO.
DOUGLAS, ARIZ.
Full Directions Inside.

Price $1.00

Guaranteed under the pure food act, Serial No. [illegible]

McMullin's Tonic.—In the early part of 1921 the Tilden McMullin Co., Sedalia, Mo., shipped from Missouri to Colorado a quantity of "McMullin's Tonic" which was misbranded. The Bureau of Chemistry reported that analysis showed this stuff to contain alcohol, glycerin, iodids, carbolic acid and water. The stuff was falsely and fraudulently labeled as a relief for consumption, asthma, catarrh, bronchitis, etc. In August, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9886; issued Feb. 21, 1922.*]

Dupree's French Specific Pills.—The United Drug Exchange, New York City, shipped in October, 1920, and May, 1921, a quantity of "Prof. Dupree's French Specific Pills" which were misbranded. The chemists of the Bureau of Chemistry reported that analysis showed the product to contain aloes, iron sulphate, and a trace of alkaloids with indications of cotton-root bark and tansy. The stuff was sold "For use in the suppression of irregularities of the menses" and false and fraudulent claims regarding the therapeutic effects were made for it. In August, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9888; issued Feb. 21, 1922.*]

Shores Lung Balsam and Shores Mountain Oil Liniment.—In March, 1920, the Shores-Mueller Co., Cedar Rapids, Iowa, shipped a quantity of "Shores Lung Balsam" and "Shores Mountain Oil Liniment," both of which were misbranded. The federal chemists reported that the "Lung Balsam" contained pine tar, ammonium chlorid, a salicylate, chloroform, glycerin, sugar and water. It was falsely and fraudulently represented as an effective treatment and cure for sore lungs, bronchitis, whooping cough, croup and throat trouble.

The "Mountain Oil Liniment," according to the federal chemists, contained cajeput, wintergreen, sassafras, cedar oils, camphor, ammonia, borax, washing soda, plant extractives, capsicum oleoresin, alcohol and water. This was falsely and fraudulently represented as an effective treatment and cure for colds, cramps, colic, cholera morbus, diarrhea, rheumatism, indigestion, sore throat, mumps and other things. In addition to these false and fraudulent claims the product was further misbranded in that the amount of alcohol contained therein was not correctly stated. In October, 1921, a plea of guilty was entered on behalf of the Shores-Mueller Co. and the court imposed a fine of $60 and costs.—[*Notice of Judgment No. 10044; issued May, 1922.*]

Montauk Star Brand Pills.—A quantity of "Montauk Star Brand Pills," offered for sale in the District of Columbia in July, 1921, was charged by the federal officials with being misbranded. The Bureau of Chemistry reported that analysis showed the pills to contain iron sulphate, aloes, and a trace of strychnin. The preparation was sold under the claim that it was "For use in the suppression of irregularities of the menses." These and similar claims were declared false and fraudulent and, in October, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9908; issued March 6, 1922.*]

Princess Brand Pennyroyal, Tansy and Cotton Root Bark Compound Pills.—These pills were being offered for sale in Washington, D. C., in July, 1921. The government chemists reported that analysis showed the pills to contain aloes. They were falsely and fraudulently labeled as "A Safe, Reliable, Powerful, Yet Harmless, Emmenagogue." In October, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9919; issued March 6, 1922.*]

Shores Sarsaparilla.—In October, 1920, the Shores-Mueller Co., Cedar Rapids, Iowa, shipped a quantity of this product, which was misbranded. The federal chemists reported that Shores Sarsaparilla contained extracts of plant drugs, including a laxative, a salicylate, a small amount of ammonium chlorid, a trace of alcohol, glycerin and water. The stuff was falsely and fraudulently represented as an effective cure for catarrh, rheumatism, boils, blood and skin diseases, bad breath, eczema, general debility, female weakness, etc. In October, 1921, a plea of guilty was entered by the Shores-Mueller Co. and the concern was fined $20 and costs.—[*Notice of Judgment No. 10048; issued May, 1922.*]

Correspondence

A DEFENSE OF GROUP MEDICINE

To the Editor:—The communication by Dr. Wilson on the disadvantages and limitations of clinic or group medicine in The Journal, June 24, provoked in me a decided reaction. Much of the criticism he offered is true, but, as he said, can be applied with equal justice to the consultant and to the general practitioner. Other criticisms of group practice need only to be recognized to be obviated. A properly organized and managed modern clinic in a small city is far from being a "soulless corporation." Its members are conscientious physicians with as definite a clientele as the so-called family physician. What is the evidence that the average consultant or even general practitioner takes into account the individual's "psychologic reaction" any more definitely than does a member of a small group in a small city?

The question whether specialists in the large cities and medical centers should unite into groups is a debatable one. In cities ranging from 5,000 to 50,000 inhabitants, however—and there are 1,275 of these in the United States—the situation is entirely different. In these smaller communities it is almost impossible for one to confine oneself strictly to a specialty unless one is in a group or in some sort of partnership. General practitioners are everywhere clipping turbinates, removing tonsils, doing cesarean sections and performing every minor and major operation they think they can get away with. With the optometrists competing strongly for the refraction work, it is rare to find even an eye, ear, nose and throat specialist in the smaller cities who is not also engaging in general practice. It is manifestly impossible for an internist, a urologist, a pediatrician, a neurologist, a radiologist or even a general surgeon to make a living in most of these cities. Patients with conditions requiring expert attention are thus often either improperly treated, or are forced to make long, expensive journeys to specialists in distant cities.

On the other hand, it is possible, and has been shown to be feasible for a group of physicians to unite and confine themselves strictly to their specialties, and bring scientific medicine to these smaller communities. A well-organized clinic has a complete library and a well-equipped laboratory with roentgen-ray and other diagnostic apparatus which it is almost impossible for one man to own or operate. Scientific clinical and research work can be done at such a clinic as well as at the leading medical centers. If even 1,000 of these cities should contain such a clinic, think of the rapid advance that would be made in the practical application of scientific medicine.

The concept of the health center elaborated by Billings and others is in many respects ideal, but, like all ideals which require public cooperation, is difficult of realization. In addition, politics is likely to interfere at the most inopportune time, and in a day destroy or vitiate years of labor. Furthermore, no room is made in this régime for the true specialist. In fact, the temptation for the general practitioner to attempt everything would be even greater than at present. It is generally recognized that municipal, county and private hospitals with the so-called open door policy of admitting all licensed practitioners, regular or irregular, to their wards and operating rooms have promoted the growth of the present day "specialist in everything." The case of the community hospital recently cited in The Journal in which all of the practicing physicians in the community were on the staff, and a rotating service was maintained whereby each physician was in charge of the surgical ward for a certain period every two years, and again was in charge of the medical ward for a like period, illustrates the pernicious possibilities of this plan.

I would ask this question: Given a community that can support five physicians, is it better for each to attempt to do everything, or for the five to combine and each confine himself to the specialty for which he is best fitted?

John W. Visher, M.D., Twin Falls, Idaho.

THE EDITIO MAGNA OF VESALIUS

To the Editor:—Recently, I had the fortune to secure a copy of "Editio Magna" of Vesalius, the 1543, Operinus, Basle Edition. I believe the copy, which I have, is the finest in this country. It belonged to Lancisi, and was given with his other books to the Library of The Holy Ghost in Rome in 1714. After that time the library was called, "The Biblioteca Lancisiana," and the books were dispersed at the time of the Napoleonic Invasion of Italy. I am anxious to communicate with others, who own copies of this edition, in order that a list and location of these books may be recorded.

Horace Manchester Brown, M.D., Milwaukee.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SPINAL AND CISTERN PUNCTURE IN DIAGNOSIS AND TREATMENT OF INTRACRANIAL HEMORRHAGE

To the Editor:—Please describe the fundamental principles of the value of spinal and cistern puncture in the diagnosis and therapeutics of intracranial hemorrhage, mentioned in an abstract (The Journal, May 20, p. 1570). J. G. Bajandas, M.D., Coamo, P. R.

Answer.—Spinal puncture has long been used in both the diagnosis and treatment of meningeal hemorrhage. Obviously, no blood will find its way into the cerebrospinal fluid unless the hemorrhage is primarily meningeal or ventricular, or if it ruptures into the subarachnoid space or a ventricle. If the hemorrhage is recent, red corpuscles will be found; if old, the fluid will be more or less straw-colored on account of the hemoglobin or its derivatives dissolved in it. With an intracranial hemorrhage, blood will be found earlier and in greater quantity by cistern puncture than by lumbar puncture. The therapeutic value of lumbar puncture in intracranial hemorrhage, especially of the traumatic variety, has been amply testified to. Thus a French army surgeon, F. Albert (*Lyon chirurgical* **15**:328 [March-April] 1918) said: "Lumbar puncture should have a place of honor in all craniocerebral surgical establishments. In all doubtful cases of skull fracture or meningeal hemorrhage it settles the diagnosis. All cases of concussion and cerebral hypertension are accompanied by hypersecretion of cerebrospinal fluid. Lumbar puncture is the treatment, counteracting at one time both cause and effect. It is the only efficient treatment of basal fracture." If this observer had been familiar with cistern puncture, even the French language probably would hardly have sufficed to express his enthusiasm.

Cistern puncture is rather new, and so far has principally been used in cases of spinal subarachnoid block and for injections of arsphenamized serum in paresis. The case reported by Ruggles and Wyatt (*Boston M. & S. J.* **186**:572 [April 27] 1922), to which our correspondent refers, demonstrates that bloody fluid may be readily obtained by cistern puncture in a case of cerebral hemorrhage when for some reason or other lumbar puncture gives a "dry tap." That no block existed in this case was shown by the fact that salt solution injected through the spinal puncture needle caused the cistern pressure to rise. To our knowledge, this is the only case of hemorrhage reported in which the combined puncture has been used, and with apparent success, for the purpose of flushing out the cistern and subarachnoid space; but it has been used with benefit in cases of meningitis.

SACHS' ANTIGEN

To the Editor:—In Queries and Minor Notes, it was stated in reply to Dr. Watson's question (The Journal, May 20, 1922, p. 1558) that in Dold's test a cholesterolized antigen is used, prepared according to Sachs' method. Will you describe this method and also how to secure this antigen? Gabriel Rigau, M.D., Yauco, Porto Rico.

Answer.—The antigen is thus prepared: A normal beef heart is freed from fat, pericardium and large blood vessels, and then ground up fine in a meat chopper. The minced heart muscle is now mixed with five volumes of 95 per cent. alcohol, and shaken vigorously in a shaking machine four or five hours. After standing at room temperature over night, it is filtered through ordinary filter paper, and placed in the icebox for at least two days; at the end of this time, it is filtered again through filter paper to remove any precipitate that formed while in the icebox. It is now ready, and is stored at room temperature. Before use in the test, it must be diluted with two volumes of alcohol, cholesterinized by the addition of from 0.045 to 0.06 per cent. of a 1 per cent. alcoholic solution of cholesterol, and titrated against a known standard antigen.

The Sachs-Georgi test for syphilis was discussed by Parker and Haigh in the *Archives of Dermatology and Syphilology* 4:67 (July) 1921.

OSGOOD-SCHLATTER DISEASE

To the Editor:—Please describe the Osgood-Schlatter disease of the tuberosity of the tibia.

MARK HOUSTON, M.D., Urbana, Ohio.

ANSWER.—Osgood-Schlatter disease (Schlatter's disease, Schlatter's sprain) is a condition of partial functional incapacity, due to thickening, separation or partial separation of the tibial tuberosity. The etiology and pathology of the disease are still obscure. Some think that the condition is a dystrophy, others that it is due to inflammation. Connell believes that the disease is a purely traumatic condition, most common in those under 17 years of age, imperfect union of the tibial tubercles being a predisposing factor. Since many cases are bilateral, and other muscular and ligamentous insertions may show periosteal thickening, DaCosta believes that the condition is probably systemic. Müller says that Schlatter's disease is a symptom of a systemic pathologic condition that manifests itself in a tendency to spontaneous separation of the epiphyses, and infractions, and that it is connected with late rachitis.

ADMINISTRATION OF TYPHOID VACCINE

To the Editor:—1. It has been my custom to advise persons who have had typhoid fever not to take prophylactic typhoid vaccination, on the assumption that they had as complete active immunity as they could develop. I would appreciate information as to whether I am following the most accepted ideas on the subject.

2. I would also like to know to what extent it is considered best to decrease the dosage of vaccine for little children and whether it is good practice not to give it at all to children under 2 years of age.

SUBSCRIBER.

ANSWER.—1. The immunity acquired by typhoid patients is usually good enough to make vaccination superfluous, provided the diagnosis has been correct. If the vaccine is to be employed, it is better to start with a small dosage.

2. Chantemesse recommends that children be given four vaccinations with doses proportioned to the weight of the child. For instance, a child weighing 35 kg. should receive half the dose, a child weighing 18 kg. one quarter of the dose for adults. The age under 2 years is not a contraindication, but in these children the disease is comparatively rare and not severe.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

SOUTH DAKOTA: Waubay, July 18. Director, Dr. H. R. Kenaston, Bonesteel.

Wisconsin Reciprocity Report

Dr. John M. Dodd, secretary, Wisconsin State Board of Medical Examiners, reports that at the special meeting held at Milwaukee, April 12, 1922, eight candidates were licensed by reciprocity. Four candidates were licensed on government credentials. The following colleges were represented:

College	LICENSED BY RECIPROCITY Year Grad.	Reciprocity with
Loyola University	(1921)	Illinois
Northwestern University	(1910), (1921)	Illinois
Rush Medical College	(1921, 2)	Illinois
University of Michigan Medical School	(1906)	Michigan
University of Minnesota	(1898)	Minnesota
Columbia University	(1919)	New York

College	ENDORSEMENT OF CREDENTIALS Year Grad.	Endorsement with
Hahnemann Med. College and Hospital of Chicago	(1915)	U. S. Army
University of Illinois	(1913, 2)	U. S. Army
Medical College of Virginia	(1917)	U. S. Army

District of Columbia January Examination

Dr. Edgar P. Copeland, secretary, District of Columbia Board of Medical Supervisors, reports the oral and written examination held at Washington, Jan. 10, 1922. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 10 candidates examined, 7 passed and 3 failed. Three candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Howard University	(1920) 77.2, 85.7, (1921)	84.8
Harvard University	(1919)	93.6
University Med, College of Kansas City	(1910) 80.7, (1921)	82.1, 89.5
FAILED		
Howard University	(1920) 68.3, (1921)	74.6
University of Minnesota	(1920)	74

College	LICENSED BY RECIPROCITY Year Grad.	Reciprocity with
Illinois Medical College	(1900)	Mississippi
Jefferson Medical College	(1916)	Penna.
Fort Worth School of Medicine	(1901)	Texas

Hawaii April Examination

Dr. Guy C. Milnor, secretary, Hawaii Board of Medical Examiners, reports the written examination held at Honolulu, April 11-13, 1922. The examination covered 11 subjects and included 55 questions. An average of 75 per cent. was required to pass. Of the 3 candidates examined, 1 passed and 2 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
John A. Creighton Medical College	(1917)	75
FAILED		
College of Physicians and Surgeons, San Francisco	(1901)	40
Atlanta School of Medicine	(1913)	70

Oklahoma April Examination

Dr. J. M. Byrum, secretary, Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, April 11-12, 1922. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 4 candidates examined, 3 passed and 1 failed. Two candidates were granted reregistration licenses, and one candidate received a duplicate license. Thirteen candidates were licensed by reciprocity. One candidate was licensed on Navy credentials. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Bennett Medical College	(1913)	78
Tulane University	(1919)	83
University of West Tennessee	(1920)	75
FAILED		
Meharry Medical College	(1921)	64

College	LICENSED BY RECIPROCITY Year Grad.	Reciprocity with
University of Arkansas	(1918)	Arkansas
Atlanta College of Physicians and Surgeons	(1913)	Texas
Atlanta Medical College	(1915)	Georgia
Louisville Hospital Medical College	(1900)	Arkansas
Tulane University	(1918) Texas, (1919)	Missouri
Ensworth Medical College	(1908) Kansas, (1910)	Nebraska
St. Louis College of Physicians and Surgeons	(1911)	Arkansas
University Medical College of Kansas City	(1904)	Utah
Miami Medical College	(1899)	W. Virginia
University of Tennessee	(1913), (1914)	Arkansas

College	ENDORSEMENT OF CREDENTIALS Year Grad.	Endorsement with
Northwestern University	(1917)	U. S. Navy

The Drugless Cults in Germany.—The *Münchener medizinische Wochenschrift* warns that the organized irregular practitioners have founded the Verband für Volksheilkunde, which is circulating petitions protesting against the proposed notification of venereal disease and compulsory treatment, claiming that the public is being enslaved, etc. The charlatans are making every effort to combat this dreaded regulation, as it will deprive them of their most fertile field of work, and they are carrying on this agitation to bring pressure to bear on the legislators. The communistic party in the reichstag is warning against the dangerous and self-seeking aims of the petition and is urging people not to sign it; and the German Antiquackery Society is appealing to the medical and lay press to expose the true motive of the petition.

Book Notices

Surgical and Gynæcological Nursing. By Edward Mason Parker, M.D., F.A.C.S., Surgeon to Providence Hospital, Washington, D. C., and Scott Dudley Breckinridge, M.D., F.A.C.S., Gynæcologist to St. Joseph's Hospital, Lexington, Kentucky Second edition. Cloth. Price, $3 net. Pp. 425, with 134 illustrations. Philadelphia: J. B. Lippincott Company, 1921.

This book consists of six parts. The first part is biologic, and summarizes bacteriology and wound infection. The second part deals with surgical pathology and surgical nursing. The third covers minor technic in surgical nursing, application of dressings and bandages, and an outline of the Carrel-Dakin technic. In the fourth part the patient is considered; postures and the details of preparation and of observation are described. The fifth part describes the operating room, its contents, personnel and technic. There is a complete collection of photographs of instruments designed to enable the nurse to identify them. The sixth is supplementary; the gynecology dispensary, emergencies, and an epitome of surgical and of gynecologic conditions are detailed. The work is written in interesting style; it is accurate in all essentials, and covers in small space a wide field in a way sufficiently complete to supply the nurse not only with basic principles, but also with details.

Der Balken: Eine Anatomisch, Physiopathologische und Klinische Studie. Von Dr. G. Mingazzini, O. Professor an der Klinik für Nevenkrankheiten der Kgl. Universität Rom. Paper, 160 marks. Pp. 212, with 84 illustrations. Berlin: Julius Springer, 1922.

This is No. 28 of the neurologic monographs edited by Foerster and Wilmanns. It is an ideal monograph, giving to the reader a clear and authoritative account of everything known about the anatomy, embryology, physiology and pathology of the corpus callosum. The author has devoted a great deal of his recognized investigative ability to the study of this important and conspicuous, yet rather neglected and mysterious, portion of the brain, which shares with the pineal gland the honor of having been considered several hundred years ago as the seat of the soul. The most common lesions giving rise to clinical syndromes are complete or partial defect, tumors, vascular lesions, and a peculiar type of degeneration encountered in alcoholics.

On Modern Methods of Treating Fractures, Including the Jacksonian Prize Essay on Bone Grafting. By Ernest W. Hey Groves, M.S., M.D., B.Sc., Surgeon to the Bristol General Hospital. Second edition. Cloth. Price, $8. Pp. 435, with 296 illustrations. New York: William Wood & Co., 1922.

The general lack among clinicians of an accurate conception of pathologic changes in the bones, the difference of opinion as to treatment still existing among competent surgeons, and the all too large percentage of bad results following the treatment of fractures serve to make such a monograph as this a valuable contribution to bone literature. "Bone" literature rather than "fracture" literature is employed because of the broadness of the scope of the work. The first part is devoted to the general principles of massage, mobilization and extension. The greater part of the remainder is devoted to operative methods of treatment and the experimental basis of this treatment. There is a very good summary of the more important contributions to the literature of experimental research on bone. The author has added the results of a considerable amount of experimental work of his own, and gives a clear-cut presentation of the status of bone regeneration and the living graft. The only criticism that may be offered, if it may be so designated, is the apparent inclination of the author to the operative rather than to the nonoperative side. This, of course, we recognize as less of a failing when practiced by a competent man. Nevertheless, for the great majority who are not competent, this is bad teaching, because bad results following operative exposure of a fracture are far more disastrous than when such exposure has not been made, and because bone surgery is technically difficult. Sepsis, against which every writer on the subject warns, is far more likely to occur in an open fracture than in a laparotomy wound. Many may contest the statement of the author that such sepsis is "probably postoperative in its origin." Nevertheless, the text is clearly the work of a master; it is interestingly written, and the illustrations are many and beautiful.

The Stomach and Abdomen from the Physician's Standpoint. By William Russell, M.D., LL.D., Consulting Physician, Royal Infirmary, Edinburgh. Cloth. Price, $4. Pp. 329, with 35 illustrations. New York: William Wood & Company, 1921.

At a time when many are looking for short cuts to diagnosis and the burden of proof is laid at the door of the clinical or roentgen-ray laboratories, it is refreshing to have brought back to us in a clear manner and in delightful and simple English the real value that is obtained in carefully eliciting a history and as carefully making a physical examination. Dr. Russell believes it to be the duty of the physician, as distinguished from the surgeon, to assume the responsibility of diagnosis. He decries the readiness with which exploratory operations are resorted to, and considers them the bane of differential diagnosis. A rather novel explanation of gastric disturbances is given. All center about gastric chemism. Disordered or pathologic states are divided into two classes, determined by increased or decreased hydrochloric acid secretion. These conditions are considered as clinical entities. Thus, the author speaks of an acid dyscrasia of the stomach, of which peptic ulcer is a complication or sequel. In fact, the failure to recognize this dyscrasia is the reason for the diagnosis of ulcer being made so frequently. Numerous carefully elicited histories which, in the light of our present knowledge, assisted by roentgen-ray examination, would lead to a diagnosis of ulcer, in the author's opinion, point to simple hyperchlorhydria. Only in the later chapters of the book is the prominence given to roentgen-ray examination that it deserves. Ideas are submitted which seem hardly in accord with modern views, such as sudden relaxation of spasm of the pylorus as a cause of gastric cramps. There are scarcely any references to recent work in gastric physiology. There are chapters on diseases of the stomach and intestines, spleen, liver, jaundice and the kidney. Differential diagnosis is considered very carefully. Many citations of history records from Dr. Russell's personal experience are given. To each are appended paragraphs on diagnosis and treatment. The impression gained is that this little volume would prove to be of considerably more value to the beginner than to one with the mature judgment of years of practice.

Lehrbuch der Speziellen Psychiatrie für Studierende und Aerzte. Von Professor Dr. Alexander Pilcz. Sixth edition. Paper. Price, 80 marks. Pp. 315. Leipsic: Franz Deuticke, 1922.

Written specifically for students and practitioners, this textbook is limited strictly to a description of the clinical varieties of mental disease and defect. General symptomatology, pathogenesis and dynamic psychology have been intentionally omitted, on the assumption that they are of no practical value, and are of interest only to the specialist. Whatever one may think of this view, there can be no hesitation in asserting that the task undertaken has been admirably carried out. The descriptions are concise, and yet extraordinarily full; the language and style are simple, but vividly real, and there is an entire absence of dry, monotonous technicality, which so often makes this subject the bane of the student's existence. Few headings are used, each named disorder being considered under symptoms, psychic and somatic; course; prognosis; differential diagnosis; etiology, and therapy. Pathologic anatomy is described briefly when anything is known. Treatment is accorded perhaps more than its usual quota of space, a special chapter being added on the use of drugs, and is thoroughly up to date, with the exception that there is no mention of occupational therapy or psychotherapy. War experiences are quoted freely, and there is a short chapter on hypnosis. The descriptions of the psychopathic states, especially "moral insanity," are strikingly good, and both here and elsewhere the medicolegal considerations are eminently practical and useful.

Medicolegal

Negligent Treatment of Fracture

(Petefish v. Morrison (Kan.), 205 Pac. R. 651)

The Supreme Court of Kansas, in affirming a judgment for damages in favor of the plaintiff, but withouting stating the amount of the judgment, says that the plaintiff's right leg was broken near the ankle, and the defendant was called to treat the injury. He dressed the broken limb, braced it with a splint, and propped the foot straight forward with a pillow. The weight of the foot, however, caused it to turn outward, and in that position the fracture healed, so that thereafter as the plaintiff walked her right foot turned outward at an angle of nearly 90 degrees. An orthopedic surgeon testified that it is elementary in setting fractures that the limb must be placed in a normal position, immobilized, and held firmly by some method in its normal position until the bones have an opportunity to mend; that if the foot was rotated outward that was sufficient notice that the foot should be put back in a normal position and held there, independently of whether a roentgenogram was available or not. Many witnesses testified for the plaintiff that this precaution to keep the foot in position was not taken, and that it was permitted to lie over and outward to the right. The defendant's visits to his patient continued off and on for about three weeks before he discovered that her foot was everted, by which time the cartilaginous substance had so far formed that the foot could only have been straightened by more pain and suffering, while the record showed that the plaintiff had certainly borne enough of that, partly owing to the wrong position of her foot while the fracture was healing. For the defendant, there was evidence that the foot was correctly placed and the fracture properly treated; and it was argued for him that he undertook to render limited services only; that he told the plaintiff she should go to a hospital where a roentgenogram of her injury could be taken and where she would receive more attention; that her accident occurred during an epidemic of influenza; that he had so many patients he was going night and day, sleeping only three or four hours in the twenty-four, at the time; and that the eversion of the foot was caused by the plaintiff's own negligence. But the disputed facts were all disposed of by the jury's verdict; and, no error being found in the record of the trial, the judgment for the plaintiff was affirmed.

Evidence Admissible to Show Defendant was a Moron

(People v. Joyce (N. Y.), 134 N. E. R. 836)

The Court of Appeals of New York, in reversing a judgment of conviction and ordering a new trial in this homicide case, says that a number of officers and detectives of the police force testified as witnesses for the prosecution as to statements alleged to have been made by the defendant. Counsel for the defendant, in his opening of the case to the jury, stated that he would show that the defendant had a mind of a youth of 9 or 10 years. The district attorney objected on the ground that it was not a matter of defense in the case as to the condition of the defendant's mind; and the trial judge said, "He has not claimed to be insane." Counsel then went on to state that it would be proved by competent evidence that the defendant's mentality was such that he would yield if any one who had a stronger mind insisted, talked well, pleaded or threatened. But counsel, having thus assured the jury that he would establish that the defendant had the mind of a child, from which he would argue that, even assuming that the defendant made the statements attributed to him, such statements were the result of suggestion and lack of comprehension on his part of what he was stating, or the result of an illusion that he was a hero, was denied the privilege of making any proof of the defendant's mental condition. A specialist in nervous and mental diseases was called as a witness. Having testified as to his experience, and that he had examined the defendant in the county jail, he was asked to tell the condition in which he found the defendant. The district attorney objected to the question; and the judge stated that he did not understand the theory; that there was no defense of insanity interposed. Counsel then explained that he intended to prove by the physician that the defendant's mind was such that, judging from the test, he had the mind of a boy between the ages of 10 and 12 years, and that, this being so, his mind was easily influenced by people who had stronger minds; and that by beating him and talking to him, the officers would be able to get his mind in such a condition that he would not know what he was saying, or, if he did say something, it would not be true. The judge's answer was that if the defendant did not positively assert that he made no such statement to the officers at all; if he admitted that he had told the officers these things, and that he was either tweedled, tracked, or tricked into it, that would be relevant testimony. But he had said that he did not make any such statement; and the only theory possible was that the testimony which he himself gave was false; which the court would not want to assume. However, the court of appeals holds that the trial justice was in error in suggesting that the defendant was required to file a special plea of insanity or lack of mentality as a prerequisite to the introduction of evidence of insanity or lack of mentality. If the defendant was what is known in medical jurisprudence as moron; that is, one whose intellectual development proceeds normally up to about the eighth year of age, and then arrested, never exceeds that of a normal child of about 12 years, evidence of such fact was material for consideration by the jury. The fact that the defendant denied the statements testified to by the officers was not a legitimate reason for a rejection of the evidence. Such denial would not bar him from offering such proof, or his counsel from arguing that, in the event he made such statements, he was not of sufficient mentality to understand what he was stating, or that his mind was controlled by a superior force or intellect. A question put to the defendant's mother, as to whether he had a fall when he was a little boy, was likewise competent, and an answer thereto should have been permitted.

Summary Quarantine and the Writ of Habeas Corpus

(Ex parte Caselli (Mont.), 204 Pac. R. 364)

This was an application, in chambers, before Chief Justice Brantly of the Supreme Court of Montana, for a writ of habeas corpus. In discharging the writ and remanding the complainant to the custody of the sheriff, the chief justice says that there is, perhaps, no authority to be found at this late day which denies that the legislature, under its police power, may enact laws authorizing the establishment of quarantine regulations and requiring the detention of persons affected with contagious diseases dangerous to the public health, without resort to a preliminary judicial proceeding to determine the character of the disease and the facts constituting the danger to public health. Under the Montana statute involved in this case, the proper health officer may issue his warrant directing the arrest, without notice, of any person reasonably suspected of having a communicable disease, and his detention for the time being and until the existence and character of the disease can be determined; and, in case his course of conduct or condition is such, in the judgment of the health officer, as to render it necessary, in order to protect the public health, he may isolate the person in question until he recovers from the disease or until he may be released without further danger to the public. If, however, after his arrest, the person challenges the right of the authorities to continue his detention, he is entitled to have it legally inquired into on habeas corpus.

The existence of the power of the health officer to detain any one rests on the existence of the facts making such detention necessary. The law does not deprive any citizen of the right to be heard on this question, but he is not entitled to a hearing in the first instance; that is to say, before he is taken for quarantine. The fourteenth amendment to the constitution of the United States and the sections of the constitution of the state of Montana requiring due process of law have no application to this class of cases. Counsel for the state insisted that the finding of the county health officer in such a case, declaring that the detained citizen is afflicted with a contagious disease, and is therefore dangerous to the public health, is conclusive and not subject to review by the courts. There is some conflict of authority on this subject; but the great weight of it supports the rule stated: the law does not tolerate the arrest and detention of any citizen without the right to challenge the existence of the facts on which he is held.

The complainant in this case was held by the sheriff under an order of the health officer of the city and county of Missoula, made under the quarantine regulations established by the state board of health, under Chapter 106 of the Laws of the Sixteenth Legislative Assembly, on the ground that, according to the information of the health officer, she was affected with gonorrhea, a disease declared by the statute to be contagious, communicable, and therefore dangerous to the public health. She applied for a writ of habeas corpus to obtain her release on the grounds that she was not granted a judicial hearing prior to the time she was taken and detained by the sheriff, and that the facts did not exist showing that she was affected with the disease and so conducted herself as to be dangerous to the public health. The facts introduced at the hearing established clearly that she was affected with gonorrhea. This was ascertained by scientific means by the bacteriologist employed by the state board of health, on the application of the health officer. The only uncertainty was whether, in the condition she was in, she would, in fact, be dangerous to the health of the community in which she lived if she were allowed to go at large. The testimony was not satisfactory, but it did disclose circumstances which justified the inference that she, within a comparatively short time prior to her arrest, had been plying her trade of prostitute; and, on all the evidence, the conclusion is reached that the health officer was justified in directing her detention until she should become cured or until she might be safely allowed to go at large.

Indictable Prescribing of Narcotics

(United States v. Behrman (U. S.), 42 Sup. Ct. R. 303)

The Supreme Court of the United States, reversing a judgment sustaining a demurrer to an indictment of the defendant, a physician registered under the Harrison Narcotic Law, says that the law contains an exception to the effect that it shall not apply to the dispensing or distribution of such drugs to a patient by a registered physician in the course of his professional practice only, nor to the sale, dispensing or distribution of the drugs by a dealer to a consumer under a written prescription by a registered physician. The rule applicable to such statutes is that it is enough to charge facts sufficient to show that the accused is not within the exception. The district judge who heard this case was of the opinion that prescriptions in the regular course of practice did not include the indiscriminate doling out of narcotics in such quantity to addicts as charged in the indictment, but, out of deference to what he deemed to be the view of a local district judge in another case, announced his willingness to follow such opinion until the question could be passed on by this court, and sustained the demurrer. In this court's opinion, the district judge who heard the case was right in his conclusion and should have overruled the demurrer.

Former decisions of this court have held that the purpose of the exception is to confine the distribution of these drugs to the regular and lawful course of professional practice, and that not everything called a prescription is necessarily such. It may be admitted that to prescribe a single dose, or even a number of doses may not bring a physician within the penalties of the act; but what was here charged was that the defendant physician, by means of prescriptions, had enabled one, known by him to be an addict, to obtain from a pharmacist the enormous number of doses contained in 150 grains of heroin, 360 grains of morphin, and 210 grains of cocain. Undoubtedly, doses may be varied to suit different cases, as determined by the judgment of a physician. But the quantities named in the indictment were charged to have been intrusted to a person known by the physician to be an addict, without restraint on him in its administration or disposition by anything more than his own weakened and perverted will. Such so-called prescriptions could only result in the gratification of a diseased appetite for these pernicious drugs, or result in an unlawful parting with them to others, in violation of the act as heretofore interpreted in this court.

Test When Defense Is Insanity—Nonexpert Opinions

(Feree v. Commonwealth (Ky.), 236 S. W. R. 246)

The Court of Appeals of Kentucky, in affirming a judgment of conviction of defendant Feree, says that he was charged with wilful murder, and the defense was made that he was insane at the time of the shooting. But no rule is more generally acknowledged, nor more fully sustained by reason, than the one which presumes every person to be of sound mind until the contrary is shown by a preponderance of the evidence. One who enters a plea of insanity to a criminal charge must show by a preponderance of the evidence that his mind was so far gone, so diseased and unsound, that he did not know the consequences of his act, nor realize that he was doing wrong at the time of the act of which complaint is made. It is the theory of some students of physiology, and assented to by many alienists, that most persons have insane delusions on one or more subjects although they are of sound mind on all other subjects and may be good business people, industrial workers or leaders of thought; and this may or may not be true. This court thinks, however, that the true test in criminal cases is: Did the defendant at the time he struck the blow or fired the shot which injured or killed another know or realize the consequences of his act? If he did, then he is guilty both at law and in morals. If he did not know and was not able to realize the consequences of his act, then he was not responsible therefor, either in law or morals. Even though one may be possessed of insane delusions on one or more subjects, he is liable for his criminal acts, if at the time he performs them he knows and realizes that he is doing wrong. Cases are not infrequent in which one is sane part of the time and insane at other times. If such a one commit a crime during his lucid intervals, he is as responsible as if he had never suffered from dementia. The defendant, Feree, may have been insane, or so unbalanced mentally at the time of his breakdown some years before the killing with which he was charged in this case, that he would not have been responsible for his criminal act; but if he afterward recovered, his responsibility returned at the same time.

With regard to allowing nonexpert witnesses to express opinions as to the mental soundness of a person at a certain time, the rule in Kentucky is to allow a nonexpert witness to give his opinion as to the mental condition of another only after he has testified to facts showing a familiarity on his part with the life, habits and conduct of the one whose mental condition is under consideration; and, even then, his opinion, this court has held, is not so important as the evidence which he gives showing the idiosyncrasies or normalcy of the mind of the one under inquiry. In other words, the opinion of a nonexpert witness as to the mental status of another cannot be received in evidence because it has no probative value unless it is supported by a statement of facts from which the opinion can be and is reasonably deduced: and the opinion can be of no greater value as evidence than the facts on which it is based.

Society Proceedings

COMING MEETINGS

Colorado Congress of Ophthalmology and Oto-Laryngology, Denver, July 28-29. Drs. M. D. Brown and J. M. Shields, Metropolitan Bldg., Denver, Secretary.

Utah State Medical Association, Salt Lake City, Aug. 31-Sept. 2. Dr. W. L. Rich, Boston Bldg., Salt Lake City, Secretary.

Washington State Medical Association, Tacoma, Sept. 5-6. Dr. C. H. Thomson, 508 Cobb Bldg., Seattle, Secretary.

Wisconsin, State Medical Society of, Green Lake, Sept. 6-8. Dr. Rock Sleyster, Wauwatosa, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

June, 1922, **23**, No. 6

*Food Requirements of Children. III. Fat Requirement. L. E. Holt and H. L. Fales, New York.—p. 471.
*Frequency of Tuberculosis in Childhood. F. Hamburger, Styria, Austria.—p. 481.
*Idiopathic Aplastic Anemia. C. Herrman, New York.—p. 484.
*Spasmophilia and Alkali Reserve of Blood. J. K. Calvin and M. P. Borovsky, Chicago.—p. 493.
*Active Immunization of Nurses Against Diphtheria in a Children's Hospital. J. V. Cooke, St. Louis.—p. 498.
*Aspiration of Stearate of Zinc in Infancy. H. Heiman and P. W. Aschner, New York.—p. 503.
*Healing of Hypertrophic Pyloric Stenosis After Fredet-Rammstedt Operation. M. Wollstein, New York.—p. 511.
Vitamin Requirement of Various Species of Animals. V. E. Nelson, A. R. Lamb and V. G. Heller, Ames, Iowa.—p. 518.
*Peculiar Eruptive Disease Occurring in Infancy. J. H. Park, Jr., and J. C. Michael, Houston, Texas.—p. 521.
*Value of Intracutaneous Tuberculin Test in Extensive Tuberculosis. W. M. Happ and H. R. Casparis, Baltimore.—p. 527.
*Bacteriolysant Therapy of Bacillary Dysentery in Children. W. C. Davison, Baltimore.—p. 531.
Review of Literature of Syphilis in Infancy and Childhood. P. J. White, St. Louis.—p. 535.

Fat Requirement of Children.—Holt and Fales assert that a certain amount of fat should be supplied to provide fat soluble vitamin. This amount is not yet known. Fat probably has an important influence on mineral metabolism especially on calcium metabolism. Fat is probably necessary for proper digestion and utilization of protein and on this account it seems desirable to supply as much fat as protein in the diet. Fat helps to maintain normal physical, bacteriologic and chemical conditions in the intestine. It also exerts a protective action against the irritating effects of the products of carbohydrate fermentation. A great reduction of fat in the diet increases the susceptibility to infection, especially to tuberculosis. The authors urge that the grounds for the current impression regarding the harmful effects of fat on children should be investigated carefully. There is little evidence that a liberal amount of fat in the diet is harmful to children with normal digestion and much evidence that fat is an important and necessary component of the diet during the entire growth period. In general, it seems rational to supply in the diet of the child as much as 4 gm. fat per kilogram daily at one year, decreasing the amount to about 3 gm. per kilogram at 6 years and maintaining this value throughout the remainder of the growth period.

Frequency of Tuberculosis in Children.—The method employed by Hamburger is this: All children to be examined are first subjected to a cutaneous or percutaneous test with concentrated tuberculin. Those who do not react, from twenty-four to forty-eight hours later, receive a subcutaneous injection of 0.01 mg. tuberculin. Those who do not react after the second injection are given a third injection after a further twenty-four hours. If the test is negative, another injection is given after the lapse of another twenty-four hours, or at most forty-eight hours, the dosage being raised to 1 mg. If the place of injection does not show any reaction, such as definite redness and infiltration, the child may be regarded as free from tuberculosis with nearly absolute certainty. In doubtful cases, an injection of 10 mg. is given.

Idiopathic Aplastic Anemia.—Herrman reports a case in a child, 4 years old, in which marked improvement was obtained from transfusion of 380 c.c. blood from her father.

Alkali Reserve in Spasmophilia.—In three cases of spasmophilia in infants studied by Calvin and Borovsky no evidence of "alkalosis" was found. In fact, there was a tendency for the alkali reserve to be lowered during the spasmophilic stage and gradually to be increased as the cases recovered.

Immunization Against Diphtheria.—During a four years' period all nurses with positive Schick reactions were given injections of toxin-antitoxin by Cooke and as a result more than 80 per cent. were immunized. In a small number the Schick reaction remained positive after two series of toxin-antitoxin injections. As a result of the immunization, there was a decrease in the incidence of clinical diphtheria among these nurses of at least 90 per cent. as compared to a previous three years' period.

Aspiration of Stearate of Zinc by Infants.—Stearate of zinc has largely replaced talcum as a dusting powder in the nursery. With its ever widening use there has developed a striking increase in the number of disastrous results of infants from its accidental aspiration. Heiman and Aschner present a clinical study of twelve cases and the results of experiments with zinc stearate insufflation in animals. The onset of trouble is sudden and stormy, with rapid respirations and cyanosis. Complete asphyxia may occur. In eight cases the initial partial asphyxia was followed by a gradual recovery without definite involvement of the lungs. The rapid respirations and cyanosis which followed immediately on the inhalation of the powder subsided during the course of three days. The temperature was only slightly elevated. The stearate of zinc container as now prepared for the nursery is a distinct menace to the health of infants. The authors ask the medical profession to eliminate this dangerous type of container from the nursery.

Healing After Fredet-Rammstedt Operation.—The stomach of twenty-five infants who came to necropsy with hypertrophic pyloric stenosis were examined by Wollstein. Two children died before operation, and the rest succumbed from twenty-four hours to two years after the Fredet-Rammstedt operation had been performed. The lesion in hypertrophic pyloric stenosis is a hyperplasia of the unstriped muscle cells of the circular coat, while the connective tissue is not increased. After the Fredet-Rammstedt operation healing is brought about by the cells of the serosa and submucosa, but the unstriped muscle cells take no part in the process. The wound in the pylorus is healed within nine days. The pylorus has become relaxed within two weeks. The stomach has returned to its normal size within a month and the gap between the cut ends of the muscle coats has practically disappeared in six weeks. In two years only a thin line of connective tissue fibers separates these two muscle ends, and the stomach is quite normal. In contrast to the operation of gastro-enterostomy which leaves the pylorus unchanged, the Fredet-Rammstedt operation cures the pyloric lesion.

Eruptive Disease in Children.—Twenty-one cases of what Zahorsky has termed "roseola infantum," are analyzed by Park and Michael. The outstanding features are the abrupt onset, the high fever of from three to five days' duration without apparent cause, and the appearance of a morbilliform rash coincident with a critical fall of temperature to normal. Additional points of distinction are the apparent noncontagiousness, and the predilection of the disease for infancy. Moderate leukopenia and lymphocytosis appear to be the only significant laboratory findings. This condition is distinctive and appears to be a clinical entity. The etiology is unknown.

Value of Intracutaneous Tuberculin Test.—In order to compare the results of intracutaneous tests with those of the Pirquet cutaneous test, Happ and Casparis did Pirquet tests in most instances at the same time as the intracutaneous tests. In miliary tuberculosis and tuberculous meningitis in infants and children the Pirquet cutaneous test was positive in just over 50 per cent. of the cases. The intracutaneous test is more sensitive and as opposed to the Pirquet test it not only affords a method of accurately measuring the amount of tuberculin given, but enables one to increase the amount at will. The authors assert that if a high enough concentration of tuberculin is given intracutaneously, a positive reaction will be obtained in practically all cases of tuberculosis.

Bacteriolysant Therapy of Dysentery.—As far as can be judged from twelve cases of bacillary dysentery in children, in which bacteriolytic filtrates in amounts of from 5 to 1,381 c.c. were administered by Davison, bacteriolysant therapy did not influence the mortality or the course of the disease.

American Journal of Roentgenology, New York

May, 1922, **9**, No. 5

*Roentgen Rays and Radium in Diagnosis and Treatment of Carcinoma of Prostate. H. C. Bumpus, Rochester, Minn.—p. 269.
Roentgen-Ray Diagnosis of Nonopaque Foreign Bodies in Air Passages. W. F. Manges, Philadelphia.—p. 288.
Practical Method of Roentgen-Ray Examination of Heart. R. G. Karshner and R. H. Kennicott, Los Angeles.—p. 305.
Protective Rubber Glove Rack. R. G. Van Nuys, Oakland, Calif.—p. 314.
Present Status of Deep Roentgen-Ray Therapy in Europe. W. H. Stewart, New York.—p. 315.
*Treatment of Diphtheria Carriers by Means of Roentgen Ray. P. M. Hickey, Detroit.—p. 319.

Carcinoma of Prostate.—Bumpus asserts that the average duration of cancer of the prostate, if untreated, is approximately three years. Roentgenograms show that metastasis to the bone occurs in about one third of the cases of cancer of the prostate. Metastasis from atypical carcinoma of the prostate, in which the cells, because of their tendency to early metastasis, produce only slight local enlargement, may frequently be mistaken for Paget's disease. In order to treat successfully cancer of the prostate with radium it is necessary to use in the aggregate large doses (from 3,000 to 4,000 mg. hours), exposing all parts of the gland to comparatively small doses. The increased duration of life following radium treatment in cases of cancer of the prostate is in direct proportion to the amount of radium radiation applied. No one method of application radiates all portions of the gland. The malignant gland must be radiated by urethral and rectal exposures, and by needles inserted directly into the neoplasm in order to produce complete radiation of all portions. Sacral anesthesia is a useful adjunct in the application of radium needles, making it possible to place the radium accurately and to change the position of the needles without pain; thus a more thorough radiation of the gland is accomplished.

Treatment of Diphtheria Carriers by Roentgen Ray.—Roentgen-ray treatments were given to diphtheria carriers by Hickey over the region of the tonsils, nose and mastoid areas, according to the type of the case. In the throat cases, that is, those in which Klebs-Loeffler bacilli were found in pharyngeal secretions, the treatment was given on each side of the neck, the central rays being directed toward the tonsils. In the nasal cases, the treatment was given directly over the nose, and in the ear cases over the mastoid area of the ear, which showed Klebs-Loeffler bacilli in the discharge. Nineteen throat cases were treated, with a definite cure in fifteen. of six nasal cases, four were cured. Nine cases of otitis media presenting Klebs-Loeffler bacilli were treated, with four cures. A comparison shows that in untreated cases of diphtheria carriers, there was 34 per cent. of spontaneous cures; cases treated with mercurochrome, 68 per cent. of cures; pharyngeal cases treated by the roentgen ray, 80 per cent. of cures.

American Journal of Tropical Medicine, Baltimore

May, 1922, **2**, No. 3

Microfilaria of Filaria Bancrofti. W. L. McFarland, New York.—p. 187.
Effect of Emetinized Blood and Serum from Man and Cat on Pathogenic Entamebae in Stools. W. Allan, Charlotte, N. C.—p. 195.
Experimental Investigation of Supposed Poisonous Qualities of Granary Weevil, Calendra Granaria. F. Defiel, Minneapolis.—p. 199.
Death Caused by Ascarides. F. C. Caldwell, Panama.—p. 213.
Blastocystis Species in Culture. K. M. Lynch, Dallas, Tex.—p. 215.
Certain Coprozoic Organisms in Cultures from Man. K. M. Lynch, Dallas, Tex.—p. 223.
*Typhus Fever in Boston; Review of Newer Methods of Diagnosing Typhus. G. C. Shattuck, Boston.—p. 225.
Relapsing Fever Spirochetes of Panama. J. H. St. John and L. B. Bates, Ancon, C. Z.—p. 251.

Typhus in Boston.—On the basis of the estimated total of medical cases admitted to the Boston City Hospital during a ten-year period, Shattuck says, the proportion of typhus diagnosed is slightly less than one case per ten thousand. Failure to diagnose typhus seems to have occurred in the proportion of from one to two cases per ten thousand. If this be true, the actual occurrence of fairly typical typhus cases during the past ten years was at the rate of from two to three cases per ten thousand admitted, but if any considerable number of atypical cases suggestive of typhus were in fact typhus, the figure should be higher. The epidemiologic aspect of the question requires serious consideration because, should typhus begin to spread in Boston, the recognition of mild or atypical cases in their early stages would assume serious importance and the problems of differential diagnosis would be much the same as those encountered in the study of the hospital records.

American Review of Tuberculosis, Baltimore

May, 1922, **6**, No. 3

*Healing by Resolution in Experimental Pulmonary Tuberculosis. L. U. Gardner, Saranac Lake, N. Y.—p. 163.
*Chemotherapy of Silver and Arsenic Compounds in Experimental Tuberculosis. M. I. Smith, Washington, D. C.—p. 183.
Nonspecific Cross Fixation of Complement with Wassermann and Tuberculosis Antigens. A. D. Dulaney, Columbia, Mo.—p. 192.
*Tuberculosis in Infancy and Childhood: Report of Case; Incidence and Necropsy Findings in Forty Cases. L. W. Smith, Boston.—p. 201.
*Diagnosis of Active Tuberculosis in Children. C. B. Gibson and W. E. Carroll, Meriden, Conn.—p. 213.
*Heliotherapy in Treatment of Laryngeal Tuberculosis. W. C. Voorsanger.—p. 223.
Prevention of Tuberculosis: Theory and Possibilities. D. M. Lewis, New Haven, Conn.—p. 229.
Immunity to Tuberculosis. A. K. Krause, Baltimore.—p. 233.

Healing in Experimental Pulmonary Tuberculosis.—To the general pathologist, healing of the lesions induced by the tubercle bacillus usually signifies fibrosis or calcification. A relatively small group of tuberculosis experimentalists have for twenty years or more been familiar with a low virulent strain of tubercle bacillus capable of inducing a different type of healing; namely, a complete disappearance of visceral lesions from the body of the experimental animal. The organism which these observers have used is known in the Saranac Laboratory as Rk. Isolated by Trudeau from a human case of meningitis in 1891, this organism has maintained a constant low degree of virulence. The visceral lesions resulting from its inoculation tend to heal spontaneously, but Gardner says none of them has worked out by histologic study the mechanism of the healing process. The illustrations accompanying Gardner's article demonstrate the fact that the R 1 strain of tubercle bacillus is capable of producing lesions which progress to caseation, and that this caseation, together with the accompanying proliferation of fixed tissue cells, is then absorbed. The healing process is one of resolution, of which no trace remains at the site of the former lesion.

Chemotherapy of Silver and Arsenic Compounds in Experimental Tuberculosis.—An investigation conducted by Smith on the chemotherapy of some arsenic and silver compounds in tuberculosis has shown that neo-arsphenamin and silver arsphenamin have a very slight inhibiting action on the growth of the tubercle bacillus in vitro. Colloidal silver oxid has no effect whatever on its growth, while silver methylene blue has a very considerable inhibiting action on its growth. None of these substances has any demonstrable effect on the pathogenicity of the tubercle bacillus when exposed to their action in vitro at body temperature for forty-eight hours. None of these substances when administered to experimentally infected tuberculous guinea-pigs has any favorable influence on the course of the disease.

Tuberculosis in Infancy.—A case of double miliary infection by the human tubercle bacillus in a child, aged 11, is presented by Smith. The outstanding pathologic features of the case were the unusual numbers of organisms which stain readily with methylene blue, the two separate and distinct crops of miliary lesions, and a peripheral gliosis in the cord and cerebrum. The statistics on 200 consecutive necropsies from the Infants' Hospital are reported, showing an incidence of 20 per cent. tuberculosis. An analysis of these figures is made showing the distribution of the lesions and their significance.

Diagnosis of Tuberculosis in Children.—Gibson and Carroll emphasize that the diagnosis of tuberculosis in children is not a subject for dogmatism. It is their belief, however, that active tuberculosis is invariably manifested by signs and evidences of bacterial intoxication. As long as there is an active tuberculous focus in the body, some indication of constitutional toxemia will be discovered either by physical diagnosis—the best means—or by some test or reaction. One of the most interesting procedures of this nature is the auto-urine test of Wildbolz. Gibson and Carroll have used the test on 105 children and it has been of value in establishing a definite diagnosis of active tuberculosis in certain cases and of great assistance in ruling out nontuberculous conditions. Fifty-six cases previously classified clinically reacted positively. The test not only corroborated physical findings of activity in 98 per cent. of cases but brought to light a definite diagnosis in six children whose conditions had not been finally decided on. Negative results were obtained in forty-nine cases and with one exception these results were not at variance with the opinions reached after clinical examination. The percentage of the diagnoses of nontuberculous conditions in these cases which were corroborated by the auto-urine tests was 97.9. Therefore, the auto-urine test deserves a definite place among the various methods employed in diagnosis of active tuberculous disease.

Heliotherapy of Laryngeal Tuberculosis.—Voorsanger emphasizes the value of heliotherapy in the treatment of laryngeal tuberculosis, particularly in the infiltrative and mild ulcerative stages where, if carried out conscientiously for a period of six months, complete arrest is possible. One of the greatest benefits of heliotherapy is the alleviation of pain, especially in hopeless cases. The solar therapeutic laryngoscope of composition metal materially increases the efficacy of the application of sunlight to the larynx, in that it permits protracted exposure without causing painful hyperemia.

Boston Medical and Surgical Journal

June 15, 1922, **186**, No. 24

International Mind in Medicine. K. Emerson, Worcester, Mass.—p. 795.
Congenital Anatomic Defects of Spine and Ribs. J. W. Sever, Boston. —p. 799.

Colorado Medicine, Denver

June, 1922, **19**, No. 6

Chorionepithelioma. Report of Cases. H. A. Black, Pueblo.—p. 113.
*Resistance to Tuberculosis—Study of Influence of Carbon Dioxid on Tubercle Bacillus. H. Gauss, Denver.—p. 118.
*Pernicious Anemia as Studied Through a Remission. W. Grieg, Jr., and W. S. Dennis, Denver.—p. 125.
Consciousness and Secretions. L. W. Cole, Denver.—p. 127.

Effect of Carbon Dioxid on Tubercle Bacillus.—Gauss' study indicates that the concentration of carbon dioxid found to inhibit the growth of the tubercle bacillus occurs normally in the human body, and that this concentration probably does inhibit the growth of the tubercle bacillus, thus establishing this factor as significant in the resistance to tuberculosis.

Study of Pernicious Anemia During a Remission.—A case of pernicious anemia showing a remission during which the hemoglobin rose from 10 to 56 per cent. in twenty-one days is reported by Grieg and Dennis. With the rise in hemoglobin content were showers of erythroblasts and megalocytes as well as leukocytes and myelocytes. Early disturbances of the sensory nerves and numbness of the limbs were complained of in 1914. The absence of free hydrochloric acid from the gastric secretions and a long history of recurring attacks of mild diarrhea, and the blood chemical findings of a slight nitrogen retention and an acidosis not associated with ketonuria seem to be in keeping with the chemical findings reported by others in this disease.

Journal of Industrial Hygiene, Boston

June, 1922, **4**, No. 2

Dysmenorrhea as an Industrial Problem. S. R. Meaker, Boston.—p. 49.
Analysis of 123 Cases of Anthrax in Pennsylvania Leather Industry. H. F. Smyth and E. Bricker, Philadelphia.—p. 53.
Experiments in Air Conditioning. P. Drinker and R. M. Thomson, Boston.—p. 63.
Experimental Observations on Relation Between Atmospheric Conditions and Production of Fatigue in Mine Laborers. A. J. Orenstein and H. J. Ireland, Johannesburg, S. A.—p. 70.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

May, 1922, **19**, No. 4

Functional Evidence of Phylogeny of Nervous System as Shown by Behavior and Resistance of Developing Rat to Strychnin. E. W. Schwartze, Washington, D. C.—p. 273.
*Pharmacologic Studies on Acetone. W. Salant and N. Kleitman, Augusta, Ga.—p. 293.
Toxicity of Skatol. W. Salant and N. Kleitman, Augusta, Ga.—p. 307.
*Action of Mercury. W. Salant and N. Kleitman, Augusta, Ga.—p. 315.
Changes with Advancing Age in Resistance of Albino Rat to Arsenic. F. S. Hammett and J. E. Nowrey, Jr., Philadelphia.—p. 331.
Relative Toxicity of Germanium and Arsenic for Albino Rat. F. S. Hammett, J. H. Muller and J. E. Nowrey, Jr., Philadelphia.—p. 337.

Pharmacology of Acetone.—Salant and Kleitman's experiments show that acetone possesses a double action causing depression as well as stimulation, but it is chiefly a depressant. These results seem to contradict some of the statements in the literature concerning the action of acetone. Salant and Kleitman never observed cardiac acceleration; nor could they corroborate the statement of Albertoni that after large doses respiration was regular. As to the potency of acetone, it is evident that its action is not very strong, but is nevertheless considerable. It is particularly interesting to note that its effect was greatly augmented when a number of just active or subminimum doses were given. Though the amounts of acetone present in the blood in acidosis are comparatively small, it should be borne in mind that the tissues and organs in the body may be exposed to its action for a considerable period. There is, therefore, no justification for the assumption that acetone is without effect in those conditions simply because its concentration in the blood is low.

Mercury Causes Fall in Blood Pressure.—Salant and Kleitman noted that the intravenous injection of the acetate, succinate and benzoate of mercury into cats, dogs and rabbits produced a sudden fall in blood pressure which was very marked and persistent. Depression and later paralysis of respiration also occurred. Cardiac inhibition was produced by the intravenous injection of the salts of mercury in cats, but not in dogs or in rabbits. Decreased irritability of the vagus was observed in cats after the intravenous injection of the organic salts of mercury. That the fall in blood pressure after mercury was of cardiac origin was shown by observations on changes in the volume of the kidney. Perfusion of the turtle heart with the different salts of mercury produced cardiac depression, irregularity and delirium cordis. Concentrations of one part of mercury to one million parts of Ringer's solution, and even one to ten million, were effective. The frog's heart was more resistant to mercury than the turtle's heart. No delirium cordis was observed. The action of mercury is cumulative.

Laryngoscope, St. Louis

May, 1922, **32**, No. 5

Facial Paralysis and Surgical Repair of Facial Nerve. K. W. Ney, New York.—p. 327.
*Liver Tunnel and Cardiospasm. H. P. Mosher, Boston.—p. 348.
New Operative Technic for Operative and Postoperative Treatment of Maxillary Sinus Diseases. H. B. Lemere, Omaha.—p. 363.
Aeration of Posterior Accessory Sinuses in Acute Optic Neuritis. L. E. White, Boston.—p. 382.

Liver Tunnel and Cardiospasm.—Roentgenograms of the lower end of the esophagus often show it ending in a nipple-like point. Between this and the fundus of the stomach there is a gap. This varies in length but may measure 1 inch or even 1½ inches. Mosher asserts that this gap is the closed liver tunnel in which the subdiaphragmatic part of the esophagus runs. The lower end of the esophagus has liver on the right, in front, and in many cases a thin tongue of liver hooks round its left edge like a sickle. In reviewing ten cases of cardiospasm Mosher found a stricture in all. They are called cardiospasm because the obstruction occurred at the lower end of the esophagus, the esophagus ended in the characteristic nipple-like point, and swallowing of cold fluids increased the difficulty, whereas swallowing of warm drinks made the passage of food through the esophagus easier. The stricture found in these cases varied from a slight crescentic fold in the right quadrant of the esophagoscope in the region of the hiatus to a full annular stricture with a central opening. In the cases which showed the crescentic fold steady pressure with the end of the esophagoscope usually resulted in the tube slipping by into the normal esophagus below and through this into the stomach. The withdrawal of the tube disclosed a vertical slit in the mucous membrane of the esophagus. Three of the cases had a full stricture with a central opening. This stricture was at the hiatus or rather at the upper edge of the liver. On divulsing the stricture with the mechanical dilator a crescentic mounding was seen in the right field below it. Steady pressure caused the tube to pass this and enter the subdiaphragmatic esophagus and then continue on into the stomach. This mound, Mosher believes to be the upper edge of the liver. In one case there was a narrowing of the whole length of the liver tunnel. The cause of the annular stricture at the upper edge of the liver tunnel or of the narrowing of the whole tunnel will be found, Mosher believes, in previous infection of the lesser omentum which may result in temporary or permanent narrowing of the liver tunnel.

Minnesota Medicine, St. Paul

June, 1922, **5**, No. 6

Traumatic Surgery as Viewed from an Industrial Standpoint. W. O'N. Sherman, Pittsburgh.—p. 343.
*Causes of Failure of Operations for Chronic Appendicitis. C. J. Rowan, Iowa City, Ia.—p. 348.
*Primary Carcinoma of Lung. R. I. Rizer and H. C. Habein, Minneapolis.—p. 352.
Examination of Teeth in Group Medicine. B. S. Garner, Rochester, Minn.—p. 356.
Osteomyelitis. C. C. Allen, Austin, Minn.—p. 359.
Premenopausic Uterine Prolapse. E. Z. Wanous, Minneapolis.—p. 362.
Nontuberculous Infection of Lungs. H. M. Conner, Rochester, Minn.—p. 364.
Experiences in Feeding of Whole Lactic Milk in Certain Conditions of Infancy. C. O. Kohlbry Duluth, Minn.—p. 369.
Résumé of Partial Rectal Prolapse with Suggestion as to Treatment. W. A. Fansler, Minneapolis.—p. 372.
Puerperium from Standpoint of Neuropsychiatrist. C. E. Riggs, St. Paul.—p. 375.

Causes of Failure After Appendectomy.—Believing that a considerable amount of trouble complained of after appendectomy may be due to adhesions, Rowan regards as valuable the suggestion of Gibson to use 5 per cent. picric acid in 95 per cent. alcohol. Its antiseptic action is as strong as tincture of iodin and its penetrating power as great, it is less irritating to skin and peritoneum, and peritoneal adhesions are not nearly so likely to occur following its use as a skin antiseptic. After a careful study of his cases, Rowan feels that the results of operation for chronic appendicitis are not satisfactory and that there is considerable room for improvement. He suggests that these patients should have more careful examination and often more prolonged observation, especially if the condition is not in every way typical. No patient should be regarded as having typical chronic appendicitis unless a history of a former characteristic acute attack is obtainable. Extra care and consideration should be used before advising operation in neurotics, especially those with colitis or visceroptosis. More exploratory incisions should be used in preference to the muscle-splitting incision, and always in atypical cases; and the exploration should not end with the discovery and removal of a diseased appendix.

Primary Carcinoma of Lung.—When a patient has dyspnea, deep dull chest pain with hemoptysis, and possibly some abnormal chest findings, Rizer and Habein state malignancy of the lung should be considered. They report four cases in which the admitting diagnoses were tuberculosis, weakness of left arm and left leg; asthma, aneurysm or bronchiectasis and pleurisy with effusion, respectively. The final diagnosis in these cases, in the order named, was: primary carcinoma of the left lung; primary carcinoma of the right lung, with brain metastases; carcinoma of the right lung, with abscess and primary carcinoma of the right lung. In each case the clinical diagnosis was confirmed at the necropsy and extensive metastases were found.

New Orleans Medical and Surgical Journal

June, 1922, **74**, No. 12

Reminiscences. E. S. Lewis.—p. 744.
Address of Dr. Matas at the Meeting of the Faculty of the School of Medicine on May 23, 1912.—p. 767.
Address to Dr. E. S. Lewis. E. D. Martin.—p. 776.

New York State Journal of Medicine, New York

June, 1922, **22**, No. 6

Sequels of Epidemic Encephalitis. L. F. Barker, Baltimore.—p. 251.
Communicability and Serum Treatment of Poliomyelitis. H. L. Amoss, New York.—p. 256.
Vasoligature and Steinach's Investigations. C. H. Chetwood, New York.—p. 260.
Abuse of Cesarean Section. R. L. De Normandie, Boston.—p. 265.
Effects of Roentgen Ray on Infected Lymph Tissue of Nasopharynx. W. D. Witherbee, New York.—p. 269.
Study of Paranoid Trends in Hysteria. P. R. Lehrman, New York.—p. 272.
*Clinical Studies of Quinidin. III. Some Results of Quinidin Treatment of Auricular Fibrillation. R. L. Levy, New York.—p. 276.
Heliotherapy in Tuberculosis. H. L. Grasso, Perrysburg, N. Y.—p. 281.
Production of Antisheep Amboceptor in Mule. R. Gilbert, Albany, N. Y.—p. 286.

Quinidin in Auricular Fibrillation.—In view of the possibility of the occurrence of occasional embolic phenomena and of serious disturbances in the cardiac rhythm, Levy urges that until the criteria for choosing favorable cases are more clearly defined, patients with auricular fibrillation receive quinidin in bed, under careful supervision and preferably in a hospital, where the behavior of the heart can be studied with the aid of graphic records. Carefully administered, this drug is a therapeutic agent of great value; indiscriminately given, it may, on occasion, be expected to cause disastrous effects.

Philippine Islands Medical Association Journal, Manila

January-February, 1922, **2**, No. 1

Probable Endemicity of Schistosomum Japonicum in Philippine Islands. M. Paz Mendoza-Guazon.—p. 1.
Carcinoma of Maxillary Antrum. V. C. Alcantara.—p. 7.
Etiologic and Clinical Studies on Meningitis. W. Vitug.—p. 8.
Frequency of Various Presentations and Postitions Among Filipino Women. A. Villarama.—p. 13.
*Organisms for Two Sporadic Cases of Cerebrospinal Meningitis. C. Monserrat.—p. 15.

Organism Isolated from Cerebrospinal Meningitis.—The organisms isolated in the two cases of meningitis reported by Monserrat resembled morphologically and in staining characters the true meningococcus, differing however in the rapid profuse growth obtained in all ordinary mediums from the beginning, their ability to grow at room temperature, and their inability to ferment any sugar medium. The formation of uniform emulsion in physiologic solution of sodium chlorid is a constant character of these two strains resembling in this respect the normal meningococcus, though there is a certain tendency to agglutinate spontaneously when observed microscopically in 0.85 per cent. salt solution. The absence of pigment in the growth on ordinary and special mediums distinguishes these organisms from the chromogenic D flavus group. At the same time they differ from the D flavus-like organism isolated in one case previously reported by Monserrat, in that they are not agglutinated by a serum specific for that organism. The facts that the present organisms were not affected equally by different antimeningococcic serums, and that with all of these serums except one rather low dilutions were necessary in order to produce reaction, lead Monserrat to the conclusion that probably his strains belong to the intermediate group often found in sporadic cases and generally spoken of as aberrant strains or parameningococci. These are more or less related serologically to the true meningococcus varieties, differing chiefly in their sugar reactions.

Surgery, Gynecology and Obstetrics, Chicago

June, 1922, **34**, No. 6

Reconstruction Surgery of Face. V. P. Blair, St. Louis.—p. 701.
*Granuloma Inguinale. A. Randall, J. C. Small and W. P. Belk, Philadelphia.—p. 717.
Hydatid Cysts of Pancreas. M. Albo, Montevideo, Uruguay.—p. 739.
*Icterus Index of Blood Serum. H. P. Maue, New York.—p. 752.
*Pathognomonic Sign of Intrauterine Death. A. B. Spalding, San Francisco.—p. 754.
Elephantiasis Treated by Kondoleon Operation. F. P. Herff, San Antonio, Tex.—p. 758.
Traumatic Orbitofacial Emphysema. G. G. Davis, Chicago.—p. 761.
*Experimental Pyloroplasty. G. H. Miller, Chicago; H. H. Bowing, Rochester, Minn., and L. L. Stepp, Pittsburgh.—p. 763.

*Experimental Reconstruction of Esophagus by Granulation Tubes. H. Neuhof and J. M. Ziegler, New York.—p. 767.
Total Removal of Scapula for Primary Giant-Cell Sarcoma. B. B. Davis, Omaha, Neb.—p. 776.
Streptococcus Scrotal and Penile Gangrene. M. F. Campbell, New York.—p. 780.
*Calculi Within Brain. E. A. Miller, Denver.—p. 786.
Uterine Hemorrhage of Endocrinopathic Origin. S. H. Geist, New York.—p. 790.
Corrective Rhinoplasty. L. Cohen, Baltimore.—p. 794.
Bone Surgery of Nose. W. W. Carter, New York.—p. 800.
*Secondary Perineal Repair. T. H. Cherry, New York.—p. 803.
New Metal Tube Splint for Fractures of Forearm. H. A. McKnight, Philadelphia.—p. 808.
Direct Stimulation of Peripheral Nerves. H. O. Feiss, Cleveland.—p. 810.
*Induction of Labor by Use of Castor Oil and Quinin. Report of Three Hundred Cases. A. C. Williamson, Pittsburgh.—p. 812.
Ulcers on Posterior Wall of Stomach and Duodenum. M. Behrend, Philadelphia.—p. 815.

Granuloma Inguinale.—Randall and his associates are convinced that granuloma inguinale, long considered a tropical disease, is endemic in the temperate zone of the United States. Its diagnosis is dependent on (1) the characteristic local lesion, (2) the marked predominance in the negro race, (3) and the finding of the specific organism originally described by Donovan. These organisms the authors have demonstrated in smears from granuloma lesions in twelve patients in a series of sixteen. In the other four instances laboratory examinations were not made. An encapsulated bacillus, which when stained from cultures, resembles this organism, has been isolated from three of the twelve patients studied culturally. This bacillus is a member of the *Bacillus mucosus-capsulatus* group. Abscesses with spontaneous rupture and ulcer formation have been produced in rabbits by subcutaneous inoculation. These heal spontaneously in from three to seven weeks and grossly cannot be regarded as granulomas although the walls of these abscesses on histologic examination present granulation tissue not to be differentiated from that of the granuloma lesions. Friedländer's bacillus forms similar lesions. A few experiments attempting to establish symbiotic relationships between the encapsulated bacilli from granuloma lesions and staphylococci, colon bacilli, and diphtheroids in experimental lesions have failed. Treatment with tartar emetic intravenously acts as a specific, and rapid healing may be expected with the prompt disappearance of the specific organism. No contraindication to the intravenous use of this drug up to doses as high as 0.1 gm. have been met.

Icterus Index of Blood Serum.—Muehlingradt recently described a method for determining bile pigments in the blood. Briefly, it consists of comparing blood plasma with a standard solution of potassium bichromate and diluting the plasma with physiologic solution of sodium chlorid until its color approaches that of the standard. The potassium bichromate solution (1:10,000) is approximately equivalent to the color of a nonicteric plasma. Maue has modified this method, using serum instead of plasma. The technic is as follows: A solution of potassium bichromate 1:10,000 is used as a standard. From 5 to 10 c.c. of blood are obtained, and the serum allowed to separate. The serum is compared in a colorimeter (Duboscq) with the standard bichromate solution. The standard may be set at 10, 15 or 20 mm. The icterus index is obtained by dividing the reading of the standard by the reading of the unknown. When the color of the serum is too dark, and cannot be compared with the standard solution, the serum is diluted with physiologic solution of sodium chlorid until its color approaches that of the standard. In 156 cases giving no clinical evidence of jaundice, the lowest value obtained was 1.6 (fracture of skull), while the highest was 12 (pernicious anemia), the average being 3.6. An icterus index varying between 2.5 and 6 may be considered as normal.

Pathognomonic Sign of Intra-Uterine Death.—From a study of fetal skulls with the roentgen ray in thirty-one cases of pregnancy Spalding has found that with live babies the fetal skulls appear normal, except for the effect of labor which produces an overlapping of the skull bones. In three cases of intra-uterine death, the roentgen ray showed the marked overlapping of the skull bones with distinct signs of shrinkage of the skull contents. From these facts Spalding believes it is justifiable to state that shrinkage of the skull contents with overlapping of the skull bones can be demonstrated with the roentgen ray, which gives a pathognomonic sign of intra-uterine death.

Experimental Pyloroplasty.—The Rammstedt operation, or so-called "partial pyloroplasty," according to Miller and his associates is, when conditions will permit, the most effective way of enlarging the pylorus. It has the advantage of being the simplest operation yet devised for this purpose and requires very little time under anesthesia. A plastic flap operation is unsatisfactory on account of requiring such extensive incisions into the lumen of the canal. It is also unsatisfactory on account of its tendency to retract and restore the divided pyloric sphincter.

Experimental Reconstruction of Esophagus.—A simple experimental method has been devised by Neuhof and Ziegler in which a granulation tube is employed for the reconstruction of the esophagus after its resection. A two-stage procedure is requirement. The desired portion of the esophagus being thoroughly isolated, gauze packings are placed beneath it, the ends coming out of the wound. The latter is left wide open. At the second stage, one week later, the isolated portion of the esophagus is elevated by the traction on the packings and is divided obliquely above and below. The packings and the segment of esophagus are then removed. A bed of granulation tissue is found to have formed beneath the packings. A soft rubber tube of the diameter of the esophagus is securely sutured to the upper and lower ends of the organ by stitches passed transversely. When the tube becomes loose it is removed if it has not already been discharged from the wound. A granulation tube forms with epithelial overgrowth from the esophageal ends beginning in one week and becoming extensive at the end of three weeks. The longest period of observation was seven months after operation. In this case the new-formed tube was well developed and completely lined by esophageal epithelium. A partial stenosis appeared soon after operation but was not progressive. The method is advocated as applicable for reconstruction of the esophagus after resection for cancer.

Calculi in Brain.—The case described by Miller differs markedly from those found in the literature in that the roentgenologic examination revealed shadows which had the appearance of stones or calculi within the brain substance and these were successfully removed at operation.

Secondary Perineal Repair.—The puborectalis muscles are the point of attack in Cherry's operation because, he asserts, the structures injured at the completion of the second stage of labor producing subsequent relaxed perineum and rectocele, are the pubococcygeus muscle bundles of the levatores ani, their fascial sheath (retrovesical and anal fascia), and the triangular ligament. In order properly to correct the disturbed anatomic relationship of the puborectalis to the rectum, it is necessary to approximate them with their fascial sheaths in the midline anterior to the rectum. To restore the vulva and vaginal support which depends on the triangular ligaments, it is necessary to shorten this structure and place it in close contact with the levator muscle and sheath. The operative technic described by Cherry fulfils these conditions in that it reestablishes the perineal structures in their anatomic relation.

Quinin and Castor Oil to Induce Labor.—Quinin and castor oil in inducing labor, Williamson states, are successful in approximately 50 per cent. of cases. Labor should be carefully watched, for occasionally there may be tetanic contractions. At the first sign of fetal or maternal distress, the operator should be ready to interfere. If there are signs of cinchonism, the quinin is to be stopped at once. The most favorable conditions for this type of induction are: When the estimated date is due or past, when the head is fixed or beginning to fix in the pelvis and when the uterus is irritable. The mechanism is due to irritation caused by the castor oil of the sympathetic centers, with increased peristalsis and a reinforcement of the rhythm and muscle tonus by the quinin acting directly on the uterine muscle bundles.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 3, 1922, **1**, No. 3205

Dyspepsia and Conditions Underlying It. Dawson.—p. 863.
Effects of Chronic Starvation During Siege of Kut. P. Hehir.—p. 865.
*Cancer of Breast. Treatment of Proemial Breast. G. L. Cheatle.—p. 869.
Suture of Ruptured Left Dome of Diaphragm. C. J. Marshall.—p. 871.
*Unusual Cause of Death From Cancer. E. A. Linell.—p. 872.
Oral Sepsis in Its Relation to General Disease. J. M. Ackland.—p. 872.
Solubility of Quinin Hydrochlorid. J. H. Crawford.—p. 874.
Functional Amblyopia. J. A. Wilson.—p. 875.
Rupture of Varicose Veins Mimicking Accidental Hemorrhage. C. J. H. Aitken.—p. 875.
Knot in Umbilical Cord as Cause of Accidental Haemorrhage. A. F. G. Guinness.—p. 875.

Treatment of Proemial Breast.—No surgeon of experience can be satisfied with the results obtained by the present surgical treatment of cancer when it arises primarily in the breast. Cheatle directs attention to the existence of a potentially dangerous state of the breast, and indicates the advisability of removal of a breast in this state rather than wait for the evidence of disease for which surgical measures have been proved to be so unsatisfactory. The condition of the breast which is a prelude to those particular pathologic changes Cheatle terms the "proemial breast." The proemial breast is worthy of due recognition for two reasons: (1) It is in a state that makes it a prelude to further pathologic changes of a highly important character—mainly simple papilloma, malignant papilloma, and other forms of cancer. (2) Its clinical recognition and adequate treatment occasionally enables the surgeon to recognize (microscopically) the presence of one or more of these changes, before any clinical sign of their existence is obtainable by any other means—that is to say, when the proemial breast has merged into those profoundly important stages to which it has acted as a prelude. When once established the condition of the proemial breast is permanent. The symptoms are swollen, painful and tender nodules not of the same size in corresponding parts of the same gland. There may be an intermittent or continuous discharge of serum from the nipple. A thin layer of coagulated serum may be seen on the surface of the nipple. The discharge is always small in amount. In the later stages of this complaint the pain disappears and cysts are present in varying number. The proemial breast bears exactly the same relationship to cancer and papillomas of the breast as the proemial appendix does to general peritonitis. Cheatle's treatment of the proemial breast, in whatever stage it exists, is to remove it.

Unusual Cause of Death in Laryngeal Cancer.—Linell relates the case of a woman, aged 43, suffering from an inoperable carcinoma of the larynx, which had required tracheotomy to relieve urgent symptoms. She was comfortable until early in morning of the twenty-fifth day, when she awoke with severe pain over the precordium. The pulse became almost impalpable and the heart sounds were very weak, but there was no dilatation of the organ and no bruits could be heard. There were moist sounds at the base of the left lung. These were the only antemortem findings of note except for slight sepsis round the tracheotomy tube. The patient died the next day. The postmortem examination disclosed a left sided pleurisy; abscess of left lung ruptured into the pleural cavity; nodular secondary growths on the pericardium and the left pleura; deposits in the bronchial glands; and in the right auricle, a papillomatous mass the size of a pea was found projecting into the cavity from the smooth endothelial wall. Histologic examination of this growth showed the typical structure of squamous cell carcinoma. From the facts that it was infiltrating the subendothelial heart muscle and separating the muscle fibers it would appear that the embolus had arrived via the blood or lymphatic system, and that it was not an implant on the auricular endothelium from embolism down the superior vena cava.

China Medical Journal, Shanghai

March, 1922, **36**, No. 2

Epithelioma. F. L. Meleney.—p. 93.
Modern Treatment of Leprosy. H. Fowler.—p. 115.
Hospital Administration Council. H. Fowler.—p. 119.
Micro-Methods of Urine and Blood Analysis. H. Wu.—p. 121.
Case of Vesicovaginal Fistula Operated on by Kelly's Method. D. Landsborough.—p. 128.
*New Eruptive Fever in Infancy. E. Tso.—p. 130.
Studies in Diet of Korean People. J. D. Van Buskirk.—p. 136.
Rinderpest and Its Prevention. E. L. Bliss.—p. 153.
Normal Rate of Pulse in Cantonese Students. W. W. Cadbury.—p. 170.

Exanthem Subitum.—In 1921, Veeder and Hempelmann (THE JOURNAL, Dec. 3, 1921, p. 1787) described an unusual syndrome of febrile exanthem occurring in early childhood. Three similar cases have been met with in Peking by Tso. The disease is characterized by a period of high and continuous fever lasting from three to five days, the appearance of a macular or maculopapular rash soon before or after the termination of the fever, absence of physical signs, negative laboratory findings, a distinct leukopenia, lack of contagiousness and a universally good prognosis.

Indian Medical Gazette, Calcutta

May. 1922, **57**, No. 5

Measurement as Basis of Diagnosis of Furcocercous Cercariae. F. Milton.—p. 161.
Rôle of Vitamins in Tropical Diseases. J. A. Shorten.—p. 164.
Diary of Medical Inspector of Schools. A. Hamid.—p. 169.
Yaws in Malaya. A. Viswalingam.—p. 172.
Ether in Tropics: New Apparatus. A. Hooton.—p. 175.
Differential Blood Count. L. E. Napier.—p. 176.
Case of Hypernephroma of Kidney. G. Chand.—p. 179.
Difficult Obstetric Case After Ventrofixation of Uterus. L. W. Hefferman.—p. 179.
*Unusual Abdominal Tumor. L. W. Hefferman.—p. 180.

Abdominal Tumor.—Hefferman's patient was a medium built Chinaman, aged 22 years, a mine coolie, who complained of a sinus in the left iliac region. He had no pain, stools were normal, and appetite unimpaired. At operation the tumor proved to be a mass of adherent intestines and omentum. Hefferman wonders whether the condition was a chronic tuberculous peritonitis or a chronic dysenteric peritonitis.

Irish Journal of Medical Science, Dublin

April, 1922, **5**, No. 2

*Venous Thrombosis and Gastric Carcinoma. T. G. Moorhead.—p. 49.
Blood Sugars. C. E. Brunton.—p. 57.
Prognosis in Mental Disease. H. R. C. Rutherford.—p. 65.

Venous Thrombosis Sign of Malignant Disease.—Moorhead states that the diagnostic value of intravenous thrombosis as a sign of visceral malignant disease seems hardly to have attracted the attention that it deserves, or rather it appears that, while universally admitted to be a not unusual phenomenon in states of advanced cancerous cachexia, it is hardly realized that it may occur as a comparatively early symptom, or even as the earliest symptom of a latent carcinoma. Four cases are cited by Moorhead which bear out the value of this observation that there is a group of cases of latent cancer of the stomach with peripheral venous thrombosis as the earliest, and indeed only, prominent symptom throughout.

Journal of Tropical Medicine and Hygiene, London

May 15, 1922, **25**, No. 10

Report on Hookworm Disease in British Solomon Islands. N. Crichlow.—p. 123.
Pseudoleptospira Icterohemorrhagie. R. W. Mendelson.—p. 125.
Freshly Dissolved Tartar Emetic in Venereal Disease. F. G. Cawston.—p. 126.
Cancer of Liver in African Native. A. Y. Massey.—p. 127.

Lancet, London

June 3, 1922, **1**, No. 5153

*Lymphatics and Lymph Glands. P. T. Herring and F. G. Macnaughton.—p. 1081.
*Value of Pulse Charts in Acute Carditis in Childhood. R. Hutchison.—p. 1086.
*Agglutinins in Normal Serums for Some Micro-organisms of Paratyphoid Group. A. B. Rosher and H. A. Fielden.—p. 1088.
*Colloidal Benzoin Reaction in the Cerebrospinal Fluid. J. H. Dible.—p. 1090.

Cases of Interest to Anesthetist. W. B. Howell.—p. 1092.
*Significance of Discharge from Nipple in Breast Lesions. E. C. Lewis. —p. 1093.
*Case of Antrochoanal Polypus of Exceptional Size. G. W. Dawson.—p. 1095.
Postural Subsartorial Bursitis. R. Davies-Colley.—p. 1096.
Differential Diagnosis Between Cholelithiasis and Duodenal Ulcer. W. J. McKeand.—p. 1096.

Lymph Glands and Tuberculosis.—Observations made by Herring and Macnaughton support the validity of the doctrine spoken of as Cohnheim's law which states that the tubercle bacillus reveals the site of its entry into the body by setting up characteristic changes in the lymph glands which receive lymphatics from the area in which it enters. There is no evidence of a new formation of lymph glands in tuberculous conditions. Microscopic glands exist and become enlarged, but much of the tissue associated with tuberculous glands is merely tuberculous tissue which bears a superficial resemblance to lymph glands in whatever situation in the body it occurs.

Treatment of Carditis.—The treatment of carditis, Hutchison says, offers few opportunities for active intervention—rest and patience are chiefly required, and too active therapeutics may do more harm than good.

Agglutinins in Normal Serum for Paratyphoid Group.—Rosher and Fielden have found that among the general population a considerable proportion of individuals yield serum agglutinating *B. paratyphosus* C, *B. aertrycke* (Mutton), and *B. enteritidis* (Gaertner). Some evidence is brought to show that the agglutination of *B. aertrycke* and *B. paratyphosus* C is largely due to secondary agglutination from the paratyphosus B element of the triple vaccine, whereas *B. enteritidis* (Gaertner) seems to be coagglutinated both by the typhoid and paratyphoid B elements. If a diagnosis is to be made on a single agglutination reaction, the titer must be very considerably higher than 1:640 for these organisms. A titer of over 1:1,000 is suggestive of infection with the organisms concerned, and a titer of over 1:2,000 is strongly suggestive of the same conclusion, but in all cases it will be necessary, if an accurate diagnosis is to be arrived at, to perform repeated tests and to demonstrate fluctuation in the agglutinin content of the patient's serum which is now generally recognized as characteristic of infection with organisms of this group and which the studies of Dreyer and his associates have made it possible to follow accurately. hitherton unobtainable.

Colloidal Benzoin Reaction of Normal Cerebrospinal Fluid.—From Dible's experiments it would appear that the negative reaction occurs with normal cerebrospinal fluid. The positive reaction indicates an alteration in the cerebrospinal fluid which is very probably syphilitic in nature. An ambiguous reaction indicates a pathologic condition in the cerebrospinal fluid, but does not indicate its exact nature.

Significance of Discharge from Nipple in Breast Lesions.—Among 251 cases of lesions of the breast reviewed by Lewis there were only 26 patients, all of them women, who gave a history of discharge from the nipple. In these 26 cases the lesions were as follows: spheroidal cell carcinoma, 9; chronic mastitis (cystic and noncystic), 6; duct carcinoma, 4; duct papilloma, 4; Paget's disease of the nipple, 1; abscess, 1; seborrheic dermatitis of the nipple, 1. In the case of spheroidal cell carcinomas, the total number of patients treated in ten years was 129, giving a percentage of about 7 with discharge. The percentage in chronic mastitis was 13.3, in duct carcinoma 36.3, and in duct papilloma 100. Of forty-four cases a history of discharge was given in 6—e. g., duct carcinoma, 1 (out of 4 specimens of this disease); spheroidal cell carcinoma, 3 (out of 18); chronic mastitis with multiple cysts, 1; malignant disease of the nipple, 1. In the single case of duct papilloma in the collection, in which the duct has dilated to the size of a small orange, the presence or absence of discharge is not mentioned in the history. In each case in which discharge was present the lesion lay immediately beneath the nipple. In all the malignant cases, except one, the patient had noticed the presence of a swelling in the breast for some time previous to the appearance of the discharge. Therefore, discharge from the nipple is not in itself a definite expression of malignancy and should not be treated as such unless the suspicion is strengthened by the rest of the history and clinical picture.

Large Antrochoanal Polyp.—The polyp in Dawson's case weighed 9.5 drams and filled the nasopharynx, bulging the soft palate forward. Respiration or deglutition was impeded. Beyond the peculiar muffled speech, and the occurrence of fits of suffocation should he happen to turn on his back during sleep, there were no symptoms.

Medical Journal of Australia, Sydney

April 22, 1922, **1**, No. 16

*Theory of Cancer. T. Cherry.—p. 425.
Ureteric Calculi and Phleboliths. R. Bridge.—p. 439.

Theory of Cause of Cancer.—Cherry is of the opinion that overnutrition and lessened muscular activity are factors in the increase in cancer morbidity and mortality. He speaks of activators and proliferins. More muscular work at all ages after 40, less elaboration in the manufacture of cereal foods and the attainment of conditions which insure greater activity of the skin, are suggested as prophylactic measures.

April 29, 1922, **1**, No. 17

Work of Massachusetts-Halifax Health Commission. B. F. Royer.—p. 451.
Possibilities of Irradiation in Malignant Disease. L. J. Clendinnen.—p. 456.
*Causation of Cancer. W. J. Penfold.—p. 460.
Bilateral Primary Solid Ovarian Carcinoma. W. T. Chenhall.—p. 463.

Causation of Cancer.—Penfold takes exception to Cherry's postulation of a "proliferin" and an "activator." It seems likely to him that the selecting agent or agents may be a product of defective metabolism, which product accumulates within the body. He suggests that all the known intermediate bodies which arise within the body in the metabolism of the proteins, purins, carbohydrates and fats should be tested in turn for the discovery of selective power.

May 6, 1922, **1**, No. 18

Education Number.

May 13, 1922, **1**, No. 19

*Importance of Uterosacral Ligaments in Uterine Prolapse. C. A. Thelander.—p. 511.
*Tumors of Brain: Pathology and Treatment. H. R. Dew.—p. 515.
Schaefer Method of Artificial Respiration. T. S. Dixson.—p. 521.
Acute Poliomyelitis. M. O'Sullivan and J. G. Sleeman.—p. 523.

Restoration of Uterosacral Ligaments for Prolapse.—Thelander believes that restoration of the uterosacral ligaments approximates closer to a physiologic condition than any other operation for prolapse. After restoration of these ligaments the stress of normal labor may be withstood without recurrence of prolapse. Plication of the ligament gives better results than parietal reattachment. The operation can easily be supplemented by one of the round ligament suspensions, if thought necessary. Where uterosacral support is adequate, no other operation is necessary.

Tumors of Brain.—Among the eighty-five cases analyzed by Dew were 30 gliomas, 6 endotheliomas, 1 sarcoma, 4 secondary tumors, 2 simple cysts, 2 papillary cancers, 4 gummas, 1 tuberculoma, 1 adenocarcinoma and 5 hydatids. Headache was the commonest symptoms; mental changes were noted in fifteen patients. Aphasia was noted in five. Convulsions were noted in twelve patients and as initial symptoms in eight. Ataxia was noted in connection with three frontal tumors. Optic neuritis was present in forty-six. Nystagmus was present in sixteen patients suffering from cerebellar tumor. In reviewing the facts as put forward, the diagnosis and treatment are disappointing when compared. Too often surgical intervention was delayed too long because of delay in diagnosis. With the fuller adoption of the newer aids to diagnosis, there is no doubt that few of the subtentorial tumors will escape detection and more of the others will be correctly localized.

Medical Journal of South Africa, Johannesburg

April, 1922, **17**, No. 9

Problem of Ventilation on Witwatersrand. E. H. Cluver.—p. 174.
Case of Melano-Epithelioma of Palate and Alveolar Arch. J. C. G. Macnab.—p. 185.
Ocular Tuberculosis: Two Cases. E. B. Israel.—p. 186.

Practitioner, London

May, 1922, **108**, No. 5

Chronic Intestinal Stasis. W. A. Lane.—p. 305.
Enucleation of Tonsil Under Local Anesthesia. D. McKenzie.—p. 314.
*Diathermy in Malignant Disease of Mouth and Fauces. W. J. Harrison.—p. 321.
*Diathermy in Treatment of Malignant Disease. F. J. Steward.—p. 328.
Some Common Disabilities of Foot in General Practice. G. P. Mills.—p. 335.
*Painful Heel. W. F. Stiell.—p. 345.
*Method of Using Tuberculin. R. Robertson.—p. 354.
Drug Therapeutics: Suggested Principle and New Drug (T. N. T.). W. E. Boyd.—p. 362.
Erysipelas and Streptococcal Septicemia. A. Erian.—p. 373.

Diathermy in Malignant Disease of Mouth.—In faucial growths, the ease with which diathermy can be employed, the lack of hemorrhage, preliminary tracheotomy, splitting of the cheek or other operation, Harrison says, makes it very much more satisfactory and safer than a cutting operation. Unfortunately, growths in this situation are often only passed over to the surgeon, who uses diathermy when they are inoperable by the knife, but in spite of this many patients have remained free from recurrence two, three or more years after the operation, and many others have had their lives prolonged, and their symptoms greatly relieved for shorter periods. Harrison is certain that if earlier cases in this situation were operated on by this method, the results would be more satisfactory than in cutting operations.

Diathermy in Malignant Disease.—In order to treat a case of malignant disease satisfactorily by diathermy, Steward says, two conditions are essential apart from the provision of an efficient apparatus. These two essentials are good illumination and complete exposure. If, for instance, the growth is situated within the mouth, a good headlight is necessary, and by means of gage, retractors, sutures through the tongue, and if necessary splitting the cheek, the whole of the affected area must be brought into plain view, for no good can be expected to result from working in the dark. Treatment by diathermy is capable of wide application; it is, for instance, available for many cases of malignant disease involving the tongue, the floor of the mouth, the fauces, the palate, certain parts of the pharynx, the vulva, and vagina. Of growths of the skin, although the majority are better excised with the knife, rodent ulcers are particularly suitable for treatment by diathermy.

Painful Heel.—By far the most prevalent type of painful heel, Stiell states, is the condition known as "bruised heel." The second most frequent cause of pain in the heel is a true Achillo-bursitis, which is an inflammatory condition in the bursa between the Achilles tendon and the posterior surface for the tuberosity of the os calcis. This condition is usually produced either by continued trauma from an ill-fitting boot or shoe, or is a local manifestation of generalized rheumatic or gouty bursitis. Another prevalent cause of acute pain of sudden onset around the heel is a true tenosynovitis of the Achilles tendon. This condition is known by the name of achillitis, and is practically always traumatic in origin. It is sometimes known as sprinter's heel, but is equally prevalent among sportsmen in general. Another cause is tuberculous osteomyelitis, although it is only in the later stages of this condition that pain becomes a prominent symptom. A gonococcal inflammation of the plantar fascia is an infrequent cause of pain in the anterior portion of the ball of the heel. Calcanean spur is a comparatively rare cause of heel pain.

How to Use Tuberculin.—Robertson uses a mixed bovine and human tuberculin, beginning with an initial dose of $\frac{1}{50,000}$ mg., future treatment being based on the reaction.

South African Medical Record, Cape Town

May 13, 1922, **20**, No. 9

Remote Surgical Conditions following Childbirth. H. E. Allanson.—p. 162.

Tubercle, London

May, 1922, **3**, No. 8

Effects of Tuberculin. P. M. Holst.—p. 337.
Vital Capacity in Pulmonary Tuberculosis. C. Cameron.—p. 353.

June, 1922, **3**, No. 9

*Vital Capacity in Pulmonary Tuberculosis. C. Cameron.—p. 385.
*Relationship of Tuberculosis and Injury. N. Tattersall.—p. 400.
Severe Emphysema Complicating an Artificial Pneumothorax. A. Aronson.—p. 403.

Vital Capacity in Pulmonary Tuberculosis.—The estimation of the vital capacity by a suitable spirometer, Cameron states, is a simple clinical test, which even in pulmonary tuberculosis is attended by the minimum of ill effects. No ill effects were observed in the course of 6,000 observations. The vital capacity is always reduced in pulmonary tuberculosis, a fact of considerable significance in the diagnosis of doubtful cases. It should, however, be borne in mind that other lung diseases than tuberculosis may effect a reduction. The vital capacity, with certain reservations, is reduced in proportion to the grade of the disease. There are grounds for considering that two elements are concerned in his reduction: (*a*) the element of toxemia; (*b*) the element of pathologic structual tissue change. In the early case the probability is that the toxic element is the main factor in causing reduction. In the more advanced case both elements play their parts. The significance of the reduction can only be interpreted in association with the results of careful clinical examination. The vital capacity in pulmonary tuberculosis varies according to the state of the patient, increasing when improvement takes place, and decreasing during periods of physical retrogression. An increase of vital capacity is, in this respect, per se, an absolutely reliable guide to the progress of the patient. A stationary, or slightly decreasing, vital capacity, usually denotes an unsatisfactory pulmonary condition; but in such cases the vital capacity must be considered in association with the clinical findings, and other possible causes of diminution eliminated. Advancing disease is always associated with diminishing vital capacity; but diminishing vital capacity need not necessarily indicate advancing disease. The vital capacity is of restricted value in estimating the work capacity of the victims of pulmonary tuberculosis. Excessive vital capacity diminution is not compatible with work capacity; but the more moderate grades of diminution bear no definite relation to work capacity. The upsetting factors here are the varying parts played by the anatomic and toxic elements in the reduction of vital capacity. The fairly advanced, but temporarily quiescent type of case, may have a vital capacity considerably reduced by causes which are largely anatomic, and yet have within limits a good work capacity. The moderately early case in which anatomic change is slight, but disease is active, and toxic manifestations controllable only by comparative rest, may have a much higher relative vital capacity, and yet be quite unfit for any grade of work.

Relationship of Tuberculosis and Injury.—To correlate injury and tuberculosis, Tattersall says, the symptoms must appear promptly (within a few days or weeks) after the injury. The lighting up of an existing focus is infinitely more frequent than subsequent implantation in damaged but healthy lung. Foci in the mediastinal glands play a more important part in these cases than has generally been supposed.

Annales de Médecine, Paris

April, 1922, **11**, No. 4

*Renal Diabetes. M. Labbé.—p. 273.
*Auto-Observation of Epidemic Encephalitis. P. Cantaloube.—p. 285.
*Splenopneumonia. A. Pellé.—p. 300.
Spontaneous Aneurysm Involving Aorta and Vena Cava. J. Chalier and F. Barret.—p. 306.
*Curable Tuberculosis in Infants. R. Debré and P. Joannon.—p. 320.
*Mercuric Chlorid Poisoning. G. Guillain and C. Gardin.—p. 338.

Renal Diabetes.—Labbé reports a case of renal diabetes under observation from the age of 6 to 18. The general condition has always been good notwithstanding this permament, excessive permeability of the kidneys for glucose. The elimination of sugar at times amounted to 44 gm. It was scarcely affected by the diet, but there was a slight orthostatic tendency, and there was also orthostatic albuminuria. Intravenous injection of calcium chlorid seems to reduce the permeability of the kidneys for glucose. He treated this patient by this means, and when last seen she was eliminating only 0.25 gm. of glucose and 0.04 gm. of albumin in the twenty-four hours.

Auto-Observation of Epidemic Encephalitis.—Cantaloube presented intense oxaluria and crossed trigeminus-facialis paralysis, besides the usual kaleidoscopic clinical picture of grave epidemic neuraxitis. He was not able to resume his practice until October, 1921, just before the close of the second year. He appears to have recovered completely, and now weighs 2 kg. more than he ever weighed before. He was confined to bed for over three months in the whole course of the disease. He declares that no medication displayed any efficacy. No attempt was made to induce a fixation abscess, and he did not try hexamethylenamin, but almost the entire therapeutic resources otherwise were tried and abandoned, from ergot to sulphur, with organotherapy, and large doses of tincture of iodin. No action was apparent from any of them except possibly from calcium chlorid, lead acetate and phosphoric acid. Tobacco was the only substance that displayed any decisive action, and this was in the line of aggravation of the symptoms. The disease is described from the standpoint of the medical victim; the peculiar instability of the arterial tonus is emphasized, and the visual, auditory and meningeal reactions and intense pains in joints.

Pneumonia with Splenization of the Lung.—In Pellé's 7 cases of splenopneumonia, the condition had been mistaken for a subphrenic abscess in 2 cases, and on this basis a useless operation had been applied. In 3 cases the patients were being treated for supposed active pulmonary tuberculosis. In the 2 other cases pleurisy had been diagnosed. The trend toward recovery in two or three months, with retrogression of the roentgen-ray findings and negative bacteriologic examinations, confirms the diagnosis of the comparatively harmless splenopneumonia.

The Florid Form of Tuberculosis in Infants.—In the eight cases described the children had the aspect of health, and they have developed normally. The only signs of their infection are a positive tuberculin skin reaction and one or more enlarged glands in the chest. The source of infection was not very virulent, and the contact had been brief. This florid form represented 15 per cent. of tuberculous infants examined. If superinfection can be warded off, these children have every prospect of keeping their tuberculous focus latent or healing it completely.

Mercuric Chlorid Poisoning.—Guillain and Gardin illustrate with a clinical case the vicious circle that is set up by mercuric chlorid. The acute nephritis which it induces causes retention of nitrogen, and this entails an acute toxic action from which the heart suffers, so that the danger really is from the heart. Treatment should aim to sustain the heart as the vital indication. By thus reenforcing the heart we can tide the patient along until diuresis sets in—which is usually about the fifth day. This clears out the waste products, and the primordial danger, the nitrogen poisoning, is thus averted. In their case mercury was refound in the spinal fluid, but the fluid was scanty, suggesting an action on the choroid plexus like that on the kidneys responsible for the anuria. The production of bile did not seem to suffer. Some cases with a favorable outcome are cited; in three weeks the patients were out of danger.

Bulletin de l'Académie de Médecine, Paris

May 16, 1922, **87**, No. 20

*Fracture of Neck of Femur. P. Delbet.—p. 533.
Epidemic Herpes Zoster Alternating with Chickenpox. Netter.—p. 535.
Is Rat Leprosy Transmissible to Man? E. Marchoux.—p. 545.
*Prophylaxis of Diphtheria. J. Renault and P. P. Lévy.—p. 547.

Apparatus for Screw Treatment of Fracture of Neck of Femur.—Four illustrations show the details of Contremoulins' device with which it is possible to drive a screw or peg axially through the neck into the exact center of the head of the femur.

Prophylaxis of Diphtheria.—Renault and Lévy think they have improved on the Park and Zingher method by their practice of mixing the toxin and antitoxin only as the mixture is to be injected. They also use a mixture which is neutralized to excess. This strong hyperneutralization protects against all possible dangers. Out of the total thirty-two children thus treated the results were recorded in twenty-eight over several months. There seems to be a passive immunization during the first two weeks. Then this subsides and active immunization becomes installed, between the second and fourth months, in about 50 per cent. By the fourth to the sixth month nearly all have acquired it.

Bulletin Médical, Paris

May 13, 1922, **36**, No. 20

*Meningococcus Septicemia. J. Reilly.—p. 379.
*Recurring Mental Disturbance in Degenerates. R. Benon.—p. 383.
*Glycosuria in Gout. C. Finck.—p. 385.

Meningococcus Septicemia.—Reilly's experience confirms that any of the types of meningococci are liable to induce septicemia. The micro-organisms may lurk in tissues adjoining the meninges, and sally forth at times from these *gites paraméningés* to invade the cerebrospinal fluid or the general blood stream. The paradoxic fact has been noted that meningococci from these parameningeal lurking places, passing into the blood stream, are refractory to general serotherapy but yield to intraspinal treatment. Meningococci passing only secondarily to invade the meninges are more susceptible to general serotherapy. The combination of intraspinal and intravenous serotherapy represents great progress.

Recurring Mental Disturbance in Degenerates.—Benon warns to be on the lookout for this *délire des dégénérés* in subjects between 18 and 30 presenting sudden asthenia and tendency to melancholia. In a case described, the two attacks with depression in the young man were most certainly not neurasthenia, dementia praecox or a periodical psychosis. The attacks developed after emotional stress, the asthenia, without known physical cause, becoming pronounced in a few hours, with illusions, hallucinations, headache, cold sweats and tendency to suicide.

Glycosuria in Gout.—Finck has noticed a kind of balance between the excretion of uric acid and of sugar in gout. As one increases the other drops, but fully 20 per cent. of all his gouty patients developed glycosuria, and it progressed to actual diabetes in about 10 per cent. The retention of uric acid was most pronounced the days of the highest glycosuria, and vice versa. The retention of uric acid was manifestly favored by hypo-alkalinity of the body fluids. Restriction of meat and treatment as for gout in general improved conditions as to both uric acid and sugar. He gives the details of eight cases long under observation, out of a total of thirty-three cases of glycosuria in the intervals between attacks of gout. It was a mild, intermittent glycosuria, gradually becoming continuous, but without polydipsia or polyuria. Meat usually aggravated the glycosuria.

Bulletins de la Société Médicale des Hôpitaux, Paris

May 5, 1922, **46**, No. 15

Technic for Intratracheal Injections. Oudard.—p. 716.
Murmur in Dilated Veins in Abdominal Wall. Huber et al.—p. 718.
*Cardiovascular Action of Pepsin. Loeper and Mougeot.—p. 721.
Action of Pepsin on Motor Function of Large Intestine. Loeper and Baumann.—p. 726.
*Descending Rhinobronchitis. A. Florand and H. Flurin.—p. 729.
*Anaphylaxis from External Applications. Gougerot and Blamoutier.—p. 733.
Professional Dermatitis. Gougerot and Blamoutier.—p. 739.
Bullet Borne in Heart Muscle for Over Two Years. H. Tecon.—p. 743.
*Cardiovascular Thrombosis. P. Emile-Weil and Isch-Wall.—p. 748.
*Distribution of Leukocytes in Scarlet Fever. T. Mironesco and A. Codreano.—p. 752.

Pepsin Reduces the Blood Pressure.—The experimental and clinical research described suggests that the resorption of pepsin during digestion may have something to do with the circulatory disturbances in dyspepsia, by its action on the vagus. The blood pressure under its influence drops in cases of high tension, and this effect lasts longer than in normal subjects. The subcutaneous injection of from 20 to 40 cg. of pepsin may therefore be advised, Loeper and Mougeot say, as a regular treatment of hypertension, especially paroxysmal hypertension. The drop averages 2 cm. mercury in the normal, and with high blood pressure may amount to 4.5 cm. The effect was evident in five minutes, and the pressure did not begin to rise again for a whole hour. There were no subjective disturbances, and the heart rhythm was not affected, while the effect on the blood pressure was as pronounced as with the best pressure reducers known, even the nitrites.

Emphysema of the Lung.—A descending rhinobronchitis entails chronic coughing, and the breathing through the nose is defective. The consequence is a debility of the connective and elastic tissue of the lungs; the alveoli become abnormal, and thus conditions are ripe for the mechanical strain from the cough to start emphysema.

Anaphylaxis from External Applications.—Two cases are reported in which cade oil applied to the skin induced local and vascular reactions indicating pronounced anaphylaxis. Desensitization was realized in the course of one month by local application of minute and progressive amounts of the same oil. These cases warn to seek for anaphylaxis and the hemoclastic crisis in skin diseases, and try to desensitize through the epidermis. In the following article, Gougerot and Blamoutier report an occupational anaphylaxis eczema from working on ebony wood. The man was desensitized with an alcoholic extract of sawdust from the same wood. The anaphylaxis in this case had been two years in developing, and the desensitization was realized in eleven days.

Cardiovascular Thrombosis.—The woman of 32 presented febrile asystolia and purpura, with severe hemoptysis, and necropsy revealed both auricles filled with clots, partly adherent.

Distribution of Leukocytes in Scarlet Fever.—Mironesco found in nine cases of scarlet fever and five of other diseases that in scarlet fever the proportion of leukocytes in the capillaries is much larger than in the veins. He theorizes to explain this as a defensive reaction.

Encéphale, Paris

May, 1922, **17**, No. 5

*Localization in the Cerebellum. André-Thomas.—p. 257. Cont'd.
*The States of Mental Derangement. M. Mignard.—p. 266.
The Rôle of "Complexes" in Morbid Manifestations in the Insane. E. Minkowski.—p. 275. Conc'n.
Tuberose Sclerosis of the Brain and Hydrocephalus in Relation to Early Puberty. K. H. Krabbe.—p. 281. Cont'd.
Psychic Disturbances in Tabes. C. I. Urechia.—p. 289.
Melancholia with Melanoderma of Exposed Parts. H. Damaye.—p. 293.

Topography of the Cerebellum.—This profusely illustrated article describes research on dogs and monkeys, a continuation of similar work before the war. Lesions experimentally induced were compared with the motor functioning thereafter, and with the necropsy findings.

Interaction of Organic and Mental Disturbances.—Mignard discusses what he calls the *emprise organopsychique* in conditions of mental derangement. The diseased organism is no longer able to serve properly the controlling mind. He regards this morbid interaction of mental modifications and neuroreflex functions as the capital fact dominating psychopathology.

Gynécologie et Obstétrique, Paris

May, 1922, **5**, No. 5

*Cesarean Section. F. Magalhães (Rio de Janeiro).—p. 345.
*Pathogenesis of Myomas. A. Rosner.—p. 358.
The Sugar Content of the Blood During Pregnancy and After Delivery. Boutot et al.—p. 364.
The Hemoclastic Reaction in the Pregnant. M. Didier.—p. 366.
Polypiform Edema of Uterine Cervix at Term. Rouvier.—p. 374.
Conical Resection of Uterine Cervix. E. Douay.—p. 377.

Artificial Extraperitoneal Cesarean Section.—Magalhães applies this term to abdominal cesarean section when the exposed uterus is covered with two overlapping sheets of dental rubber dam (1 x 0.5) which are held in place by a rubber band slipped over the uterus, as he shows in an illustration. This rubber tissue fits over the uterus and is packed into the abdomen around, thus completely isolating the uterus from the abdominal cavity. The overlapping edges of the two sheets on top of the uterus are drawn apart and the uterus is incised between them. The evacuation of the uterus thus proceeds without the slightest danger of contamination of the peritoneum. Confident in the outcome, he has applied this technic in 148 cases, and the total mortality of the mothers was 7.8 per cent. although six of the eleven women who died had high fever and extensive ruptures of vagina and cervix from long and vain efforts to deliver by the normal route before they had been brought to the Maternity. He does not know of any other obstetrician with such a record. The postoperative course in his 148 cases was febrile in thirty-eight, but twenty-six had a temperature of over 39 C. before the intervention; thirty-four, between 38 and 39 C., and thirty-eight had between normal and 38 C. In thirteen cases of permanent contraction of Bandl's ring, all the women were saved but one severely injured by preceding obstetric procedures.

Pathogenesis of Myomas.—In 455 myomatous young women examined, 39 per cent., were of the type of Stiller's congenital muscular asthenia and 5.2 per cent. of the type of hypertrophy of the muscular apparatus.

Journal de Radiologie, Paris

May, 1922, **6**, No. 5

Congenital Pseudarthrosis of Clavicles. A. Mouchet and P. Errard.—p. 212.
The Os Trigonum. A. Laquerrière.—p. 218.
Injections of Radium Emanation in Olive Oil. A. Jentzer.—p. 222.
The Pneumoperitoneum. Morel Kahn.—p. 224.
Radiotherapy of Opacity of the Cornea. Gilbert and Hairi.—p. 227.
Portable Radiographic Apparatus. J. Loubier.—p. 230.

Progrès Médical, Paris

May 27, 1922, **37**, No. 21

Exophthalmic Goiter Syndrome. C. Achard.—p. 241.
Exostosis of Upper Tibia. A. Broca.—p. 245.
Contraction of the Uterus During Labor. H. Vignes.—p. 245.

June 3, 1922, **37**, No. 22

*Dosage of Pepsin in Gastric Juice. M. Loeper and J. Baumann.—p. 253.
Bonchiectasis. L. Ramond.—p. 257.

Dosage of Pepsin in Gastric Juice.—Loeper and Baumann remark that the pepsin in the gastric juice does not seem to interest clinicians, who do not seek to estimate it systematically. The proportion of hydrochloric acid seems to have greater influence on the digestion of albumin. Under normal conditions the amount of pepsin is higher with bread than with meat, sugar or milk. Bread induces a stronger peptic and a weaker hydrochloric acid secretion than meat. Variations are slight in the healthy, but they have a wide range in disease. In cancer hypopepsia is the rule. In gastritis and dyspepsia the peptic activity is extremely variable, but has no connection with the symptoms or evolution of the disease. Dissociation of the hydrochloric acid and pepsin is often found in pathologic and normal conditions.

Riforma Medica, Naples

May 15, 1922, **38**, No. 20

Opening Lecture of Surgical Course. M. Donati.—p. 457.
*Blood Pressure in Exophthalmic Goiter. R. Falconcini.—p. 465.
Saline-Iodin Waters in Treatment of Catarrhal Urethritis, etc. G. Pini.—p. 466.
*Transmission of Syphilis by a Bite. G. Martini.—p. 467.
Social Aspects of Laryngeal Tuberculosis. G. Gradenigo.—p. 467.
Epidemic Singultus. T. Silvestri.—p. 468.

Exophthalmic Goiter.—Falconcini found the blood pressure high in all his twelve cases of exophthalmic goiter, but the proportions between the systolic and diastolic pressure seemed to indicate a diastolic hypotension, masked by the tachycardia. The pulse was apparently normal except for its catacrotism, and the instability evident in changes of position and under emotions. In only four of his six cases of well defined exophthalmic goiter was the heart of the shape and size known as goiter heart, and in none of the cases of the incomplete type.

Syphilis Contracted from a Bite.—Martini relates that a sister of 16 tried to separate her two older brothers who were fighting, and in the mêlée she was bitten on the hand by one of the brothers, who had also bitten the nose of his brother. The sixteenth and twentieth days after the affair the girl and the brother developed syphilitic lesions at the points bitten, and both progressed to the specific rash, notwithstanding prompt arsenical treatment. The biter had been under treatment with neo-arsphenamin for several months at the time.

Archivos Latino-Amer. de Pediatría, Buenos Aires

April, 1922, **16**, No. 4

Case of Recurring Limp Chorea. Mamerto Acuña and Vallino.—p. 241.
Artificial Feeding of the New-Born. E. Davidsohn.—p. 247.
Protection of Infants of Wetnurses. Maria Armand Ugón.—p. 265.
Skim Milk for Sick Infants. J. A. Bauzá.—p. 274. Cont'd.
*Prurigo in Inherited Syphilis. M. A. Guerrero.—p. 284.
*Purpura in Pneumococcus Infection. F. Bazán.—p. 290.
Appendicitis Simulating Kidney Tumor. F. Rodriguez Gómez.—p. 300.
*Incomplete Form of Scurvy in Children. L. Wimmer.—p. 304.
*Familial Ichthyosis. M. Valabrega.—p. 312.

Hebra's Prurigo in Inherited Syphilis.—Guerrero reports two cases in children of 3½ and 6, cured by specific treatment for the inherited syphilis. The prurigo in both had been refractory to all kinds of local measures for months and years, and even to vaccine therapy, but it subsided in a few days under mercurial treatment. The clue in one case was first given by evidences of inherited syphilis in another child in the family. The cure has been complete during the year to date.

Purpura in Pneumococcus Infection.—Bazán reports two cases in which purpura developed in infants with pneumococci in the blood. He summarizes further seven similar cases from the records. All were fatal.

Incomplete Form of Scurvy.—Wimmer refers to a condition with punctate petechial hemorrhages which he has observed in a number of improperly fed young infants. He ascribes it to abortive scurvy rather than to purpura. As the food is corrected, the condition returns to normal. Its rapid development and equally rapid subsidence confirm this assumption of its nature.

Familial Ichthyosis.—In the family tree reproduced by Valabrega, there are four men and three boys with ichthyosis in three generations. He gives illustrations of two of the children.

Semana Médica, Buenos Aires

April 20, 1922, **1**, No. 16

*Colectomy for Chronic Fecal Stasis. P. Barbicri.—p. 617.
Mutation of Anthrax Bacillus. A. C. Marchisotti.—p. 622.
*The Inheritance of Syphilis. J. Palacio and A. Moral.—p. 624.
Improved Technic for Gastro-Enterostomy. R. Rodríguez Villegas.—p. 641.
Classification of Purpura. L. K. Wimmer.—p. 643.

Colectomy for Chronic Stasis.—The woman of 58 had a movable right kidney, and her symptoms had long been ascribed to this, but they all subsided after the portion of the colon that had been bound down by the membranes had been resected. The membranes themselves had been resected at an operation five months before, but the intestine had been too much deformed to recuperate. There was no shock from the extensive colectomy.

The Inheritance of Syphilis.—Palacio and Moral ascribe the transmission of syphilis exclusively to the mother. The father transmits it only through the mother, and affects the child only through the dystrophia of the spermatozoa. When the mother is infected, the child is always infected, and vice versa. Latent tertiary syphilis in both parents induces dystrophia of the reproductive elements, but the disease is liable to flare up under the influence of gestation, in which case the child is liable to have congenital infection as well.

Archiv für klinische Chirurgie, Berlin

May 13, 1922, **119**, No. 4

*Resection of Large Intestine. W. Hartert.—p. 643.
*Diagnosis of Noncarcinomatous Gastric Tumors. C. Dessecker.—p. 695.
*Peptic Jejunal Ulcer. H. v. Haberer.—p. 712.
*Regeneration of Bone Marrow in Pernicious Anemia. Walterhöfer and Schramm.—p. 766.
*Injection of Antiseptics into Joints. G. Axhausen and L. Frosch.—p. 774.
*Diagnosis of Traumatic Injury of the Spine. C. Göcke.—p. 787.
*Operations on Posterior Cranial Fossae. W. Mintz.—p. 825.
*Hour-Glass Tumors of Spine. N. Guleke.—p. 833.
*Atresia of Rectum and Anus. W. Oppel.—p. 845.
Tube for Indirect Transfusion of Blood. H. F. O. Habcrland.—p. 849.
"Mouse Cancers"; Correction. Lubarsch.—p. 852.

Resection of Large Intestine.—From the experiences at the time and later in 43 operative cases of cancer of the large intestine, Hartert has been impressed with the absolute necessity for preventing any soiling of the tissues with fecal matter at any stage of the operation or operations. With end-to-end suture, moderate invagination of the afferent in the efferent stump materially strengthens the suture. The relative stenosis entailed is transient. In Körte's compilation in 1913 of 434 radical operations for cancer of the large intestine, 61.3 per cent. survived the operation and 38.3 per cent. of the survivors were free from recurrence for over three years; that is, 23.5 per cent. of the total 434 patients were cured for three years at least. The corresponding figures in Hartert's group of 28 surviving, of his 42 cases in Perthes' service, show that 39.1 per cent. of the 23 traced to date are still free from recurrence for three up to ten years. There were no operative fatalities in the 14 cases in which the resection occurred without soiling with feces, either at the main operation or the succeeding ones. To insure asepsis in making a fecal fistula he sutures the serous membrane of the bowel to the edges of the incision in the skin with as much care as for an intraperitoneal suture of the bowel. He also covers the suture with a paste and introduces a fistula apron of impermeable tissue, the edges sutured tight to the bowel serosa. He refrains from suturing the bowel to the parietal peritoneum, fearing further manipulations. He prefers a jet of steam for sterilization of the intestine content, but warns against the excessive use of this or of antiseptics. Resection at one sitting is preferable for cancer of the large intestine, not only when there are no complications but also when there is ileus, so long as peristalsis is vigorous. Several pages of bibliography are given.

Noncarcinomatous Gastric Tumors.—Dessecker advocates pneumoperitoneum as a last resource in the differential diagnosis of a nonmalignant tumor on the outside or inside of the stomach. Tumors in the stomach wall and solitary polyps are beyond our differentiating skill. An exogastric tumor is liable to pull the stomach out of shape. The funnel-like protrusion of the stomach wall into the pedicle of the tumor is characteristic, as also the smooth outline of the endogastric growths and their movability on palpation, during radioscopy, with the stomach of normal shape. He illustrates a case in which a segment of the stomach was resected containing a fibroma as large as a hen's egg, with ulceration at three points. The few cases on record of myoma, fibroma, solitary polyps, etc., are compared with this case, and he adds that there are about 200 cases of primary gastric sarcoma known. He cites 3 cases in which the sarcoma had developed on the exterior of the stomach.

Peptic Jejunal Ulcer.—Haberer's experience condemns exclusion pyloroplasty as inviting peptic ulcer, although the latter may follow gastro-enterostomy alone. The first Billroth method seems the safest for operative treatment of the stomach, from this and other standpoints. The diet must be strictly regulated after any operation on the stomach; he does not allow solid food for two weeks. A peptic ulcer may recur; in operating for this, the resection should be on the same principle as the first Billroth method. He gives the details of 26 cases of peptic jejunal ulcer treated by radical resection. In 2 cases the ulcer was a recurrence. The primary lesion had been in the duodenum in 23 cases and in the pylorus in 8. Pyloroplasty had been done in 18 of the total cases; in the others, intervention had been restricted to posterior gastro-enterostomy. A jejunal peptic ulcer never was observed after any of his own 865 cases of resection of stomach or duodenum, but there were 12 instances of it in his 71 cases with exclusion of the pylorus, and in 3 of his 275 gastro-enterostomy cases.

Regeneration of Bone Marrow in Pernicious Anemia.—Walterhöfer and Schramm reported a few months ago the favorable influence on the course of pernicious anemia observed when part of the marrow of one tibia or femur was scooped out. Four of the nine patients thus treated have died since, and they here describe the regeneration of the marrow observed in these four fatal cases. Death had occurred from secondary infection in two. The regeneration process seemed to correspond to what is observed experimentally in healthy dogs, only that it occurs more slowly, probably on account of the age. There does not seem to be any anatomic insufficiency of the bone marrow in pernicious anemia. The favorable influence from the operation is evidently due to the stimulation of the bone marrow therefrom, and the perpetuation of this stimulation by the regeneration.

Injection of Antiseptics into Joints.—The experiments on fifty rabbits warn against prophylactic injection of strong antiseptics into joints.

Traumatic Spinal Affections.—Göcke reviews the ultimate outcome in fifty-five cases of injury of the spine, with or without nervous symptoms. This experience has convinced him that Schanz' insufficientia vertebrae is based on mistaken premises, but it has served to deepen our knowledge of disease of the spine.

Operations in the Posterior Cranial Fossae.—Mintz remarks that scarcely anywhere else is there such an accumulation of unfavorable factors as in operations on a posterior cranial fossa. And yet he is able to report cures in 25 per cent. of twenty-six cases of a tumor in this region (16), cysts in or below the cerebellum, a hydatid cyst (3) or serous meningitis. Postoperative hydrocephalus is liable to stretch the tissues and tear open the scar. This is the usual cause of the insidious meningitis after operations in the region.

Vertebral Sarcomas.—Guleke describes three cases of hour-glass tumors in the spine which grew through the intervertebral openings and spread out in the muscles and spaces beyond. The portion in the muscle tissue may grow very large, but these fibrosarcomas develop slowly and seem to be comparatively benign for a long period. Operative measures have every chance for success. He illustrates his three cases and describes the preferable mode of access. One of his patients, a farmer, now 30, was operated on nine years ago, and has been free from all disturbances since. One boy of 11 succumbed to secondary infection from a fistula, and a young woman to infection of a hemopneumothorax that had followed the removal of the tumor. All the patients bore the operation well.

Atresia of Anus and Rectum.—Oppel operated on the otherwise normal and vigorous new-born child by cutting the anus on each side and extending these incisions. The blind stump of the rectum lay 3 cm. above, and this was mobilized through an abdominal incision, and was then sutured to the posterior half of the anus. Through the anterior half, tampons were introduced separate from the rectum. The tampons were gradually removed and clinically normal conditions were restored in time.

Deutsche medizinische Wochenschrift, Berlin

April 21, 1922, **48**, No. 16

Problems of Metabolism. F. Müller.—p. 513. Conc'n No. 17, p. 545.
Testing Renal Functioning. H. Schirokauer.—p. 517.
Localization and Phylogenetic Basis of Fatty Degeneration and Sclerosis of the Aorta. Westenhöfer.—p. 518.
Lymphogranulomatosis. V. Hecker and Fischer.—p. 520. Conc'n.
Relative Size of Penetrating Gunshot Wounds, More Particularly of the Skull. Nippe.—p. 522.
*Test for Occult Blood. Gattner and Schlesinger.—p. 522.
Eosinophilia in Muscular Rheumatism. M. Kaufmann.—p. 524.
*Feeding Through Nose by Drip Method. Samson and Baare.—p. 524.
Personal Prophylaxis of Both Sexes as Aid in Establishing Approximately Sanitary Conditions Among Prostitutes. Schereschewsky and Worms.—p. 526.
*Removal of Pigmentations of the Skin. G. Kromayer.—p. 526.
Ulcers of the Lips and of the Mouth Cavity. Ledderhose.—p. 527.
Technic of Treatment of Gonorrhea. M. Joseph.—p. 529.

Quantitative Test for Occult Blood.—Gattner and Schlesinger have found that the reaction to benzidin strictly parallels the quantity of blood present, from the largest to the minutest amounts, even with occult hemorrhage. The tint, durability and sensitivity are directly proportional to the amount of blood in the fluid. With a set of tubes and serial dilution it is possible not only to detect the occult blood in the stool but to determine whether it is increasing or diminishing from day to day. They describe the exact technic they have found most convenient for this.

Feeding Through the Nose by Drip Method.—Samson and Baare relate that they have tided new-born infants with pylorospasm along by this means until the spasm subsided, and the infant came out from under it without the usual signs of inanition. When the infant lies quietly, the tube can be left continuously in the nose, fastened to the brow and cheek with a couple of strips of adhesive plaster. When it is restless, the tube has to be withdrawn and replaced at need. They found human milk the best to use for this drip feeding, and report two cases in detail. The absence of sucking and vomiting movements and of overfilling of the stomach does away with some of the factors inciting to vomiting, and thus aids in overcoming the tendency to spasm. This drip method might be used for duodenal feeding, and supplying water.

Removal of Pigmentations of the Skin.—Kromayer describes a method of removing freckles, small nevi, liver-spots, etc. The object is to remove the epidermis and along with it the pigment-bearing epithelia without injuring the cutis propria. The method is adapted from dental technic. According to the size of the blemish, the tissues are frozen or infiltration anesthesia (procain, in a 1:150 or 1:200 solution) is employed. A burr of the proper size is chosen and is rotated in the same manner as in dental technic. The teeth or edges of the burr seize hold of the tissues of the epidermis and the cutis vasculosa, whereas the cutis propria, which should be spared in order to avoid scar formation, is left intact unless strong pressure is applied. It is well to begin at the lower end of the field and work upward. When hemorrhage and serous transudation, following the operation, have ceased, the wound surface is covered with a very thin layer of cotton fibers, which stick to the wound surface, dry, and form an artificial scab. In from ten to fourteen days (earlier, if the defect is small) the scab drops off. The site is red at first but after two months all trace of the operation has disappeared. The method is excellent for large liver-spots.

Deutsche Zeitschrift für Chirurgie, Leipzig

April, 1922, **170**, No. 1-4

*Diphtheria of the Esophagus. W. Stupka.—p. 1.
Appendicitis in Hernial Sac. E. Otto.—p. 53.
*Fibrous Osteitis. H. Sauer.—p. 95.
*Blood Pressure During Local Anesthesia. O. Wiemann.—p. 150.
*Reconstruction of Face. A. Lindemann.—p. 182.
*Treatment of Inflammation. R. Eden.—p. 209.
*Wound Diphtheria. Hilgenreiner.—p. 266.

Diphtheria of the Esophagus.—Stupka tabulates the details of 34 cases of fatal diphtheria of the esophagus, published by 24 writers in the course of a century. He also tabulates 9 cases of postdiphtheric stenosis, and describes with roentgenograms 2 cases in his own experience. In 4 of the total 11 cases the stenosis was multiple. One patient was a new-born child; the oldest was a woman of 42. Dysphagia is the most common and important symptom, but it is usually ascribed to the throat process. Expulsion of a cast of the esophagus was observed in 5 cases, but as a rule diphtheria of the esophagus escapes detection. There is ulceration at first and then cicatricial stenosis in the course of two or three months. Measures to prevent development of stenosis should be applied early. A retention sound has been applied with excellent effect by three clinicians lately, to ward off stenosis after swallowing a caustic, and he suggests the possible advisability of this with diphtheria involving the eosphagus. It is especially advisable here as the ulcerative process with true diphtheria does not burrow deep.

Fibrous Osteitis.—Sauer's discussion is based on twelve cases, all but one in girls or women.

Blood Pressure During Local Anesthesia.—Wiemann reports from König's service research on the blood pressure and the pulse during and after procain-epinephrin anesthesia.

Reconstruction of Parts of the Face.—Lindemann is chief of the *Kieferklinik* at Düsseldorf, and describes correction of some unusually grave war disfigurements of the face.

Physical Chemistry in Treatment of Inflammation.—Eden analyzes the various phases of an inflammatory process, and explains how treatment must vary to meet these different phases. Hyperemia must be stimulated in one phase and checked in another. He ascribes great importance to the protecting action of a coating of fibrin on recent wounds and granulations. He emphasizes that none of the disinfectants proposed to date answer surgical requirements. Test tube experiments and experiments on animals are no criterion of the action on living tissue. The manifold peculiarities of clinical conditions cannot be reproduced in vitro nor in animals. The search for the ideal disinfectant, he says, should be along the lines of research on ions and the laws of molecular absorption and dispersion, the chemistry of colloids, and the effect on bacteria of modifications in osmotic tension. Colon bacteria, for example, disintegrated when transferred from a 0.75 to a 2 per cent. saline, although the latter is not strong enough to be bactericidal. Colon bacillus infection of the urinary apparatus has responded very favorably in his experience to treatment with 20 per cent. solutions of sugar.

Wound Diphtheria.—Hilgenreiner's experience suggests the wisdom of examining the secretion for diphtheria bacilli when a wound does not heal properly. There may be nothing to suggest diphtheria otherwise. In a case described, the relics of an abscess in the breast refused to heal for four months until they finally yielded to a mercurial salve. All kinds of treatment had been applied to no avail before.

Klinische Wochenschrift, Berlin

March 4, 1922, **1**, No. 10

Goiter. Enderlen.—p. 457.
Clinical Examination of Pulse in Arrhythmia. C. Lundsgaard.—p. 461.
Periarteritis Nodosa. W. Gerlach.—p. 467.
Prognosis of Serous Pleurisy in Children. W. Neuland.—p. 470.
Is Metreurysis a Proper, Safe Procedure for the General Practitioner in Placenta Praevia? W. Hannes.—p. 472.
Mode of Action and Stability of Vaccines. C. Lange.—p. 475.
Effect of Sodium Acid Phosphate on Bodily Performance. H. Herxheimer.—p. 480.
Mode of Action of Shepherd's Purse. Heffter and Zondek.—p. 483.
Effect of Proteins on Rate of Sedimentation of Erythrocytes. H. Löhr. —p. 483.
Treatment of Suppuration in Fingers. F. Härtel.—p. 484.
Recent Research on the Chemistry of the Splitting of Sugars into Alcohols. J. Hirsch.—p. 489.

March 11, 1922, **1**, No. 11

Meteorology and Climatology from Practitioner's Standpoint. C. Dorno. —p. 505.
Paralysis Agitans and Tetany Associated with Cerebral Arteriosclerosis. P. Martini and A. Isserlin.—p. 510.
Intracutaneous Injection of Graduated Hydrogen-Ion Concentrations. R. Wagner.—p. 511.
Focal Reaction in Eye in Protein Therapy. G. Tobias.—p. 515.
Phenobarbital in Motor and Psychic Excitement. H. Krisch.—p. 518.
Mercury Not Only a Symptomatic Remedy, But One Affecting Favorably the Course of Syphilis. J. Heller.—p. 519.
Qualitative Undernutrition; Beriberi in Rats. Hofmeister.—p. 522.
Influence of Blood Vessels of Liver on Water Content of Organism and on Hemoclastic Crisis. H. Mautner and G. Cori.—p. 523.
Tuberculous Gibbus with Lordotic, Cyclic Albuminuria. Neukirch and Rottmann.—p. 523.
Treatment of Trigeminal Neuralgia. Sonntag.—p. 524. Conc'n No. 12, p. 586.
Treatment of Malaria. M. Mayer.—p. 527.
*Medical Impressions of America. H. Holfelder.—p. 531.
Potassium in Relation to Physiologic Radioactivity. H. Zwaardemaker. —p. 535. Conc'n No. 12, p. 594.

Medical Impressions of America.—Reviewed on page 153.

Medizinische Klinik, Berlin

May 7, 1922, **18**, No. 19

Present Status of Schick Reaction. A. Czerny.—p. 587.
*Serotherapy of Diphtheria. U. Friedmann.—p. 583.
*Blister Fluid in Serodiagnosis. A. Buschke.—p. 593.
*Leukocytosis-Inducing Treatment. O. Fischer.—p. 594.
Chronic Urticaria Subsides Under Acriflavine by the Vein; Three Cases. O. Strassen.—p. 597.
*Epinephrin Production in Various Diseases. B. Peiser.—p. 597.
Meningitis in Young Children. K. Blühdorn.—p. 601.
Examination for Disease of Urethra. E. Portner.—p. 603.
Traumatic Neuroses. H. Engel.—p. 634. Cont'n.
Recent Literature on Public Health. H. Ziemann.—p. 606.

Treatment of Diphtheria.—Friedemann insists that his experience with 4,000 cases of diphtheria in the last seven years has demonstrated that successful treatment is merely a question of the dose of antitoxin in the overwhelming majority of cases. The difference between the effect of large and small doses was most striking in the edematous form of diphtheria. His statistics from various German and Austrian hospitals show a death rate from this disease from 11.7 to 15.2 per cent. since 1914, while Friedemann had only a death rate of 6 per cent. in 3,421 cases, and only 4.3 per cent. in the cases treated with 20,000 units. In two cases of the severest necrotic type, the children recovered under a total of 60,000-90,000 units.

Serodiagnosis from Blister Fluid.—Buschke remarks that the serum in a cantharides plaster blister responds to the Wassermann and the tuberculin tests like the blood serum, but with less intensity. The assumption is gaining ground more and more that the skin is an organ with an internal secretion, and plays an important part in the production of defensive substances. This is evidenced, among other things, he says, by the more generally favorable course of syphilis when a rash develops under mercurial or arsenical treatment.

Leukocytosis Therapy.—Fischer thus designates what others call protein therapy, and he explains its action as inducing the flaring up of inflammatory processes. His reports on the use of sodium nucleinate for this purpose in general paresis have been summarized recently (June 10, 1922, p. 1855).

Influence of Disease on Epinephrin Production.—Peiser reports contradictory findings in regard to the epinephrin content of the blood in various diseases. Only in 9 cases of peritonitis was it constantly low—down to 1.73 mg.—in 88.89 per cent. In tuberculosis it was usually within normal range, as also in 12 cases of carcinoma, and one each of sarcoma and actinomycosis. The only other constant finding was an increase of almost 50 per cent. in all the 11 cases of valvular defect; instead of the average 3.05 it was 4.78 mg.

Traumatic Neuroses.—The official report on two cases is explained and amplified.

May 14, 1922, **18**, No. 20

*Obstetrics Without Vaginal Examination. H. Kupferberg.—p. 617.
Chemotherapeutic Differentiation of Spirochetes in Rabbits. W. Kolle and R. Ruppert.—p. 620.
*Menstrual Disturbances in the Tuberculous. E. Guth.—p. 622.
Significance of Duplication of First Heart Sound. H. Sachs.—p. 625.
*Fatal Ascarid Intoxication. E. Weber.—p. 626.
Inhalation of Lignosulfit. R. Giesbert.—p. 626.
Neosilversalvarsan. F. Hanemann.—p. 627.
Clinical Import of Gas Interchanges. P. Liebcsny.—p. 628.
Rudiments of Treatment of Gonorrhea. E. Portner.—p. 632.
Traumatic Neuroses. H. Engel.—p. 634. Cont'n.
Recent Literature on Internal Medicine. F. Bruck.—p. 636.

Obstetrics Without Vaginal Examination.—Kupferberg comments that further measures will have to be devised to combat the increasing number of cases of puerperal fever. They have doubled in the last five years, although the number of births has declined. As a step in the right direction, he urges that the vaginal examination should be done two or three weeks before term, and, after this, no further internal examination or procedures should be allowed until eight days after delivery, except by the rectum. For this, the forefinger, in a rubber cot, is covered with a square cloth, the size of a handkerchief, with a 2 cm. slit in the center, through which the finger is slipped. By this means the finger is protected against soiling. The cloth can be dipped in an antiseptic. If the hard skull bones, fontanels and sutures cannot be felt through the rectum, then face, shoulder or breech presentation is obvious, and further differentiation is easy from without. He warns against mistaking the sinking pains late in pregnancy for labor contractions, reporting two cases in which, after two and three days of alleged labor pains, forceps was applied or the cervix slit in four places. In both cases the cervix had not opened—as might have been ascertained by rectal examination. The slit had been made in a fold in the vagina wall, and the forceps had been applied to the head capped entirely by the uterus wall, stretched to its utmost. The mistake was recognized in time in both cases. A number of minor points to aid in delivery are enumerated.

Menstrual Disturbances with Pulmonary Disease.—Guth has noticed that the course of pulmonary tuberculosis was generally favorable when the menstrual periods were long and free from premenstrual rise in temperature. When a previously long period became shorter, this was a sign of improvement or acute exacerbation. When the menstrual period was not modified either way, the disease seemed to be a recent infection, and the course was less favorable. A period of less than three days was found only with anemia or chlorosis, and there was generally dysmenorrhea.

Ascaridiasis.—The girl of 11 died in twenty-four hours with symptoms of peritonitis plus ileus, explained by obstructing clumps of ascarids—60 in all—and corresponding toxic injury of the mucous membrane. In a second case, in a girl of 4, the toxic injury was more insidious, and the previously robust child died in two weeks from increasing weakness and heart failure.

Monatsschrift für Geb. und Gynäkologie, Berlin

April, 1922, **57**, No. 5

*The Blood Pressure in the Pregnant. K. de Snoo.—p. 235.
Anatomy and Physiology of the Placenta. O. Frankl.—p. 244.
Congenital Displacement of Kidneys. H. Baumm.—p. 247.
Cesarean Section after Vaginofixation for Prolapse. H. Hillel.—p. 252.

Importance of the Blood Pressure in Obstetrics.—De Snoo combats high blood pressure in the pregnant by repose and dieting. He regards the course of the blood pressure as a better index of conditions than albuminuria. If the pressure drops to normal, the intoxication can be regarded as being at an end for the time being. In eclampsia, the high blood pressure is evidently a means of defense although it brings danger of convulsions, exhaustion of the heart, cerebral hemorrhage, etc. Every woman with a high blood pressure should keep quiet during the last months of pregnancy whether there are any symptoms or not. Systematic examination of the blood pressure is indispensable during pregnancy. "It is the compass with which we often can steer the frailest bark into the harbor of safety." He has never known a case of eclampsia or impending eclampsia without high blood pressure. With this we can distinguish eclampsia from hysteria, brain tumors, epilepsy, etc.

Münchener medizinische Wochenschrift, Munich

April 21, 1922, **69**, No. 16

Indications for and Results of Application of Surgical Measures to the Thorax Among the Tuberculous War Wounded. Burkhardt.—p. 575.
Diagnostic Import of Speed of Sedimentation of Erythrocytes. Bürker.—p. 577. Idem in Pregnancy. Gänssle.—p. 578.
Physicotherapy in Relation to Deep Lying Tissues. Zondek.—p. 579.
Kidney Disease after Angina. Kayser-Petersen and Schwab.—p. 580.
Own Urine Reactions. H. Boeminghaus.—p. 582.
*Pruritus with Endocrine Derangement. L. Szondi and L. Haas.—p. 584.
Staining Spirochetes with Aid of Neo-Arsphenamin. Krantz.—p. 586.
Prophylaxis of Goiter. Bleyer.—p. 587.
Treatment of Leg Ulcers. L. Simon.—p. 589.
Atresia of the Esophagus. N. Ellerbroek.—p. 591.
Ultraviolet Rays in Varicella. A. Sack.—p. 591.
Device to Aid in Measuring Blood Pressure. F. Kleinknecht.—p. 592.
Method of Lighting Roentgen Room. E. Haeger.—p. 594.
Splint for Upper-Arm Fractures. H. Legal.—p. 594.
Hand Grasp for Artificial Leg. K. Stromeyer.—p. 596.
Local Vaccine Therapy in Furunculosis. A. von Wassermann.—p. 596.
Importance of Care of Teeth During Pregnancy. Björkenheim.—p. 597.

Pruritus as Symptom of Polyglandular Insufficiency.—Szondi and Haas state that of ten patients suffering from essential pruritus which did not respond to the usual dermatologic treatment they found in six cases typical pluriglandular insufficiency, and in the remaining four patients there was dysfunction of at least two endocrine glands. The changes of the genital glands, which other writers mention in connection with pruritus, are only partial manifestations of the pluriglandular insufficiency. In their cases the pruritus was merely a manifestation of endocrine dysfunction plus hypersensibility of the peripheral sensory nerves. The latter was caused by pathologic metabolism products entering the blood stream on account of the dysfunction of the endocrine glands. The hypersensibility exists latent in the whole region of the peripheral sensory nervous system and will manifest itself in the form of itching where there is constant or frequent irritation. An endogenous and an exogenous factor are thus necessary. The endogenous factor consists of a definite constitutional or acquired abnormality of the endocrine system. The most frequent exogenous factors are: fluor, nodes, onanism, rubbing of the collar, etc. The exogenous factor does not bring about the chronic itching except as the above-mentioned constitutional or acquired basis is present. Causal treatment has not so far been able to effect permanent improvement. In stubborn cases roentgen irradiation is recommended as symptomatic treatment.

Wiener klinische Wochenschrift, Vienna

March 30, 1922, **35**, No. 13

Clinical Aspects of Cholelithiasis. N. Ortner.—p. 287.
A Respiratory Apparatus for the Clinical Determination of Energy Exchange in Man. A. Krogh.—p. 290.
Interesting Cases of Roentgenographic Diagnosis. Holzknecht et al.—p. 293.
Double Arch of the Diaphragm in Disease. Hitzenberger.—p. 294.
Tender Spots in Cecal Region in Relation to Chronic Appendicitis. V. E. Mertens.—p. 296.
Dermatitis During Treatment of Syphilis. J. Klaar.—p. 297. Conc'n.

April 13, 1922, **35**, No. 15

The Reticulo-Endothelial System. H. Eppinger.—p. 333.
Diagnosis of Paratyphoid B Bacillus. J. Fürth.—p. 337.
Diaphragmatic Hernia. A. Plenk.—p. 339.
Lung Hydatid Cyst Simulating Aneurysm. R. Lenk.—p. 341.
The Sodium-Nucleinate Test in the Malaria Treatment of General Paresis. H. Kogerer.—p. 342.
Syndrome of Discrete Tuberculous Meningitis. N. Blatt.—p. 342.
Technic of Perineural Injections in Sciatica. F. Högler.—p. 343.

April 20, 1922, **35**, No. 16

*Dedication of New Institute for Embryology. A. Fischel.—p. 355.
Paratyphoid. A. Herz.—p. 360.
*Specific Bacteriophagic Action. O. Bail and T. Watanabe.—p. 362.
Oral Sepsis in Relation to Affections Elsewhere. Hauer.—p. 365.
Treatment of Various Forms of Sigmatism. L. Stein.—p. 367.
Angina Pectoris. M. Grossmann.—p. 368.
A Spirochete as Causal Agent of Typhus Fever. A. Belai.—p. 368.

Evolution of Embryology.—This address was delivered at the dedication of the new Institute for Embryology at Vienna. Fischel traces the history of this science from the earliest times to date.

Specific Bacteriophagia.—Bail and Watanabe report the results of research which have apparently established that only the portion of the bacteria active in reproduction is affected by the bacteriophagic process. They describe a process in the course of spermatogenesis in general which seems to be analogous to what is observed in this bacteriophagia.

April 27, 1922, **35**, No. 17

Pathogenesis of Cirrhosis of the Liver. F. Chvostek.—p. 381. Cont'd.
Effect of Certain Diuretics on the Tissues. Molitor and Pick.—p. 389.
Case of Congenital Narrowing of Trachea and Bronchi, Absence of Wall Membrane of Trachea, Plus Diverticulum. Sankott.—p. 391.
Simple Conservative Treatment of Suppurative Bartholinitis with Patent Outlet Duct. H. Weitgasser.—p. 393.
Silicic Acid in Senile Pruritus. F. Luithlen.—p. 394.
Augmentation of Effect of Cocain by Hypertonic Glucose Solution. W. Zemann.—p. 394.
"Internal Antisepsis." Comment. R. Kraus.—p. 395.

Zeitschrift für Kinderheilkunde, Berlin

May 15, 1922, **32**, No. 5-6

*Food Requirement of Underweight Infants. M. Ambrozic.—p. 247.
*The Chlorids and Digestion with Fat-Rich Food. A. Salomon.—p. 271.
*Fulminating Purpura in Infant. König.—p. 282.
*Aplastic Anemia in Child. H. Hummel.—p. 285.
*Acute Atrophy of Liver in Child. E. Lyon and J. Deutsch.—p. 292.
*The Skulls of the Prematurely Born. J. Rosenstern.—p. 298.
*Physical Properties of Food. J. Rosenstern and Lauter.—p. 316.
*Dystrophia of Veins in Infants. E. Slawik.—p. 322.
Esophagus Cyst in New-Born Child. Buttenwieser.—p. 352.

Amount of Nourishment Required by Underweight Infants.—Ambrozic compared the Heubner and the Pirquet systems for estimating the amount of nourishment needed by infants notably under weight. His conclusion is that the amounts should be like those for normal infants of the same length, rather than computed by age or weight.

The Chlorids in Infant's Blood.—Salomon's tests on infants have confirmed that the chlorid content of the blood sinks while digestion is proceeding in the stomach. Fat-rich food forms an exception to this rule, and he theorizes to explain the reason for this.

Fulminating Purpura in Infant.—The apparently healthy infant of 19 months died in two days after the onset of the purpura. Streptococci were cultivated from the blood and a positive Wassermann was also obtained.

The Bone Marrow and the Blood Picture in Relation to Aplastic Anemia.—Hummel relates that the patient, a boy of 12, belonged to a healthy family. He succumbed to sepsis from infectious purpura after months of aplastic anemia. Notwithstanding the blood findings indicating chronic aplastic anemia, necropsy revealed that the blood marrow was hyperplastic, abounding in leukocytes and eosinophil myelocytes, although the proportion of erythrocytes was small and there were few nucleated erythrocytes. The case emphasizes that in study of anemias we must discriminate between the two functions of the bone marrow, the production of blood corpuscles and the delivery of them to the blood stream. Possibly puncture of the marrow, as Ghedini suggests, may prove instructive.

Acute Yellow Atrophy of the Liver in Child.—An apparently harmless jaundice in the boy of 3½ suddenly assumed a fulminating form. The case confirms the assumption that occult gastro-intestinal infection may induce a catarrhal jaundice which may progress to acute atrophy of the liver.

The Skull of the Prematurely Born.—Rosenstern's tables confirm that the frontal fontanel is smaller the more premature the birth, and other anomalies were noted in the skulls of the thirty-eight prematurely born infants studied.

The Physical Properties of Foods in Infant Feeding.—Rosenstern and Lauter emphasize the importance of the form of the solution in infant feeding, presenting evidence that the scale of dispersion of the elements of the food, rather than its chemical composition, may be of decisive import in its action on the bowel. In this preliminary report of their research on the different behavior of crystalloids, colloids, suspensions and emulsions, they show that colloids and fine suspensions seem to check diarrhea. Albumin checks diarrhea both by its physical and its chemical properties while sugar, both physically and chemically, promotes diarrhea. The physical properties may be the explanation for the favorable action of albumin milk and buttermilk.

Defective Development of Veins in Infants.—Slawik reports clinical observations and histologic and experimental study of dystrophia of veins in infants. He never encountered any actual varicose enlargement of the vessels in infants. In one child the sequence was dystrophia of the veins in early infancy, then vasomotor instability, livid discolorations of the skin, and, later, dilatation of the left heart.

Zentralblatt für Chirurgie, Leipzig

March 4, 1922, **49**, No. 9

Etiology of Peptic Jejunal Ulcer. T. Beer.—p. 282.
Operation for Oblique Inguinal Hernia. F. Harth.—p. 285.
Closure of Hernial Sac with Autoplastic Ligatures. Frank.—p. 288.
Invagination of the Appendix. A. H. Hofmann.—p. 290.

March 11, 1922, **49**, No. 10

Necessity for Repeated Sterilization of Instruments in Cancer Operations. K. Henschen.—p. 314.
"Case of Late Tetanus." C. Pochhammer.—p. 315.
Modified Clamp for Blood Vessels. F. Harth.—p. 317.
Detaching Epididymis to Lengthen Spermatic Cord. Hofmann.—p. 318.
Isolated Laceration of Lacteal in Mesentery from Kick of a Horse. C. Brunner.—p. 320.

March 18, 1922, **49**, No. 11

Cosmetic Incision for Temporary Division of Jaw. F. König.—p. 362.
Etiology of Birth-Palsy. A. Schubert.—p. 363.
Epilepsy and Postoperative Tetany. H. Koetzle.—p. 365.
*Abortive Treatment of Erysipelas. J. Kumaris.—p. 368.
Modified Operation for Varicocele. A. Gregory.—p. 369.

Abortive Treatment of Erysipelas.—To check the spread of the initially localized disease, and if possible to bring it to a standstill, Kumaris uses a small thermocautery, with which he performs a punctiform cauterization of the entire skin surface involved, at one sitting; if necessary, under light anesthesia. By thus thoroughly opening up the affected area, with the resulting hyperemia, he endeavors to prevent the migration of streptococci or their injurious action on the organism. In recent years he has treated five cases thus, and the result was excellent in every case. The infection was brought directly to a standstill. The following morning the temperature ranged from 36.5 to 37 C. and remained normal; the treated area was, for the most part, pale. It was not in any case necessary to repeat the cauterization, there being no refractory areas and no extension of the affected area. Refractory areas are prevented by covering very carefully the whole affected area, leaving no islands not cauterized. Extension of the affection is prevented by cauterizing for from 1 to 2 cm. beyond the borders of the erysipelas. The parts affected were the gluteal region, the thigh, the lower leg and the whole leg. The last case presented a high fever, continual vomiting and stupor, the reddening spreading over the whole leg within forty-eight hours. The leg was cauterized under light anesthesia, from the iliac crest down to the toes. The result was astonishing. The patient, who had been feeling wretched the evening before, was sitting up the next morning feeling perfectly well, with a temperature of 37.1 C.

Zentralblatt für Gynäkologie, Leipzig

Feb. 25, 1922, **46**, No. 8

Refractometric Determination of Albumin in Edema Fluid in Kidney Affections of Pregnancy and in Eclampsia. Hellmuth.—p. 290.
Prolapse of Bulging Ureter Through the Urethra. Mayer.—p. 296.
Knotting of the Ureter. R. Hornung.—p. 304.
Effect of Pyramidalis Fasciaplasty. E. Liek.—p. 308.

March 4, 1922, **46**, No. 9

Ovarian Varicocele, Its Clinical Importance. Engelmann.—p. 329.
Kielland's Forceps with Brow and Face Presentations. Meumann.—p. 335.
Alimentary Glycosuria in Diagnosis of Pregnancy. J. Hofbauer.—p. 348.
Comment on Midwifery Bill. N. Ellerbrock.—p. 351.
Invagination of Appendix in Gynecologic Operations. Hofmann.—p. 353.
"Origin of Dropsy of Pregnancy." M. Beckmann.—p. 355.

March 18, 1922, **46**, No. 11

*Division of Work in the Ovary. H. Guggisberg.—p. 402.
Anterior or Posterior Cervical Cesarean Section. Polano.—p. 407.
Blood Coagulation in Deep Roentgenotherapy. Henkel and Gueffroy.—p. 409.
Etiology and Therapy of Extra-Uterine Pregnancy. v. Oettingen.—p. 413.
The Bier-Zimmer Threshold Proteotherapy in the Treatment of Febrile Abortion. W. Nussbaum.—p. 424.

Division of Work in the Ovary.—Guggisberg has been trying a new mode of experimentation to throw light on the problem of division of work in the ovary. He has reached the definite conclusion that the Graafian follicles must be recognized as producing an internal secretion. His investigations lead him also to believe that there is no sharp division between internal and external secretion in the ovary, as has been maintained by some writers.

Zentralblatt für innere Medizin, Leipzig

March 11, 1922, **43**, No. 10

*Blood Pressure in Relation to Diabetes. G. Marañon (Madrid).—p. 169.

High Blood Pressure in Relation to Diabetes.—Marañon regards the relation between high blood pressure and diabetes as very important but also as very obscure as yet. His statements are based on 90 recently observed cases of diabetes. He found, the same as Kylin, that when the diabetes occurred at a more advanced age arterial hypertonia was more common and more intense. The question is, Does this express a causal relation or a mere coincidence? A systematic study of blood pressure in healthy persons 40 years old and upward shows a constant increase of pressure. However, if we examine carefully the course of the arterial pressure and the diabetes in these cases, it appears evident that in a considerable number of patients there occurs a period of arterial hypertonia for a variable length of time before the appearance of glycosuria and other clinical signs of diabetes. When glycosuria finally appears, it often happens that the hypertonia continues for several years and then decreases. In the 90 cases mentioned, he observed that, as a general thing, the high blood pressure decreased in proportion as the patient got farther away from the clinical onset of the diabetes. Certain cases of hypertonia without glycosuria develop later into genuine diabetes. Among those who, at about the age of 40, begin to show signs of high blood pressure, there are a few in whom the development of a diabetic condition seems likely. In these there will be a more or less marked increase of blood sugar, a decrease of the carbohydrate tolerance, intense circulatory and nervous reaction to injection of epinephrin, and in certain cases the appearance of signs of a diabetic diathesis. Of 22 cases of hypertonia without glycosuria he found hyperglycemia present in 14, or 63 per cent., which agrees with the findings of Hagelberg, Farini, and Williams and Humphrey, though opposed to Kylin's statistics. Kylin found hyperglycemia only once in 15 patients with hypertonia.

Mededeelingen v. d. Burg. Geneesk. Dienst, Batavia

1922, No. 1. English Edition

*Leprosy in Sumatra. L. Bodaan.—p. 1.
Tests of Fatigue in Batavia Schoolchildren. F. H. van Loon.—p. 25.
Prophylaxis of Malaria During Harbor Construction Work. W. Schüffner and B. Hylkema.—p. 47.

Leprosy.—This profusely illustrated article is by the missionary who has organized a model village for lepers in Sumatra, and made it so attractive that they apply voluntarily for admission. Each one has his own house and garden, and their families can visit them at will. Children born in the village are sent away for adoption when they are 3 years old, and none has ever developed leprosy to date.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

April 15, 1922, **1**, No. 15

*Acute Meningitis. D. Herderscheê.—p. 1508.
*Bronchial Asthma as Nasal Reflex. I. C. Henkes.—p. 1517.
Phenomenology in Psychiatry. H. C. Rümke.—p. 1523.
Two Mosquitoes New to Dutch India. N. H. Swellengrebel.—p. 1535.
Gangrene with Sepsis. J. J. van Leeuwen.—p. 1537.
Consequences of Exclusion of Intestine. C. P. van Nes.—p. 1544.
Visits to American Hospitals. E. Bergsma.—p. 1560.
*Extra Expense of Proprietaries. A. Molema.—p. 1566.

Acute Meningitis.—Herderscheê states that there was no headache in 4 of his 82 cases of suppurative meningitis, no stiffness of the neck in 5, and no Kernig sign in 16. There was no headache in 6 of his 108 cases of tuberculous meningitis. All died of the 17 in which the pneumococcus was found in the spinal fluid; also in the 4 streptococcus cases, and the one case with both the pneumococcus and the streptococcus, also in the one case with colon bacilli, and the one with *Diplococcus crassus.* Only 3 died of the 8 with no micro-organisms found, and 31 of the 68 with meningococci. One patient was left blind, another died two weeks after apparent recovery, and necropsy revealed unsuspected hydrocephalus. Among 539 feebleminded in a Norwegian institution, 3 per cent. were known to have had meningitis. Ten Doesschate found disturbances of various kinds in 48 of 180 soldiers who had had epidemic meningitis from two to thirty-one months before; 54 had died. In Herderscheê's 108 cases of tuberculous meningitis, in 24 the hearing was impaired; 25 had nystagmus; 7, changes in the chorioid, and only a few were free from pains in head or back, early fatigue, etc. Ptosis was noted in 42 per cent. of the cases of tuberculous meningitis, strabismus in 53 per cent. and anisocoria in 55 per cent. In other forms of meningitis the corresponding proportions were 16, 23 and 29. The onset was sudden in 5 per cent. of his tuberculous cases, and in 53 per cent. of the nontuberculous. In one of the latter the apparently healthy boy came home from school at noon with headache, saying that the teacher had boxed his ears. The boy died the same evening, and necropsy revealed the meningococcus meningitis.

Asthma as a Nasal Reflex Neurosis.—Henkes found abnormal conditions in the nose in all but one in a series of 12 cases of asthma of recent development and also in 40 of 48 cases of asthma of long standing. In these 51 cases, the electric current applied to the middle turbinate bone induced a kind of wheezing sound in the breathing, and breathing became more difficult. With pathologic conditions in the nose and pharynx, if this electric test is negative, the cause of the asthma must be sought elsewhere. But if the test is positive, then treatment of the nose, pharynx or some sinus is indicated. Insidious suppuration in the ethmoid cells is particularly liable to be responsible for this form of asthma. He reports a case in which the asthma subsided permanently after the clearing out and healing of an abscess in the middle turbinate. In families in which there seems to be a predisposition to asthma, he has seen the older children develop at times a difficulty in breathing, ascribed usually to nervousness. He is convinced that this is the precursor of actual asthma, a sign of a pathologic reflex route from some anomaly in the nose. In three children of this type the anomaly proved to be adenoids, or an inflammatory process in the nasal mucosa, or unsuspected suppuration in the ethmoid sinus. All three had reacted with wheezing to the electric test, and none have displayed any respiratory disturbance since the cure of these processes. He applied for the test a weak faradic current through an oval metal plate with an area of about 0.25 sq. cm.; the other electrode at the back of the neck. In practice this test is seldom necessary. It is enough to treat any abnormal conditions found. If the asthma does not subside under this, then this electric wheezing test will reveal whether the cause is elsewhere, or more careful search should be made for it in nose and sinuses.

Proprietaries Versus Officinal Drugs.—Molema as a country physician is obliged to dispense his own medicines, and he has been impressed anew of late with the difference in price between the proprietaries and the pharmacopeial drugs. He gives a list of ten of the more commonly used proprietaries with their wholesale prices, 10 kg. totaling 573 florins, while the same amounts of their pharmacopeial equivalents total less than 160 florins. He declares that the physician while guarding the health and strength of his patients should also guard their material interests.

Hospitalstidende, Copenhagen

April 25, 1922, **65**, No. 12

*Ileus as a Consequence of Certain Congenital Anomalies. E. Dahl-Iversen.—p. 189. Conc'n No. 15.

Ileus from Congenital Anomalies.—Iversen does not include in this study atresia of anus or rectum, diaphragmatic hernia and diverticulum of the ileum. He has compiled 36 cases observed in Denmark; 4 were encountered in his service in a two year period. In 2 of these there was volvulus of the small intestine; in another there was multiple atresia of the small intestine, and in the fourth, a fibrous band bound down the duodenum. This last child seemed to have been cured by the excision of this band, but after a week of progressive improvement the vital functions seemed to flag and the infant died from inanition. The operative shock or the narcosis may have been responsible for this, notwithstanding the interval of a week of improvement. He gives the details of the Danish cases, and notes the symptoms that point to the site of the obstruction. The ileus may not develop for several weeks or months after birth or not until some cow's milk clot or chunk of food obstructs the previously permeable stenosis. One infant with green vomiting from birth recovered after entero-anastomosis to exclude the infrapapillary portion of the duodenum, the seat of atresia. This male child has developed normally during the six years since. He knows of only 3 other cases in international literature of successful operations on infants for ileus from congenital anomalies. Entero-anastomosis had been done in 2 and an obstructing band severed in the others. In 7 of the Danish cases the ileus did not develop until the age of 3 up to 56 years .

Hygiea, Stockholm

May 16, 1922, **84**, No. 9

*Râles with Artificial Pneumothorax. S. G. Lindblom.—p. 337.
*Tumor in Soft Palate. R. Roman.—p. 350.
Recent Research on the Blood Pressure. E. Zander.—p. 354. Reply, E. Kylin.—p. 355.

The Râles with Artificial Pneumothorax.—Lindblom warns not to forget that râles may be propagated from the collapsed lung to the other lung when therapeutic pneumothorax has been induced.

Tumor in Soft Palate.—The tumor was successfully removed from the woman of 78. It proved to be of the parotid-mixed tumor type. The first symptoms from it had been noted about eight months before.

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THE FUNDAMENTAL PRINCIPLES OF ORTHOPEDIC, RECONSTRUCTION AND INDUSTRIAL SURGERY

THE REAL LESSONS OF THE WORLD WAR *

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LINCOLN, NEB.

In this section we should remember that in 1916 Col. Joel E. Goldthwait and four other members, Hibbs, Henderson, Osgood and Allison, were appointed a committee on preparedness to arrange for our participation as orthopedic surgeons if the United States became engaged in the World War. Our attitude then was one of high idealism; we were prepared to offer time, effort and even life if necessary, in the service of our country and our countrymen.

It is now a matter of history that the opportunity came, and that, in the spirit suggested above, Colonel Goldthwait and his associates made exactly the offer and the effort that was expected of them.[1]

Now, however, if we attempt to discuss the results of that effort, in the spirit of today, we are very likely to develop a tone that differs greatly from that which was used in 1916. There are those who not only disparage the effort, but who deny the patriotism of those who engaged in the orthopedic part of our campaign against the belligerent Central Powers. There are also those who contend that the final victory of the Allies has brought us no good results of any kind. In fact, there is so much confusion in politics and international policies, and in the affairs of the world in general, that it is difficult to discuss even questions of service and scientific progress and separate them, for special study, from other national and world affairs that are clamoring for attention.

This puzzled and uncertain or even negative attitude is, perhaps, not entirely unreasonable. It is difficult for one to devote oneself wholeheartedly to the solution of problems of surgical procedure and methods of physical reconstruction for his patients, when the surgeon himself is trying to rehabilitate after a period of military service. Moreover, the situation is complicated when the soldier patient is more concerned about securing a cash bonus or compensation than he is about getting well.

All of these things have a bearing upon the topic which I have selected for my address. I feel that, with a little time for consideration, we can arrive at fairly definite conclusions as to some of the lessons learned from the war.

FIRST PRINCIPLES

Our Surgeon General has said recently that the surgery of the war consisted chiefly in a "harking back to first principles."[2] This comment may or may not do justice to our two years of effort in the military service. One might say that, if we really had successfully "harked back" to first principles, we might feel fairly well satisfied with the achievement. After all, compliance with first principles is one of the things that surgeons have not done too well. It does seem to me, however, that this comment calls for both elaboration and explanation if we, as surgeons, are to get anything for our patients and ourselves out of our war experience.

There were during the war certain occurrences in the surgical services that represented serious aberrations, if we consider them from the standpoint of first principles.

Our concern, as orthopedic surgeons, has been chiefly with the prevention and correction of deformity, and with the restoring to useful citizenship of those who suffered by reason of the military service.

Have we as surgeons learned anything new or profited in any way by our service in the hospitals in Great Britain, in France or in the United States?

I believe that it may be said that the character of such work is better at the present time than it was five years ago, and that it is better because of certain lessons learned in the army hospitals.

Orthopedic or reconstruction surgery in this country is still very poorly done. We have still many thousands of children and industrial workers who are crippled, deformed and physically handicapped because of inadequate medical and surgical attention. There are as yet insufficient hospitals. We lack special training schools for selected vocations for the crippled, and there is even now no real public or even professional conception of what may be done in the prevention and cure of deformity, the relief of disability, and the retraining of the physically handicapped.

To illustrate: If only the splinting of fractures and infantile paralysis were promptly and properly done in the United States, the total amount of crippling and serious disability would be reduced by about 10 per cent. Or if suitable measures were appreciated and encouraged by physicians to prevent and relieve foot strain, foot pronation and acquired foot deformities, another 15 to 20 per cent. of our partially or totally disabled workers could be made more comfortable and more efficient. With regard to the latter cases alone, Colonel Goldthwait's special training battalions in France furnished a lesson from which every city in

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* Chairman's address, read before the Section on Orthopedic Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Report of Committee on Orthopedic Preparedness, Tr. Sec. Orthop. Surg. A. M. A., 1917, p. 248.

[2] Garrison, F. H.: History of Medicine, Ed. 3, Philadelphia, W. B. Saunders Company, 1921.

this country could profit if the message were carried by our orthopedic surgeons and the other members of the medical profession.

LESSONS FROM VARIOUS PROCEDURES

The war taught us that much disability and deformity may be prevented by adequate first aid treatment. Our experience in this regard, though less extensive, was just as convincing as the prophylaxis that succeeded so well in typhoid fever and tetanus. It is only necessary to refer here, by way of illustration, to the saving of life and limb that was accomplished by the application of the Thomas splint in compound injuries of the femur, by splint teams on the battlefield. The results achieved by this one procedure should be sufficient reason for placing Thomas splints and splint teams at every point in America where such accidents are likely to occur. As it is, there are already hundreds of places where a Thomas splint had never been seen before, where there are now adequate provisions for the immediate splinting of such injuries.

This section should acknowledge, as one of the outstanding achievements of the war, the results of the labors of Goldthwait, Allison, Osgood, and Baer, in the simplification and standardization of splints and splint methods. In this respect, at least, we caught step and I think even went ahead of our allies. We are now certainly getting better results than formerly in the care of many industrial accident cases. I believe that these results are due more largely to the earlier and better application of splints than to any other cause.

In any discussion of progress in war surgery, one of the first topics to be suggested is that of the Carrel-Dakin treatment of infected wounds. The results of such wound treatment in a few instances were such as to give the whole subject almost an atmosphere of romance. The rapid and obvious reduction in infection, the diminishing number of septic organisms, the improvement of the patient's general condition, and finally even the secondary closure of certain wounds made a strong appeal, both to patient and surgeon. I believe I can say, however, that out of these very experiences we should get one of the important lessons of the war. The field of application of the Carrel-Dakin method has already been fairly well realized, and we shall admit without argument that the method has a certain, if limited, value.

My principal point, however, from the standpoint of an orthopedic surgeon, is that neither the Carrel-Dakin method nor any other kind of wound treatment should be permitted to interfere seriously with the fundamental principles in the treatment of bone and joint injuries. Those principles are, first, the immediate replacement, as nearly as possible, of injured parts in anatomic relationship, and second, the maintenance of immobilization ("enforced, uninterrupted, and prolonged"—Hugh Owen Thomas) of such injured parts in proper relationship until healing occurs.

In other words, wound treatment of whatever kind must not interfere with splinting in correct position. In the application of the Carrel-Dakin method, the disturbance of splints and the discarding of casts has been very common. It is my belief that splinting should come first in compound injuries, just as it should in infantile paralysis. In infantile paralysis, massage, electricity, manipulations, hydrotherapy and all other measures of physiotherapy are of secondary and minor importance as compared with splinting in correct position. My attitude with regard to the Carrel-Dakin or any other forms of wound treatment (except drainage) in compound injuries is exactly the same, that is, they are secondary to correct splinting.

This argument also brings up the old question as to splinting and stiff joints. To this my answer is that stiffness, whether of the joint itself or of the adjacent soft parts, is due not to immobilization but to pathologic changes. Such changes are always due to irritation, inflammation, tissue destruction and scar formation. All of these are kept at a minimum, not by movement, but by rest. The minor stiffness that is inevitable to the minor injury can be broken up after healing occurs. The more serious stiffness that results from more serious injury cannot be broken up either at the time by poor splinting or by force later on.

Another important war experience, and one which attracted much attention at the time, had to do with the so-called Willems method of the treatment of infected joints by keeping them in motion. Accurate and careful adherence to the exact technic promulgated by Willems surely gave, and will give, good results in some acute septic joints. (Careful splinting and sound healing will give the same results or better.) On the other hand, experience taught us the great danger of keeping infected joints moving under any except ideal conditions. I saw during the war, and have seen since, many cases of serious disability and severe deformity in which attempts were made to maintain motion in joint cases, which should have been protected and allowed to become stiff in better position.

Even from one of the most brilliant procedures that came out of the surgery of the war—débridement—there are negative as well as positive lessons to be learned. Certainly we saw that lives and limbs were saved by the early and complete removal of badly damaged and infected tissues. That such procedures should be done only by skilled surgeons, however, is attested by the frequency with which principal peripheral nerves were sacrificed and serious disabilities resulted, owing to bony and soft part defects.

OCCUPATION OF DISABLED

One of the greatest lessons of the war is one in regard to which we, as a profession, still have much to learn. This is the lesson of the occupation of the sick and disabled. Both in the army and out of it, we are still pursuing, with regard to our disabled, a policy which in many cases is bad for them and bad for us.

This is the policy of compensation without directed or supervised employment. It is true that we have a fairly elaborate machine set up for the vocational guidance and for the employment of our crippled discharged soldiers. For our industrial cripples there is almost no provision whatever. The fault now is not so much with the governmental agencies as it is with the general public and with the profession. The employment of the idle presents a problem for the solution of which the intelligent cooperation of the entire community is necessary. As long as idleness is permitted, and especially as long as it is encouraged, we shall have the problem of the unemployed, either lame or well. Certainly, however, in institutions in which supervision is at hand, every inmate should be engaged, if possible, in some sort of useful occupation. These occupations can be made educational and instructive as well as remunerative and curative. Then the individual will be on the way to real rehabilitation, socially as well as physically.

We have passed, have we not, that period in human history in which power and possession were yielded to that one who was physically the strongest? We are supposed to have now a government which guarantees to us all equal rights for the enjoyment of life, liberty and the pursuit of happiness. Are we not perhaps ready for the next step forward into an era in which, by common consent, we may give special opportunities, special privileges and special facilities for self help (instead of merely charity) to those who cannot—mentally or physically—keep up under the strain of competition with those who are fit?

CONSULTATION AND SUPERVISION

In spite of the arguments of those who fear and object to paternalism, I wish to say a word from our experience with the supervising consultant in the military hospitals. It is an idea which remained firmly rooted in our surgeons, even after they became medical officers in the United States Army, that the hospital service and the patient assigned to any one became more or less his personal property. One needs only to see the attitude of any surgeon now toward his hospital service and his hospital patients to find out how quickly he resents supervision, direction or even suggestions as to the care of his patients. If any attempt is made to direct the care of any patient apart from the surgeon's invitation, he is at once affronted. This feeling must, of course, rest on the assumption that the surgeon knows so much about his work that no one can tell him anything.

Would it not be better for our patients to meet this question fairly and allow methods of treatment to be checked up by those who are competent to give an expert opinion?

In the military service, we certainly found hospitals, surgical services and wards in which specially trained consultants were able to contribute much to the work that was being done. I believe that it may be said that this is particularly true of consultants in orthopedic surgery. At any rate, in orthopedic surgery, it was particularly easy to demonstrate the results of decisions as to treatment and the supervision of the care of patients by consultants. I can recall instances in which a single visit by the consultant with a tape measure to a femur fracture ward resulted in correction of deformity, lengthening of shortened limbs, and the improvement of the condition of twenty or thirty patients in a single day.

That this method might be applied in the same way to present day conditions and present day hospitals, I believe no one can deny. It is my belief that a consultant in orthopedic surgery with correct ideas regarding the prevention of deformity could contribute to the welfare of many patients, to the improvement of their condition, and to the prevention of some deformity, in most of the hospitals in this country.

I am not unaware of the ojections to further inspection, consultation and supervision by city, county or state officials of any kind. I have some reason to believe that this sort of thing is being overdone. And yet the chief objections to consultation and supervision come from those who, in a sense, create the necessity for it. We have many inspectors of all kinds who are incompetent and superfluous. On the other hand, we have inspectors who are responsible for the fact that we are served with healthful meat and clean milk; that we enjoy a measure of police and fire protection; that we have paved streets and good roads, and that we enjoy many other privileges and immunities.

In the same way I believe that it may be said that, in spite of any objections that may be raised, systems of hospital or community consultation in fractures and other serious injuries would raise the level of such treatment and bring about an era of better results. It cannot be denied that many fractures are being treated today by those without proper training, skill or experience in such work.

Other disabilities and deformity-producing diseases and injuries are being handled in the same way. Standards of treatment and results definitely set down, and more or less rigidly enforced, seem to me to be the only answer. And for this purpose a consultation scheme with the development of something like an "orthopedic conscience" seems to be necessary.

POSSIBILITIES OF REESTABLISHMENT

The experience of the war has brought to our attention very forcibly the fact that our results in this class of cases are not as good as they should be. In the draft, in the army hospitals, and since the armistice we found, and do find, disability and crippling that should have been prevented. We constantly find instances of avoidable deformity. And there are daily opportunities to replace in society and in industry cripples who are idle now because of the neglect of treatment and training.

We have had splendid illustrations in our own country as well as in Great Britain, France and Italy of the meaning and methods of rehabilitation in the broadest sense. Canada has shown us in a very striking way the possibilities of "reestablishment." In all the countries of our allies, as well as our own, surgical reconstruction is being admirably done to a certain extent.

Moreover, we now know that congenital and acquired deformities are equally amenable to relief if we follow the fundamental principles of orthopedic surgery. And, briefly stated, these fundamental principles are, first, to restore to and secure healing of parts (at *any time* after injury) in as nearly correct anatomic relationship as possible. And second, we have surely learned that there are practically no limits to the possibilities of reestablishment of the individual by the educational and training development of original compensatory or vicarious functions.

Fighting the Drug Menace.—The League of Nations recently held a conference in Geneva on opium; and Congress has passed a bill limiting the importation of drugs. The medical societies are also assisting in the crusade by endeavoring to eliminate those who profess to be curing addicts by administering smaller, but continuous doses. The drug problem has assumed such large proportions that a physician has been placed in charge of the special narcotic control division of the New York police department. This agency has cooperated with other forces throughout the United States and foreign countries until a clearing house has been established to supply information regarding drug addicts and venders. The narcotic division has already collected the finger prints of 20,000 drug users in this country, Canada and Europe. It has been stated that there are from 250,000 to 400,000 drug addicts in this country alone, and that the habit results in an annual loss of $750,000,000. Narcotics valued at $3.500,000 were confiscated and destroyed in New York alone during 1921, and 3,086 venders or users arrested.

THE OTOLARYNGOLOGIST IN THE SCIENCE AND ART OF MEDICINE AND SURGERY *

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It can be truthfully said that this is the greatest year in the history of medicine and surgery, especially in the branch of otolaryngology and, as has been said by others, "it is conceded everywhere that the eye, ear, nose and throat specialists have attained the rank of a major branch of medicine and surgery. When one compares the meager, almost barren specialty of twenty-five years ago in this subject, with the wonderful advances of the present day, one is amazed at the development a quarter of a century has brought forth. Its scope and dimension have enormously enlarged and become a powerful and far reaching organization."

For years we have believed that the Mekka of medical learning and training was to be found principally in Europe or in the eastern part of our country; but the war has proved that in every department of life this, our own country, now leads the world. No longer does a trip to Europe confer especial prestige or advantage, because today medical Europe is destined to sit at the feet of medical America. The tremendous development of the past twenty-five years has been due to American initiative and skill, and in this period this specialty has advanced from a minor to a major branch of medicine and surgery, entitling American men to be the clinical teachers of the world. The Vienna of ophthalmology and otolaryngology belongs not in Europe but in America. Because the science and art of medicine and surgery and its special departments are not fixed but are in the process of development, the rapid progress being made by study and research becomes more fascinating and stimulating than ever before. It is also equally true that no one of these specialties can exist without the other, or independently of them, but every specialist must do or have done some of the work of the internist. "The aggressive research work and advanced improvements in operative technic have so changed the principles of otolaryngology that the methods of a quarter of a century ago have no place in our ranks today"; then we lived in the adolescent stage of the science and art of medicine, and our diagnosis and treatment were largely based on symptoms and theory; but in the past decade we have passed from adolescence into the manhood of humanity and with it into the manhood of the science and art of medicine, and today we are governed not by theory but by facts. The East now turns to the West, and where the North, South, West and Middle West formerly turned to the East for instruction and training, they now look not to one alone, but to one another. A recent trip to the West and Middle West convinced me of the great work being done by those of whom we have heard only too little, and it can be truly said that the South, West and Middle West are coming into their own in the field of otolaryngology. From a scientific standpoint it seems that we have nearly reached the summit of the diagnostic and surgical technic in our special field.

Those who consult us either have symptoms indicating disturbed conditions of the ear, nose and throat due to a local determinable pathologic condition, or else these symptoms are but local manifestations of systemic conditions; and, since either or both may exist, it is expected and demanded of the otolaryngologist that he be able to decide the question.

It is now recognized that the average case of diseased nares, pharynx or larynx must be relieved by changes brought about from within the body and not from those without. The efficacy of the nebulizer, vaporizer, atomizer and topical applications of any kind is found in relatively few instances, and they are not indicated except as palliative measures.

When the disturbed or diseased condition is not a local manifestation of a systemic condition, but is due to a local condition, it is a surgical condition and must be dealt with as such, with skill, percision and accuracy equal to that required in any part of the body, if the surrounding area is to be left with function unimpaired. To differentiate between the systemic and surgical etiology and to prescribe the proper treatment, or resort to the safest and sanest surgical procedure, requires a diagnostic skill and surgical technic based on a thorough knowledge of more than the fundamental principles of medicine. Besides a knowledge of anatomy, physiology, chemistry, biology and pathology, we must know materia medica and therapeutics in order to be able to recognize and successfully combat the disturbed metabolism. The responsibility of the otolaryngologist is not only different from, but greater than that of any other special branch of medicine and surgery, in that we must preserve or restore both ventilation and drainage in order that these organs may function normally.

It is no longer sufficient that the otolaryngologist be a skilful technician, able to see into or through the many ramifications in this special field; he must do so with little or no irritation or traumatism; he must be able to recognize the abnormal or pathologic and, in the majority of instances, to verify his conclusions by laboratory findings. To do the best work with the best results, the otolaryngologist must not only be thoroughly trained, but his training must be founded on a knowledge of the branches mentioned, to which must be added at least some knowledge and experience of the internist; and, since this is too large a field for the average man to master, he must have the help and cooperation of the laboratory expert, the internist and the roentgenologist. With all these he must be a thoughtful observer, thoroughly trained, a student of current medical literature pertaining to otolaryngology, and must attend scientific meetings such as these, in order to be able to interpret correctly what his eyes see and his fingers feel.

Knowledge of the therapy of nutrition, food and pollen sensitization, and mastery of the mysterious field of endocrinology, I believe, will soon aid us in answering the challenge of immunization and anaphylaxis. This brings us again to the question of medical education, which has occupied so much of the thought of the teachers of medicine in the last few years. I am in accord with the views of Dr. R. B. Canfield of Ann Arbor, Mich., that:

> A consideration of the entire undergraduate medical curriculum is indicated and, in order to take it up intelligently, the history of undergraduate medical teaching in the country for the past forty years must be reviewed. At first it was entirely clinical; then the importance of laboratory teaching was recognized and stressed by energetic and progressive workers all over the country. In order to devote more time

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* Chairman's address, read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

to preclinical work, the medical course was changed from two to three or four years; finally the premedical course was added and the combined course evolved, working toward two degrees. At present the combined course of six years, leading to the degrees of bachelor of arts and science or doctor of medicine, covers six or seven years, and four or five years of this are devoted chiefly to preclinical work with the idea of securing a broader basis and education for studying clinical medicine. While this seems too large a proportion of the time devoted to preclinical work, yet before any clinical course is cut down it would be wise to study critically exactly what is being taught throughout the undergraduate course, not only the names and courses with the hours devoted to them, but what is really in each course, and by comparison then with what is ideal, be better able to approximate the ideal. Not enough hours are given to teach the student to see and recognize normal conditions of the ear drum, nasopharynx or larynx, let alone diagnose diseased conditions there, nor is there sufficient time to teach what every general practitioner should know. The aim should be to graduate only doctors to care for the sick, without sacrificing anything essential in order to teach them preclinical work that is often forgotten before graduation, and could better be given to men in a postgraduate course, who wish to specialize in this line.

The scope of otolaryngology has widened more in the last ten years than in any other branch of clinical medicine, and more time should be devoted to it. The character of some of the preclinical work should be changed, courses should be cut down, and clinical work should be pushed farther back, so as to give more time for clinical medicine and surgery.

There seems to be an inclination to centralize authority in three departments, surgery, medicine and pathology, subordinating the so-called medical and surgical specialties of the three. It would be a mistake to make heads of departments of clinical specialties, clinical professors, subordinate to full professors of surgery; and, if not overcome, this tendency will lower the standard of teaching in the medical and surgical specialties and interfere with the progress in these departments. Therefore a critical survey of the whole curriculum would be a good thing before any drastic change is made. The chief function of the undergraduate school is to graduate young doctors, not specialists or expert technicians.

The recent meeting of the Congress of American Physicians and Surgeons marks one of the most remarkable epochs in the history of medicine, in which otolaryngology occupied a conspicuous and important part. Great progress was shown in the advancement made in the study of labyrinth function, standardization test of hearing, and hitherto mooted questions in laryngology and rhinology were more satisfactorily answered. Because of a nearer approach to scientific accuracy, the transactions of the three national societies which are a part of this congress (laryngologic, otologic and ophthalmologic) will contain a fund of information that none of us can afford to be without. Two papers which were presented deserve especial mention, because of the startling facts brought out by two members of this section. One of these was on "Some Unpleasand Local End-Results in Well Performed Tonsillectomies," by Dr. C. W. Richardson of Washington, D. C., and the other on "Fatalities of So-Called Minor Operations on the Nose and Throat Not Dependent on Anesthesia," by Dr. H. W. Loeb of St. Louis.

What I have already briefly referred to should make us carefully consider the admonition of the president of the Congress of American Physicians and Surgeons, who says:

> The tendency to overspecialization in the practice of medicine has tempted many inadequately trained members of the profession to take up special lines of work. There are too many specialists of this kind in practice today, and to correct this condition the members of this congress should promote and develop opportunities in various parts of the country for adequate postgraduate training in the several specialties of medicine and surgery.

Dr. Frank B. Wynn, who has written "The Ten Commandments of Medical Ethics," says:

> Let it be granted that specialization, which has done so much for modern world progress, is likewise the chief glory of medicine; but we should not forget that as specialization in the commercial and industrial realm has led to narrow and selfish materialism, so is medical specialism in our day tending to forget man as an entity—a thinking, reacting aspiring being.

Is it not meet at this time, therefore, that we seek a rejuvenation of medical ethics—not so much as a cold, harsh rule of conduct, but as a revival of the finest things of professional life for which medicine in the past has always stood? In these days of arrant boastfulness by chiropractors, of preposterous claims by Christian scientists; with medical sects multiplying and breeding upon avarice, ignorance and erraticism, should not the medical soul be aroused? Reviving the faith of our fathers, let us set the light of knowledge of the science and art of medicine and of medical ethics "upon a hill, that all the world may see and know the truth."

EFFECTS OF INTRATRACHEAL MEDICATION ON GAS BURNS OF THE RESPIRATORY TRACT *

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When we entered the war, the enemy was using mixed gases, thrown over with shells from trench mortars and by heavy artillery. The attacks usually began with gases which produced excessive sneezing and lacrimation; this being followed by the more poisonous gases, mustard and phosgen. Mustard gas, so called because its odor resembles that of mustard oil, classified as a vesicant, causes inflammation, blistering, discoloration of skin, acute conjunctivitis and intense inflammation of the respiratory passages. Its action is caustic, the extent of damage or destruction of tissue depending on the degree of concentration and the time of exposure. Its action may be delayed over a few hours to two or three days.

Phosgen is classified as a lung irritant of suffocant type, which, in the alveoli and lung tissues, causes exudation of large quantities of frothy mucus; acute pulmonary edema, and death, by flooding the air spaces.

One of the most important and arduous duties of the throat and ear service throughout the war, after the introduction of poison gases, was the treatment of gas burns of the respiratory tract.

The Allied Medical Service was completely overwhelmed for a time by the great number of casualties, and was without knowledge or means of proper treatment. During my service in Base Hospital 32, located at Contrexéville, France, advance sector, from March 23, 1918, to the end of the war, 6,000 gas cases were received at our hospital for treatment. Of this number

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* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

2,800 were regarded as serious, requiring special treatment of the upper and lower respiratory tract. Frequent examinations were made of these patients, both by direct and indirect laryngoscopy, and, when the condition of the patient permitted, bronchoscopic examinations were made. A number of patients died in convoy from the front lines to the hospital. Necropsies were made in these cases, and water color sketches representing conditions found in the respiratory tract and lungs were made by an assistant.

Our first observations were made on a convoy of patients received, March 23, 1918. These patients were principally from Companies K and M, One Hundred and Sixty-Fifth Infantry, Forty-Second Division, and were gassed in the Lorraine Woods, American sector, March 21 and 22, 1918. The following history was obtained:

The gas attack was made with shells thrown from mortars and heavy artillery and was concentrated around the dugouts of Companies K and M, One Hundred and Sixty-Fifth Infantry. When the attack began, all had on their gas masks and kept them on for two or three hours, when they were informed by their officers that it would be safe to remove them. Many claimed that they felt a burning sensation in the lungs while they had on their masks, but, from reports made by others, it was evident that they removed their masks too soon and that the masks afforded perfect protection while they kept them on. The first severe effects of the gas were felt in the eyes, at varying intervals of from one to three hours. The respiratory effect developed from a few hours to several days after the attack. A number of these patients had no symptoms of gas poisoning until they had slept under blankets which had been exposed to the gas.

We had rarely witnessed such suffering and distress as these patients manifested, with skin burned and discolored, eyes swollen shut, spasms of choking, vomiting and struggling for breath, with the lungs literally drowned by their own secretions, they writhed in pain until they became unconscious from the want of oxygen.

Nausea, retching and vomiting, with pain and oppression over the chest, were among the earliest and most persistent symptoms, followed later by coughing and spasms of the glottis, with excessive discharge of frothy mucus often mixed with blood. Hemorrhages from the nose and lungs were among the rare symptoms. A deeply cyanosed and lead-colored face, labored respiration, rapid pulse, restlessness, constant and spasmodic efforts to expel the profuse frothy expectoration was the usual clinical picture during the first few days. The pain and distress in the lungs and epigastric region was often very intense.

PATHOLOGY

The pathology of gas burns is similar to that of an escharotic chemical applied to the tissues. If gas sufficient to produce serious effects is inhaled, there results an extreme engorgement of all the vessels and capillaries of the lungs, followed by the outpouring of a serous exudate from the injured bronchial and alveolar linings. In this stage, the patient might be drowned by the edematous exudate which filled the lungs, to the exclusion of the air. As in other inflammations of a severe degree, the outpouring of the fluid exudate from the blood is followed by deposit of fibrin on the injured surfaces. Thus, the bronchial passages, already wholly or partially denuded of epithelium, became lined or even occluded by a fibrinous membrane similar to that seen in diphtheria. This greatly hindered respiration and adhered to the mucosa with such tenacity that coughing was ineffectual to dislodge it. Necrosis of the bronchial walls and lung tissue resulted in a varying degree from exposure to the gas. These areas were, of course, promptly invaded by whatever bacteria were present in the respiratory tract, resulting in ragged, foul ulceration of the larynx, trachea and bronchi, and in multiple abscesses of the lung.

After the first few days, the burned areas became infected and began to suppurate. As the necrotic process advanced, large quantities of exudate consisting of broken-down tissue, tube casts, greenish-gray masses of membrane and sometimes necrotic lung tissue, were thrown off from the air passages. During this stage, the breath was very foul from the gangrenous discharges, and the patient, utterly exhausted from absorption of poison and the constant spasmodic and ineffectual effort to expel the accumulated slough, very often would lapse into a semiconscious state.

EXAMINATION

In the milder forms of mustard-phosgen poisoning, we found the nasal, laryngeal and bronchial mucosa red, dry or edematous, in the early stages. The general appearance was not unlike an ordinary laryngitis or bronchitis. After a short time, the membranes began to pour out large quantities of mucus. In many of these cases of mild gassing, the patients recovered in a few days, and, in those patients who had been exposed to a high degree of gas concentration, the mucosa showed an intense hyperemia and dryness at first, followed later by flooding of the air passages with the frothy mucus, often mixed with blood. After two or three days, the burned areas were covered with a fibrinous membrane. These patches were found in the vestibule of the nose, on the turbinates and, in some instances, extending into the accessory sinuses. The mouth and pharynx seemed to show resistance to the caustic action of the gases, owing, probably, to the character of the epithelial lining; while the larynx, especially the arytenoid region, seemed to be particularly vulnerable. Burns were often found to be deep, with infiltration and edema about the vocal bands, causing aphonia, which occasionally persisted for weeks and months. The tracheal lining was usually burned in irregular patches. In many cases, the entire lining of the trachea extending into the small bronchi was involved. Edema of the lungs was always present to a greater or less extent when there had been exposure to the mixture of mustard and phosgen in any high degree of concentration. Bronchopneumonia with multiple abscesses was not infrequently present.

TREATMENT

At this time (March 23, 1918), when we received our first convoy of patients at Base Hospital 32, the Allies had not developed any treatment which was satisfactory for the effects of poison gases in the respiratory tract and lungs. Rest, bloodletting, oxygen inhalation and warmth were found to be of value in general treatment. There was a large list of contraindications, such as, no form of opiate for pain, cough and spasm; digitalis for heart disturbance was contraindicated. Epinephrin had not proved of value and was thought to be dangerous. Oxygen seemed to be the chief remedial agent recommended by the Gas Service, but as there was not an oxygen tank in our hospital center during the early months of our service, we found it necessary to resort to other forms of treatment. Alkaline washes and sprays apparently increased the suppuration and aggravated the condition. We felt at liberty to institute any form of treatment that promised relief; and as I had had several years' experience in the treatment of laryngeal and bronchial affections with intratracheal medication, it seemed to be applicable in the conditions arising from gas intoxication. The first object of the treatment was to relieve pain and the exhausting spasms and ineffectual cough without the use of opiates; and, next, to obtain better drainage of the lungs and respiratory tract. For these purposes, it was found intratracheal medication was the most effective. Medication in oil solution was introduced with the tracheal syringe during inspiration. Skilled assistants soon learned the trick of introducing the syringe and administering the medicated oils in the trachea and bronchi. In some patients who were peculiarly sensitive to any kind of throat medication, it was at first necessary to spray the pharynx with a 2 to 4 per cent. solution of cocain, before introducing the syringe.

The principal medicines used were solutions or emulsions, in liquid petrolatum or olive oil, of either bismuth, iodoform, antipyrin, guaiacol or camphor menthol. The following formula was found to be the most generally effective in the majority of cases: Guaiacol, camphor menthol, 5 per cent. of each in liquid petrolatum or olive oil. From 1 to 3 drams of this mixture was introduced into the trachea two or three times a day in the severe cases.

MODE OF ACTION

When the oil solution reached the deeper bronchi a few seconds after introduction, the first effect produced was a cough, which expelled the contents of the bronchial tubes, often consisting of tube casts and diphtheritic membrane, grayish green, with pus, and other products of suppuration which had accumulated in the trachea, and which previous efforts of coughing had not been sufficient to expel. The natural drainage of the lungs was facilitated by the action of the camphor menthol on the inflamed, swollen mucosa, while the guaiacol acted as an antiseptic and anesthetic. The necrotic membranous exudate became more easily detached under the action of the liquid petrolatum, and easier breathing and better oxygenation were at once noticeable, as well as a diminution of the coughs and spasms. Relief of pain, with a sense of comfort throughout the lungs, usually followed with rest and better oxygenation; the general toxic condition of the patient improved.

Without exception, these patients expressed themselves as receiving great relief, and, when suffering, requested the treatment. Those who received the treatment usually made a quick recovery, and most of them were able to return to the lines in a surprisingly short time, considering their condition when they entered the hospital.

Of the 6,000 gas patients who passed through our hospital, only two died. These deaths occurred within the first twenty-four hours after admittance.

The results were so encouraging at Base Hospital 32 that the treatment was recommended in the official bulletin of the Allied Gas Service, in April, 1918.

CONCLUSIONS

1. Intratracheal medication is clearly indicated in all forms of inflammation of the lower respiratory tract resulting from the caustic action of poison gases. It should be used as early as possible after gassing, for the purpose of relieving the first symptoms of pain and asphyxia and reducing the extent of secondary infection, by facilitating drainage of the trachea and bronchi and rendering the passages as sterile as possible, through the antiseptic properties of the oil solutions.

2. This method of treatment shortens the process of suppuration in the secondary stage by aiding the lung reflexes, in expelling the necrotic membranes and products of inflammation, and in healing the ulcerated surfaces, thus relieving the strain on the nerve centers and checking the cough and spasmodic efforts to expel the débris; and thus improving oxidation, diminishing toxic absorption and affording rest to the whole organism.

3. Through shortening the healing process, the permanent damage to the pulmonary mechanism is lessened, there is less surface denuded of epithelium, less scar formation, less peribronchial thickening and, consequently, less tendency to chronic bronchitis and predisposition to tuberculous infection.

4. We are convinced from our observations and experience in using this treatment, before, during and since the war, that all forms of laryngitis, bronchitis, bronchiectasis and asthma, with all the different kinds of distressing coughs and spasms associated with these affections, are more quickly and effectually relieved by this form of treatment, and its use is urged in this class of disorders.

Hume-Mansur Building.

ABSTRACT OF DISCUSSION

Dr. Norval H. Pierce, Chicago: I was chief of the surgical service at Vichy during the war and our hospital was supposed to be a head hospital, so we should have seen a great many of these gas cases. However, the exigencies of war compel me to say that as far as my overseas service is concerned I can tell you more about compound comminuted fractures than about gas burns of the upper respiratory tract. In fact, we saw very few severe burns of the respiratory tract. We saw many more burns of the scrotum and of the lower extremities. I believe Dr. Page is right in recommending petroleum oil as an aid in the treatment of these cases of burns of the respiratory tract. I do not think it makes much difference what you put in that oil. It is largely the petroleum oil itself that does the work. Liquid petroleum has a remarkable influence in dissolving these fibrinous exudates. I believe, however, that an ingredient that would add to the efficiency of the liquid petroleum is oil of peppermint. It has been pretty well proved that mucous discharge is saponified, is largely made up of bubbles of air, and that oil of peppermint will overcome the surface pressure of these minute globules of air. Large collections of mucopus in the nose dissolve into almost nothing when liquid petroleum containing this oil is introduced. I do not believe that the other ethereal oils have the same effect.

Dr. Burt R. Shurly, Detroit: I was a neighbor of Dr. Page in France, just half a mile away, and we received an equal number of these gas cases. It seems to me that this method of treatment should have a definite, standardized basis for its usefulness. Having used it for some years as an ordinary routine procedure, I believe absolutely in its value in certain cases. I used 2.5 per cent. guaiacol and 2 per cent. camphor-menthol in olive oil by intratracheal injection in a number of cases, with decided palliative and beneficial effect. I think this method should have a definite, standardized use, to be used in the same way as we would use sterile castor oil in the eye in case of burns. At least it would be a palliative measure and give relief.

Dr. Wendell C. Phillips, New York: This discussion should not close without emphasis being laid on the importance of this type of treatment in civilian practice. I recall the first paper read on this subject before our American societies by Dr. Thompson of Cincinnati, in which he emphasized the benefits that might be received in laryngeal and tracheal inflammation from intratracheal injections of remedial agents, with a base of sterile sweet oil. I use 1 per cent. menthol and 1 per cent. guaiacol, emphasizing an intratracheal syringe. Train patients to take this remedy, and it is marvelous what relief they obtain in those peculiar and distressing inflammatory processes involving the larynx, trachea and upper bronchial tubes. I do not know how the inflammations of the grip type have affected patients in other parts of the country, but during the past winter in New York we have been confronted with patients suffering from a most distressing and persistent tracheal inflammatory process in which cough was the chief symptom. This cough was so distressing that the patients became more or less exhausted, with a daily slight rise of temperature. It was almost impossible to get relief from any form of treatment except intratracheal injections. In my own practice, it is the standard, daily method of treating this type of case. We had some trouble getting satisfactory syringes. I have seen several varieties, but the one I get from Tieman & Company, New York, is the best. It has a very short barrel and a sharp curve.

Dr. Lafayette Page, Indianapolis: Dr. Pierce has emphasized the value of the oils in intratracheal medication, as well as their use in the upper respiratory tract for dissolving and loosening inflammatory products. In my experience, camphor-menthol, as an addition to the oils, has proved of undoubted value in the treatment of nose and throat affections, and with the addition of guaiacol, bronchial affections yield much more readily. I am glad that Dr. Phillips has given his experience with intratracheal treatment in the laryngeal and bronchial affections associated with the recent epidemic of influenza. It is encouraging to know that such an experienced observer also shares my enthusiasm in the use of this form of treatment. In the early stages of influenza, before the disease has invaded the lower respiratory tract, it has decided value as a prophylactic measure; later on, the distressing cough and irritation of larynx and trachea are more quickly and effectively relieved by this treatment than by any other known to me.

A STUDY OF HYPOTENSION *

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Hypotension is one of the indefinite problems of medicine. Few articles have been written on the subject, compared to the large number on hypertension. The studies thus far have been far more pharmacologic, experimental and surgical than clinical, and directly related to internal medicine. This is shown by the researches of Crile,[1] Cannon[2] and Rich,[3] as compared with the paucity of researches by internists. Huchard and Mougeot,[4] Grasset and Calmette,[5] Muenzer,[6] Knapp,[7] Martinet[8] and Reynaud,[9] in Europe, and Piersol,[10] Emerson,[11] Lawrence,[12] McCrae[13] and Goodman,[14] in America, have discussed the subject from various points of view. Faught[15] says that "unfortunately the literature almost entirely lacks exhaustive studies of low blood systolic pressures," and Goepp[16] says that "a little attention has been given to the subject, at least in its relation to chronic disease." Sir Clifford Allbutt[17] probably expressed the general feeling of internists when he wrote of hypotension that it is "a study that I have yet to begin." The research problems afforded by the subject are numerous and inviting.

Each writer has arbitrarily stated his opinion of the lowest limit of normal systolic pressure and at what figure hypotension really begins. There is no general agreement among internists as to the upper systolic limit of hypotension. Janeway[18] placed the upper limit at 100 mm., and Oliver[19] at 125 mm. The limit is stated in terms of palpatory readings by some authors, and in terms of auscultatory readings by others. Each series of hypotension pressures tends to vary according to the opinion of the writer as to what constitutes hypotension, and this in turn varies according as the pulse readings are by palpation or by auscultation.

The majority of authors place hypotension at 110 mm. and below. Very little is said about the diastolic pressure. Out of our second series with 350 cases, 118 had a systolic reading of 110 mm., or more than 33 per cent. In this study, 110 mm. and below, systolic pressure, is assumed to constitute hypotension. All readings were by the stethoscope and auscultation, were taken three times at a single examination, the patients were lying on their backs, and a mercury instrument was used. As a rule, the patients were ambulatory office patients in private practice, except as otherwise indicated in Table 10.

CLASSIFICATION OF HYPOTENSION

One obstacle to a better understanding of low blood pressure has been the absence of any general classification other than to state that certain individuals in apparent health had low pressure, and that certain diseases were characterized by the condition. The internist gives Addison's disease and tuberculosis as examples of disease with hypotension, and the surgeon accents shock. With our present knowledge, a classification is based only on the conditions in which hypotension occurs, and cannot be a causal classification.

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* Read before the Section on Practice of Medicine at the Seventy-Third Annual Session of the American Medical Association. St. Louis, May, 1922.

[1] Crile, G. W.: A Physical Interpretation of Shock, Exhaustion and Restoration, Oxford Med. Pub., London, 1921.

[2] Cannon, W. B.; Fraser, John, and Cowell, E. M.: The Preventive Treatment of Wound Shock, J. A. M. A. **70**: 618-621 (March 2) 1918. Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage, New York, D. Appleton & Co., 1916, p. 104.

[3] Rich, A. R.: A Study of the Relation of the Adrenal Glands to Experimentally Produced Hypotension (Shock), with a Note on the Protective Effect of Preliminary Anesthesia, Bull. Johns Hopkins Hosp. **33**: 79 (March) 1922.

[4] Huchard and Mougeot: Sur l'action hypotensive des bains carbogazeux naturels dans les hypotensions artérielles (grande et petite circulation) J. de physiotherap. **5**: 538, 1907.

[5] Grasset and Calmette: Le pouls instable dans l'hypotension artérielle, Compt. rend. Soc. de biol. **2**: 508, 1902.

[6] Muenzer, E.: Zur Lehre von den vaskulären Hypotonien, Wien. klin. Wchnschr. **23**: 1341, 1910.

[7] Knapp, A.: Die Hypotonie, eine klinisch-physiologische und anatomische Untersuchung, Monatschr. f. Psychiat. u. Neurol. **23**: 16 97, 1908.

[8] Martinet, A.: La céphalalgie des hypotendus, Presse méd. **14**: 155, 1911.

[9] Reynaud, G.: L'hypotension artérielle et sa valeur clinique dans les états toxiques et infectieux. Paris, J. B. Bailliere et fils, 1901.

[10] Piersol, G. M.: The Clinical Significance of Low Blood Pressure, Pennsylvania M. J. **17**: 625, 1913-1914.

[11] Emerson, Haven: Blood Pressure in Tuberculosis, Arch. Int. Med. **7**: 441 (April) 1911.

[12] Lawrence, C. H., Jr.: Some Aspects of Hypotension, Interstate M. J. **23**: 165 (March) 1916.

[13] McCrae, T.: Low Blood Pressure; Discussion of the Parts of the circulation Which May Be Responsible for Low Blood Pressure, M. Clin. N. Am. **3**: 1177 (March) 1920.

[14] Goodman, E. H.: Some Cases of Hypotension Associated with a Definite Symptomatology, Am. J. M. Sc. **147**: 503 (April) 1914.

[15] Faught, F.: Blood Pressure from the Clinical Standpoint, Philadelphia, W. B. Saunders Company, 1916, pp. 235-242.

[16] Goepp, R. M.: Blood Pressure as a Prognostic Factor, Pennsylvania M. J. **2**: 295 (Feb.) 1919.

[17] Allbutt, Clifford: Diseases of the Arteries, London, Macmillan & Co. **2**, 1915.

[18] Janeway, T. C.: Clinical Study of Blood Pressure, New York, 1904.

[19] Oliver, G.: Studies in Blood Pressure. New York, Paul B. Hoeber, 1916.

The association of hypotension with a disease does not mean that the associated disease is the cause of the hypotension. It may be or it may not be. Association is not necessarily cause. An individual with hypotension, whether in health or with any medical or surgical condition, may be placed in a general class, according to the classification given below. With this as a starting point, further exact studies on the causes of low tension become possible.

TABLE 1.—GENERAL PRESSURE AVERAGES AND TOTALS

	Number Cases	Heart Normal	Heart Diseased	Systolic Pressure	Diastolic Pressure	Pulse Pressure	Pulse
Hyperpressure..	131	57	74	176	103	73	85
Normal pressure	164	125	39	130	79	51	82
Hypopressure...	205	165	40	109	70	39	81
Totals.......	500	347	153				

1. Hypotension associated with comparative health.
2. Hypotension associated with complaints of weakness, inertia and easy exhaustion. Somasthenia. Somasthenic states. Somasthenics.
3. Hypotension associated with disease, as cardiac disease, tuberculosis, anemia, fevers and infections.
4. Hypotension in surgery, as in trauma, hemorrhage, anesthesia or shock.
5. Hypotension in experiment, as with drugs, after suprarenalectomy, and experimental surgical states.

With the foregoing simple divisions in mind, hypotension becomes a problem of physiology primarily and of pathology secondarily. It is a problem of the circulation. The circulation is a closed system consisting of the heart, the vessels—artery, capillary and vein—and the blood. The pump, the bed and the stream are the three factors. They are variables in the constant that we call the circulation. The cause of hypotension lies somewhere among these three factors. It may involve one, two or all three of them. Two of them, the heart and the vessel, are under the varying influences of the nervous system, the endocrines and the metabolism, and all three are under the influence of the infections, surgical conditions, and nutrition in general. A heart suddenly thrown into auricular fibrillation may be the variable factor in one case. The pump has gone wrong. The vessels may be the variable factor in a faint. The bed has gone wrong. In such a case the nervous system is the outside influence on the vessel. An advanced anemia with cachexia or a severe hemorrhage may be the variable factor in another case. The stream has gone wrong. But probably more perplexing from the point of view of pure physiology are those healthy persons, or apparently healthy persons with low tension. Where does the cause lie in these?

Five series of cases are presented for study and analysis. Series 1 includes 205 cases of hypotension, collected in 1917.

As indicated by Table 1, of the 500 cases, 131, or 26 per cent., were hypertension cases; 164, or 33 per cent., normal, and 205, or 41 per cent., hypotension cases. After all that has been done on hypertension, it is somewhat surprising to find a larger percentage of the hypotension cases. One notes that, the higher the pressure, the larger the percentage of diseased hearts: 56 per cent. in the hypertension, as against 20 per cent. in the hypotension cases. Further, there were more diseased hearts in the normal pressures than in the low pressures: 24 per cent., as against 20 per cent.

TABLE 2.—GENERAL PRESSURE AVERAGES BY SEX, AGE AND HEART CONDITION

		Sex		Age		Heart Normal		Heart Diseased		Systolic Pressure		Diastolic Pressure		Pulse Pressure		Pulse	
	Cases	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Hyperpressure....	131	70	61	50	49	26	31	44	30	173	180	105	101	68	79	84	86
Normal pressure..	164	82	82	41	40	58	67	24	15	131	129	81	80	50	49	80	83
Hypopressure.....	205.	103	102	42	39	82	83	21	19	109	108	70	68	39	40	78	82
Totals........	500	255	245	44	42	166	181	89	64	134	133	83	80	51	53	80	84

TABLE 3.—DISEASES BY DECADES AND CASES

	Age, Males								Age, Females								Total Men an l Women
Diagnosis	21-30	31-40	41-50	51-60	61-70	71-80	81-90	Total	21-30	31-40	41-50	51-60	61-70	71-80	81-90	Total	
Digestive system..........	1	5	4	..	..	..	..	10	..	3	6	1	1	..	..	11	21
Circulatory system........	1	2	4	3	1	5	1	17	1	1	3	3	4	3	..	15	32
Respiratory system........	2	1	2	1	..	..	..	6	2	3	..	..	..	..	..	5	11
Infectious diseases........	4	7	7	4	..	..	..	22	7	1	4	1	..	..	..	13	35
Tuberculosis..............	3	5	2	2	..	..	..	12	3	1	..	..	..	..	..	4	16
Neurosis..................	3	1	2	..	..	..	..	6	8	8	3	1	..	..	..	20	26
Somasthenia...............	1	6	4	2	..	..	..	13	5	4	2	..	..	..	..	11	24
Anemia....................	1	1	..	2	..	..	..	4	..	3	..	..	..	..	..	3	7
Cachexia..................	..	..	..	..	2	..	..	2	..	..	1	1	..	..	..	2	4
Intoxications.............	1	3	3	..	..	..	..	7	..	1	..	..	..	..	..	1	8
Pellagra..................	..	..	2	..	1	..	..	3	2	6	4	1	..	..	..	13	16
Nephritis.................	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1
Pelvic diseases...........	..	..	..	..	..	..	..	..	..	1	2	1	..	..	..	4	4
Totals................	17	32	30	14	4	5	1	103	28	32	25	9	5	3	..	102	205

Between the systolic hypertension and hypotension, there is a difference of 67 mm.; between the diastolic pressures, a difference of 33 mm., and between the pulse pressures a difference of 34 mm. The swing upward, the plus amplitude above normal, is greater than the swing downward below normal, the minus amplitude. In the hypotension cases there is a less proportionate fall in the diastolic pressures than in the systolic and pulse pressures. The circulatory mechanism tends to conserve the diastolic pressure; in hypertension it does not usually rise proportionately to the systolic pressure and in hypotension cases it tends to cling closer to the normal.

The variations in the pulse rate were slight. The hypertension cases show 85 against 81 in hypotension.

Perhaps a factor here is, as has been already noted, the higher the pressure the worse the heart in the series; the lower the pressure, the more normal the heart and the lower the pulse. Lower pressures tend slightly to lower pulse rates.

TABLE 4.—PRESSURE BY DISEASES

Diagnosis	No.	Age	Sex M.	Sex F.	Heart Normal	Heart Diseased	Systolic Pressure	Diastolic Pressure	Pulse Pressure	Pulse
Digestive system..	21	42	10	11	21	..	110	69	41	81
Circulatory system............	32	53	17	15	4	28	115	67	48	80
Respiratory system............	11	41	6	5	9	2	104	70	34	80
Infectious diseases	35	37	22	13	31	4	110	70	40	80
Tuberculosis......	16	36	12	4	16	..	105	68	37	88
Neurosis..........	26	36	6	20	25	1	107	69	39	80
Somasthenia......	24	37	13	11	22	2	107	70	37	79
Anemia...........	7	35	4	3	6	1	102	68	34	69
Cachexia.........	4	55	2	2	4	..	113	63	50	86
Intoxications.....	8	37	7	1	7	1	106	72	34	79
Pellagra..........	16	39	3	13	15	1	105	66	39	85
Nephritis.........	1	80	1	..	1	..	115	80	35	93
Pelvic disease.....	4	44	..	4	4	..	111	77	34	76

Table 2 shows hypotension rather equally distributed between the sexes, 103 males and 102 females. The average age for hypertension is about 9 years above that for hypotension. The hypertension cases show an average higher pressure in women of 7 mm. whereas, in the hypotension cases, the two sexes show practically the same pressures. The diastolic pressures are lower in women. The pulse pressures vary only 1 mm. The pulse rate with hypotension in women is 5 higher than in men.

Table 3 is an analysis of the 205 hypotension cases by diseases, decades and sex. There is little noticeable difference in the sexes, except that the neuroses and pellagra are more prevalent in women, and tuberculosis, intoxications and infections in men. Disease rather than hypotension is the determining factor. The second, third and fourth decades are, as a rule, the decades of hypotension, though the relative hypotension in the decrescent sclerosis of the aged is a notable exception. Under somasthenia, to be discussed later, is a group of thirteen men and eleven women, with no mental or nervous symptoms, that I have called somasthenics.

TABLE 5.—ABSOLUTE AND RELATIVE HYPOPRESSURE

Diagnosis	No.	Age	Sex M.	Sex F.	Heart Normal	Heart Diseased	Systolic Pressure	Diastolic Pressure	Pulse Pressure	Pulse
Absolute hypopressure........	89	36	42	47	75	14	100	65	35	81
Relative hypopressure........	116	45	61	55	90	26	116	72	44	80

Table 4 gives hypotension by disease, group, number, average, sex, and relation to the condition of the heart. The lowest average is in the anemias, and the highest in the circulatory diseases; advanced age in the last group is a probable factor, and the term "relative hypotension" is used for cases below the normal for the age of the individual. The somasthenics average only 107 mm. The average age in tuberculosis is 36, and the pressure only 105 mm. With the exception of four groups, the pulse pressures average in each group from 34 to 39 mm. The pulse is notably uniform.

Table 5 refers to comparison of absolute hypotension, i. e., cases with a systolic pressure of 110 mm. or below and cases of what in this first series of 205 cases is called relative hypotension, to be discussed later. Two facts are evident from this table: (*a*) The lower the pressure, the less frequent are pathologic conditions of the heart. (*b*) The rate of the pulse is not a determining factor in hypotension with a difference of 16 mm. in the systolic pressures. In the two cases, the pulse rate shows a variation of only 1.

Table 6 gives the complaints in order of frequency. These are the personal complaints of the patients, and the reasons that caused them to seek medical aid. Of the 205 patients, sixty-two, or 30 per cent., complained of exhaustion; thirty-one, or 15 per cent., of nervousness; twenty-eight, or 14 per cent., of headache; twenty-one, or 10 per cent. of indigestion; sixteen, or 8 per cent., of constipation; the same number of abdominal pain; fourteen, or 7 per cent., of pain or numbness in the extremities, and twelve, or 6 per cent., of backache or phobias. The chief symptoms in order are exhaustion, nervousness and headache. I did not find as large a percentage of vertigos as did Goodman[14]—only eight cases in the series.

Table 7 represents 3,389 persons with hypotension accepted for insurance by the Northwestern Insurance Company to Oct. 1, 1920. The pressure in these cases ranged from 90 to 100 mm. by palpation. This would average from 100 to 110 mm. by auscultation. This includes a period of eight years from 1913 to 1920, inclusive. There were only twenty-six deaths, and of these eight were casualties and ten were due to influenzal pneumonia, with only eight due to other diseases. The medical director[20] states that:

TABLE 6.—COMPLAINTS IN ORDER OF FREQUENCY

Complaint	No.	Complaint	No.
Exhaustion....................	62	Vertigo..........................	8
Nervousness..................	31	Nausea..........................	7
Headache......................	28	Colds............................	7
Pain in chest..................	21	Palpitation......................	6
Indigestion....................	20	Diarrhea........................	6
Constipation..................	16	Insomnia........................	5
Abdominal pain...............	16	Anorexia........................	5
Pain, numbness of extremities	14	Rheumatism....................	4
Backache......................	12	Gas..............................	4
Phobias........................	12	Chill.............................	4
Dyspnea.......................	10	Asthma..........................	3
Fever...........................	10	Edema...........................	3
Miscellaneous.................	11	Facial paralysis................	2
Loss of flesh..................	9	Itching..........................	2
Eruption.......................	9	Hemorrhage....................	2
Cough..........................	9		

> The company has declined comparatively few cases wholly on account of low arterial tension. In those cases declined with a low blood pressure, there were other impairments which led to the rejection of the applicant. We have not found in any of our death claims of insured members, where, for instance, the death was due to tuberculosis within two years of the issuance of the policy of insurance, that the

TABLE 7.—ACCEPTED LIFE INSURANCE CANDIDATES WITH PALPATORY SYSTOLIC BLOOD PRESSURE OF 100 MM. AND UNDER

	Ages at Entry				All Ages at Entry	
	16 to 34		35 to 60			
Years	Number	Deaths	Number	Deaths	Number	Deaths
1912	5	0	4	0	9	0
1913	170	2	56	1	226	3
1914	150	2	45	1	195	3
1915	133	2	41	0	174	2
1916	292	3	81	1	373	4
1917	319	6	104	2	423	8
1918	208	1	140	1	348	2
1919	610	2	282	2	892	4
1920	521	0	228	0	749	0
Total	2,408	18	981	8	3,389	26

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[20] Fisher, J. W.: Personal communication to the author.

lood pressure at the time of the approval of the application aried perceptibly from the averages for the age.

Table 8 represents an analysis by age, pressure and emoglobin of 350 cases of hypotension occurring in 1,950 cases in private practice, or approximately 18 er cent. The women outnumber the men by thirty, r approximately 19 per cent. This would seem to ndicate that hypotension is more common in women han in men, as the two sexes occur in nearly equal umbers in the series: of these 1,950 patients, 974 ere men and 976 were women. It is significant that he blood pressure among the women is 2 mm. higher, hough their average age is four years less than the en. Further, the hemoglobin is 4 degrees higher than he men, 83 compared to 79. We have felt that this iscrepancy in the hemoglobin is probably due to the act that men as a rule wait longer to consult a physiian and allow their pathologic condition to advance urther than women. They are sicker when they come or diagnosis than women. Further, in the Southern tates, an average of 83 per cent. hemoglobin by the are hemoglobinometer is certainly a fair average for omen, much less diseased women.

ABLE 8.—ANALYSIS BY AGE, BLOOD PRESSURE AND HEMOGLOBIN OF THREE HUNDRED AND FIFTY CASES OF HYPOTENSION

	Average .Age	Blood Pressure			Hemoglobin by Sex
		Systolic	Diastolic	Pulse	
en (160)	38	102	62	40	79
omen (190)	34	104	68	36	83

ABLE 9.—DISEASES IN THREE HUNDRED AND FIFTY CASES OF HYPOTENSION (MEN, 160, WOMEN, 190) CLASSIFIED BY SYSTEMS

igestive system		190	Psychoneurosis	58
ascular system		134	Psychosis	3
rteriosclerosis	4		Diseases of metabolism	12
econdary anemia	56		Tubereulosis	20
ngina pectoris	1		Chronic tonsillitis	102
itral disease	15		Pyorrhea	43
ypertrophy of heart	15		Periapical infection	34
yocardial insufficiency	15		Miscellaneous infections	33
iscellaneous	28		Intoxications	15
elvic diseases		55	Pellagra	23
rinary diseases		27	Somasthenia	25
espiratory disease		35	Endocrine system	26
iseases of nervous system		19	Miscellaneous	24

Table 9 is an analysis of the diagnosis of these 350 ses of hypotension arranged by systems of organs. here is some interesting evidence in this analysis. ne patient may have several diseases present. Each atient, as a rule, has more than one disease or one ndition present. There were 1,002 different diseases the 350 patients, or an average of nearly three per atient. The diseases of the digestive system lead, ith 190; next, the vascular system, with 134. It is teresting to note that there are fifty-six cases of condary anemia. This and tonsillitis are very freent chronic diseases in the Southern states.[21] An emia not primary, which by the Dare hemoglobinomer is 70 or below, is classified in this series as secdary anemia. There are only four cases of arteriolerosis in 350 cases of hypotension, and all the cases cardiac hypertrophy and myocardial insufficiency ere associated with mitral disease. . Unless some other sease is present, we have uniformly found mitral stenosis to be associated with hypotension. Pelvic diseases number fifty-five, of which laceration of the perineum is more frequent with its accompanying rectocele and cystocele; next, laceration of the cervix with accompanying cervicitis; and lastly, fibroid tumors are the three most frequent conditions in this group. Most interesting of all probably is the large number of cases of chronic tonsillitis, 102; pyorrhea, 43, and periapical infection, 34. It is our impression that chronic focal infections tend to secondary anemia and hypotension. Of course, the exceptions to this impression are most numerous. There are twenty-five cases of somasthenia, or one case of every fourteen of hypotension.

Table 10 includes 101 negroes, of whom forty-seven were men and fifty-four women of 20 years and older. Women outnumber men by seven, and their average age is 7 years less. The systolic pressure in men is only 1 mm. more than in women. The diastolic pressure is the same in the two sexes, and the pulse pressure in women 1 mm. less. It seems that the two sexes when sick give the same hypotension averages, though the men average 7 years older. These negroes were sick in the general medical wards, and included chiefly infectious diseases, such as typhoid and pneumonia, heart disease, diabetes, diarrheas, malignancies, syphilis and arthritis. These 101 cases of hypotension occurred in 289 adult negroes, of whom 167 were men and 122 were women. Of the total, 35 per cent. had hypotension. I have no figures showing the blood pressure averages in normal adult negroes, but it is my impression that blood pressure in normal negroes is somewhat lower than it is in normal white persons in the Southern states, though we have no actual figures to compare or to prove this statement. It is simply a clinical impression.

TABLE 10.—FINDINGS IN TWO HUNDRED AND EIGHTY-ONE ADULT NEGROES

Blood Pressure	Male	Age	Systolic	Diastolic	Pulse	Female	Age	Systolic	Diastolic	Pulse	Total No.
Low	47	32	103	68	35	54	25	102	68	34	101
Normal	89	39	127	79	48	34	33	124	84	40	123
High	30	42	191	124	67	27	48	182	116	66	57

Table 11 includes twenty-nine white adults, of whom sixteen were men and thirteen women. The average age of the men is fifty-eight and of the women fifty-three. The average systolic pressures are the same. There is a variation of 8 less in the diastolic pressure in women and 8 more in the pulse pressure in women. The hemoglobin in both sexes is above 70 and would not be considered low in the South for this average age. From a study of this table and all the cases that compose it, we are impressed with the fact that the hemoglobin is not a determining factor in hypotension. To express it differently, a person may have a hemoglobin of 90 and a hypertension lower than

TABLE 11.—RELATIVE HYPOTENSION, BLOOD PRESSURE 111 TO 119 INCLUSIVE, IN PERSONS AGED 45 YEARS AND OVER

	Number	Age	Systolic Pressure	Diastolic Pressure	Pulse Pressure	Hemoglobin
Male	16	58	115	79	36	73 Highest 90 Lowest 50
Female	13	53	115	71	44	71 Highest 85 Lowest 50

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[21] Medical Department of U. S. Army in the World's War 15, Statics, Pt. 1, Army Anthropology, p. 326.

another person of approximately the same age with a hemoglobin of 50.

RELATIVE HYPOTENSION

The mooted clinical phrase "relative hypotension" seems to have been used with three different meanings:

(*a*) The phrase seems to have been applied to a loosely used clinical rule that the average blood pressure for a person of 20 years of age is 120, and that normally the pressure should increase 1 mm. of mercury for every two years of age over 20. If, for example, a person under this rule is 60 years of age, he should have a blood pressure of 140 mm. If, now, his pressure is 125, it is 15 mm. below the normal for the age of 60, and under this use of the term he is said to have a relative hypotension.

(*b*) A second clinical use of this phrase has been made in reference to hypertension cases which, as a result of treatment or advancing disease, show a decided drop from their former hypertension level. As a result of this drop they are said to be in a state of "relative hypotension," even though the blood pressure may be above normal. For example, a person with chronic nephritis and a blood pressure of 220 mm. may, as a result of cardiac dilatation and myocardial decompensation, develop a rather rapid fall in blood pressure to 150 mm. Under this use of the term he has a "relative hypotension."

(*c*) It is clearly evident that either of these two applications of relative hypotension is rather unnecessary. The first is an arbitrary application of an arbitrary rule that sharply relates blood pressure in millimeters of mercury to age in years. This does not permit accurate conclusions. The second use is unnecessary because it simply expresses a fall in blood pressure from hypertension to less hypertension or to normal.

There is, however, a class of cases that we have come to feel justify the application of the term "relative hypotension." Out of our last series of 1,950 private cases there are twenty-nine cases listed in Table 11 which are far below the normal for these individuals. The clinical impression prevails that a person of 45 years or older ought to have a systolic pressure of 120 mm. If his pressure is between 110 mm., or the beginning of hypotension, and 120 mm., the average of normal tension, the case belongs in the relatively infrequent class to which with reason we may apply the term "relative hypotension." We would therefore restrict it to persons of 45 years and older whose pressure ranges from 111 to 119 mm., both inclusive.

SOMASTHENIA

In the first series of 205 cases are included twenty-four cases and, in our last series of 350 cases, twenty-five cases, or a total of forty-nine patients whose condition seems to partake of chronic exhaustion or of inability to maintain a normal active life without easy exhaustion; and the chief demonstrable condition seems to be hypotension. Goodman[14] called attention to what he termed "cases of low blood pressure occurring in the absence of any demonstrable organic lesion. These have been patients, for the greater part, on the ascent of the crest of the curve of life." He gives five illustrative cases, with variable symptoms, foremost among them being vertigo, and mental and physical fatigue. They were improved by exercise, elimination and large doses of nux vomica. In different words, Lawrence[12] calls attention to the same syndrome. He includes such symtoms as "apathy, sometimes amounting to actual physical weakness, poor appetite and sleep, and tendency to headache after ordinary exertion." In short, the patients are unable to perform what is an easy day's work for the normal individual without experiencing symptoms of fatigue. The condition is usually diagnosed as neurasthenia, debility or, in the absence of an examination of the blood, anemia.

The group may be thus characterized:

1. Age between 20 and 40 years, rarely after 40.
2. Women predominate.
3. Complaints, in order of frequency, are exhaustion, nervousness, headache, pains in chest, abdomen or extremities, indigestion, constipation, backache, dyspnea, insomnia and palpitation.

The three chief complaints are exhaustion, lack of endurance and headache. Low blood pressure is present. The patients are not neurasthenics, and, apart from the diagnosis of visceroptosis or mild focal infections or hypochlorhydria or secondary anemia, no actual pathologic condition can be demonstrated. These cases cannot be classified under the psychoneuroses. The term somasthenia is applied to the condition, and the term somasthenic to the patient.

CONCLUSIONS

A consideration of the blood pressure records of 440 cases of absolute hypotension and 145 cases of relative hypotension suggests that:

1. Hypotension seems generally to be equally distributed between the sexes.

2. Hypotension patients have proportionately more normal hearts than have normal persons or hypertension patients. As the pressure rises the heart is more likely to be diseased.

3. The pulse rate is not a determining factor in hypotension. It tends to rise only very slightly with rising pressure.

4. The rate of the pulse is more dependent on the sex than on the blood pressure, as indicated by Table 2.

5. Hypotension may accompany different diseases. It is difficult to prove the influence of the disease in the causation of the hypotension because, as a rule, the pressure before disease is unknown.

6. The lowest pressures occur in secondary anemia, pellagra, somasthenia, neuroses, tuberculosis and the acute infections of the respiratory tract.

7. Relative hypotension is a term that should probably be restricted to persons of 45 years and older whose pressure ranges between 111 and 119, both inclusive.

8. The classification of hypotension is important because it separates hypotension in health from hypotension in disease and makes clearer the intricate problems of low blood pressure.

9. Hypotension is not a bar to insurance in the old line companies, although in one series of 3,389 accepted candidates, the death rate was two thirds greater than the expectancy tables would indicate.

10. Women seem to develop hypotension at an earlier age than men, as indicated by two series of cases.

11. The percentage of the hemoglobin is not a determining factor in hypotension.

12. In diseases of the circulation, secondary anemia is the most common accompaniment of hypotension. Arteriosclerosis and myocardial diseases are relatively rare.

13. Focal infections are common accompaniments of hypotension.

14. In sick adult negroes there are more cases of absolute hypotension than of hypertension.

15. Hypotension seems to tend to accompany acute diseases characterized by fever and chronic diseases characterized by diarrheas, as amebic dysentery, sprue and pellagra.

ABSTRACT OF DISCUSSION

Dr. George Dock, St. Louis: It is interesting to see that in most of Dr. Roberts' cases with hypotension the diastolic pressure does not seem to be very low. I have noticed that in my own cases. A patient may have a low pressure systolically, but a diastolic pressure of 80 or 85. This must play an important part in the symptoms of some cases; and a more careful study of the diastolic and systolic pressures might show some interesting features. Most patients have appeared because their pressure was high, and they have an exaggerated fear of high pressure. They have an idea that there are certain norms; and then if a man of 50 has a pressure of 150, he gets alarmed over it. I venture to say that the knowledge of this paper will spread. People will learn that there are low pressures; they will have their pressures taken, find they are low, and we shall have a better opportunity to study cases than we have had heretofore with only accidental material. Some of these cases are the result of incidental disease, such as pneumonia. Others seem to be associated with defective conditions, muscular and otherwise, which are extremely important and sometimes extremely annoying to the patient.

Dr. John Phillips, Cleveland: Dr. Roberts' paper is particularly timely because of the tendency until very recently to pay little, if any, attention to hypotension, probably because of the especial menace of hypertension—the development of arteriosclerosis. It is especially important that we should not diagnose the presence of either hypotension or hypertension on the evidence of a single estimation of the blood pressure, although there is more chance of error in the case of hypertension, since the blood pressure tends to rise under excitement. Sometimes a blood pressure measurement on a patient's first visit to the physician may be from 50 to 60 mm. higher than on the second visit. These cases fall into several groups clinically. One group, as Dr. Roberts said, comprises persons in apparent health. Another group consists of persons who are easily exhausted, these for the most part being women who lead an active social life. Many of them have visceroptosis, and on inquiring into their childhood history, one finds that they were inclined to faint in school and showed orthostatic albuminuria. In another group the hypotension follows an infection, influenza in particular. These cases show a persistently low systolic blood pressure. Rolleston has asserted that the hypotension in these cases is due to some disturbance of the suprarenals by the toxin of influenza. Another group includes the myocardial cases in which, as Dr. Dock has said, the systolic pressure may be low, but the diastolic pressure will be elevated so that the pulse pressure will be only 20. Such a condition is pretty good evidence that there is a weakened myocardium. Still another group comprises the anemias, with the exception of certain types of anemia which are associated with marked lowering of the kidney function with high blood urea and a low phenolsulphonephthalein output. In these cases, hypertension rather than hypotension is present. In pernicious anemia, the blood pressure is low, as a rule.

Dr. John G. McLaurin, Dallas, Texas: Just what is to be considered hypotension? It has never been well defined. In fact, it varies greatly, so that what is considered hypotension in one person might not be considered such in another person of the same age. It is probable that a systolic pressure below 110 in a person of 35 should be considered as hypotension. To state just what constitutes a diastolic hypotension is still more difficult. High blood pressure has been diligently studied for a long time; but low blood pressure, which is almost as important a symptom, has been sadly neglected. Hypotension is dependent on some pathologic condition, and it is important that this should be looked for; a careful search will usually reveal the true condition responsible for it. Sometimes the etiologic factor is quite evident. It is usually present in acute infection, such as typhoid fever, pneumonia and influenza. And, I think, it is fortunate that the blood pressure has been low in these acute infections. The hemorrhage in typhoid fever is probably to some extent controlled by hypotension. Then it is seen in certain chronic infections, such as tuberculosis; in myocardial degeneration from lack of muscle tone; in a decompensating heart, and in anemia of the heart muscle. Sometimes it occurs at the height of an attack of angina pectoris. Internal glandular disturbances, such as diseases that diminish the secretion of the suprarenals, are associated with hypotension. It may occur in hypothyroidism and hypopituitarism, in the menopause, probably being a disturbance in the endocrine system. Focal infections may also play their part; whether it is the effect of a liberated toxin on the musculature of the arterioles, or a toxin action on the nerve control of the arteriole, is not definitely known. I am of the opinion that it is usually an arteriole dilatation resulting from a partial paralysis of the vasoconstrictors due to a toxin. I do not believe in the existence of essential hypotension. It is a symptom, not a disease. Hypotension is frequently the cause of considerable discomfort, and probably in many cases more discomfort than would result from the same degree of hypotension.

Dr. L. F. Bishop, New York: I can hardly agree with Dr. Roberts that this subject has not been written about. The literature is quite extensive, and, strangely enough, the Italian literature has been particularly rich in it. The consideration of the low blood pressure patient has been before us for a long time in different forms. We can divide cases into three important groups: first, the hypotension that is due to auto-intoxication, or infection of some kind. In many instances this group constitutes the early stage of high blood pressure. The persons who in early life suffer from low blood pressure of an infectious type will later on have high blood pressure. The second group is the group which I classified twenty years ago as constitutional low arterial tension. This is simply naming in another way a condition for which every clinician has a name. I think that Dr. McKenzie called it the X disease. The army men included it in neurocirculatory asthenia. It is a constitutional condition. These persons have a defective circulatory mechanism which manifests itself in low blood pressure. These people are the so-called neurasthenics, and we have to recognize them as a definite group. They do better on forced outdoor exercise and a good hygienic regimen. They live to a miserable old age, and they all suffer from some circulatory defect. Probably endocrinology will give us a clue to this problem. Then there is the group of secondary low blood pressure cases. The measurement is not low, but it is low compared to what the patient has been carrying. The patient may come into the hospital with a systolic blood pressure of 180, but still it may be a relatively low blood pressure as it is below the pressure of 200 which he has been carrying. The main point is that we must not allow primary low blood pressure to cause anxiety to ourselves or to our patients. My experience is that in all of these cases, when disease or accident demands a higher pressure, nature will produce it. The final point I want to make is that low blood pressure has very little to do with heart disease, and is a matter of the nervous system and peripheral blood vessels.

Dr. Alexander Lambert, New York: No doubt many disease conditions produce low blood pressure, and many healthy persons carry low blood pressure and show no symptoms. They are vigorous people. I remember a patient who had a systolic pressure of 69. Then it rose to 160. Then he had an attack of tobacco angina, and his pressure dropped back to 89. Later it had risen to 120. Low blood pressure is consistent with good health and not necessarily a disease condition. That is my one point.

Dr. Loyd Thompson, Hot Springs, Ark.: I have noted a rather persistently low blood pressure in late syphilis, that is, syphilis after one year. About 90 per cent. of these cases show a blood pressure of below 90 or below 110 at the highest.

Dr. Ellsworth Smith, St. Louis: It has been said that hypotension is not associated with arteriosclerosis. While it may not be associated with arteriosclerosis, of course, nearly as often as is hypertension, still there is a well defined group of cases of arteriosclerosis with hypotension, the case in which the sclerosis is developing as a primary degenerative process in the arterial walls not secondary to hypertension. In the hypertension cases, the cause of the sclerosis is the strain on the vessel wall; but in these so-called involutionary forms of arteriosclerosis, well defined arteriosclerosis even to the pipe stem beaded vessels may be present with a very low blood pressure. I want also to accentuate the fact brought out by Dr. Dock, and that is the importance of the diastolic pressure in these cases. I agree with him that this explains very largely those cases of persons who go through life comfortably with their circulation perfectly compensated, although the systolic pressure is quite low.

Dr. Stewart R. Roberts, Atlanta: I am disposed to agree with most of the speakers in what they have said. The anesthetists find that with a falling diastolic pressure during anesthesia they can foretell the beginning of danger and the onset of shock for twenty minutes before serious symptoms arise. The surgeons on the western front during the war gave a rather unfavorable prognosis in those cases in which there was a diastolic pressure of 60 when the patients came into the casualty stations. Each of us in internal medicine sees ambulatory cases in which the diastolic pressure is 60 or below. It is impossible within the time allowed to go into the various phases of this subject. For instance, on the Gulf Coast more persons have hypotension than hypertension. Dr. Thayer referred to this phase of the subject many years ago. We have one patient whose pressure is reduced 25 mm. by a hot bath. Newberger has written on the influence of heat in producing hypotension. Such phases of the question will be discussed in the future.

AN ANALYSIS OF A SERIES OF CASE RECORDS RELATIVE TO CERTAIN PHASES OF BREAST FEEDING*

HENRY DIETRICH, M.D.
LOS ANGELES

This analytic study is based on a series of 1,000 records of almost consecutive cases seen in private practice. Hospital and welfare records are purposely omitted because I wish to demonstrate what happens to the infant of the middle class of our population.

These patients employed a physician to care for mother and child during and, frequently, also after the obstetric period. Most mothers and nurslings are, and should be, cared for by the general practitioner. If we approach the subject from this practical standpoint, the general practitioner, whom I shall speak of as the obstetrician, must be impressed with the fact that he is constantly responsible for two patients, the mother and the child. Once imbued with this fact, he should aim to become as proficient in the care of the nursling, in all phases of its welfare, as he is in the care of the mother.

The obstetrician must feel that the state of nutrition and general well-being of the young infant is, to a great extent, dependent on the vigilance he devotes to it, and to the time and care he dedicates to the establishment and maintenance of breast feeding. Only then does he fulfil the obligation he assumed when he consented to care for the mother during parturition.

Jacobi stated, many years ago, that 85 per cent. of deaths under 1 year of age occur in the bottle-fed infant. If this is still true, a further lessening of our infant mortality depends largely on feeding the infant at the breast during the greater part of the first year of life.

TABLE 1.—LENGTH OF TIME OF BREAST FEEDING IN 1,000 CASES

Weeks				Months								
0	1	2	3	1	2	3	4	5	6	7	8	9
139												
48	41	24	26	67	74	90	62	41	71	52	103	299
89											402	
370												

This can be accomplished only if we have the wholehearted cooperation of the obstetrician. I shall allow you to judge for yourself, after I have presented my figures, whether breast feeding is given the time and attention on the part of the obstetrician that I ask for it.

REVIEW OF CASES

The review of these cases will be discussed under five headings.

1. *How Long Was the Infant Breast Fed?*—We are confronted with the startling fact, as shown in Table 1, that 370, or 37 per cent., of these infants were nursed at the breast three months or less. Against this, we have 402, or 40 per cent., who were nursed eight months or more. Going a little more into detail, ninety mothers stated that they nursed their offspring less than one week. In other words, 9 per cent. of these mothers were allowed to or at least did deprive their children of their natural food within eight days of birth. Ablactation was allowed in 139 nurslings before they were 4 weeks old. Surely this does not speak well for the many efforts put forth in past years to encourage breast feeding.

During these early periods, the patients, we must assume, were still under the observation of the obstetrician. Undoubtedly, a large number of these mothers, if they had had the proper medical and moral support on the part of the obstetrician, could have nursed their offspring. Furthermore, this is the period during which the breast milk supply often is not established to its full extent, and the mother requires advice and often encouragement from her medical adviser to overcome temporary difficulties. At this time, the obstetrician must practice both the science and the art of medicine, must give of his time and patience, and must be alert to counteract ill advice from outside sources.

2. *Was an Attempt Made to Estimate Quantity of Milk and, If Deficient, Were Complemental Feedings Resorted To?*—In only eighty-four cases of this series were complemental feedings advised and given. Practically all others stated that the child was weaned without an effort being made to estimate the quantity of breast milk. Of the eighty-four infants, 75 per cent. were put on complemental feedings by me. This would tend to show that the practice of determining the amount of breast milk and the use of complementary

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* Read before the Section on Diseases of Children at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

feedings is rarely resorted to by the obstetrician. Yet it is a simple procedure, being far more practical and accurate than the milk analysis which is frequently given as the cause for weaning. I was interested also in the length of time that a child was kept at the breast after complemental feedings were established. A summary of eighty-four cases is presented in Table 2.

The belief that insufficient gain, restlessness, curds in the stool, etc., are due to poor quality of milk is still far too common. Insufficient milk is more often at fault than the quality of the milk. Complemental feeding can be carried on for months, and, during this time, the infant, in many instances, receives 30 to 75 per cent. of its food in the form of breast milk. This condition obviously is preferable to bottle feeding. The argument is advanced that accurate scales are expensive and that weighing a child before and after feeding is irksome to the mother. Scales can be rented in all large cities and are less expensive than the price paid for milk over a period of months. Again, it is not at all necessary to weigh the child before and after each feeding; checking up the amounts once or twice a week and striking an average is sufficient.

3. *If Supplemental Feedings Were Given, How Long Was the Child at the Breast After Feedings Were Started?*—Here we included those cases in which two or more bottles were substituted for breast feedings. In eighty-three cases, we have definite information that this was done with the idea of keeping the baby at the breast and not with the idea of weaning it. Many times we were told that the physician explained to the mother that by following this procedure and nursing the child two or three times in twenty-four hours, or often only at night and in the morning, the breasts would fill up. This is a striking example of the fact that these men did not comprehend that only regular, thorough emptying of the breasts will maintain a milk supply and that any other course must quickly lead to bottle feeding. The length of time elapsing between the institution of supplemental feedings and complete weaning bears this out, and the figures as presented in Table 3 are in marked contrast to the figures on complemental feedings.

TABLE 2.—LENGTH OF TIME BEFORE WEANING AFTER COMPLEMENTAL FOOD WAS GIVEN (EIGHTY-FOUR CASES)

Weeks			Months							
1	2	3	1	2	3	4	5	6	7	8
0	1	0	4	13	22	14	22	4	3	1
5										

I am not unmindful of the fact that a mother who cares for her children and her home has many duties. Therefore, in cases in which the milk supply is well established, I believe that one bottle feeding may be given after the third or fourth month. We must use our judgment, as some mothers will take advantage of this privilege and gradually wean the child; while other mothers are actually benefited by this break in the daily routine. We do not sanction the use of the bottle in early infancy. When two or more bottles are given, weaning is not far off.

4. *What Food Was First Given the Child on Weaning?*—In answer to this question, we were agreeably surprised to note the result of the propaganda for pure cow's milk as the best food for the young infant. In 720 cases, or 72 per cent., the infant was given a modified cow's milk without the addition of a proprietary food. The remaining 270 infants were fed as follows: Eagle brand, 105; goat's milk, 36; Nestlés, 6; peptogenic, 2; malt soup, 1; Sunbright, 1; Dennos, 8; condensed milk, 9; milk and Eskay's, 27; milk and Mellin's, 42; malted milk, 29; Dryco, 9; Klim, 1; Allenbury's, 2; Mammala, 2. If we add the cases in which the infants were fed on goat's milk to the 720 in which they were fed on modified cow's milk, we are gratified to find that 756 children were started on milk without proprietary foods. Having been able to educate the laity and profession to the use of modified cow's milk, we should also be able to attain similar results from an intensive campaign in regard to the establishment and maintenance of breast milk.

TABLE 3.—TIME BETWEEN INSTITUTION OF SUPPLEMENTAL FEEDING AND WEANING (EIGHTY-THREE CASES)

Weeks			Months				
1	2	3	1	2	3	4	5
10	16	5	31	12	6	2	1
62							

5. *Reasons for Weaning.*—The reason for weaning was ascertained in 337 of the 371 cases in which the infants were weaned during the first three months. In almost every instance, the physician was consulted and knew that the child was to be weaned. Fifty different reasons were considered valid excuses for depriving these children of breast milk. Of these fifty reasons, we cannot possibly consider more than nine as justifying such a serious step. These reasons are: death of mother; pregnancy; adoption of child; some cases of abscess of breast; tuberculosis; acute illness of mother; severe operation on mother; mother had to work, and toxemia of mother. Only sixty-four cases, however, came under these headings, and of these thirty-five are doubtful, since they were due to abscess of breast and acute illness of mother. Among the acute illnesses of the mother, we find the following: herpes

TABLE 4.—REASONS GIVEN FOR WEANING

1. Death of mother	6
2. Cesarean section	3
3. Insufficient milk	69
4. Inverted nipples	5
5. Insufficient gain	26
6. Poor milk, blue, watery	35
7. Bad stools—green stools	14
8. Weakness of mother	6
9. Bad stools	12
10. Refusal of mother to nurse	4
11. Abscess of breast	9
12. Toxemia in mother	4
13. Adoption	2
14. Tuberculosis of mother	6
15. Mother had to work	3
16. Mother had not nursed previous children	4
17. Salty milk	1
18. Social duties	1
19. Nervousness of mother	10
20. Bad milk—poison milk	7
21. Acute illness of mother	26
22. Child not satisfied	8
23. Convulsion of child	1
24. Acid milk	2
25. Child would not nurse	5
26. Pregnancy	4
27. Milk too rich	2
28. Baby not strong enough to nurse breast	3
29. Cracked nipples	6
30. Milk dried up	18
31. Vomiting	6
32. Menopause	1
33. Menstruation	7
34. Operation on mother	4
35. Mastitis	2
36. Eczema on child	2
37. Physician did not believe in breast feeding	2
38. Cleft palate—harelip	2
39. Mother too old to nurse	1
40. Facial paralysis	1
41. Mother became too stout, nourishment all went to mother	1
42. Prematurity — inability to nurse	2
43. Child preferred bottle	2
44. Colic	2
45. Pertussis	1
46. Hydrocephalus	1
47. Pylorospasm	1
48. Spastic paralysis	1
49. Milk ran out and kept mother wet	1
50. Not convenient to have child on breast	1

zoster, asthma, influenza, malaria, eczema, fever, pyelitis, pyemia, quinin poisoning, valvular disease, septicemia, infected finger, tonsillitis, insanity and diabetes. Some of these may or may not demand permanent weaning of the child.

Of the 337 infants enumerated, a total of ninety-five were weaned because of insufficient milk or insufficient gain. These two reasons were recorded in more than twenty infants before they were 1 week old. The great majority of these ninety-five infants, with proper care and, if necessary, with complementary feeding, could have been entirely or at least partially breast fed. Curds in the stool, convulsions, pertussis, premenstruation, cleft palate, spastic paralysis, prematurity, acid and salty milk, mother had not nursed previous children, etc., are reasons so ludicrous that we hesitate mentioning them except that they demonstrate the lack of a proper conception of the fundamentals of breast feeding. A mass of literature has gone out to the public, but we believe that to accomplish results we must reach not only the public but also the profession. The subject should be discussed more frequently in our medical societies and in our journals. Pediatric societies, we believe, can do considerable good by issuing pamphlets on the subject and distributing them to physicians throughout the country. The Southwestern Pediatric Society issued such a brochure last year and mailed a copy to every physician in southern California. Breast feeding is a vital subject at least once to every human being. Not so with appendicitis; yet the surgeons did not hesitate to speak or write on that subject unceasingly for years, until they had educated the laity and the entire medical profession to the correct point of view. Let us follow their example, endeavoring to make each and every physician as ardent an advocate of breast feeding as he is of the surgical care of appendicitis, with the full realization that, in advocating and carrying on breast feeding, he is practicing preventive medicine in the supreme sense of the word.

Brockman Building.

ABSTRACT OF DISCUSSION

Dr. Isaac A. Abt, Chicago: Dr. Dietrich has shown that 36 per cent. of women nursed their babies at the breast three months or less, while 40 per cent. nursed their babies eight months or more; that at nine months, 9 per cent. nursed their babies less than one week, and that in 14 per cent. the babies were weaned before the age of one month. Dr. Dietrich makes the correct distinction between supplemental and complemental feeding. There is a great deal of confusion about those two words. Complemental feeding is the type in which the baby is given the bottle immediately after the nursing, while supplemental feeding is that type in which a bottle is substituted for nursing. I am in full agreement with the expressed opinion about the stools of breast-fed babies. A slight apparent abnormality in the stools of a breast-fed baby is not of equal significance to that in a bottle-fed baby. After the breasts are functioning properly, it is justifiable to give a supplemental bottle after the baby is 3 months old. If supplemental feedings are begun before the third month, the necessary stimulation to the breast is not supplied. After the third or fourth month, the baby frequently needs additional food. I believe with Dr. Dietrich that when two or more bottles are given early in lactation, weaning is not far off. In the literature one frequently notices the statement that tuberculosis is the one absolute indication for weaning. I think, however, that the reasons expressed in the paper may be accepted. The point we should make is that every baby should be nursed at the breast unless the mother is incapacitated by acute disease or by some mental disturbance or social condition which necessitates her leaving the baby.

Dr. William A. Mulherin, Augusta, Ga.: In the South and in the West there is more maternal feeding than in the East and in the North. The reason for this is that Southern and Western physicians are convinced that mothers can nurse their babies. I belong to the Ross Snyder-Sedgwick school. In 1906, Ross Snyder called attention to the fact that there was too little breast-feeding, and that we were drifting too far from nature. Sedgwick gave the modus operandi. There are five essentials which will succeed with maternal feeding: (1) conviction on the part of the physician that mothers can nurse their babies, that breasts are intended not for ornament but to nurse babies; (2) conviction on the part of the mother that she can and will nurse her baby; (3) stimulation of both breasts by nursing the baby at regular intervals; (4) emptying the breasts by manual manipulation after each nursing, and (5) patience and perseverance on the part of physician and mother. From actual practice, I feel convinced of two facts: 1. Nearly every mother can nurse her baby at the breast, if properly encouraged. 2. Nearly every mother's milk agrees with her baby. I know of no single factor or several factors operating today in the interest of babies' welfare that will save more babies' lives than the general adoption of maternal feeding.

Dr. T. C. McCleave, Oakland, Calif.: Physicians all know, from experience, that the responsibility for the condition of affairs Dr. Dietrich described lies primarily with the man who brings the baby into the world. What Dr. Dietrich described as relating to his practice is certainly true in our community. I have in mind one obstetric institution in which babies invariably are fed malted milk as prescribed by the head nurse. Babies are as a routine taken off the breast, and that institution does not stand alone in this practice. The use of the terms complemental feeding and supplemental feeding has been confusing to a great many people. The word "supplemental" does not describe the use of a bottle instead of the breast. The proper term is "substitute feeding." Complemental feeding is a correct term. Two years ago physicians believed that the more food we gave to the mother, the more milk she would give; but a physician in Detroit described careful observations on the feeding of mothers and declared that it was unnecessary to stuff a mother to enable her to breast-feed the baby. The second point is the longer nursing interval. Out in the West, babies are generally nursed on a four-hour schedule right after birth. A few babies do better on a three-hour schedule for a while, but the four-hour schedule is immediately taken up. It does better for the mother, as she can go out to social functions, and have a comfortable day with five feedings; she sleeps all night, and the whole family is contented.

Dr. M. L. Turner, Des Moines, Iowa: There are a number of reasons why the mother may not be able to nurse the baby. First of all, we should teach the mother how to live before the baby is born so that when the baby comes she does not need to change her diet. Neighbors should not be allowed to bring in delicacies and impair her appetite. Let the mother eat wholesome meals before as well as after the baby is born, and she does not need to stuff herself in order to have plenty of milk for the baby. Another important point in successful nursing is to have the baby put to the breast immediately after it is born. There is a substance in the mother's breast which is essential for the child. A dram of colostrum is worth a quart of water at this period. And I endorse Dr. Mulherin's suggestion for emptying the breasts. I insist that the mother nurse both breasts every time she nurses the baby. Every mother can nurse her baby. I have been able to establish the milk in the breasts of twenty-five mothers during the last two years from two to eight weeks after they have weaned their babies, and in one case after three months. One mother was 39 when her first baby was born. The baby had been weaned for eight weeks and was put back on the breast. She was able to nurse the baby for a year. I think, as Dr. McCleave says, that we are confused in the terms complemental and supplemental feeding. I agree to the term "substitute feeding." I do not agree with Dr. Abt that after the fourth month we should give the baby a substitute feeding. Any time the breasts are not stimulated regularly, they fail to secrete. The mother can nurse the baby every four hours, and can then go out and have her afternoon tea and have enough milk to keep the baby nursing.

Dr. L. R. DeBuys, New Orleans: This paper emphasizes the necessity of the proper care of the infant immediately after birth. It would have been interesting if he had told us what advice had been given these mothers as to the care of their babies. Were they delivered by obstetricians or otherwise, and who gave the advice which they followed? Pediatricians should fight for the proper care of the baby immediately after it is born, and this advice should be given by those adequately prepared to give it.

Dr. Ada E. Schweitzer, Indianapolis: We have been engaged in the study of the feeding of 5,336 children aged from 8 weeks to 6 years. We compared relative height and weight of Indiana children. Fourteen in every hundred were below the standard weight for height. An inquiry into the feeding of these children showed that 65 per cent. of the children of the underweight class had not been breast-fed; only 11 per cent. of the underweight class had been breast-fed exclusively in early life. The prevalence of breast feeding in infancy is shown by the fact that about 72 per cent. of the children studied had been breast-fed all the way from six weeks to six months. This, we felt, was a fairly good showing, as these studies were made outside the larger towns, largely in the rural districts. The percentage of breast feeding in any community seemed to depend on the advice given by the physician to the mother concerning its advisability. In addition to the reasons given by the author, early weaning among these Indiana mothers often was resorted to because the baby cried a great deal, or because he did not seem to be satisfied. We found that among infants who were breast-fed exclusively and among the infants on a supplemental feeding, a high percentage were up to standard height and weight. We also found that babies fed proprietary foods furnished the highest percentage of underweights. Of the older children those on a varied diet were up to standard, but in the country districts, where the children were given a diet of meat and potatoes with not enough of leafy vegetables and not enough milk, the percentage of underweights was higher. Although we were unable to check up the condition of the children as often as was desirable, we felt that this was an interesting study. We did show to the people of Indiana that the highest percentage of poorly nourished children occurred in the group who were not properly fed early in life.

Dr. G. A. Warren, Black Rock, Ark.: Eleven years ago Dr. Jacobi said that a most significant emblem of one of the artificial foods was the picture of an angel, because if you feed babies this food, they would soon become angels. He emphasized the value of giving cow's milk, if the mother's milk was not sufficient. We should all be impressed with the importance of breast feeding. I think that a child should be nursed until it is 18 months of age. There ought to be two periods for weaning a child. A child ought not to be weaned during the hot months without some of the reasons given by the author. I do not believe that nature intended that a child should be put on foods until it has at least sixteen teeth, and that is usually in the second year.

Dr. Edgar A. Hines, Seneca, S. C.: The keynote of the proposition, as I see it, is how to reach the medical profession of America. Under the inspiration of the vice chairman of this section, we are organizing state pediatric societies in the Southern states. Ten of our states have been so organized. One of the main objects of the organization is to give the profession just such information as has been brought out by the author and by those who have discussed his paper. At the next meeting of the South Carolina Medical Association the chief place on the program will be given to the discussion of breast feeding, and that may be done throughout these ten Southern states. I believe that within two years the entire sixteen Southern states will be organized in that way.

Dr. Clifford G. Grulee, Chicago: The paper gives a very good outlook on the reasons which we may expect for weaning children. That is very important, and it shows very clearly that in the vast majority of cases the reasons for weaning children are entirely inadequate. It calls attention to the fact that the new-born period is very important. In my opinion the introduction of breast feeding in the new-born is the crux of the situation. If one does not get these babies to nurse during the first few weeks of life, one does not get them to nurse at all. It usually rests with the obstetrician whether the baby nurses or not. A lot has been said about the mother nursing the child, and nothing was said about the child nursing the mother. I have had charge of the babies in the maternity wards of a general hospital, and I find that the baby's tendency to sleep is the one factor that takes it away from the feeding. If we keep them awake and at the breast and force them to nurse, they will do well. If these babies nurse a few minutes they often go to sleep. They have to be stimulated and kept awake and made to nurse.

Dr. George E. Baxter, Chicago: It is important to emphasize the most common conditions which we meet. For example, it has been my habit to ask the question of every mother what reason she had for weaning the baby. Our percentages run much higher than Dr. Dietrich's for the following two or three reasons for weaning, which are found in his tables: "insufficient milk," "trouble with the stools," "advice of physician or nurse." I would like to emphasize one point which Dr. Abt stressed, and that is the condition of the stools. We would have far more babies nursing at the breast if the physician, nurse and mother never looked at the stools. A green color, a few curds, a little mucus in the breast-fed baby stool has been misinterpreted, and consequently innumerable infants have been deprived of their best and safest food. All pediatricians know this, but very few of them stress the importance to obstetrician and general practitioner. Another factor is the time of nursing. Dr. Grulee has mentioned the fact that these babies go to sleep on the breast. We should be careful that the nurse and mother understand that nursing at the breast means sucking at the breast. We must determine whether the baby is getting any milk. Weighing before and after nursing is a good thing for a few times only. It is irksome to the mother and baby to keep it up as a daily and regular habit at each nursing period, and no baby will get the same amount from each breast at each nursing period. By careful observation, the mother will soon learn whether the baby is actually sucking and swallowing or sleeping or nibbling, using the breast nipple only as a pacifier. I firmly believe that the usual time which is practiced in all hospitals of having the baby nurse for twenty minutes is fundamentally wrong, because no two infants will get the same amount of milk from the breasts in the same given length of time. We should pay more attention to the way the baby sucks and swallows. Teach the mother and nurse to observe whether the baby is actually sucking and swallowing. The old and less elegant word "suck" expresses far more accurately the action of the baby at the breast than "nursing." Instead of having the baby suck ten minutes on one breast and ten minutes on the other, we should have the baby suck until he gets all he can or wants, for these infants have an intuitive sense, if you please, of how much they need. I am getting to the point at which I advise mothers to turn the clocks to the wall when they are suckling their babies.

Dr. Henry Dietrich, Los Angeles: I think that Dr. McCleave's idea in regard to the use of the term "supplemental" feeding is an excellent one, and that by using the term "substitute" feeding we may prevent some mothers from starting the babies on the road to weaning. We can learn a great deal from the dairyman. If we spend some time with the dairyman, we will get some important points that will help us in the better understanding of the establishment of breast milk. In answer to Dr. DeBuys' question: some of these children were under the care of expert obstetricians; a great many were under the care of general practitioners. One infant that was given no breast milk was the daughter of a patient who found it necessary to have an obstetrician come from New York to Los Angeles to confine her and also to have her take the baby from the breast. Both Dr. DeBuys and Dr. Grulee are correct in regard to the new-born period. I agree that that is the time when these babies need the most attention. There are many young infants who from the time they are born are left to the care of the nurse. The mother is stuffed with whatever the nurse gives her, and if the mother does not have a plentiful supply by the fourth day, the baby is put on the bottle. And this holds true in as large a city as Los Angeles, where in some instances the physician never saw the baby from the time it was born until the mother left the hospital.

POLITICS AND THE HEALTH OFFICER *

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There can be no question that public health service as a career does not offer sufficient attraction to many of the best type of technically trained men, whether they are physicians, sanitary engineers or statisticians, to induce them to make it their life work. Although, in recent years, such men are entering the service in greater numbers than formerly, the need for thoroughly competent officials by states, counties and cities is far greater than the supply, and, it may be added, greater than the demand.

The reasons for this unpopularity of public health service are:

1. Lack of knowledge on the part of many graduates of the professional schools as to the character of the work, the opportunities afforded for developing it and the qualifications, technical and personal, which are essential to success. In order to furnish this information, it would seem desirable to introduce somewhere in the curriculum of medical and allied professional schools, including schools of nursing, a course of lectures, delivered by an experienced and successful health official, which would serve to impart exact information as to the opportunities offered by public health service, and to bring out facts as to the past, present and probable future of the work; its advantages as well as its disadvantages compared with private practice. It is very certain that the entrance into this field by persons who have little or no knowledge as to what is before them must, in many cases, inevitably lead to disappointment and unrealized hopes, and that many potentially able health officers are lost to the service because they have not been informed as to its opportunities and advantages.

2. Inadequacy of compensation. It may be stated, as a general rule, that salaried public service of an administrative and technical nature, in this country, if it be honestly and efficiently performed, is not adequately compensated. Public health service is by no means the least conspicuous example. It is hardly to be expected that communities, even the most populous and wealthy, will be willing and able to pay salaries to health officials which will compare with the income which many technically trained professional men command in private practice and in some industrial corporations. But that the salaries paid should represent a reasonable return on the capital invested in money and the time devoted to preparation, and should afford a decent living, with something saved, to those who have no other source of income, is beyond dispute.

The full-time health official, and even he who honestly devotes part time to the duties of his office, becomes, year by year, less able to earn a reasonable living in private practice. Health service is, for many reasons, incompatible with private practice and is usually destructive of the desire to enter or return to it; so that it not infrequently happens that, after years of such service, the health official, having relinquished or been relieved of his office for one reason or another, finds himself without means of support, and a seeker for any work which will enable him to live. The lawyer and business man who temporarily neglect their private work for public office have something to fall back on. Indeed, it not infrequently happens that their professional and business returns are enhanced rather than diminished; for there is no incompatibility between private and public work of this character, such as exists between official and private medical work. This is a matter which state, city and county officials do not realize, and will not realize until they are taught the value to the community of efficient health work, and that such work must be reasonably paid for or dispensed with. While the pay of health officials has notably improved during the last few years, it is by no means generally adequate, and, until it becomes so, many of the best men cannot afford to enter the field of public health.

3. Uncertainty as to tenure of office. Quite as important if not more so than the foregoing as a deterrent to entrance on public health work is the uncertainty of tenure of office. Many qualified men, especially those with some private means, would, notwithstanding the meager financial returns, enter into public health service, on account of their liking for it, were it not for the fact that they have little or no assurance that even if they perform their duties satisfactorily and obtain results, they may not be thrown out of office, for political or personal reasons, and with no opportunity to protest.

The majority of adult Americans of intelligence have political opinions and more or less strong party affiliations, and it would be unfortunate for the country if such were not the case. But there is a class of politicians which exists in all parts of the country which could be well dispensed with; namely, those who are willing to sacrifice the welfare of a community to an assumed political advantage, in order to satisfy a personal or political grudge or to bestow political favors. Health officers, through no fault of their own, all too often fall victims to the activities of this shortsighted, mistaken policy; and the community is thereby deprived of valuable and faithful service.

It will be conceded that the politics of a health official should be of no more concern to a community than the politics of the family physician to an individual. There is no defense for partisan interference in the work of an official who is devoting his service to the health and lives of the people of a community, except ignorance of the value and importance of such service; and it is this ignorance, by which the health officer suffers, for which he is very often himself largely responsible, in that he has failed to impress on the people of the community, including those with political power, the value of services rendered. In other words, he is regarded by the latter as any other office holder, and is subject to the same rules of the political game. A

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health officer who has accomplished such results as to enlist the support and backing of the general public in his community is fairly secure in his position. The politician who brings about the removal of such an officer, replacing him by an incompetent, is liable to receive from the people, at the first opportunity, his justly merited reward. There is no greater asset in any administration than well-conducted health work; and no other work comes nearer to the heart of the people or so generally enlists public cooperation. This fact is being recognized more and more clearly by governors, mayors, commissioners and minor administrative officials. If it be granted that health officials should be free from political interference, it is equally true that they themselves should perform their duties without regard to political or personal influence, and that they should on no account take part or use the prestige of their office in any partisan campaign. Wherever their sympathy lies, in their official acts they should remain absolutely neutral. The health officer who openly or privately works for the advancement of one political party or another is entitled to no sympathy if, as a result, he loses his office. He has played a game, lost it, and should pay—on demand.

Health officials should work in as close harmony as possible with the administration, and cooperate in making it a success. They should remember that the technical knowledge pertaining to public health work and its importance to the community is not often possessed by coordinate lay officials; and when differences of opinions arise as to policy relating to health administration, they should make every endeavor to render clear their position and reasons for acts, the value and desirability of which are being questioned, often through lack of understanding. Tactlessness, arrogance and too great readiness to attribute evil motives to those with whom officially and unofficially they come into contact are just as certain indications of unfitness for public health service as subservience and eagerness to curry favor at the sacrifice of plain duty. However technically qualified by education and experience, the health officer, if constantly at odds with the administration, will be able to accomplish little or nothing, and his services to the community will be of very little value. If this lack of amicable relationship is due purely to political or personal motives on the part of members of the administration and to no fault of his own, his work having met the approval of the people of the community, the health officer may, in most cases, rely on public support, which is exceedingly difficult to overcome. If, on the other hand, it is a question of incompatibility of temperament, or the health officer is suspected or known to be playing politics, it is better for him and the community that he should resign.

What may be done to make more secure the tenure of office of efficient health officers? Civil service, while theoretically valuable for this purpose, has not, in effect, proved much of a deterrent against unjust removal from office. The state department of health of New York through the public health council, and in cooperation with the state legislature and conference of mayors, has taken certain steps which should prove of value in remedying this evil; first, by an act of the public health council, July 6, 1915, in establishing qualifications for local health officers, except those of the first and second class cities. Under this regulation, candidates for health officerships are obliged to qualify themselves by taking a public health course outlined and supervised by the state department of health in cooperation with one of the medical schools of the state, or, in lieu of such course, to furnish to the council evidence of education and training in public health which shall represent an equivalent of the work required by the course. Although handicapped by the war and two great epidemics, up to the present time about 600 health officers out of 969 have either taken this course or otherwise qualified, and about 150 are now registered in it. This regulation has served to prevent the appointment of men who were not qualified to hold office, and to educate the appointing power in the various communities as to the necessity for choosing men with some training in public health, and not those, however respectable, who are simply medical practitioners and without knowledge of public health matters. In the majority of cases, it has rendered it difficult for such appointing power to displace the health officer whose qualifications had been approved.

In 1921, at the instance of the conference of mayors and the state department of health, a law was passed, permissive in character, by which second and third class cities may abolish boards of health, and empower the mayor or city commissioner to appoint the health officer, who, however, must be qualified under the regulations of the public health council. It makes the health officer responsible for the conduct of his office solely to the mayor or other appointive power, and not to an intermediary lay official, such as a public safety commissioner. The term of the health officer was fixed at four years, but he could be removed without specific charges. The latter provision obviously constituted a weakness in the law. This was remedied at the last session of the legislature, which made the health officer removable on charges only after a public hearing. A number of cities have accepted this law, and more contemplate doing so. Furthermore, the newer city charters include identical provisions. These two measures, I believe, should be regarded as a step in the right direction, but only a step. City and county health officers (certainly those who give full time to these positions) should have a life tenure of office, unless sooner removed for cause; and, until the salaries granted are more liberal than at present, some provision should be made for a pension after retirement.

It is quite obvious that causes for discontinuing the services of a health officer should include inability to achieve results after a reasonable period of trial; for I think it will be readily granted that, however well qualified a man may be in theory, when it comes to actual experience he may prove to be far from a success; and communities should not be powerless by law to rid themselves of a health officer of this kind.

It is perhaps too much to expect that in the near future adequately paid, well qualified, whole-time health officers, with a secure tenure of office, will be the rule rather than the rare exception. This state of affairs can be brought about by one means alone: general education of the public regarding the meaning and importance of efficient health administration.

ABSTRACT OF DISCUSSION

Dr. A. T. McCormack, Louisville, Ky.: There is not a statement in the paper with which I disagree, and that makes it extremely difficult to say much except in repetition. It has always seemed strange why after forty years the physicians of the United States have not realized the possibility of such an organization as will entitle them to such public confidence that the standards suggested in Dr. Nicoll's paper would be accepted by the public and the profession today. It is impossible for the mayor to know a good health officer. He may appoint a good health officer. I do not mean he cannot do that because it has been done occasionally. It does not necessarily happen that he is a good health officer because he is the family physician or political supporter of the mayor; and too frequently health officers are appointed for that reason. If the appointments of health officers were made by law under the endorsement of the medical profession, which, after all, should be responsible for the public health of the state, with the provision that they must handle the financial affairs of the organization economically, the results would be better. That provides sufficient continuity to make the proposition attractive even though the remuneration is small, not because the health officer should not receive a greater remuneration but because he has such an opportunity for good service that he feels compensated out of proportion to the amount of money he receives.

Dr. Victor C. Vaughan, Washington, D. C.: I agree with all that Dr. Nicoll has said. It has been my fortune to be in public health work for many years, and I think that, on the whole, Dr. Nicoll is right in advising the health worker to steer as far as possible from active participation in politics. In Michigan, where my health work has been done, I have generally been known as a Democrat, and at times have taken a rather prominent part in state conventions of this party. During this time, or at least during the greater part of it, the state has been overwhelmingly Republican. I do not believe that my political belief or my political affiliation has in any way interfered with my health work. My most successful work along health lines has been carried out in legislatures in which my party had but few representatives. Of course, a tactful man, and a health official must be tactful, will always be courteous, especially to his opponents. I do not attach as much opprobrium to the word "politician" as some persons do. The politician is the man who persuades his fellow citizens to vote this way or that; and, if he persuades them to do that which is for the benefit of the whole, I am quite sure that he is accomplishing a desirable work. In my opinion, epidemiology is not studied with deserved thoroughness in this country at this time. It seems to be a general opinion among medical men and nonmedical health workers that bacteriology and epidemiology are synonymous. This is far from being true. Epidemiology is the much broader term, the much older science, and the one about which I believe less is known now than was the case a hundred years or more ago. When pestilence was more frequent, the words "loimology" and "loimography" were in general use, both by the medical profession and by the learned laity. Loimology was defined in the old dictionaries as the sum of human knowledge concerning pestilence, and the epidemiology of many diseases was quite extensively known long before the science of bacteriology came into existence.

Dr. J. A. Hayne, Columbia, S. C.: In South Carolina we embody most of the recommendations that have been laid down in the papers read today. When many of the states of the Union were wildernesses, the state of South Carolina made its medical profession the state board of health of South Carolina, and made it so by law. To get the best out of the medical profession in other states, it should be made the state board of health. Then there will be an ideal board of health. The state board of health of South Carolina has survived since 1879. This has been due to the intelligence of her health officers.

Dr. Matthias Nicoll, Jr., Albany, N. Y.: I trust that no one will conclude from what I have said that we in New York state are wholly lacking in political judgment. I do insist, however, that conditions are different with us than in the state from which Dr. Vaughan comes, where one party is always in power, while in New York state there is a change in administration every few years. I would not give a penny for the health official who is not a politician in the sense of using political judgment in putting his own work across. If he cannot do that he is lacking as an administrator. Dr. Vaughan, a Democrat, was a health officer in a Republican state, and no Democrat or Republican dared to remove him; but I contend that it is unnecessary and dangerous for a health official to mix in partisan politics. He should confine his political activities to the conduct of his own office; in other words, attend strictly to his own business. By so doing, and always provided his work meets the approval of the general public, he will usually be safe from political interference. If, on the other hand, he uses his office for partisan purposes he will suffer the inevitable consequences sooner or later and have only himself to blame.

CONTRIBUTION OF STUDENT HEALTH SERVICES TO PUBLIC HEALTH *

J. HOWARD BEARD, M.D.

URBANA, ILL.

A health service is neither an institution of philanthropy nor an organization for the promotion of paternalism. It strives to cooperate, not to compete, with the medical profession. It augments rather than decreases the practice of local physicians. It has nothing to do with either compulsory health insurance or contract practice.

It functions solely in the interest of sound economy by keeping the maximum number of students in the classroom and by insuring the investment in education by teaching elementary knowledge of the human machine, which each student must handle for the remainder of his life. It endeavors to keep the normal fit; to restore the ill quickly to health.

Health, as defined by it, is not merely the absence of disease, but the sustained striving for physical, mental, and moral perfection—constructive, dynamic living in the best environment that modern science is capable of producing. Its purpose is to bring to the student, and through him to his community, the principles of hygiene and sanitation, as they pertain to him, to his home and to his vocation.

Instruction to produce the necessary education—to promote this essential cooperation in making sanitary improvement more nearly commensurate with sanitary knowledge—must present a demonstration so clearly as to make the proper deduction inevitable. Periodic physical examinations, personal conferences, physical education, sanitary inspection and didactic instruction offer this opportunity for a student health service to make a distinct contribution to public health.

PHYSICAL EXAMINATIONS

A thorough physical examination benefits the student, the community and the medical profession. It warns of dangerous conditions of which the student may not have been aware. Persistent albuminurias, unsuspected heart lesions and unrecognized hernias are frequently found. Their discovery and treatment mean a longer period of activity in those who, by special training and experience, are to be of great value to society. Students with these abnormalities or with previously unrecognized astigmatism need little instruction or encouragement to become advocates of medical supervision of school children.

The necessity of compulsory physical examination at registration is not always understood until a large percentage of those examined have been called for reexamination and advice concerning errors of refrac-

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tion, carious teeth, flat feet, curvature of the spine, incorrect posture or other defects. Then the significance of the requirement becomes apparent, and students freely express their appreciation of the opportunity they have been given to ascertain their physical condition. Certification of physical health, as a prerequisite to entering athletics, and prescriptions for corrective gymnastics further emphasize the importance of physical examination. The establishment of a sympathetic attitude in the mind of the laity toward health measures is of the utmost importance, if public health is to attain its greatest advancement. While it is usually difficult to make those who think they are well show great interest in "how to keep well," the sick and defective are easily interested in the fundamental principles of corrective and preventive medicine.

Unhappily, certain students must learn that their defects make it necessary for them to revise their plans as to courses to be pursued in the classroom and in physical education. Their misfortune will, to a considerable degree, be compensated if they carry over into life an appreciation of the relation of physical and mental adaptation to successful careers and to efficiency in occupation.

In physical examinations, the students are required to undergo anthropometric measurements, and the observation of a dentist, an aurist, an oculist, a laryngologist, a clinician and a surgeon. They must also submit a specimen for urinalysis. A number have revealed to them, for the first time, the meaning of specialization in medicine, a discovery of value both to medical practice and to public health.

The findings of the physical examinations of a large number of recent graduates of public schools serve as an index of the efficiency of the departments of physical education and of medical supervision. If the health services of institutions of higher learning will adopt a "follow-back" as well as a "follow-up" system in dealing with defects of registrants, they will be able to cooperate with the schools from which the students come, to mutual advantage. The examination of many young men and women will be of great help in making generalizations of public health value. The facts obtained in such instances and the careful following of the graduates should lead to interesting observations concerning the cause of the so-called degenerative diseases and the influence of occupation and habits in relation to them.

Physical examinations and the conferences following them afford opportunities to release minds from the thraldom of imaginary ailments, from the evil of misdirected sympathy and from the introspection and depression created by charlatanism and quackery. Advice, encouragement and mental prophylaxis lead to the establishment of the proper attitude of mind, which is essential to the prevention of subsequent burdens on family and society.

CONFERENCES

A health service encourages the student to seek information whenever he thinks his health requires it. While this policy brings in trifling injuries and slight ailments, it leads to the discovery of potential or incipient conditions that need attention. The community is better protected against communicable disease, and the student avoids illness and infected wounds.

Conferences afford an opportunity to view the stress and strain of modern education on the central nervous system under varying conditions. They reveal the handicap of bad habits of study and of the wrong types of recreation. They bring to the surface the blight of worry, the far-reaching effects of unhappiness and depressing environment on cerebral efficiency. They present a chance to demonstrate the potency of psychotherapy, the benefits to be derived from the proper mixture of work, play, and social intercourse. They emphasize the wholesomeness of optimism.

Frequently these conferences deal with subjects not immediately affecting the student's health. He may ask for some data in connection with a hospital in which his father is interested. He may want plans for a sanitary outhouse for his country home; references to some form of public health work on which he is writing a long theme, or a list of text books suitable for the high school students to whom he will teach hygiene next year.

Former students frequently write letters or call for information concerning some phase of hygiene and sanitation in which they are particularly interested. On the day this article was written, three letters arrived, one from a graduate in journalism, specializing in advertising, who requests data concerning tooth-paste. He wishes references to aid in adequately describing his product. A second asks for methods of destroying mosquitoes; while the third wishes to borrow a set of slides on "school sanitation."

In many of these conferences, questions often arise which involve medical tradition or touch on problems of medical practice. They offer an opportunity to show the future community leaders that medicine is rapidly changing from an art to a science, based particularly on chemistry, physics and biology. Students must learn that results in medicine are not haphazard, but that cause and effect follow in logical sequence, as they do in experiments in the laboratory. There are still too many intelligent people who think medicine is a medley of tradition, mystery, long-sounding terms and personal opinions. In removing this false conception from the public mind, modern medicine has much to gain; nothing to lose.

EDUCATION

The great contribution of a health service to public health is the education of the student to appreciate the importance of hygiene and sanitation to himself and to his community. The mere introduction of an elementary course into the required curriculum of an institution of higher learning is not without significance to preventive medicine. Greater emphasis must be placed on the fact that dissemination of knowledge, essential to self-preservation, is the first duty of education.

What the universities and colleges should do in the teaching of hygiene depends largely on the amount and nature of the instruction given in the grade and high schools from which their students come. For the present, the equivalent of three hours a week for one semester would not indicate an undue emphasis on hygiene. The time might well be divided, two thirds to general, and one third to vocational hygiene; the former to be required of all students during their first semester after matriculation, and the latter to be taught later, in connection with their professional training. The instruction should be both didactic and practical, and ample opportunity should be given for the students to confer with their instructors and with members of the health service staff.

Members of the staff of the health service, in their daily contact with students, have an excellent opportunity to give practical significance to the didactic and laboratory instruction in courses allied to medicine. The student finds new interest in zoology or entomology when the relation of protozoa to dysentery or of insects to disease is discussed during a consultation for enteritis or malaria. The overlapping of the problems of sociology and medicine are particularly attractive to the man or woman studying social evolution, charities, population or criminology. The senior in the engineering school will exchange information with the sanitarian concerning the problems of Panama, the Rand or the Hudson Tunnel, with the keenest interest and to mutual benefit. Even the tyro in chemistry, wrestling with the mysteries of affinity, is not immune to a simple statement of the principles of chemotherapy.

The student's familiarity with the work of a health service has a high educational value. Members of its staff should see that the student learns that the waiters, dish-washers, cooks, dairymen and other food handlers employed by the university are examined physically, in order to exclude those with communicable diseases from handling food; and that they are vaccinated against smallpox and inoculated for typhoid fever, in order to protect the patrons of cafeterias from disease. In institutions in which a considerable amount of student help is used, this lesson becomes very practical. The requirements of the student officers' reserve corps and the advice of heads of departments of bacteriology and sanitary engineering that their students be vaccinated and inoculated further emphasize the importance of immunization.

A case of diphtheria properly handled in a fraternity house will do more to demonstrate the value of antitoxin, the use of the Schick test, the danger from carriers and the necessity for isolation than several hours of didactic instruction. It presents a demonstration whose significance remains throughout life. It creates a respect for quarantine and promotes a spirit of cooperation in the prevention of disease.

A health service greatly aids in the promotion of public welfare by the cultivation of an appreciative attitude toward hospitalization. Many of the most intelligent people have an unreasonable dread of hospitals, and use their facilities for diagnosis and treatment only as a last resort. When students are encouraged to go to the infirmary early and conditions are such that they cannot very well be cared for at their lodging houses when sick, hospital treatment is expected. It will mean much to public health to have our college graduates understand that they can obtain better care for themselves and for their families in a well-conducted hospital than at home. What will this mean to maternal and infant welfare, to diagnosis, to treatment and to the equipment and maintenance of hospitals?

SANITATION

Environment is the best laboratory for instruction in sanitation. By cooperation of the offices of the supervising architect, the superintendent of buildings and grounds and the health service, the necessary apparatus is provided for effective teaching. The care of the campus, the style of buildings and variation in equipment, with their age, their methods of ventilation, heating and temperature control, means for provision and determination of humidity, lighting system, types of drinking fountains, sanitary plumbing, regulations for the care of the swimming pool, etc., are mute instructors, demonstrating the present conception of sanitation, and its evolution during the last few decades.

If the school does not have dormitories, or they are so restricted as to require a large number of students to live in private lodging houses and to eat at such places as may be available, conditions arise that make a sanitary survey imperative. Lunch counters spring up in unexpected places and pie-wagons vie with one another in seeking strategic locations with reference to student traffic. As many students are compelled to live as economically as possible, they must patronize the cheaper places. Proprietors of lodging and eating houses would show a lack of business ability if they did not give some attention to their financial returns.

This combination of circumstances converts the student district into a community health unit, with all of its problems in the prevention of disease and the maintenance of health. Here the health service operates, educating, creating public sentiment, encouraging and urging a demand for sanitary improvement. It cooperates with the local boards of health, with public-spirited citizens and with the students, in helping to bring about the living conditions that make the college community one of the most attractive in which to live. To interest a number of intelligent men and women in the sanitary improvement of their surroundings is to prepare them for better citizenship by their enlistment in the advancement of public health.

Today, departments of health must teach by lectures, exhibits, pamphlets and propaganda, in order to produce the necessary education of the laity to overcome the resistance of ignorance and of short-sighted cupidity to the widest application of well-established methods to the promotion of public health. They are compelled to give instruction that should be a part of the required courses of schools and colleges. Unless the acorn of sanitation is planted in the schools, it will be many years before the oak can be used by departments of health in the erection of magnificent edifices of community and national health, commensurate with scientific knowledge. In the sowing of the seed, a health service offers helpful cooperation with all organizations interested in the advancement of public health.

A student health service and a school of hygiene are complements. The first creates public sentiment and obtains moral and financial support for public health work. The second trains experts for leadership and research. The former strives to permeate the masses with elementary science as used in the promotion of health; the latter to produce torch-bearers and pioneers in preventive medicine.

Is it too utopian to believe that the united efforts of the graduates of our institutions of higher learning, the staffs of departments of health, the faculties of the schools of hygiene, and the medical profession are able to bring into existence those living conditions which are the goal of preventive medicine—the essence of applied Christianity?

ABSTRACT OF DISCUSSION

Dr. John Sundwall, Ann Arbor, Mich.: The third who failed to pass the normal tests for physical fitness as revealed by the draft examinations, the 80 per cent. of our schoolchildren who have defects that will make it difficult for them to make the proper social adjustments later on in life, the appalling number that must go onto the human scrap heap during that adult period of life when one should be enjoying to the maximum life and its various activities, and when one should be of the greatest economic and social value—these are responsible, in the very largest measure, for the tendency of public health interests and activities to concentrate more and more on personal fitness or physical efficiency as one of its chief objectives. No other institution offers better opportunities to develop this newer and broader conception of public health interests, health efficiency, than does the university. Each student must be instilled with a profound appreciation of what physical efficiency means to his success and happiness and his value to society. So saturated must the student become with the ideals and standards of health efficiency that he will feel that it is his moral, social and civil obligation to achieve and maintain a sound, active, vigorous, dextrous and harmoniously developed body. In order to reach this objective—an appreciation of, and a desire for positive health on the part of the student—health efficiency should be made one of the basic divisions of university work. The administrative officers and the faculty must become permeated with these ideals and standards. The chief health officer of the university should sit in all the councils of the university's administration. He should be given similar authority and dignity to that now ascribed to deans. Furthermore, the university should require of all its entrants evidences of health and physical efficiency. The thoroughgoing physical examination should be required of all entering students prior to registration. These should be repeated annually. Personal fitness and efficiency should be made a requirement for participation in the active life of the university. The benefits, honors and awards of the university should be conditioned by the health and physical efficiency of the recipients. Students should not be graduated who, because of ignorance and neglect, have allowed their body machines to "run down." Assuredly the state is being cheated when the university underwrites physical defectives as capable of serving and directing society. Let us develop a university type of physique. It is precisely along these lines that the university can serve the public health movement best. The university has the opportunity and possesses the facilities to attain these physical efficiency ideals. Students later on in life become the leaders in their respective communities. Thus these ideals and standards of health will radiate out into society.

Dr. J. Howard Beard, Urbana, Ill.: I would like to emphasize what Dr. Sundwall has said, and to point out that a health service is an economic necessity.

MALARIA CONTROL OPERATIONS IN RELATION TO THE ULTIMATE SUPPRESSION OF THE DISEASE *

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NEW ORLEANS

In his book on "The Prevention of Malaria," Sir Ronald Ross[1] shows by elaborate mathematical calculations, and in quite a convincing way, that sufficient reduction in the anopheline density in a given area would ultimately result in the complete disappearance of malaria from the area without the reduction necessarily being carried to total elimination of anopheles. In other words, it is not necessary to secure 100 per cent. of anopheline control to secure 100 per cent. of control of transmission of malaria. This is based on the small proportion of the total number of anophelines produced, which chance to live long enough, bite favorable gamete carriers and later bite other susceptible individuals. In a large area, especially one not densely inhabited, there must be many thousands of anophelines produced, on an average, to one that actually transmits malaria. He argues, therefore, that, if the anopheline density is reduced to below this theoretical point, malaria will ultimately disappear. On the other hand, reduction of the number of carriers by curing the infection would not eliminate malaria entirely unless every infected person in the locality was disinfected and no others came in; provided, of course, that the anopheline density remained the same.

This is based on the assumption (which I am bound to think is correct) that the anopheline density and malaria prevalence would be evenly distributed and that the reduction resulting from antimosquito operations or from treating the carriers would also be equally distributed over the area under consideration. As a matter of fact, it seems to me that, in practice, the very opposite would probably be the case. There is no reasonable probability that either antimosquito work or cure of carriers will be evenly effective over any very large area. In any such large area, there would almost certainly be spots that had been overlooked or were insufficiently sanitated, where prolific breeding would continue, although breeding over the area generally had been reduced to below the necessary extent to permit transmission. If such less well controlled spots were favorably located with reference to malaria carriers and susceptible persons, transmission would continue there and malaria would continue to be present indefinitely. This would be the case, however effectively the other part of the area was controlled.

The same thing is true with regard to control by curing carriers. Although all carriers in a small area, including a small group of people, may be cured of their infection, so that no further transmission will take place, no such thing can be hoped for when large areas, such as whole counties or states, are considered. There will be some carriers not discovered; others may not be disinfected by the treatment taken, and others may refuse treatment. If such carriers are favorably located for transmission with regard to anopheles breeding places and to other persons, transmission will occur and malaria will not disappear. So far as I know, no intensive quinin control operation has been so successful in any large area as to eliminate all the carriers. Therefore malaria has not been completely suppressed in this way; nor do I believe that it can be. Neither do I know of any instance in which the disease has been completely suppressed in large areas by mosquito control operations carried out for the purpose of malaria control.

However, there are many instances in which developments leading to mosquito control, often more or less incidentally, have led to total suppression of malaria over quite large areas. I refer especially to the disappearance of malaria in this country during the past fifty or 100 years from large areas in New York, Pennsylvania, Ohio, Michigan, Illinois, Missouri and other states. This did not result from any intensive antimosquito operations, nor from screening. It resulted chiefly from the mosquito control that came from the clearing, drainage and other activities incidental to the march of civilization, and the development of the country for agricultural and industrial purposes. Much reduction had occurred, and, in fact, the disease had disappeared from large areas before the mode of transmission was known and before wire screens were used to any considerable extent.

During later years, use of screens, no doubt, whether intended for malaria control only or for other useful purposes as well, has hastened malaria elimination from

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* From the Tulane University of Louisiana School of Medicine.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Ross, Ronald: The Prevention of Malaria, New York, E. P. Dutton & Company, 1910.

the areas in which these natural developments were already bringing it about. Every transmission prevented by screens, which would otherwise occur, reduces the disease in the area to that extent and tends to hasten the time when there will be no more malaria.

No doubt cure of infected persons with quinin has also favored or hastened elimination of the disease from some of these regions by the developments incident to civilization and settlement of the country. Every person cured of his infection means just that much reduction of the chance of transmission.

While both of these things, screening or other antimosquito measures and the cure of infected persons, have contributed to the final suppression of malaria in some of these heavily infected regions, they have been contributing or, I may say, hastening factors only. The real cause has been development incident to civilization and settlement. Without this, malaria would not have disappeared.

What has occurred in this regard in England and in many European countries, and in these regions referred to in this country, is in progress over practically the entire malarious area in the United States. As the country is developed for agricultural and other industrial purposes, the prevalence of malaria slowly but surely declines. If we can look forward to a high state of development of the entire country, so also can we look forward to suppression of malaria, however much or little intensive malaria control work is done. At the present rate, it will be a long time until malaria has entirely disappeared. It will disappear, however, depending on whether, or when, settlement and development goes forward to the necessary extent.

The chief operations that bring about suppression of malaria are drainage and filling and clearing of the forests; not such as is done for the purpose of controlling malaria, but the much larger operations for settlement and development. The only permanent part of our present intensive malaria control operations is the permanent drainage and filling operations.

Since suppression of malaria inevitably results from the slow march of civilization and development, health agencies are interested chiefly in promoting such activities as will favor and hasten this result, especially those more or less temporary measures that lessen the prevalence of the disease during the period of more permanent development. This includes both antimosquito work and the proper treatment of infected persons with quinin. Each is useful, and they should generally go hand in hand. There are few instances in which antimosquito work would not be more effective in less time if combined with cure of the carriers. There are also few instances in which quinin control activities would not yield better results if combined with more or less mosquito control. The question is which is the more important and what proportion of attention should be given to each.

When considered from the standpoint of control of malaria in small areas, mosquito control has several decided advantages. The sanitation necessary tends to control other diseases and nuisances, while quinin does not do so.

When we compare the two measures from the broad standpoint of reaching the real malaria problem of this country, I believe that we must look to quinin as a most important factor. However much more desirable mosquito control may be, and however effective it may be in small areas, it must be practiced on a much larger scale than it has been in the past if it is really to effect the malaria prevalence over the whole country to any considerable extent.

Whether intensive mosquito control operations can ever have much influence on the big malaria problem of this country depends largely on the area that it is possible to reach in this way, compared with the area over which malaria prevails. Cost in money and man power and supervision or direction is a large item. In fact, this is one of the limiting factors. However certain the results might be, if the necessary resources cannot be obtained, the method cannot be applied.

Numerous demonstrations of malaria control by eliminating mosquitoes in small areas, chiefly towns and villages, have been made during recent years by the United States Public Health Service, the International Health Board and state boards of health. Many of these have yielded about as perfect results as could be asked for, constituting most convincing demonstrations of the effectiveness of sanitation.

I do not think the total area ever covered by intensive mosquito control work in this country, including the extracantonment zones during the war, would exceed 2,000 square miles (5,180 square kilometers). This is less than the area of three good sized counties. This is not more than one five-hundredth part of the total malaria infested area of the country. This emphasizes the fact that these operations have had little effect on the total malaria of the country, however completely malaria may have been controlled where they were conducted.

The cost of malaria control operations involving mosquito control by sanitation under experimental conditions or under such conditions as existed during the war does not serve as a suitable basis of cost. It costs much more under such conditions than when done under more favorable conditions.

A thing cannot be done unless the cost can be met. I refer to the cost not only in money, but also in other resources. I believe that those familiar with the most favorable of these successful operations must fail to see how the same operations can ever be applied to the entire malaria infected area of this country.

It must be recalled also that most of these operations have been carried out in towns and cities in which there is a more or less dense population and, by the way, where there is comparatively little malaria. The per capita cost, therefore, was comparatively low.

When we transfer mosquito control by similar intensive methods to the rural part of the country, where the malaria problem really exists, the per capita cost becomes much greater. In fact, it becomes so great that the extent to which such work can be done is certain to be limited. It cannot be done to an extent sufficient to affect seriously the total malaria prevalence.

The least expensive intensive mosquito control operations usually involve the expenditure of hundreds of dollars per square mile. An expenditure of even $100 a square mile would amount to an enormous sum if applied to the more than half a million square miles in the United States where malaria prevails. I do not question that it would be well-spent money. Nevertheless, it is money that would not otherwise be spent, and therefore represents new money.

Such antimosquito measures as screening homes also represents the expenditure of money that would otherwise not be spent. Do not misunderstand me. I most assuredly favor screening all homes where malaria prevails, as well as others. It would certainly cut down the malaria rate tremendously; but it would be done at an enormous outlay of money for the purpose. It does not matter whether antimosquito measures are carried out as a part of an intensive plan involving considerable effort and perhaps expenditure of money by the health agency behind it, or whether it is done by the people themselves as a result of publicity and educational work; it still represents an enormous outlay of money for prevention of disease that would otherwise not be spent. It is true that it would still usually cost less than the disease it prevents.

Let us now look, from the same standpoint, at the control of malaria by cure of infected persons with proper quinin treatment, to see whether it is likely to be correspondingly expensive and, as a result, equally difficult of application to the whole malarious region of the country. People who have malaria may take proper quinin treatment to cure their infection, as a result of either intensive control operations which include this measure, or a general publicity resulting in making the supplies of standard quinin treatment available for those who need it, so that they will purchase it in place of other less effective remedies, or on the advice and directions of physicians who give their patients the proper treatment. In either case, I feel sure the cost of the necessary quinin would be less than the average cost of the other remedies that would be purchased at the same time if the standard quinin treatment were not used. If this is true, control by quinin involves only the expenditure for medicine of money that would be spent for other medicine. No new money is required.

Therefore, so far as cost is concerned, quinin is applicable to the whole malarious region of the country without cost, except for such publicity, propaganda or other activities as are necessary to get it done. In this respect, quinin control has a decided advantage over mosquito control, which involves outlay of so much money that would not otherwise be spent. For this reason, I believe quinin control is likely to prove a much greater factor in contributing to and hastening the suppression of malaria, in large areas or in the country as a whole, that inevitably results from development, than mosquito control operations undertaken for the purpose of controlling malaria or mosquitoes, so far as methods are known at the present time.

If this opinion is correct, among the most important activities of health agencies interested in malaria control are those that lead to the provision of proper quinin treatment for persons who have malaria. The rapidly increasing adoption of the standard quinin treatment by physicians and the growing use of it in place of the many less effective remedies offer much encouragement to workers in this field. If this continues, it is reasonable to expect that it will hasten and contribute to the ultimate suppression of the disease in large areas in this country.

SUMMARY

1. Malaria has disappeared from large areas in this country and in other parts of the world, chiefly as a result of development of the country, including drainage and clearing of the forest, incident to agricultural and other industrial pursuits.

2. Malaria prevalence is slowly but surely decreasing over practically all of this country, as a result of the steady march of civilization and settlement of the country.

3. This process may be aided and hastened by antimosquito measures or the proper use of quinin. Health agencies are interested in encouraging these measures.

4. The only part of our present malaria control activities that actually lead to ultimate suppression of the disease is permanent drainage and filling operations. All others are temporary and must be continued indefinitely, or the tendency will be toward a return to former conditions.

5. The cost of intensive antimosquito operations for malaria control is so great that they have not been applied to a sufficiently large part of the total malarious area of the country to effect seriously the total prevalence of the disease.

6. The cost of such malaria control as results from infected persons taking proper quinin treatment does not involve any cost over the amount that would be spent for other remedies. Therefore, it is applicable to the malaria problem of the country as a whole, and should be emphasized and encouraged by health agencies interested in malaria control.

ABSTRACT OF DISCUSSION

Dr. L. D. Fricks, Memphis, Tenn.: Dr. Bass is one of a very small group who, having realized the importance of malaria to the South and its blighting influence on agricultural and industrial development, have fought for its control year after year. I am in thorough accord with all that Dr. Bass has said as to the importance of adequate quinin treatment in controlling malaria. Certainly, malaria has been controlled in some localities by the use of quinin. In a county of 25,000 population heavily infected with malaria, the U. S. Public Health Service, following the methods employed by Dr. Bass in Mississippi, demonstrated that malaria could be enormously reduced by the general distribution of quinin in proper dosage. The U. S. Public Health Service has approved the standard quinin treatment for malaria, and recently has issued instructions that all patients in Public Health Service hospitals be given this treatment in preference to other methods of administering the drug, and advised that no malaria patient be discharged as cured immediately on the disappearance of active symptoms. It should not be forgotten, however, that the U. S. Public Health Service has also demonstrated in many places that malaria can be controlled by drainage; that it has been frequently controlled by top feeding minnows; by proper screening, or by oiling, and that over large areas it has even disappeared in the wake of agricultural development without effort or deliberate intent on the part of the people concerned. Knowing these facts, I cannot find myself in accord with any seeming reflection on any of the methods of malaria control just mentioned. They all have their limitations and their uses, but the malaria problem is so huge and local conditions are so varied that we must avail ourselves of all approved methods in stamping out this disease, relying more on one method in this community, more on another in that, and combining them all, if local conditions demand a combined attack. I feel that too much importance has been attached by the advocates of each method of malaria control to the direct results obtained by them in their investigations or demonstrations. This is only natural, of course; but to my mind the educational value of a successful demonstration in malaria control is of far greater importance than any immediate result that can accrue in the United States for some years to come. Education of the people and the fitting of malaria control into the permanent health program of the different state health departments are the big things to be done in the fight against malaria at the present time.

Dr. M. P. Ravenel, Columbia, Mo.: One point was not touched on, namely, permanence of results, though Dr. Bass did say that if the civilization of a country left it, as in the case of the Roman Campagna, then malaria would return. As I see the matter, it may be put thus: Where drainage or filling is carried out, malaria is banished from that particular place for all time. When malaria is controlled by quinin, it may clear up, but it will always spread from the borders of the cleared up district toward the interior. The effect of quinin, in other words, is only temporary. Drainage, filling, etc., are permanent measures, and in the consideration of the relative costs of any procedure, these points must always be borne in mind.

Dr. Isaac D. Rawlings, Springfield, Ill.: There was a time when malaria was a very prevalent disease in northern and central Illinois. It is said that in those days quinin was set on the table at mealtime with almost the same regularity during the malaria season as was the sugar bowl or salt and pepper shaker. I recall vividly in Kansas in the early days how I and my brothers and sisters had to take "that bitter stuff" and how the good mother kept track of the "chill day" of the individual members of our family. It meant a bigger dose of quinin the night before and the morning of "chill day." As I recall the modus operandi of the "quininization" of those days, I feel sure that many of us discontinued treatment too soon, as relapses were frequent; but the very general use of the remedy in the various communities cannot be questioned. I cannot escape the conviction that tile drainage, at least in northern Illinois and other Northern states, had more to do with the elimination of malaria and the permanent solution of our malaria problem than did the very general use of quinin. Through the widespread educational propaganda advocated by Dr. Bass, people can undoubtedly be persuaded to use quinin to a considerable extent; but education is not and cannot be made a "cure all" in malaria campaigns, for results are slow in achievement, owing to the relative indifference of the individual both as to his personal welfare and the best interest of his neighbor, even if he is intelligent and all the facts have been presented in the most convincing manner. Education per se will not remedy the malaria situation, because the malaria carrier looms so large as an important factor and the difficulty of imparting the importance of the "cure to completion" to the average lay mind is too great to give promise of the necessary high percentage of efficiency. Many persons with all the facts presented discontinue treatment long before the eight weeks' prescribed course of treatment is completed. The method advocated by the author is one of the most important of several methods of control; but experience has abundantly shown in many areas that the former swamps which are today the most habitable and desirable places to live in were made so by a combination of thorough treatment; elimination of the malaria carrier; drainage or filling in of swamps and pools, where possible; substitution of larvicides for drainage or filling; removal of obstructing underbrush; use of "top minnows"; the screening of houses, and the control of water containers. We may regard the control of malaria as a short chain consisting of the three links: (1) infected persons, (2) anapholes mosquitoes (the connecting link) and (3) the noninfected person. An aggressive attack on any one of these links in time, if 99 per cent. effective, will solve the problem.

Dr. S. W. Welch, Montgomery, Ala.: The South has virtually admitted this malaria problem, and has gone about the task of getting the best methods possible to rid itself of the stigma of having a disease which is not common to other parts of the United States. The U. S. Public Health Service and the International Health Board have come to the assistance of the state boards of the South, and state-wide malaria campaigns are now on. The work is being carried on in a systematic way directed by Dr. Fricks, whose headquarters are at Memphis. All the Southern health officers and all the state boards of health have accepted the leadership of the U. S. Public Health Service in this work and we are actually eliminating malaria from the Southern states. In my own state, Alabama, since 1917 the number of deaths from malaria has fallen from 530 in 1917 to 231 in 1921. There will be fewer deaths this year than there were last year. This campaign is a vital organization, and we expect within ten years to show you the fairest country in the world entirely free from special health problems. Large drainage projects are being promoted all over the South. In 1916, top feeding minnows were put into the impounded waters of the Coosa River. The state board of health has aided in the distribution of them, until now there is not a little branch that is not filled with these little fish which feed on the mosquitoes.

Dr. W. C. Woodward, Chicago: There is one aspect of malaria control we often overlook. We are staggered by the enormous cost of filling and draining mosquito breeding lands because we view the matter only in the light of an annual appropriation. We do not view such projects as we should, not from the standpoint of one year, or even of five or ten years, but from the standpoint, as Dr. Ravenel has pointed out, of all time. If you cannot spend a million dollars this year for filling and draining, possibly you can spend a million dollars in the course of twenty-five years, and in that way blot out malaria. There is another financial point often overlooked, and that is the actual money return that drainage and reclamation projects bring through increasing the value not only of the land drained and reclaimed but also of land for considerable distances in all directions around. It is only fair that those whose lands are benefited be assessed to the extent at least of the value to which their lands are enhanced by the improvement. If we deduct from the cost of the average reclamation project the value of the land reclaimed and the amount of the enhancement of values of nearby property, I am quite sure that the cost of permanent abatement of mosquito breeding nuisances will be very much lower than appears at the first glance.

Dr. C. C. Bass, New Orleans: Dr. Fricks feels that perhaps the discussion is to some extent a reflection on the other methods of malaria control. That is just as far as could possibly be from my intention. He misunderstood me. There is nobody who appreciates more than I do the absolute control of malaria that can be accomplished by mosquito control measures. The point I wish to make is that the only method that is applicable to the malaria problem of the whole country at present is quinin control. It can be brought about by publicity without cost except for the comparatively small cost of the publicity required. On the other hand, any mosquito control undertaking for malaria control is too expensive to be applicable to a very large area. I quite agree with those who have entered into the discussion that the only permanent malaria control that we are getting is the result of permanent drainage and filling operations. Our temporary mosquito control and our quinin control are simply temporary measures which ultimately will lose their force if neglected or discontinued. However, the work that is being brought about by the natural development of the country, and this intensive work in permanent filling and drainage operations, will finally bring about the desired results. I wish also to point out that the disappearance of malaria from Illinois and Kansas, referred to by Dr. Rawlings, was aided by the use of quinin, which no doubt hastened the process. The purpose of my paper was to emphasize the idea that we ought further to encourage more extensive proper use of quinin and hasten the process of malaria reduction that is going on all over the country just as it has in these states. Dr. Welch pointed out that the malaria death rate in his own state had been reduced perhaps 50 per cent. in four or five years. That is probably largely due to the wide publicity that health officers and their assistants have given to the proper treatment of malaria. I believe that quinin is one of the most important contributing factors in the reduction of the death rate from malaria that has occurred in his state and in most of the other Southern states during the last few years.

Tobacco Angina Pectoris in Women.—A recent editorial in the *Journal des Praticiens* of Paris states, "We have recently seen two young women with angina pectoris for which tobacco was responsible. As the women were young and not syphilitic, they have apparently thrown off the disease."

THE MUTUAL INTEREST OF THE PROFESSION AND THE PUBLIC*

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The profession and the public have a large mutual interest which unites them in a common task and draws them toward a single objective. That interest consists of a surplusage of unnecessary, untreated and inadequately treated disease and impairment, which, in its totality, constitutes a waiting field of medical practice from two to five times greater than the present occupied field of medicine. The last statement constitutes the major premise of this paper, and is so related to what follows as to make its assimilation by the digestive or analytic process advisable before other related matters are considered. We turn, then, to a brief and rather general analysis of the unoccupied field of medicine.

Beginning with maternity, we find from 25 to 35 per cent., say an average of 30 per cent., of the births of this country, a total of approximately 750,000 births a year, unattended by physicians. These women pass through the valley of the shadow of death with no ray of the light of science to dispel its gloom, and with only the flickering candle of the midwife to guide them through their travail. Add to the labors without medical attendance the enormous unsupplied need for medical supervision during pregnancy; add again need of the puerperal state for medical care so inadequately supplied, and you have an uncared for field of maternity from two to five times the size of that which is cared for.

From infancy, we pass to childhood. Add absent, delayed and inadequate medical attention to the cases of acute diseases of early life—measles, whooping cough, scarlet fever, diphtheria, meningitis, early manifestations of tuberculosis, etc.—and add to that the needed treatment for the common defects of childhood (how significant the term), the 20 per cent. or 4,000,000 public school children of the country with defective vision; the 75 or 80 per cent. or 15,00,000 public school children whose mouths need treatment, in order to prevent subsequent digestive disturbances, rheumatism and cardiovascular damage, and the 5 per cent. or 1,000,000 public school children who need operations for tonsils or adenoids; and again consider the relative sizes of the occupied or unoccupied fields of medicine.

From childhood, we hasten on to adolescence, the age of sex awakening and social restraint of the sex impulse, the premarital state. Here we find susceptibility to, prevalence of and damage from venereal diseases greatest. With syphilis causing one tenth of all deaths, producing 20 per cent. of the inmates of our institutions for the insane (whose total population approximates the population of our universities), with gonorrhea as the chief cause of sterility and the principal contributor to the gynecologic wards of the hospitals, with its enormous drag on efficiency and industry —in combination, a group of diseases which in the height of the war took more men out of the line of battle than shot and shell and gas—and you have a field of medicine that largely sustains three specialties, gynecology, genito-urinary surgery and skin diseases, and, in addition, generously contributes to the general run of the practice of medicine. How much of this enormous field is occupied? From 16 to 20 per cent. of the venereal diseases are reported by physicians, and perhaps not more than twice that percentage, 30 or 40 per cent., are treated by the profession. Of the cases that are seen by physicians and treated by them, it is safe to say that even those cases do not receive or take one third of the treatment that is needed in the interest of both the individual and the public. No one well informed as to the prevalence of this group of diseases can seriously consider the treatment given as compared with the amount of treatment needed without again agreeing that the unoccupied field in this sector is from two to five times greater than that which is adequately held by the forces of science.

Again, we hasten on. We have arrived at adult life. In the interest of time, we introduce but one witness, but that an altogether sufficient one for the question involved. The Life Extension Institute of New York, in the last two years, has examined about 250,000 people, of both sexes, all races, engaged in various industries and living in different parts of the country, the persons examined being selected indiscriminately with reference to appearance. The institute found that about 60 per cent. of those examined were in need, at the time of examination, of medical treatment, and not more than 20 per cent. of those needing treatment were receiving it. In short, it was found that, in adult pathology, the field was about one fifth occupied and four fifths unoccupied.

Truly, the fields are white unto the harvest, but the laborers are few. This great surplusage of disease makes the interest of the profession and the public one, binding citizen and phsyician in a common purpose, coupling the determination of the public to remove disease surplusage with the ability of the profession to bring about the removal. Let those shallow minds and timid souls among the brethren who fear or feign to fear a curtailment of professional opportunities and rewards, both material and immaterial, remember that only through the use of medical science, only by making the field of medicine larger and more attractive, can this waiting, unoccupied field of medicine be reclaimed from the domain of ignorance and need.

DEVELOPMENT OF THE MUTUAL INTEREST

Medical science cannot hold the nose of the public and pour remedies down its throat; it is not a child incapable of thinking, insusceptible to advice and reason. The need of remedies and the value of remedies must be explained to the patient, and a desire to be treated created in the patient's mind. In short, a greater demand for the application of medical science to the existing surplusage of disease must be developed.

INCREASING THE DEMAND

In increasing the demand for medical science, in intelligently enlarging the usefulness of medicine, we have an educational problem confronting us. Intelligence appreciates, uses and pays for medical science; but ignorance neither appreciates, uses nor pays.

There are two principal ways of developing this educational work. One way is by the written word, bulletins, pamphlets, press articles and literature in various forms. The other way is by the living voice addressed to individuals collectively. The first is the method of the Bible; the second, that of the preacher.

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The first way is the usual method pursued, and, in general terms, about the only method available for such central agencies as federal, state and associational health services; furthermore, for most local health agencies, in which personnel in proportion to the population to be reached is limited, education by the written word is the method that has to be depended on very largely. The second way, the living word, is a method that exists potentially rather than actually. It is needed for close-up work; it has the element of personal contact which carries, in addition to the letter, the spirit that gives it life; it is the only way that a large, unreading, potentially influential voting population gets its information and its inspiration. The first way, by the written word, scattered broadcast through printed page from some long distance agency, is helpful and is necessary as is the barrage in preparation for a hand to hand fight; but the second way, by the meeting of the masses in person, talking to them collectively, answering their individual questions before collective groups, dealing with them as man to man, is as necessary to carry the strongholds of superstition and prejudice for the forces of science and progress as is the infantry attack in battle.

It is not necessary to discuss here public health education through the written word. We are all familiar with that. I do, however, want you to consider carefully the need and the potentialities of educational work through the living voice, directed toward raising the popular intelligence with respect to the prevalence of disease and impairments and the more extensive use of medical science. Consider, if you will, the weak position of our church or denominational organizations if these organizations depended on their state publications, their correspondence and their traveling evangelists, having no local and fixed group to do the collective educational work through the living voice, following this with pastoral or case work which the preaching makes possible and extends. Our local physicians, members of county medical societies, make their pastoral calls to heal the body sick physically as the minister makes his local call to heal the body sick spiritually; but they do not complete the local minister's program; they do not speak to their congregations, they do not preach the gospel of good health; of right living here; they do not teach the people collectively.

The county and local medical societies, particularly the rural medical societies, must become better organized for other purposes than merely to meet once a month, discuss differences of opinion with respect to scientific problems and occasionally construe the code of ethics. They must become organized to meet their social, collective, larger and common opportunities and obligations to what Dr. Osler used to refer to as the larger audience.

Our units of medical organization are so constituted today as to inhibit rather than encourage the education of the local people collectively by the living voice of their own physicians. Let some member of the average county medical society begin to make public addresses in his county on subjects in which he is especially interested and which are of far-reaching importance to the general welfare: no matter how worthy his purpose and how well performed his task, he unavoidably takes an advantage of his fellow practitioners, in that he, in educating his own people collectively, inevitably advances himself personally; he is looked on askance by his fellows, is called an advertiser, is discouraged, and suspends operations. Only the outsider from some distant point can speak to the people of the county without the risk of suspicion.

Suppose, on the other hand, that the average rural county medical society, say with twenty-five members, selects twenty-five subjects which will include 90 or 95 per cent. of the information on hygiene and health that the county people need, and secures the promise from each of its members to speak or read once each month an address or paper which the county society writes, or secures from some outside source and finally adopts as its own address. Note that the address or paper is now not that of the person who presents it, but is that of his profession. Such a program would mean a total of 300 public addresses during the year, which, given to average audiences of only 100 people, would reach a total audience during the year of 30,000; that is, practically the entire population of the county. Under such an arrangement, collective medicine would make contact with collective thought; and no outsider, federal official, state official or any one else could come between the local group of physicians and their own people. It is high time that the organic units of the medical profession begin to assume their rightful leadership in public thought, the local professions no longer being content with pastoral visits and with no well considered plan of collective work for the physical salvation not only of their people but of themselves as well.

SUPPLYING THE INCREASED DEMAND

As organization of the local unit of the profession, that is, the county medical society, is necessary to increase the demand for medical science and enlarge the field of medicine, so, too, the organization of the county medical society for the purpose of supplying the increased demand will be necessary. I shall touch only briefly on this phase of the subject.

The primary demand will be for examinations and diagnosis. The educational work above outlined will cause hundreds and thousands of those who become interested in the matter of health to wish to know whether they have an incipient or unrecognized disease or impairment, or whether, by alterations in living habits, their health may be promoted to a higher level. A secondary demand that will arise in consequence of such physical examination will be a more extensive demand for treatment.

In providing for these two demands, more adequate diagnosis and more adequate treatment through organized effort, it will be found that the plan of organization will involve both the local profession and the public, and will embrace both professional and business considerations—the former relating to the profession, the latter to the public. The two organizations, profession and public, and the two main considerations, professional and business, will merge and find their proper relations in a public county clinic, run and manned by the profession, and financed by the community.

In considering the professional organization of such a clinic in an average county of twenty-five practicing physicians, a service of four hours a week from each physician would provide 100 hours of professional service every week for the county. Such a public clinic could operate two afternoons, for four hours each, every week, with twelve physicians in attendance; or four afternoons, for two hours each, with ten physicians in attendance; or four afternoons, for three hours each, with eight physicians in attendance. However, the number of hours served by the combined county medical society, and their arrangement of one day, or one afternoon, or several afternoons, and in groups of four, six, eight or ten physicians, are details for the consideration of the local county society. With 100 hours a week, and with physicians working in groups as they did in examining the drafted men during the war, from 100 to 150 people a week, from 400 to 600 a month, from 5,000 to 7,000 a year could be examined.

As a result of these examinations, a greatly increased demand for medical treatment will inevitably arise. Those needing and seeking treatment may be classified into those who can pay and those who cannot pay. The first class would be referred by the clinic to their family physician. In considering the second class, those who cannot pay, the charity practice of the county, we come to the business considerations involved in this organized effort to meet the increased demand for medical science.

In dealing with the business elements which enter into this problem, it will be well to observe, at the outset, that the burden of charity practice, constituting from 20 to 40 per cent. of practice, should not rest on twenty-five citizens of the county; that is, on the twenty-five practicing physicians; but it is a burden which should be distributed and which should rest on the entire citizenship of the county, its 30,000 people. All treatment administered in the clinic to the needy should be paid for by the public, and the funds paid in divided among the physicians serving the clinic, according to details to be worked out jointly by the county medical society and the group representing the public.

In securing funds for such a clinic, the following possible sources are to be considered: (1) a nominal charge against all who apply for clinic benefits; (2) local Red Cross chapter funds; (3) local funds received through the sale of Christmas seals; (4) appropriations by the city or town authorities; (5) appropriations by the county authorities; (6) an annual church collection from the churches of the county in response to the commission "heal the sick," and (7) contributions from benevolent and financially able citizens of the county. With the educational work on which all this is predicated, the necessary revenue to maintain a public clinic would be assured.

A business organization of interested, broad-visioned, public-spirited men and women should be effected, in order to organize the people of the county around the clinic. Such a lay organization would assume two definite tasks: (1) arranging for the places and notices for public addresses by the physicians, and (2) securing funds with which to finance the clinic.

The local medical society would work out with this group of business men, and define on paper, the conditions under which the business group, representing the community, would issue cards of admission and requisitions for treatment to those who applied. In the whole scheme, the local society, through organized effort, would assume the initiative, and approve everything that was done in providing for both the increased demand with respect to diagnosis and the increased demand for treatment.

The profession at present is extensively and intensively interested in the development of public hospital facilities. This is a worthy interest, and should be encouraged in every way. But the hospital is something that will come only when the local county people have been informed through educational methods as to the prevalence and meaning of disease and impairment; and when they have demonstrated, through a public clinic, what can be done through organized effort in the treatment of disease and impairment. In short, public organization to care for disease and impairment in an adequate way will follow and never precede professional organization. We shall have organization and cooperation without when we get organization and cooperation within.

ABSTRACT OF DISCUSSION

Dr. W. S. Leathers, University, Miss.: I have had the opportunity during the last several years of making observations along the line that Dr. Rankin has discussed, and I believe that he touches a most important phase of preventive medicine when he emphasizes the unoccupied field of medical practice. There can be no question about the fact that the surplusage in the treatment of disease is one of the outstanding phases of public health work in the prolongation of human life. Reference is made to maternity and infant welfare work and the relation of the midwife to infant mortality. In my own state, a careful survey has been made during the last year as to the number of midwives, and it appears that there are more than 4,000 in Mississippi, more than 95 per cent. of whom are negroes. It is doubtless true that about 40 per cent. of all births are attended by midwives who are incompetent and uninformed. It is clear, therefore, that this is a matter that should give us much concern in the conservation of the health of mothers and in the prevention of infant mortality. In view of the fact that the physicians in many of the states are not well distributed in relation to the population, there is at this time a considerable restlessness on the part of the general public relative to the care given them from the standpoint of the medical profession. The country people are not getting the attention which they think they deserve in the treatment of disease, and therefore there is a grave responsibility on the medical profession in the working out of a better adjustment or plan in giving medical attention and care to people in rural districts. It seems to me that the time is rapidly coming when there should be in every county, or group of counties, a hospital which shall be available for the people requiring medical attention, and which will afford them the very best medical aid. It is quite discouraging to the family living in the country, say 10 or 15 miles, who needs medical attention and has to pay the physician $3 for the first mile and $1 for each mile thereafter. This situation almost makes it prohibitive for the average family to secure the necessary medical attention. Dr. Rankin makes it very clear that education is fundamental in the prevention of disease and in the prolongation of life. If the general public were educated properly, the 50 or 60 per cent. who have no appreciation of scientific medicine would seek the advice of a competent physician. It is very desirable, therefore, that public health activities should be so directed that the people are educated not only in the science of preventive medicine, but also relative to the importance of seeking medical advice promptly when ill. The prevention and cure of disease are in a way inseparably associated for the reason that in many diseases an early diagnosis means prevention as well as cure.

Dr. A. S. Hershfield, Chicago: We are hard put as physicians to live down the errors of omission and commission of our forefathers. There was always something mysterious about medicine, and even a patient who received a prescription written in Latin regarded it as something mysterious without ever taking the medicine. There was something mysterious about the doctor; in other words, he appealed more to the mysticism of the public than to their intelligence. He is trying to live it down now. But, in this living down and treating the public as intelligent beings, we find the Christian scientists and other sects coming in with the mysteries that we are beginning to abandon, and that is why they are enjoying the vogue they are today, because we are appealing to the intelligence and they are appealing to the mysterious. That is something we have to preach. Dr. Rankin enumerated a number of contributions to public health work, but I did not hear how he was going about preaching the danger of medical politics. That is the essential factor. The chiropractors and the other cults are thriving because they get in under the law. The doctors sit back and let these people appeal to the mysterious that we are trying to live down. We have nothing to back us politically. Why can we not be politicians? If we are right in the work we are doing for public health, why can we not have men to represent us in the legislature and not politicians who laugh at us because we have no political standing and no physician wants to get up and fight for his right, because politics is below his dignity? He is sat on, he is taken advantage of, and the things we are trying to abandon are forced on us.

Dr. A. N. McCormack, Louisville, Ky.: Having for several days listened to the vapid utterances of some of the superficial and ignorant members of our own profession who had no more conception of its possibilities than they had of the simplicity of the wonderful method of salvation, it is refreshing to listen to the words of a wise man who would lead us out of the wilderness in which some of our noisy but utterly mistaken leaders are trying to bury us. There is no trouble about physicians practicing medicine in the country districts, or about physicians in our cities who are carrying on the work; the trouble is from the various commercial organizations forming in the profession. We are told that America needs more organizations for physicians and that the physicians of America are interested in nothing but their own livelihood. The time is coming when those who work must rise and talk and must furnish our profession with leadership if we are going to get anywhere. We have stayed too long silent, or these things could not happen. Dr. Rankin's paper will be mimeographed and sent to every physician in Kentucky, so that it will be read in every county society. Down in Panama I saw this plan in operation, and I realized that there the public is so well educated that it demands real medical service, and it takes five times as many physicians as we have in the most thickly populated section of the United States to give that service, and it is to supply that demand that we must look forward to the real future in medicine; yet we hear our little folks get up and say, "There are enough doctors." There is not enough foresight in this country yet to realize the number of physicians needed when Americans are made the healthy persons they ought to be with the knowledge we have as to how to keep people well.

Dr. Rachelle Yarros, Chicago: I want to endorse practically everything that Dr. McCormack has said. We cannot have too many endorsements of such good sense, courage and progressivism. There are many in the profession who share his views, but refrain from expressing them. If such a paper will be read not only by the physicians of Kentucky, but by all physicians in the United States, many of the doubts and fears now entertained will disappear, creating a greater tolerance on the part of the profession toward some of the newer problems of public health. Many of the difficulties that we encounter in this connection are no doubt due to the fact that most members of the profession have far too little time to follow the new developments in medical work of today and the modern demands that society is making on us. We must learn this lesson as quickly as possible: that health education of the lay public is always helpful to the profession. It always creates greater demands for the services of physicians as well as gives greater opportunity for work in new fields. This can be illustrated most clearly by citing the instance of the education of the public in venereal disease control work. The same no doubt can be said about tuberculosis and other public health measures, such as the "bill for better maternity care," as Dr. Rankin stated so well. My experience is that the public is now more ready than ever to receive and benefit by health education, and naturally looks to the profession to take the leadership in supplying such education. Unfortunately, too many physicians have adopted a shortsighted attitude and have either stood aside or actually fought every progressive tendency in public health, making every effort to minimize the value of education of the lay public in health matters. It is a pity that physicians in fighting the newer measures of public health have produced the impression among enlightened laymen and social workers that they are actuated solely by selfish considerations. As a profession, we must begin to abandon our extreme individualistic attitude and train ourselves to cooperate more readily with social agencies working toward the physical and mental health of the public. Public health and hygiene are not purely medical problems. They have economic, sociological and psychologic aspects which we must recognize. We must be willing to exchange ideas with workers along those lines. When we cannot lead, we should be willing and glad to work with others on a footing of equality.

Dr. Duncan B. McEachern, Chicago: Dr. Rankin simply makes a plea for what might be called historical perspective. If medical men would take a historical perspective of society, it would be quite evident that society is an evolutionary affair. We can go back before the establishment of public schools, when the education of the people was detailed to individual teachers, and we can see how unsatisfactory that method of teaching would be if applied today. The medical men of today are in the same position that the schoolteachers were before the days of Horace Mann. They are trying to apply their knowledge individually instead of *en masse*. I do not care whether you call it state medicine or not, but the activity of the medical man must be along the lines indicated by Dr. Rankin. The medical man has to accept the responsibility for this 60 per cent. untreated disease that exists in the community. The amount of disease in a community is a measure of the efficiency of the medical profession. Eventually state or public health organizations will have to take over the activity of the medical man. He has been in the habit of looking at the general public as something to exploit. A wise physician once said to me that all professions were conspiracies against the public; that the average man is out to get something from the public instead of giving something to the public. The public demands the same measure of intelligence in handling its health problems as it does in handling its educational problems. Unless the medical man will look at the matter in this light, the public will take affairs into its own hands. In the schools we might establish small clinics, and there should be several beds in schools for children who need tonsillectomies. I think that every school should be furnished with an optical department, and glasses should be furnished the same as textbooks are.

Dr. W. S. Rankin, Raleigh, N. C.: I want to say a few words regarding the activity or inactivity of the health officers in dealing with sectarian medicine. Let us see who is responsible for it. The state representatives come to the state capitol and pass laws. Those laws reflect the feeling of the people back home. They pass laws regarding sectarian medicine because the people back home have not been educated against the evils of quackery. If physicians were organized and were in touch with collective thought, there would be no man in the state legislature voting for chiropractic and other sects. It must come back to the collective work of the men in the ranks. In an organized county in North Carolina, lectures are to be given to the people once a month dealing, among other things, with sectarian practice, chiropractic, osteopathy and all the other false doctrines that have preceded them, and there will be no legislative sentiment in support of them. The general practitioners are the soldiers in the ranks; and if they do not become active, we shall never establish this public health work. When you come to think about it, there is only one really live adult organization, and that is the church. Churches are well organized. What do they do with a new member? They try to get him to do something. It does not make any difference whether it is teaching Sunday School or what it is, but they want him to work. If he is not made active, he is not interested. If the church does not get him interested, what happens? The man does not go to church except when his conscience bothers him. He does not know what the church is doing. He misunderstands, he criticizes, he obstructs and hinders. If we can get the physicians of this country actively interested in public health work, both the profession and the public will be benefited.

DRUG THERAPY IN PYELITIS *

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The present study is concerned with an attempt to determine the direct mode of action of several of the more commonly used drugs in the treatment of pyelitis. The action of the alkalis, of hexamethylenamin and of phenyl salicylate has been studied.

First, it must be said that pyelitis, in most instances, is a self limited disease, which may disappear almost as rapidly as it appears. It is sometimes discovered accidentally by routine examination of the urine. At other times, it may be associated with very severe symptoms, being, even, rapidly fatal, owing to renal complications. Our inability to distinguish between pyelitis with and without renal involvement makes it extremely difficult to differentiate, at the onset, the severe from the mild; at present, the clinical course is the sole criterion. This difficulty practically rules out the possibility of comparing the various modes of treatment by studying a given number of cases. In treating the same patient first in one way and then in the other, it is impossible to determine whether the disease would not have cleared up if the first treatment had been continued instead of the second being instituted.

In taking up the value of alkalization from the historical standpoint, Thompson of Edinburgh seems to have first emphasized the value of alkalization of the urine on purely empiric grounds. He has given no theory of action, nor has any one given us a satisfactory explanation of its value. In a recent article on the treatment of pyelitis, Browning [1] says, "The change in reaction of the urine causes the tissues to be bathed in a fluid which is more bland, and thereby enables them to combat the infection more effectually." Normal urine is slightly acid, so that the normal mucous membrane of the urinary tract is developed to withstand these degrees of acidity without damage. Whether this applies also to an inflamed mucous membrane has not been determined.

The question that naturally arises is whether the alkalization is merely a means of increasing urinary output and flushing the passages, or whether it has a definite specific effect. The greatest alkalinity that has been found in urine of human beings is p_H 8.6, the same as a saturated solution of sodium bicarbonate. Since in this alkalinity the colon bacillus grows luxuriantly, it is evident that this degree of alkalinity is insufficient to influence the clinical condition by its action on the growth of this organism. The growth of the colon bacillus is not inhibited until the hydrogen ion concentration reaches from 9.2 to 9.6. Since, at the acid end, inhibition of growth occurs at from p_H 4.6 to 5, and urines with hydrogen ion concentration as high as 5 may occur, the inhibitory action by acidity alone would be possible.

After the disappearance of the general symptoms, fever, malaise, anorexia, and so forth, the urinary findings in pyelitis are usually as marked as before; so that it seems possible that the alkalinity might prevent the formation and absorption of toxic products producing the general symptoms. Experiments were conducted in order to determine whether there is a difference in toxicity when the colon bacillus is grown in acid broth and when in alkaline broth. Bacilli were grown at an acidity p_H 5.4 and at an alkalinity of p_H 8.6 for twenty-four hours; the cultures were then filtered, and the filtrate was injected intravenously into rabbits, similar amounts of the acid and of the alkaline broth being used as control. The reactions were practically identical. Both the alkaline and the acid broth produced a febrile reaction of from 2 to 5 degrees; the filtrates caused a slight rise of temperature and then a marked lowering of temperature. The reactions of alkaline and acid filtrates were practically identical. The difficulty of growing the organisms at a definite hydrogen ion concentration is that ordinary alkaline mediums in which there is sugar rapidly become acid, and acid mediums more acid. Sugar-free alkaline mediums become more alkaline and sugar-free acid mediums tend to become alkaline. In these experiments, an excess of sodium bicarbonate was added to the alkaline broth and a buffer mixture to the acid broth, so that the hydrogen ion concentration after twenty-four hours was within two tenths of that before inoculation.

A number of observers have said that if alkalization does not clear up the infection, the rapid change to the use of hexamethylenamin and acidification proves effective. This treatment may owe its effectiveness entirely to the action of the hexamethylenamin; on the other hand there is a possibility that the beneficial effect is due to the lag observed in the growth of bacteria when their culture medium is changed. The lag is the time required for the bacteria to acclimate themselves to their new surroundings. The change from acid to alkali, and vice versa, might tend to retard the development of the colon bacillus. We, therefore, studied the rapidity of multiplication of the colon bacillus when grown in acid broth and transplanted to alkaline, as compared with that of one that was grown in alkaline broth for numerous generations, and vice versa. No striking differences were observed in this series of experiments when they were carried on in mediums without a buffer. As the growth of the colon bacillus changed the hydrogen ion concentration of the medium very rapidly (so that if the concentration at the time of inoculation is 8.6, after a few hours of growth it may be only 6.4), it was thought best to repeat the experiments in mediums with buffer mixtures, so that the reaction, after twenty-four hours' growth, would be very nearly the same as before inoculation. It was not possible in any of the experiments to demonstrate any appreciable lag when the colon bacillus was transferred from an acid to an alkaline medium, and only a very slight lag when it was transferred from an alkaline to an acid. These experiments do not exclude any effect that the alkaline mode of treatment may have on the formation of bactericidal substances by the mucous membrane.

A special effort has been made to determine whether there was any action of hexamethylenamin at the level of the pelvis. It is well known that urine from the bladder, if acid, can be rendered sterile by hexamethylenamin. According to the experiment of Shohl and Deming,[2] with a hydrogen ion concentration of 5.2 and a total urinary output of 1,500 c.c., a dosage of 3 gm. of hexamethylenamin will produce formaldehyd in two hours sufficient to kill 90 per cent. of all bacteria.

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* From the Section on Pediatrics, Mayo Clinic.

* Read before the Section on Diseases of Children at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Browning, C. H.: The Diagnosis and Treatment of Nonvenereal Pyogenic Infections of the Urinary Tract, with Special Reference to Urinary Antiseptics, Glasgow M. J. **97**:38-45 (Jan.) 1922.

[2] Shohl, A. T., and Deming, C. L.: Hexamethylenamin: Its Quantitative Factors in Therapy, J. Urology 4:419 (Oct.) 1920.

They have also shown that the nearer the reaction of the urine approached neutrality, the lower was the concentration of formaldehyd and antibactericidal action. With a p_H 6, insufficient formaldehyd was formed even in twenty-four hours to kill all bacteria. At neutrality, there was no production of formaldehyd. In infants, the urine rarely remains in the bladder more than from one to one and one-half hours. Even if conditions of acidity in the urine of the bladder are ideal and the hexamethylenamin is sufficient, it would be almost impossible to obtain a bactericidal concentration of formaldehyd because of the lack of time.

I recently observed a child who had suffered from pyelitis for three years. Ureteral catheterization, some months before, showed bilateral infection of the renal pelvis. The urine, on first examination, contained innumerable bacilli, but only a few pus cells. The child was put to bed, fluid was forced, and 15 grains of hexamethylenamin and 20 grains of sodium acid phosphate were given every six hours. In spite of the sodium acid phosphate, the hydrogen ion concentration of the urine remained about 7, varying from 6.8 to 7.4. At the end of eight days, the urine of the bladder was sterile, but numerous bacteria could be seen in the centrifuged specimen. A few days later, the child underwent cystoscopy, and urine was obtained from both ureters and from the bladder, and cultures were taken. All the cultures were sterile, and the hydrogen ion concentration was 7.4. What had caused the disappearance of the infection? The urine was alkaline; the formaldehyd could never be in sufficient concentration to be bactericidal. There is, of course, a possibility that disappearance of infection was merely a concidence, or due to rest in bed and forcing of fluids, but the three year history is rather against such an assumption. It raises the question of a possible action of hexamethylenamin in alkaline mediums. A particularly interesting experiment was made to determine the condition of the urine from the ureters, when the urine from the bladder contained sufficient formaldehyd to sterilize it; and to determine the length of time required to render the urine from the ureters sterile. Thus far fourteen cases have been studied, but an appropriate, deciding case has not been found.

Experiments with the use of phenyl salicylate (salol) have been somewhat limited, because indications did not warrant further investigation. They consisted of two cases of pyelitis in which the dose of phenyl salicylate was increased gradually to a point at which it was unjustifiable to go farther.

In the case of one patient suffering from pyelitis, the dose of phenyl salicylate was increased to 5 gm. daily, without any effect on the bacteria in the urine. With this dose, the urine was not bactericidal; and it turned rapidly dark on standing; indicating the presence of pyrocatechin and hydrochinon. In the case of another patient, the dose was increased gradually to 4 gm. daily, at which time there was rapid change of the color of the urine, to a dark brown. In neither instance was any antiseptic action observed. Since these doses are much higher than those usually advised for the treatment of pyelitis, I feel warranted in maintaining that, in the doses usually given, phenyl salicylate has practically no value in rendering the urine sterile by its direct action on bacterial growth.

From a review of the literature of pyelitis, particularly of its treatment in infancy, the impression is gained that few observers have found hexamethylenamin of much value. In most articles on the subject, alkalization is the treatment of choice in the acute cases. However, there is no evidence that alkalization has any direct specific effect, except, possibly, its diuretic action. The possible effect of alkalization on the tissues is not considered in this paper, it being the subject of a separate experimental study.

SUMMARY

In acute cases of pyelitis, the alkalis are useful, but we have no evidence of any direct specific action. Hexamethylenamin has a very definite bactericidal action in the bladder, but whether this applies also to the pelvis of the kidney has not been demonstrated. Phenyl salicylate does not have antiseptic properties in the doses given.

UROLOGIC SURGERY IN PEDIATRICS *

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CHICAGO

It may be said without fear of contradiction that the urologic study of pediatric cases has not received the consideration that is due so important a subject. This is practically an undeveloped province of medicine, and, as evidence of this statement, attention may be called to the scant references, both in pediatric and in genito-urinary literature. In this country, Beer,[1] Hyman,[2] Hinman,[3] Stevens,[4] Thomas and Tanner,[5] and Helmholz and I[6] have made a study of the subject—not a large showing. Hence, it appears to me that this province for clinical study has been decidedly neglected, though the problems and possibilities undoubtedly are many and of great variety. But to achieve gratifying results, the closest cooperation between the pediatrician, general practitioner and genito-urinary surgeon is necessary. This alliance effected, I am ready to admit, without being unduly enthusiastic, that pediatric urology will be the open sesame for extensive work for both pediatricians and urologists.

On reflection, it appears that there is no really sound reason for this backwardness of pediatric urology. A perusal of the table of diagnoses (Table 2) shows that the lesions of the genito-urinary tract in children differ in no way from the various pathologic conditions found in adults, except as regards those incident to age, such as carcinoma. Then what are the reasons for this failure to keep abreast of the advances made in urology in adults? The reasons are:

1. The general practitioners and pediatricians who attend infants and children have not availed themselves of the advantages and opportunities of urologic studies because of the difficulty in eliciting symptoms in these patients, and probably because they are not familiar with the possibilities inherent in this subject.

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* Read before the Section on Diseases of Children at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Beer: Am. J. Surg., March, 1911.
2. Hyman, A.: Urinary Tract Surgery, Am. J. Dis. Child. **15**: 116 (Feb.) 1918.
3. Hinman, F.: Cystoscopic Study of Urologic Conditions in Children, Am. J. Dis. Child. **17**: 305 (May) 1919.
4. Stevens, W. E.: Diagnosis and Treatment in Pathologic Conditions of Urinary Tract in Children: Modern Methods, J. A. M. A. **77**: 1081 (Oct. 1) 1921.
5. Thomas, G. J., and Tanner, C. O.: Minnesota Med. **5**: 147 (March) 1922.
6. Helmholz, H. F., and Kretschmer, H. L.: Treatment of Pyelitis in Infancy and Childhood, J. A. M. A. **75**: 1303 (Nov. 13) 1920.

2. The genito-urinary surgeon is not the first one called to see these cases, and, furthermore, there are certain limitations in his armamentarium. With the recent advances in the art and science of instrument making, instruments of small caliber have been perfected, so that these little patients can be subjected to cystoscopic examination and ureteral catheterization almost as easily as can the adult. Not only can these patients be examined with special instruments of precision, but the same diagnostic measures that are employed in the adult can be and should be used; namely, roentgen ray, pyelography, functional tests, blood chemistry, and chemical and bacteriologic studies of the urine as obtained by ureteral catheterization.

This article is based on a personal experience in a series of sixty cases.

INDICATIONS

The indications for urologic study in children are the same as for adults, but their verification is difficult, since many children cannot accurately describe their symptoms. Especially is this evident in the treatment of infants, for one must rely on the statements of the parents or nurse, whose powers of observation are often not very keen, or, in fact, so defective that frequently the chief indication must be based on the results of urinalysis.

The presence of pus in the urine (thirty cases) was the most frequent single indication for cystoscopy in the group herewith reported. A large number of the patients came to the hospital without any very definite complaints. In the course of the routine physical examination, pus was found in the urine, and for this reason the patients were referred for study.

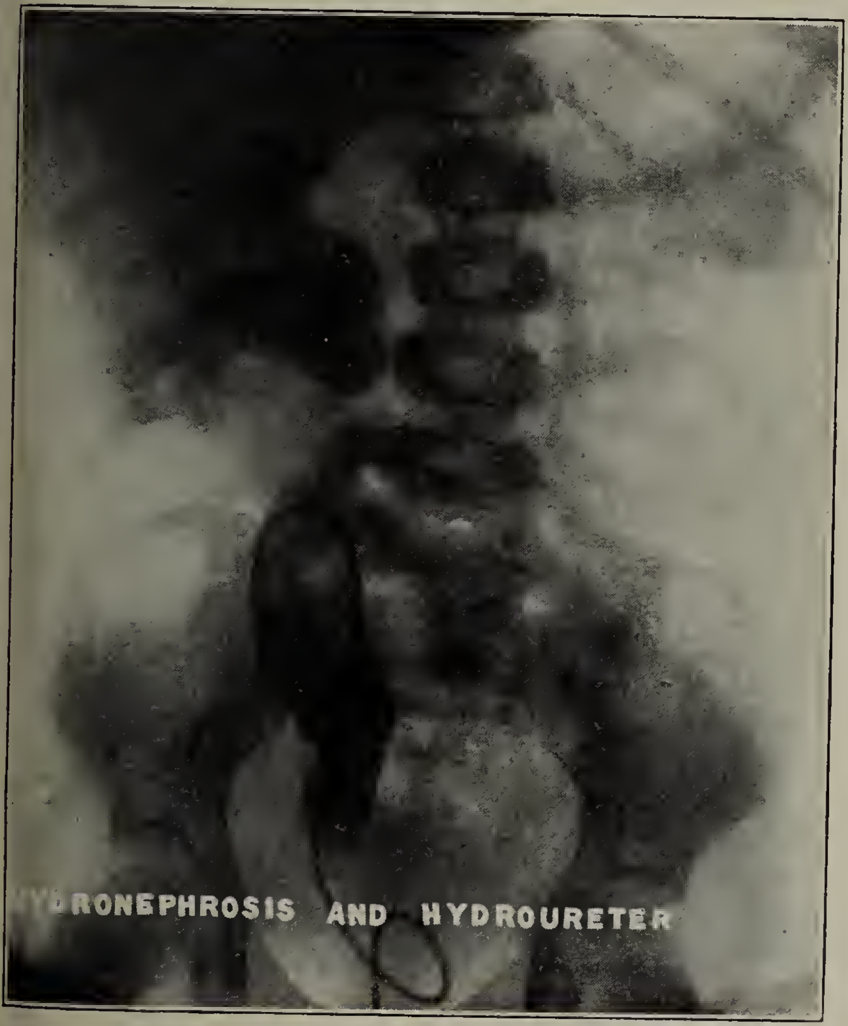

Fig. 1.—Hydronephrosis and enormous dilatation of ureter; catheter forming a loop in the ureter.

Hematuria as an indication for complete urologic study is very common in adults and quite the reverse in children. This is due to the common occurrence of tumors in adults and their rarity in children. The presence of macroscopic blood was the reason for cystoscopy in only eighteen cases.

In several cases, the patients were examined with the cystoscope because of enuresis; and, while this may not always constitute an indication for cystoscopy, it is well to employ the cystoscope in these cases, in order to exclude a possible pathologic condition in the bladder that might be responsible for the enuresis. In one case, that of a boy, the cystoscope was employed because of an overdistended bladder, the bladder extending above the umbilicus. The patient, who was admitted to the hospital because of overflow incontinence, suffered from a congenital valve formation at the neck of the bladder. Two boys were referred because of bedwetting. Cystoscopic examination revealed the presence of stones in the bladder.

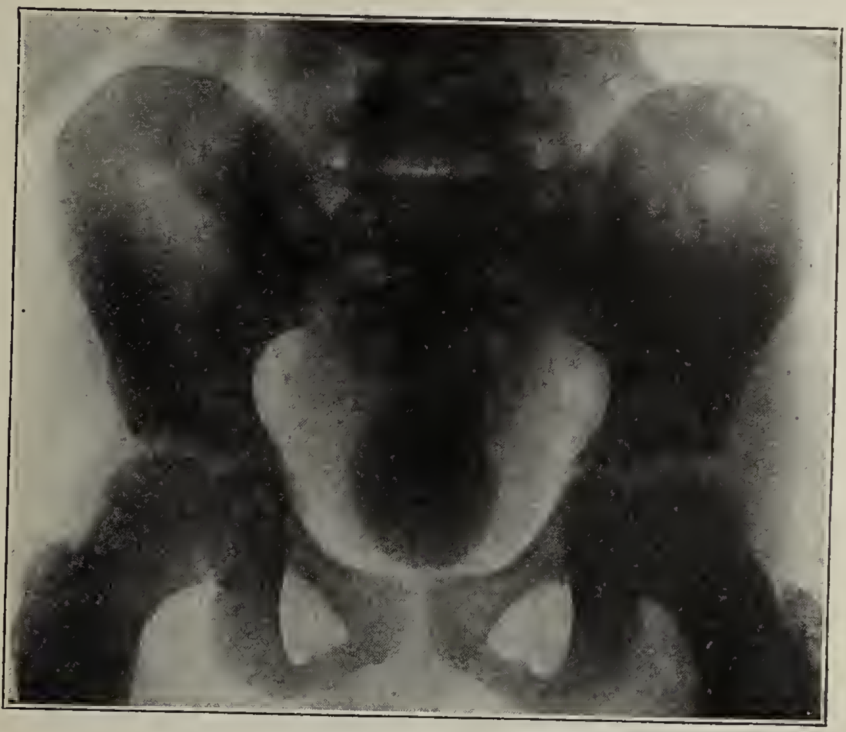

Fig. 2.—Large, solitary, pure cystin stone.

TABLE 1.—AGES

	Number of Cases
7 months	1
8 months	1
11 months	2
1 year	4
2 years	8
3 years	7
4 years	5
5 years	2
6 years	5
7 years	2
8 years	5
9 years	1
10 years	4
11 years	1
12 years	3
13 years	2
14 years	4
Not stated	3

LIMITATIONS OF CYSTOSCOPY

In boys, for anatomic reasons, cystoscopy and ureteral catheterization cannot be carried out as early as in girls. The youngest patient in this series was a girl, aged 7 months at the time of the first examination. In this patient, ureteral catheterization and pelvic lavage were carried out. As previously mentioned, very small instruments are now available for both cystoscopy and ureteral catheterization.

SEX AND AGE

In this series of 60 patients, twenty were boys and forty girls.

The youngest child in whom ureteral catheterization was done was a girl, aged 7 months; the youngest boy in whom a plain cystoscopic examination was made was 11 months old. The ages are indicated in Table 1.

DIAGNOSIS AND SYMPTOMS

In Table 2, the fact is made clear that the various lesions met with in infants and children are not very different from the lesions which occur in the ordinary run of adult urologic cases, with the exception of lesions incident to age, such as malignant tumors of the bladder and prostate and hypertrophy of the prostate. In adults, the common malignant kidney tumor is hypernephroma; this tumor rarely, if ever, occurs in childhood. On the other hand, sarcoma of the kidney is more frequently seen in children than in adults.

TABLE 2.—PATHOLOGIC CONDITIONS

	Number of Cases
Pyelitis	28
Pyelonephritis	4
Hydronephrosis	4
Renal tuberculosis	4
Sarcoma of the kidney	2
Nephrolithiasis	1
Acute hemorrhagic nephritis	1
Hydro-ureter	1
Ureter stricture	1
Bladder calculus	4
Cystitis	5
Enuresis	2
Angioma	1
Gonorrheal cystitis	1
Trigonitis	1
Diverticulum	1
Polyuria	1
Spina bifida	1
Congenital valve of posterior urethra	1
No diagnosis	3

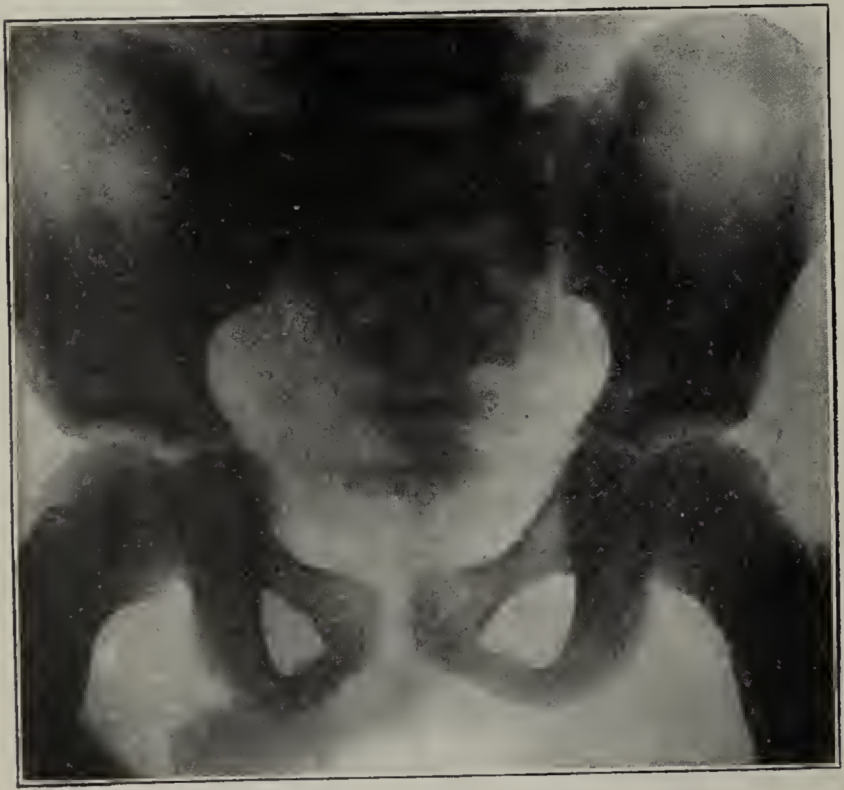

Fig. 3.—Three small cystin stones in the bladder.

The symptoms, analyzed in Table 3, are similar to those which occur in adult cases, taken at random. Hematuria, a relatively common symptom in adults, is rather uncommon in children; nevertheless, the presence of blood in the urine either grossly or microscopically was recorded in eighteen cases.

PYELOGRAPHY

In the series of cases described, pyelograms were not made in every instance, my attitude in the matter being conservative; that is, only when indicated was this procedure followed. While accidents and complications following pyelography are few and far between, it cannot be denied that adults suffer at times rather severe reactions. Bearing this in mind, and also the fact that many of the children had been examined cystoscopically under anesthesia, and considering the difficulty of determining just when the pelvis is completely filled, I have been rather reluctant to subject them to pyelography, unless it was absolutely necessary. But it should be emphasized here that pyelography yielded valuable information in a number of instances. In a girl, aged 9 months, in whom a provisional diagnosis of chronic colon pyelitis had been made and pelvic lavage instituted, it was soon evident, because of the failure of the patient to respond to this treatment, that something besides a simple pyelitis was present. This was substantiated by the pyelogram, which revealed a hydro-ureter and hydronephrosis. In another case, the pyelogram revealed a stricture of the ureter, with enormous dilatation of the ureter and kidney pelvis,

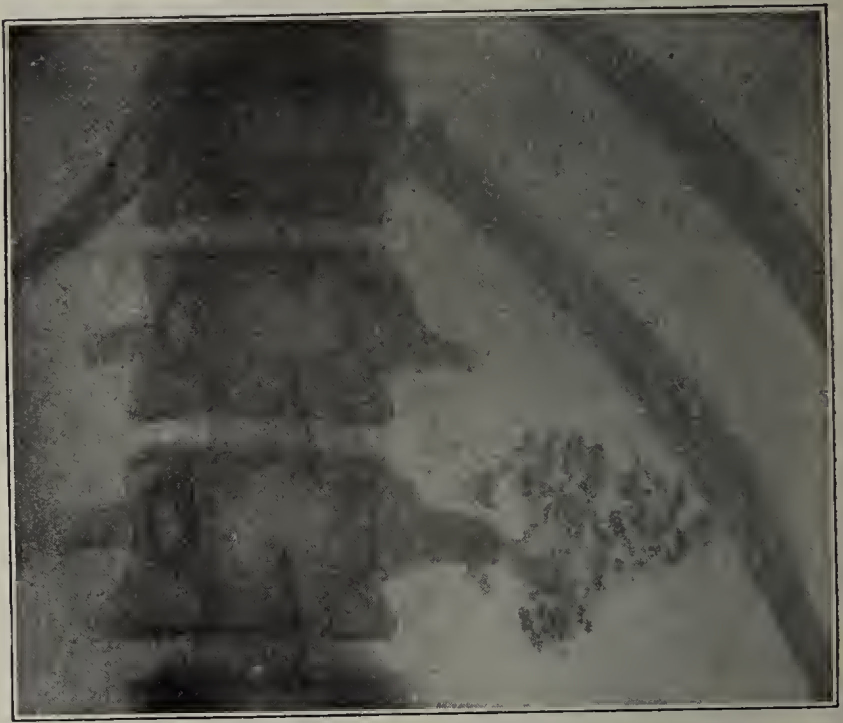

Fig. 4.—Extensive calcification in the right kidney in case of bilateral renal tuberculosis.

TABLE 3.—ANALYSIS OF SYMPTOMS

	Number of Cases
Fever	32
Pyuria	30
Hematuria	18
Frequency	16
Vomiting	15
Painful urination	11
Incontinence	11
Headache	7
Burning on urination	5
Diarrhea	5
Dribbling	4
Chills	4
Difficult urination	4
Nausea	4
Irritability	3
Passage of sand	3
Retention	2
Urgency	2
Palpable tumor	2
Tenesmus	1
Backache	1
Sweats	1

the ureter being large enough to allow the catheter to bend, forming a large loop (Fig. 1).

It would appear, judging by what has just been stated, that, even in very young patients, pyelography has a definite field of usefulness in selected cases.

CYSTOGRAPHY

While cystography has a rather limited field in the urologic study of adults, its field of usefulness is probably still more restricted in pediatrics, and it should be supplemental to, and not substituted for, other procedures. The making of cystograms in cases of children has been previously reported.[7]

ROENTGEN RAYS

Roentgen-ray examinations should be carried out in all cases, with the realization, however, that there are certain cases of calculus that cannot be demonstrated by roentgen rays. One patient, a boy, aged 2, had a large vesical calculus which was not demonstrated by the roentgen ray but was diagnosed by cystoscopy. In three cases, the roentgen ray revealed the presence of calculi (Figs. 2 and 3); and, in two cases of renal tuberculosis, the presence of extensive areas of calcification (Fig. 4).

URETERAL REGURGITATION

Regurgitation of the fluid up the ureter was noted under two different circumstances: (1) in normal children with normal urinary organs, free from infection, in whom the bladder was filled with solution for purposes of cystography, and (2) during ureteral catheterization. This phenomenon was proved by injecting a solution of argyrol into the bladder. Shortly afterward, the urine, dropping from the ureteral catheter, was colored with argyrol solution. Both these occurrences have previously been reported, the latter in an article on the treatment of pyelitis in children.

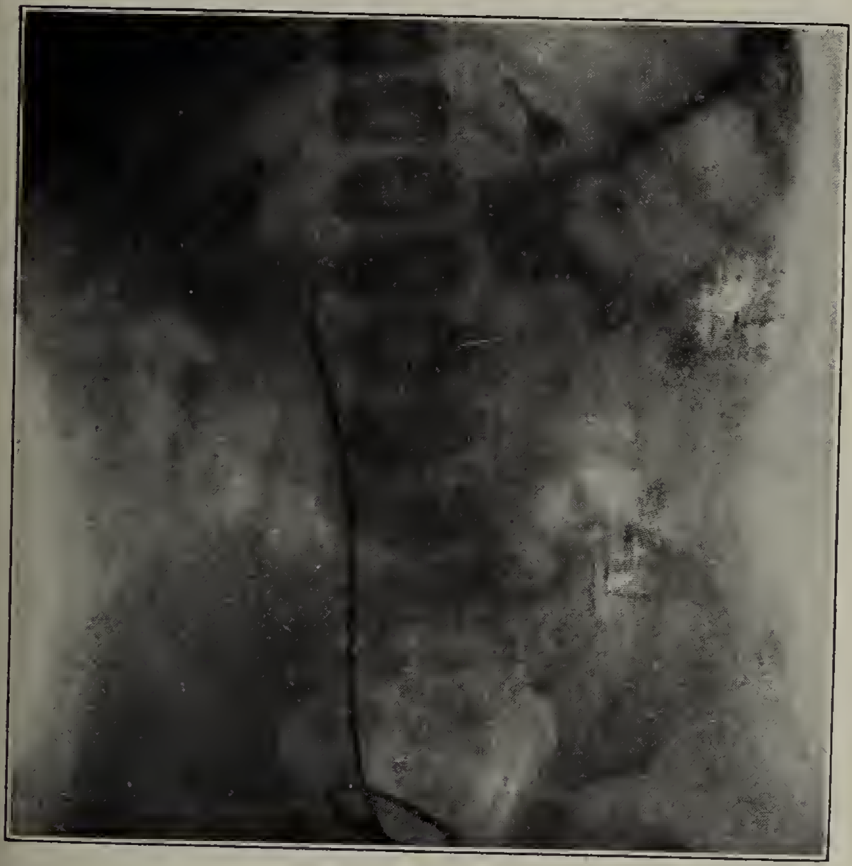

Fig. 5.—Bilateral pyelogram in a girl, aged 7 months, showing enlargement of the renal pelvis.

BACTERIOLOGY

Bacteriologic records were positive only in thirty-six of the sixty cases. Although the number of cases in which bacteria were found is small, it is not without interest that, according to Table 4, the organism which preponderated was the colon bacillus. Various writers have stated that the colon bacillus is the most frequent invader of the urinary tract in adults. My experience in this series of pediatric cases corroborates this opinion.

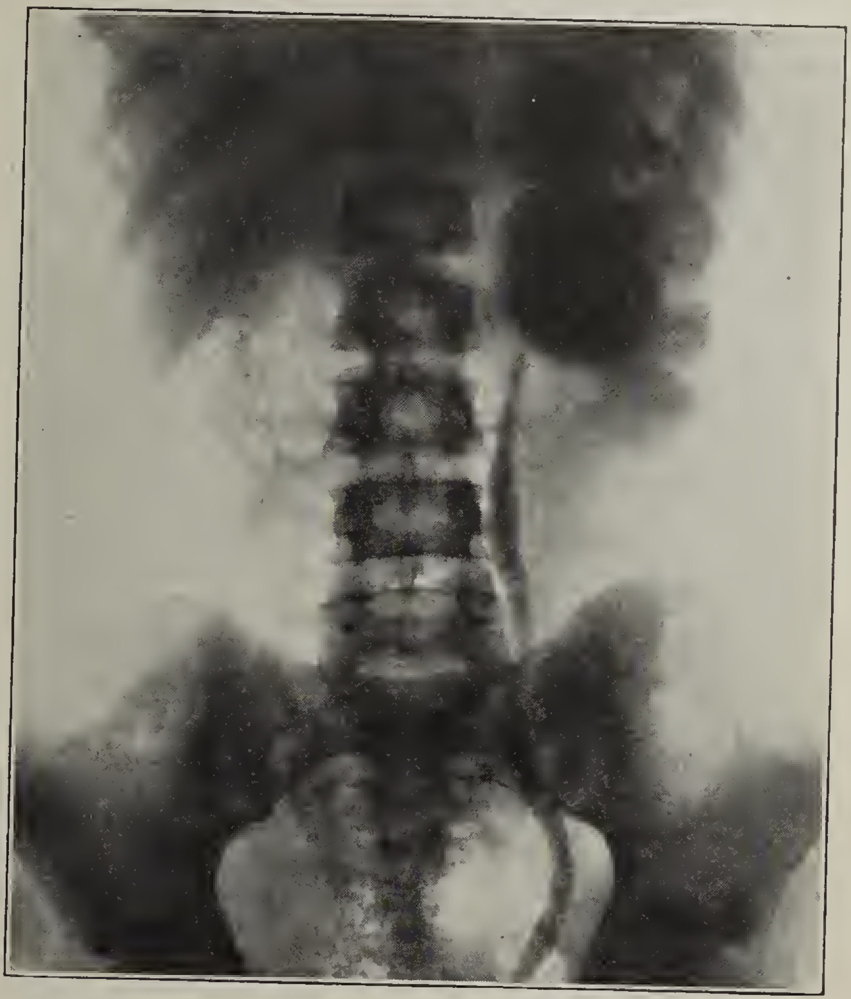

Fig. 6.—Hydronephrosis in a girl, aged 13.

LITHOLAPAXY

Another urologic phase of pediatrics that has received little, if any, consideration in this country is the treatment of stone in the bladder. In India and in certain parts of Russia, litholapaxy has been resorted to in the treatment of bladder calculus in children. Freyer, in England, has reported a series of 140 litholapaxies in children.

TABLE 4.—RECORD OF ORGANISMS FOUND

	Number of Cases
Colon bacillus	25
Staphylococcus	5
Tubercle bacillus	4
Paratyphoid bacillus	1
Gonococcus	1
Sterile cultures	7

In two cases in this series, litholapaxy was successfully carried out (Fig. 2). Rather large stones were crushed and completely removed, as evidenced by subsequent cystoscopic examinations. Chemical examinations of the fragments of both these cases showed the presence of pure cystin.[8]

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[7] Kretschmer, H. L.: Cystography: Its Value in Surgery of the Bladder, Surg., Gynec. & Obst. **23**: 709 (Dec.) 1916.

[8] Kretschmer, H. L.: Cystinuria and Cystin Stone, with a Report of a New Family of Cystinurics, Urol. & Cutan. Rev. **20**, 1916.

PELVIC LAVAGE IN PYELITIS

A certain number of cases of colon bacillus pyelitis resist all the usual forms of routine treatment, such as administration of alkalis or hexamethylenamin or the use of vaccines, or special diet. This group forms a very small number, to be sure; yet the problem of management in cases of relapsing pyelitis which do not respond to treatment is an important one, and one that has not received intensive study.

In a paper presented before the urologic section, Dr. Helmholz and I[6] reported a small series of cases in which pelvic lavage was carried out with satisfactory results. Further experience with pelvic lavage, in cases of pyelitis which have resisted all other forms of treatment, has yielded results that justify this form of treatment when the usual forms of treatment fail to cure these small patients.

SUMMARY

1. From a careful study of this series of cases, it is evident that the various pathologic conditions in infancy and childhood are similar to the various urologic lesions found in adults.
2. The diagnostic and therapeutic problems are identical.
3. There is no sound reason why these little patients should not be given the benefit of modern urologic diagnosis and treatment.
4. With a more widespread interest in this subject, more patients will be given the benefit of urologic diagnosis and study.
5. No doubt, with the study and the report of increasing series of cases, the entire subject will become more and more stabilized.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HELMHOLZ AND KRETSCHMER

Dr. Clifford G. Grulee, Chicago: One might get the impression, if he had not listened closely, that there was no benefit to be derived from the administration of alkalis. I take it that Dr. Helmholz did not have that in view. The results of alkali administration in pyelitis, if carried out faithfully, are not to be questioned; and as a consequence I think, if I am not much mistaken, that Dr. Helmholz meant to say that his experiments had not yet shown how the alkalis acted. Evidently they had no marked bactericidal effect on the colon bacillus. As to Dr. Kretschmer's paper, I think it represents a general tendency. Our tendency in medicine has been to attempt to get something definite on which we can place a finger and say that this means something here and now. That is the reason the laboratory findings have been so exaggerated in importance by many because they felt that laboratory tests were something exact and something on which one could depend. As a matter of fact, any one who has done any amount of laboratory work knows that laboratory tests are subject to individual interpretation, and therefore they are of no more importance from the standpoint of diagnosis than anything else which is subject to human error. In this work we have demonstrated another approach in exact diagnosis, an approach which has not been used to any great extent and one which I feel will be of great value if we are careful in the selection of our cases. It is very satisfactory to have a cystoscopic examination or a catheterization of the ureters and to feel that you have reached the bottom of things in that respect. Another phase of this work which is not to be disregarded is the question of the treatment of pyelitis. Every one has seen cases of pyelitis in which the pus has persisted in the urine in spite of every effort on the part of the physician to overcome the pyelitis. Dr. Kretschmer does not claim that every case of pyelitis which he treats by his method and which is essentially a neglected case of pyelitis is going to be cured by such treatment. But when a case reaches the point at which approach by that method of treatment is impossible, this washing out of the pelvis of the kidney with silver nitrate solution is of the greatest benefit and in some cases has resulted, if not in cure, in betterment of the condition. Pyelitis has such a marked tendency to recurrence that cure must be spoken of advisedly. But, on the other hand, the clearing up of the pus in these cases is one of the things which we are glad to obtain.

Dr. Charles Schott, Chicago: I think many pediatricians have regarded this work as an adjunct which might help us to come to a conclusion in a case which is more or less puzzling. Many men would like to employ this method of diagnosis, but cannot call on somebody to help them out. It seems to me that it takes a real expert to do this work. A crude operator may do more harm than good, so that the ultimate value of the thing might be nullified. In hospital work, every method should be used to arrive at a diagnosis, so that at some future time we may say that here in this case cystoscopy is not necessary because we have used it in so many cases, experimentally, perhaps.

Dr. W. McKim Marriott, St. Louis: Two remedial agents have not been mentioned—calories and cod liver oil. There is a type of pyelitis that is secondary to malnutrition and will not be affected by any form of drug therapy unless the nutrition of the child is improved. In such cases, if the infant is treated, the pyelitis will clear up of itself. Dr. Helmholz has pointed out many ways in which the commonly used drugs do not work. Most of us, however, feel convinced that alkalis are of distinct benefit. There are one or two good reasons why one should expect alkalis to effect a favorable influence on pyelitis. We know that phagocytic immunity is inhibited in acid solution. We know that phagocytosis is one of the defenses of the body in pyelitis. We would not expect phagocytosis to be active in the presence of an acid urine; hence the advantage in neutralization of the urine. Furthermore, we know that it is not the pus in the urine that is doing harm, but the pus retained in the kidney that causes the symptoms. One frequently sees patients with high temperatures with no pus in the urine. When the pus appears, the temperature falls. We know that pus is more soluble in alkaline than in an acid medium. Is it not possible that alkalization of the urine aids in dislodging retained pus? Potassium citrate is a drug frequently used, although there is no good reason for the use of potassium salts. Sodium salts are quite as effective, and are free from the danger of potassium. Potassium salts are toxic, but they are rapidly eliminated in the urine under normal conditions; in pyelitis, however, retention may occur and definite symptoms of potassium poisoning result. Only the sodium salts should be used when it is desired to administer alkali.

Dr. F. C. Rodda, Minneapolis: We know little about the etiology of pyelitis, very little about the pathology, and less about the treatment. Dr. Helmholz' attempt to put the treatment on a scientific basis is to be commended. The diagnosis of pyelitis is often based on finding pus in the urine, and yet Dr. Marriott has called attention to the fact that there may be bacterial invasion of the urinary tract with no pus. On the other hand, after the disappearance of the constitutional symptoms, pus may continue for a long time. We must have some criteria to tell when a patient is cured. The presence or absence of organisms, and the time when these disappear, is more important than the finding of pus. As regards the alkaline treatment, it is often hard to say whether we are getting any result from the drug or not. Often sodium citrate must be given up to 150 or 200 grains a day to get the urine alkaline, and yet we see physicians administering 5 or 10 grains twice a day. There seems to be a fear of administering hexamethylenamin in reasonable doses. We have given it up to 45 or 50 grains a day for a short time, carefully controlling the urine, of course, and watching for any signs of irritation.

Dr. Louis C. Schroeder, New York: I do not believe that any man can do this urologic work. I have seen barium used in a child with dilated ureters, the result of a congenital deformity, and the outcome was anything but satisfactory. We know that in adults, some fatal results have attended the use of different substances employed in urography. There is a distinct danger attached to it, and the impression should not go out that one can use any medium at all. I am interested to know what medium Dr. Kretschmer has used, for some mediums are toxic and should be avoided.

Dr. Frank C. Neff, Kansas City, Mo.: I would like to suggest that the use of phenyl salicylate might have some effect in the type of pyelitis due to pyocyaneus infections. I saw such a case that was definitely cured by phenyl salicylate when the usual remedies failed. A possible cause of persistent pyuria is a diverticulum of the bladder or a congenital anomaly in the posterior urethra which interferes with complete drainage of an already infected urinary tract. Urologic examination will reveal such a condition and therefore should be resorted to much more frequently than pediatricians have been accustomed to doing.

Dr. James A. Gardner, Buffalo: Urology is one of the newer departures in medicine, and it is still difficult to persuade physicians to send adults to the urologists and even more difficult to persuade them to send children. The impression prevails that instruments are made solely for use on adults. In recent years the instrument makers have perfected the cystoscope so that we now have instruments that can be used with equal facility on children. With the advances made in urology it has been demonstrated that children suffer from the same conditions as adults—diverticula, hydronephroses and pyelitis—and if an early diagnosis is made, infections, while they are still slight, are as easily cared for as in adult cases. The doctor spoke of deaths occurring from making pyelograms. I feel that there is really a small risk. With sodium bromid solution we have reduced it to a minimum, and, because of the large number of children who can be saved if a diagnosis is made, we are warranted in taking the risk.

Dr. H. F. Helmholz, Rochester, Minn.: Blocking of the ureters by acute inflammation is another condition that might be cured by the passage of a ureteral catheter. We must keep this mode of treatment in mind because the acute case with obstruction is the one in which the patient is likely to die of the infection, and a certain number of these patients can be saved by restoring the passage in the ureter. I purposely stated in my paper that I was discussing only the direct effect of drugs on bacteria and not on the organism. The most important drug in the treatment of pyelitis which has not so far been mentioned is water. All other drugs are merely an addition to water. In a recent discussion in Washington, Dr. Hugh H. Young, in whose laboratory a great deal of work has been done on drug therapy in kidney lesions, emphasized over and over again that water in large amounts is the most efficient drug in the clearing up of infections of the urinary tract, and I heartily agree with him.

Dr. Herman L. Kretschmer, Chicago: It was not my object to emphasize any one phase of this subject but to present the experiences in this series of sixty urologic cases in infants and children, calling particular attention to the various diagnostic problems which are essentially the same as in adults, problems that should be settled before treatment is instituted. Much of the discussion has centered around the treatment of pyelitis by pelvic lavage. I did not want to present this as a specific, but the fact remains that in some of these cases we were able to effect a cure when all other forms of therapy had failed. Pelvic lavage will not cure all cases, and, when it fails, the question of a mistaken diagnosis immediately comes up. Dr. Helmholz undoubtedly will remember one of his cases in which pelvic lavage failed to cure the patient. Further study demonstrated the presence of a hydronephrosis; so that when pelvic lavage fails to bring about the desired result, one should search for the presence of other lesions that might keep up a pyelitis, such as an early renal tuberculosis, stone or hydronephrosis. The presence of some of these lesions, perhaps often unrecognized, may account for the failure of medical treatment. I agree, most fully, with Dr. Schott's statement about the necessity of making correct diagnoses in these cases—a point also emphasized by Dr. Grulee. I agree also with Dr. Helmholz, namely, that we do not give large enough doses of alkalis and hexamethylenamin in treating cases of pyelitis. Dr. Marriott is perfectly correct when he says that we should treat the patient as a whole, a fact that I have repeatedly advocated in treating pyelitis in adults. The point brought out by Dr. Schroeder regarding deaths after pyelography is a very important one, and I stated in my paper that we did not make pyelograms in every case, reserving its use to well selected cases. I do not believe that it makes much difference what medium is used. We have used both sodium bromid and thorium. The reaction, I think, is due to overdistending the infected kidney pelvis and carrying the infection into the substance of the kidney. I do not believe that the reaction is due to the chemical, although some chemicals undoubtedly are more irritating than others. Dr. Neff's point about careful urologic study is well taken, and I agree fully with him.

SYPHILIS OF THE LUNG*

ALFRED FRIEDLANDER, M.D.
AND
R. J. ERICKSON, M.D.
CINCINNATI

The voluminous literature on syphilis of the lung is characterized by contradictions. There is no unanimity of opinion as to frequency, type, anatomic picture or course. The essential features of diagnosis are variously given. It may thus well be that many cases of pulmonary syphilis are overlooked—that many cases of so-called lung syphilis are improperly diagnosed.

The development of a finer roentgen-ray technic has made it necessary to revise our preconceived notions of pulmonary syphilis. Indeed, there are not wanting roentgenologists of repute who feel that the roentgenologic chapter of lung syphilis is yet to be written.

But in summing up the mass of evidence as presented in the literature, certain outstanding conclusions seem to be justifiable.

Speaking in terms of visceral syphilis, the lungs must be regarded as organs which are relatively resistant. In saying this, it is to be remembered that reference is had here to the lesions of acquired syphilis. The "white pneumonia" of congenital syphilis described long ago by Virchow, Widal and others is excluded from the discussion. Lung syphilis, as compared with other tertiary manifestations of the disease, is a comparatively rare disease. According to Osler,[1] in 2,800 necropsies at the Johns Hopkins Hospital there were twelve cases of syphilis of the lung, and eight of these were of the congenital type—an incidence of the acquired type of 0.14 per cent. In 1,200 cases referred to the Jefferson Chest Hospital, Funk found pulmonary syphilis in four (0.3 per cent.). In a series of 2,880 necropsies, 314 of which showed lesions due to syphilis, Symmers found evidence of pulmonary syphilis in twelve—an incidence of 0.24 per cent.

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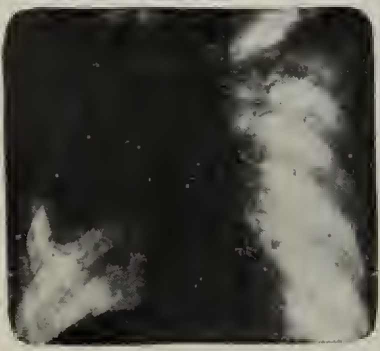
* From the Department of Internal Medicine, University of Cincinnati College of Medicine.

* Read before the Section on Practice of Medicine at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Osler (quoted by Landis).

Such figures give convincing testimony as to the rarity of the classical forms of pulmonary syphilis. On the other hand, Watkins reports that of 6,500 roentgenologic examinations of the chest, the diagnosis of pulmonary syphilis was made in 172 cases (2.6 per cent.). But it is to be pointed out that the diagnosis of pulmonary syphilis by means of chest plates alone is not justified by the present state of our knowledge. Therefore the figures of Watkins as to the incidence of pulmonary syphilis, much higher than those of all the other series, must be taken with reserve. Attention should be called to the fact that French and Italian writers have described pulmonary lesions due to syphilis other than the classic type. Balzer has recently reported cases of syphilitic bronchitis with demonstration of spirochetes in the sputum. Such forms have not been described in America as yet. But the proneness of syphilis to attack the mucous membranes of the mouth, nasopharynx and larynx makes the assumption of syphilitic bronchitis at least plausible. The rapid improvement of these cases on antisyphilitic treatment alone also adds weight to the presumptive diagnosis. It may be that such lesions might occur in the secondary stage of syphilis as well. It would appear worth while to devote further study to this phase of the question.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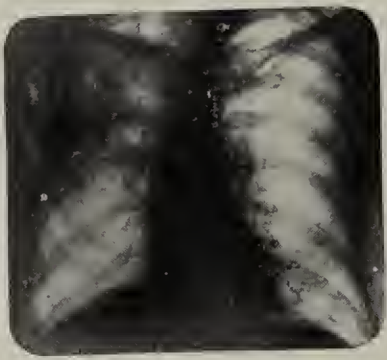
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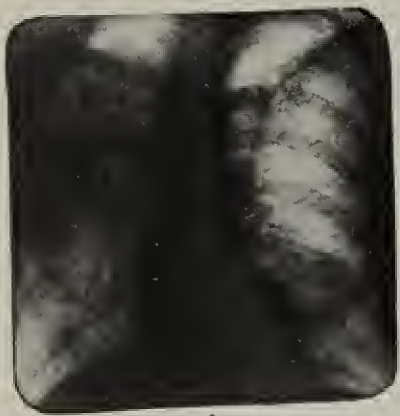
Fig. 1 (Case 1).—Condition, May 31, 1920: Density of right middle lobe and upper part of right lower lobe, with marked fibrous changes at the right base; shadow indicative of gumma with fibrosis; definite knobby deposits in left hilum, with peribronchial thickening over middle and lower portions of left lung.

Fig. 2 (Case 1).—Condition, Aug. 27, 1920: Definite decrease in density in right middle lobe and upper part of right lower lobe; marked fibrosis over entire right side; left lung unchanged.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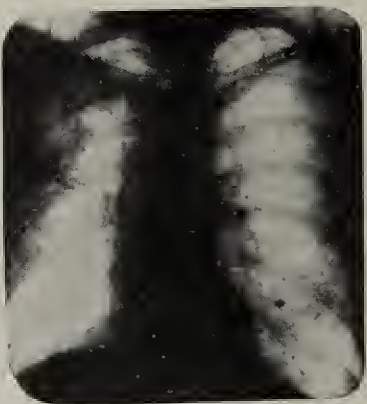
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Fig. 3 (Case 1).—Condition, Nov. 4, 1920: Density on both sides has decreased to a considerable extent; all evidence of gumma has disappeared.

Fig. 4 (Case 1).—Condition, Nov. 20, 1920: Some peribronchial thickening and some fibrosis in both lung fields; no evidence of pulmonary tuberculosis.

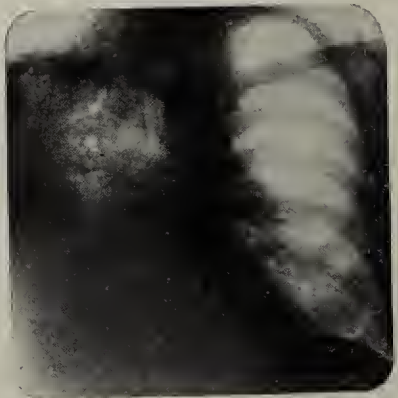
In a careful analysis of 120 cases taken from the literature, Karschner found pulmonary syphilis more common in males than in females, the ratio being 2:1, though the condition seemed more fatal to women than to men. The average time of appearance of pulmonary syphilis after the initial lesion was eleven years.

Excluding the congenital white pneumonia from discussion again, the commoner anatomic lesions are the gumma and the fibroid indurative processes. Secondarily, syphilitic bronchiectasis is not infrequently found, more rarely ulcerative and gangrenous lesions.

Gummas may be single or multiple, and may vary greatly in size. The softening of a gumma and the erosion into a bronchus may produce cavities which on superficial examination resemble the picture of pulmonary tuberculosis. Gummas are found more often about the hilum and in the lower lobes than elsewhere.

The studies of Warthin have shown that the gumma is not as common in pulmonary syphilis as is the low grade inflammatory process with subsequent fibroid induration. These indurative processes begin at the hilum and extend outward along the bronchi and blood vessels. Large areas of dense fibroid induration may thus be formed, and many cases of pulmonary fibrosis with bronchiectasis may have their origin in this way.

In addition to these commoner forms, Landis and Lewis have described cases in which the lesion consists of an area of consolidation and catarrh around the lung root or extending to the apexes. It has generally been held that the apexes of the lung are not invaded by the syphilitic process; but recent evidence, as gathered by the French school, has shown that the lung apexes do not escape the syphilitic process.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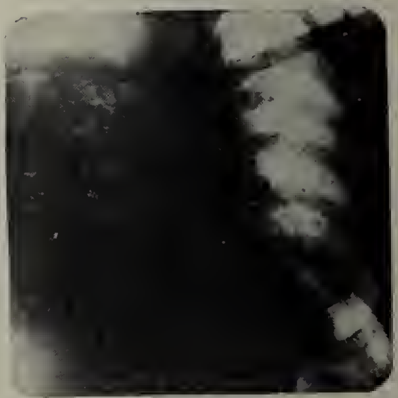
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Fig. 5 (Case 2).—Condition, Sept. 18, 1920: Marked density over upper and middle right lobe, with fibrosis in lower right lobe; increase in density in the left hilum region; moderate peribronchial thickening of the left lung field; no evidence of gumma.

Fig. 6 (Case 2).—Condition, Dec. 5, 1920: Density over the entire right lung area; fibrosis of left lung field as before.

There are no characteristic symptoms of pulmonary syphilis. Cough, with or without hemoptysis, dyspnea, night sweats, loss of weight and moderate fever may all be present. Janeway first called attention to the frequency of fever, night sweats and loss of weight in pulmonary syphilis, and it was he who noted the fact that the pain in the right side of the chest in these cases is not due to pleurisy but to syphilitic perihepatitis.

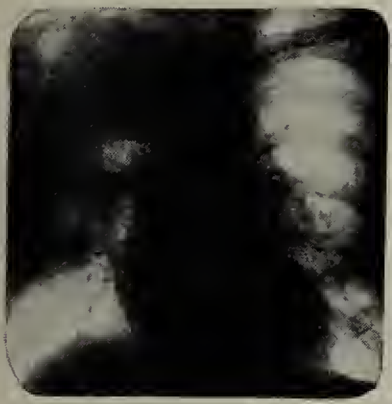
When syphilitic mediastinitis complicates the picture of pulmonary syphilis, severe substernal pain with dyspnea, irritative cough and hoarseness, and evidence of circulatory obstruction are likely to be present.

There are no physical signs distinctive of pulmonary syphilis. The signs present are those to be expected with consolidation, fibrosis, bronchitis or bronchiectasis.

It is thus apparent that the diagnosis of pulmonary syphilis presents distinct difficulties.

With the symptoms and physical signs of tuberculosis, with repeated sputum examinations persistently negative for tubercle bacillus, with a positive Wassermann reaction, the diagnosis may at least be suspected. Roentgen-ray examination offers valuable confirmative evidence, because the chest shadows in pulmonary syphilis differ in some degree from those of tuberculosis. In some cases, the chest shadows may be said to be almost distinctive of syphilis. Once the suspicion of pulmonary syphilis is entertained, intensive antisyphilitic treatment is called for. And if, under such treatment, marked improvement in the general condition and decided clearing of the chest shadows should occur, the diagnosis may be considered established. But there are several points that call for special emphasis in this connection. In the first place, syphilis and tuberculosis may coexist in the same lung. In such cases, arrest of the syphilitic process may occur under antisyphilitic treatment, the tuberculosis remaining unchecked. In the next place, certain cases of pulmonary syphilis do not respond to antisyphilitic treatment, and, finally, some cases of pulmonary syphilis clear without any antisyphilitic treatment.

It is the purpose of this paper to record the results of a study of all the patients admitted to the Cincinnati Tuberculosis Sanatorium (a municipal institution) during a period of two years. All grades of tuberculosis are, of course, admitted to the institution. About 65 per cent. of all the cases belong to the far advanced group of the National Tuberculosis Association classification. During the years 1920-1921 there were 791 adult patients admitted to the sanatorium. Of these, 609 (77 per cent.) were white, and 182 (23 per cent.) were colored. Though the colored patients constituted but 23 per cent. of the total hospital census, 33 per cent. of all the deaths during the two year period occurred among the colored patients. Analysis of the Wassermann tests, taken as a routine on all patients on admission to the sanatorium, showed that 13 per cent. of all patients living had positive blood Wassermann tests; 17 per cent. of all patients dying had had positive Wassermann tests. Figures of the Wassermann tests are analyzed by race in the accompanying tabulation. The higher death rate and the higher positive Wassermann test in the colored race are, of course, in conformity with general experience. In this series of 791 cases, the diagnosis of pulmonary syphilis was made in four (0.5 per cent.). Curiously enough, all four cases occurred in white patients, three men and one woman. The diagnosis of pulmonary syphilis was not made in any of the 182 colored patients.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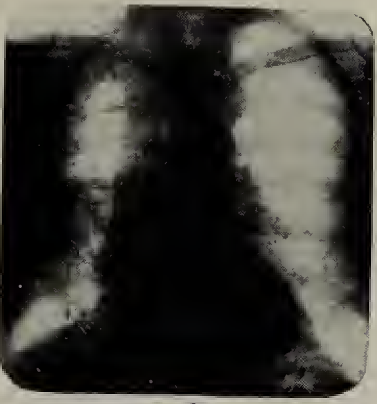
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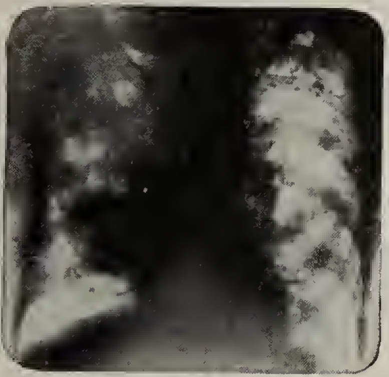
Fig. 7 (Case 2).—Condition, Feb. 9, 1921: Upper and middle right beginning to clear; right lower clearer than before; left lung field clear.

Fig. 8 (Case 2).—Condition, March 27, 1921: Density over entire right side greatly diminished; left lung field normal; heart shows enlargement of all diameters of the aorta, and also of the transverse diameters of the heart with aortic configuration.

ANALYSIS OF WASSERMANN TESTS BY RACE

	Per Cent.
Colored patients in hospital	23
Deaths among colored patients	33
Colored patients dead with positive Wassermann test	27
Colored patients living with positive Wassermann test	25
White patients in hospital	77
Deaths among white patients	67
White patients dead with positive Wassermann test	11
White patients living with positive Wassermann test	11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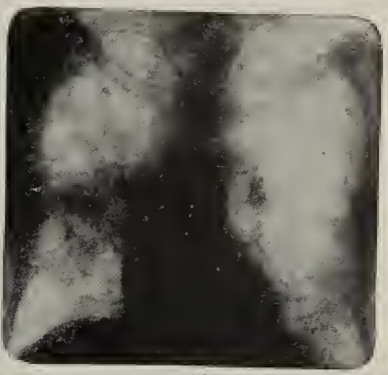
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Fig. 9 (Case 3).—Condition, May 3, 1920: Marked fibrosis of the entire right side, with the exception of the extreme base; knobby deposits at the left hilum; peribronchial thickening of the entire left lung field; typical syphilitic aortic shadow.

Fig. 10 (Case 3).—Condition, Nov. 14, 1921: Density on right side has decreased very markedly; Left lung also much clearer than it was; some fibrosis still evident on both sides.

The woman with pulmonary syphilis died; she had a combination of pulmonary tuberculosis and syphilis. The three men recovered, two under intensive antisyphilitic treatment, the third without such treatment.

In addition to these four cases, two other cases of pulmonary syphilis from the wards of the Cincinnati General Hospital are reported. One of these occurred in the service of Dr. M. A. Brown, the other in my own.

REPORT OF CASES

Case 1.—B. K., a white man, aged 42, presented physical signs on admission confined to the upper part of the right lung. The sputum was persistently negative. The Wassermann test was positive on admission, May 10, 1920, and also in July, August and November. It was negative in January, 1921. Antisyphilitic treatment was begun shortly after admission in May, 1920. Twenty-four doses of neo-arsphenamin were administered in the course of ten months. The patient is in excellent condition at present.

Case 2.—C. M., a white man, aged 58, admitted to the sanatorium, Sept. 11, 1920, presented physical signs rather atypical for tuberculosis. The sputum was repeatedly negative for tubercle bacilli. Complement fixation for tubercle bacilli was positive. The Wassermann test was positive on admission. The first dose of neo-arsphenamin was given, November 30. Between this date and Jan. 5, 1921, the patient was given five doses of neo-arsphenamin. The Wassermann test was negative in September, 1921. During the administration of the drug, definite cavity signs appeared in the upper right lobe. The temperature was irregular, varying from 97 to 102 F.

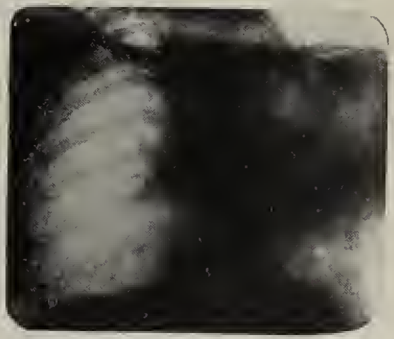
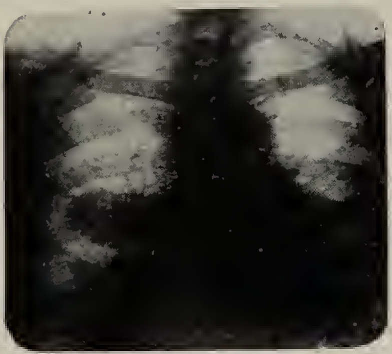


Fig. 11 (Case 4).—Condition, June 14, 1920; Bronchostenosis, with collapse of entire left lung indicative of syphilis; moderate peribronchial thickening on the right side.

Case 3.—J. S., a white man, aged 62, presented physical signs which were not those of advanced tuberculosis, on admission, April 19, 1920; but the first roentgenograms taken, May 5, revealed very marked densities in the right lung field especially. On admission, the sputum showed tubercle bacilli, but repeated examinations thereafter were persistently negative, and have remained so. On admission, the Wassermann test was positive. The patient was put on the ordinary sanatorium regimen. No antisyphilitic treatment was given.

Case 4.—N. B., a white woman, aged 53, apparently presented the coexistence of advanced pulmonary tuberculosis and syphilis. The sputum was constantly positive, as also was the Wassermann test. The patient was given antisyphilitic treatment in addition to the regulation sanatorium regimen. She never showed any improvement, and the roentgenogram taken some time before death shows the peculiar involvement. Unfortunately, no necropsy could be obtained.

Case 5.—J. R., a colored man, aged 49, was admitted to the Cincinnati General Hospital, June 29, 1918, with the diagnosis of cardiac hypertrophy and dilatation, aortic insufficiency, and syphilitic aortitis. The chest examination gave evidence of consolidation on the right side. The Wassermann test was positive. Despite rest, cardiac stimulation and vigorous antisyphilitic treatment, the patient continued to grow worse, and died seven weeks after admission. Roentgenograms were taken shortly after admission and shortly before death.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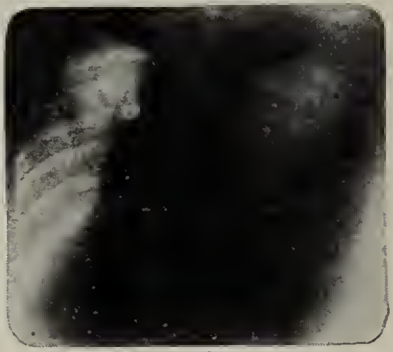
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Fig. 12 (Case 5).—Condition, July 5, 1918: Gumma of right middle lobe, extending outward from hilum area with marked peribronchial thickening and fibrosis; some knobby deposits in left hilum area; typical syphilitic aortic shadow; enlargement in all diameters of the heart; aortic configuration.

Fig. 13 (Case 5).—Condition, Aug. 8, 1918: Density over entire right side; shadow of gumma still present; the density on the right side is caused by thickening of bronchus with resulting collapse of the lung.

Case 6.—J. B., a colored man, aged 44, was admitted to the medical service at the Cincinnati General Hospital, March 4, 1922, with the diagnosis of aortic insufficiency, mitral insufficiency, cardiac hypertrophy and dilatation, and syphilitic aortitis. In addition to the physical signs dependent on his cardiac condition, this patient showed areas of consolidation (on physical examination) in the right middle and left lower lobes. The Wassermann test was positive. The first roentgenograms taken confirmed the suspicion of pulmonary syphilis. In the last two months this patient has had ten injections of neo-arsphenamin in addition to treatment for the cardiac condition. At present the patient's general condition is improved, though during his stay in the hospital a right hydrothorax developed. But repeated roentgen-ray examinations have revealed that there has been no change in the chest condition as yet.

4 West Seventh Street—Seventh and Race Streets.

ABSTRACT OF DISCUSSION

Dr. Harlow Brooks, New York: Dr. Friedlander has called attention to a condition which is rather more frequent than most of us realize. I never realized this until I became pathologist in a service consisting of tuberculous cases. Statistics do not give a good rating of this, because it is only when one gets 100 per cent. of necropsies that one can be reasonably sure of getting all cases. Of course, most cases usually occur in the tuberculous wards, not in the acute ones, but particularly among those cases which are termed incipient. Dr. Friedlander put special stress on the cases of bronchitis. One should bear that in mind, and when one has a chronic persistent case of bronchitis, try the therapeutic test, and, of course, the Wassermann test. We noted the frequent association of cardiovascular lesions with pulmonary lesions. When we found cardiovascular involvement, we looked, but frequently in vain, for pulmonary involvement. Sometimes we found it only at the necropsy. Only when a patient had been in the ward for some time and had been found negative, as far as tuberculosis is concerned, were our suspicions aroused. It takes a hardy diagnostician to make a diagnosis of syphilis of the lung on the first examination, although characteristic fluoroscopic and roentgen-ray pictures are shown. The fluoroscope has been of great benefit to us; and in fluoroscopic work on the lungs one should note how frequently the mediastinal nodes are involved in these cases, particularly about the hilum. Unresolved or delayed resolution in pneumonia is more often of syphilitic origin than we think. That is what excuses the treatment of delayed resolution by the iodids. We found that many of these delayed resolutions in pneumonia were specific and cleared up under the iodids. The greatest difficulty has been in the differentiation between neoplasms and syphilis of the lung. Usually considerable time must be given before one can do this, and one must resort to the therapeutic test.

Dr. Kennon Dunham, Cincinnati: Dr. Friedlander has shown cases with abnormal densities on the roentgenogram and with a definite Wassermann reaction. The patients were treated for syphilis and recovered; others of the same type treated for syphilis did not recover; others of virtually the same type recovered without treatment. Until we know the pathologic picture of syphilis of the lung, we are going to be misled. Almost every clinician finds these changes, and many of them clear up. Some of the most brilliant cures are of this type. In cases showing mucous patches in the throat, localized râles will be found over the chest; but it seems to me that unless one can find the spirochete in that lung, it may lead one to false conclusions. I am not criticizing Dr. Friedlander, but I do not wish to convey the impression that the story of syphilis of the lung is closed by this study.

Dr. W. S. Thayer, Baltimore: It is exceedingly difficult clinically to recognize syphilis of the lung positively intra vitam and very rare to find it postmortem when it has been recognized intra vitam. Our experience has been like that of Dr. Friedlander, a certain number of instances showing roentgen ray evidences of induration about the hilum of the lung associated with signs suggesting syphilis, clearing up under antisyphilitic treatment. Other instances—in our experience rather commoner—have been instances of syphilis of the bronchial tree or trachea with ulceration and stenotic changes. An example of what we meet clinically was a woman who came to the outpatient department complaining of cough and fever. She showed large serpiginous ulcers on the arms and abdomen and signs of infiltration on the upper part of the right lobe, and a rather scanty roentgen-ray shadow starting from the same area; the ulcers healed immediately under antisyphilitic treatment, and the shadow almost completely cleared up. You cannot prove that the changes in that lung may not have been the remains of an influenzal bronchopneumonia, but they may have been syphilitic.

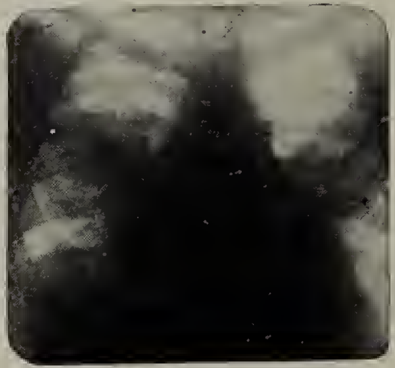
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Fig. 14 (Case 6).—Condition in March, 1922: Marked fibrosis of right middle lobe; moderate fibrosis of upper part of left lower lobe; some fibrosis at right base; heart configuration; cardiac hypertrophy and dilatation; double mitral and aortic configuration; increase in all diameters of aorta.

Fig. 15 (Case 6).—Condition in May, 1922: Only slight decrease in density of right middle lobe; increase in density at right base; fluid level; left side unchanged.

OBSERVATIONS ON FRACTURES OF THE MANDIBLE *

ROBERT H. IVY, M.D, D.D.S.
PHILADELPHIA

Probably no fracture in the body is less understood or, as a general rule, worse treated than fracture of the mandible. The usual information given in surgical textbooks as to the practical management of these cases is vague, and consequently the surgeon, when confronted with a fractured lower jaw, is usually at a loss what to do. He either attempts to treat it with a head bandage, or passes the responsibility to a dentist with the request that a splint be made. Occasionally, and worst of all, he tries direct fixation of the fragments by plating or wiring. For these reasons, among others, it has been considered timely to report some observations made in thirty-one consecutive cases of fracture of the mandible recently under our care at the University of Pennsylvania.

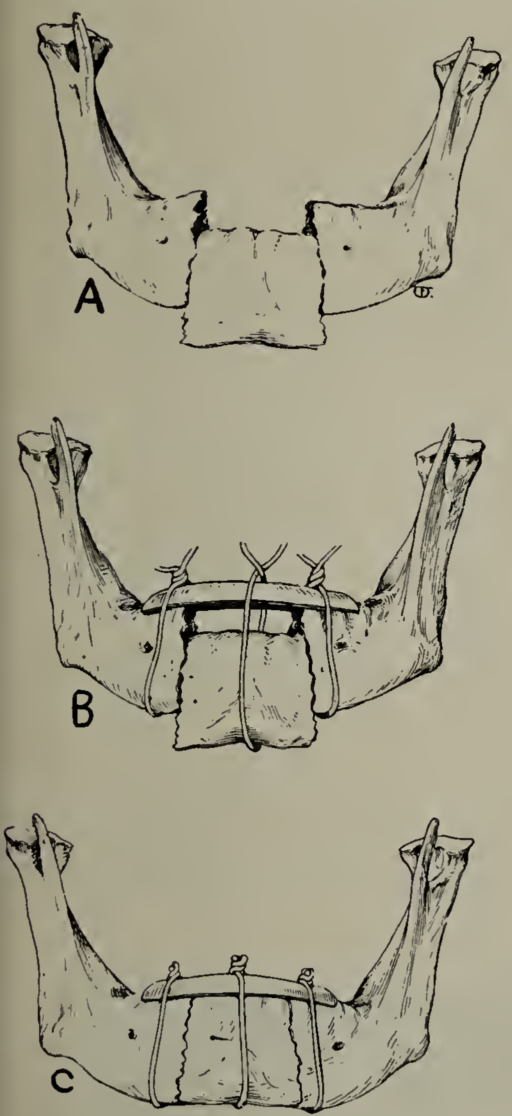

Fig. 1.—*A*, Bilateral fracture in edentulous mandible; *B*, circumferential wires and splint; *C*, circumferential wires tightened, bringing symphysis fragment up into position.

Of thirty-one cases, twenty-nine were in men and two in women.

LOCATION

The location of the fracture in eleven of the thirty-one cases, 35.5 per cent., was bilateral. One case presented two fractures on the same side. Thus, there were nineteen cases of single fracture and twelve of double, making a total of forty-three fractures in all. The location was: mental foramen region, sixteen, or 37.2 per cent.; angle, eleven, or 25.6 per cent.; incisor region, eight, or 18.6 per cent.; molar region, six, or 14 per cent.; neck of condyle, two, or 4.6 per cent.

In the majority of bilateral cases the fracture on one side is at or near the mental foramen, and on the other at or near the angle. The point of impact of the force producing the fractures is often midway between the two fractures. For example, if a blow is received to the right of the chin, there is quite likely to be one fracture at the right angle and the other to the left of the chin. Thus, fracture by indirect violence occurs just as frequently as by direct violence. In every case of fracture at or near the mental foramen, one should always look for another at the opposite angle. It will be found in about 60 per cent. of the cases. The more marked symptoms of the fracture near the mental foramen may cause the fracture at the opposite angle to be overlooked. It is surprising how often these injuries are undiagnosed.

RELATION OF TEETH TO THE FRACTURE

In this series, thirty-two fractures were in the vicinity of teeth. In only four of these were teeth in the line of fracture removed immediately. It was necessary sooner or later to remove such teeth in 50 per cent. of the cases. These teeth frequently are of great temporary value in maintaining reduction of fragments or as points of attachment for wires. This consideration, on the one hand, must be carefully weighed against the possibility of infection, on the other.

EXTERNAL DRAINAGE AND SEQUESTRUM FORMATION

Of thirty-one cases, seven, or 22.5 per cent., required external drainage on account of suppuration. The same number developed sequestrums requiring removal either intra-orally or extra-orally.

FIXATION OF FRACTURE

There is nothing original in the methods of treatment employed in this series. We have adapted well established methods as seemed best for the individual case.

Of thirty-one cases, in twenty-seven, or 87.1 per cent., fixation was secured by wiring the upper and lower teeth together.

One case, at the symphysis with practically no displacement, was treated by a simple metal cap splint.

In one edentulous case, fixation was secured by direct plating of bone fragments through external incision.

Two edentulous cases were treated by the vulcanite saddle splint combined with circumferential wiring of the bone.

Gilmer,[1] some years ago, pointed out the value of wiring the lower to the upper teeth in fixation of fractures of the mandible. The main object of employing any wiring method is avoidance of the difficulties and discomfort of impression taking and the delay in preparing interdental splints from these impressions. Other advantages of wiring are that there is no thickness of metal between the upper and the lower teeth, and the latter are not covered so that the state of the occlusion is under direct observation at all times; if, during the course of treatment, it becomes necessary to remove a tooth, this can be done with less disturbance when the fracture is fixed with wiring than if a splint be cemented to the teeth. Our records show that in the vast majority of fractures of the mandible occurring in civil life it is unnecessary to resort to impressions and interdental splints. We employ a modification of Dr. Gilmer's valuable prin-

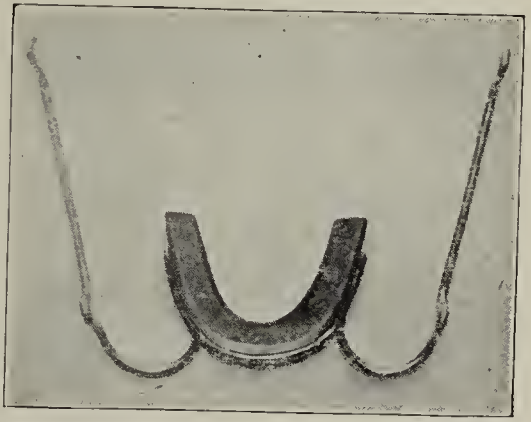

Fig. 2.—Lower tray, with extra-oral wires.

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* Read before the Section on Stomatology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Gilmer, T. L.: Arch. Dentistry, September, 1887.

ciple which permits, during the course of treatment, a ready opening of the mouth for replacement of a broken wire or for other reasons without disturbing the main attaching wires:

> The wire employed is either 22 gage copper wire or 24 gage brass wire. In preparation of the wire to be attached to the teeth, a 6 inch length is folded around a smooth instrument, and a small loop or eyelet made at the middle of the strand. The teeth selected to be wired are usually the premolars on each side and the central incisors. If these teeth are absent or unsuitable for use as attachments, other teeth are selected. Both ends of the eyelet wire are passed through the interproximal space between two teeth, from the buccal side. These ends are then brought back to the buccal side by passing each around one of the teeth and twisted together so that the wires will fit snugly around the teeth with the eyelet projecting from the interproximal space. The ends of the wire are cut off short and bent over in order not to irritate the lip or cheek. A similar eyelet is fitted to corresponding teeth of the opposing jaw, and to other corresponding upper and lower teeth in other parts of the mouth. Then the upper and lower eyelets at each point are connected by passage through them of a third or tie wire, the teeth are brought up into occlusion by this means, and the tie wire ends twisted together, cut off short and turned in. Modifications necessitated by conditions encountered in individual cases have been pointed out in the paper referred to.[2]

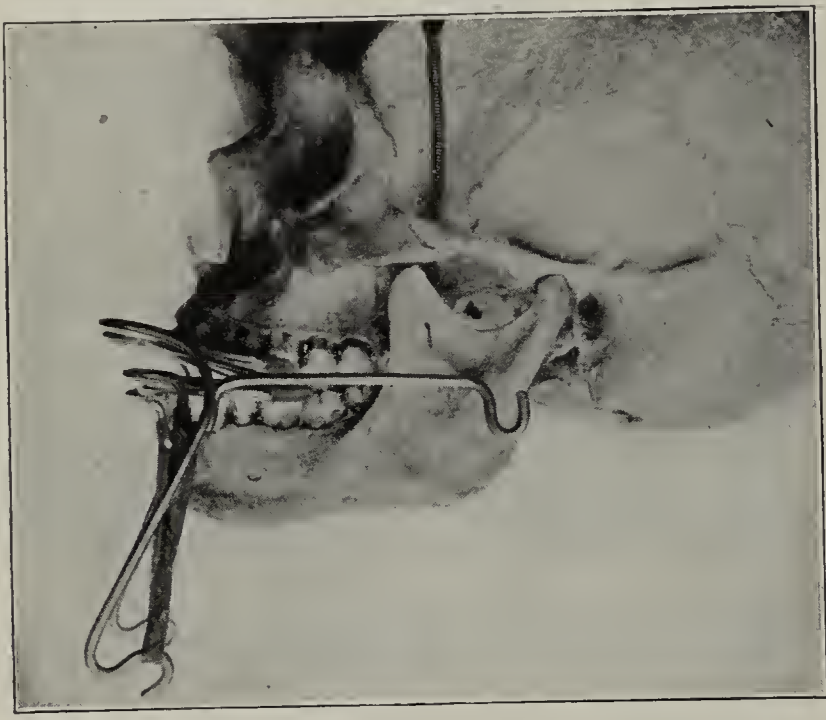

Fig. 3.—Lateral view of trismus appliance mounted on skull.

EDENTULOUS CASES

In recent fractures the only possible indication for direct wiring or plating of the bone fragments through external incision is in an edentulous case in which there is no break in the mucous membrane and consequently the oral secretions do not have access to the fracture. In as small a bone as the mandible, it is difficult to secure firm fixation by this method.

CIRCUMFERENTIAL WIRING

A much better plan in edentulous cases is circumferential wiring of the bone, originally employed by G. V. Black.[3] A vulcanite splint is first made like a saddle, to cover the lower ridge on each side of the fracture. Or, if the patient has a full lower vulcanite denture, this may serve the purpose of a splint. A small incision is made through the skin at the lower border of one of the fragments, and a small curved antrum trocar and cannula are passed up through this incision close to the bone on the lingual side, until the mucous membrane of the mouth is pierced. The trocar is then removed, and one end of a 16 or 18 gage silver wire is threaded through the cannula from below. The cannula is withdrawn and, by means of the trocar, is passed downward from the mouth close to the bone, this time on the labial side, to emerge at the original skin opening. The other end of the silver wire is then passed up through the cannula, and the cannula is withdrawn. It is thus seen that the wire passes around the bone. The ends of the wire are now twisted over the vulcanite splint or denture so that the bone fragment is drawn up snugly in contact with the splint. Another wire is similarly passed around the other fragment and twisted over the splint. The circumferential wire is well tolerated, and may be maintained for several weeks, the skin incision frequently closing without suppuration. This method is particularly useful in drawing up and maintaining a central edentulous fragment in a case of double fracture (Fig. 1).

TIME REQUIRED FOR UNION

Textbooks state that fractures of the mandible unite in from three to five weeks. Our figures indicate that this time is considerably overestimated. In this series the average time required from the date of injury to the completion of union was forty-eight days, the longest being 109 days and the shortest twenty-one days.

The average number of days that fixation was maintained was forty. The average time elapsing from the date of injury to the date of fixation was eight days, the longest being seventy-two days.

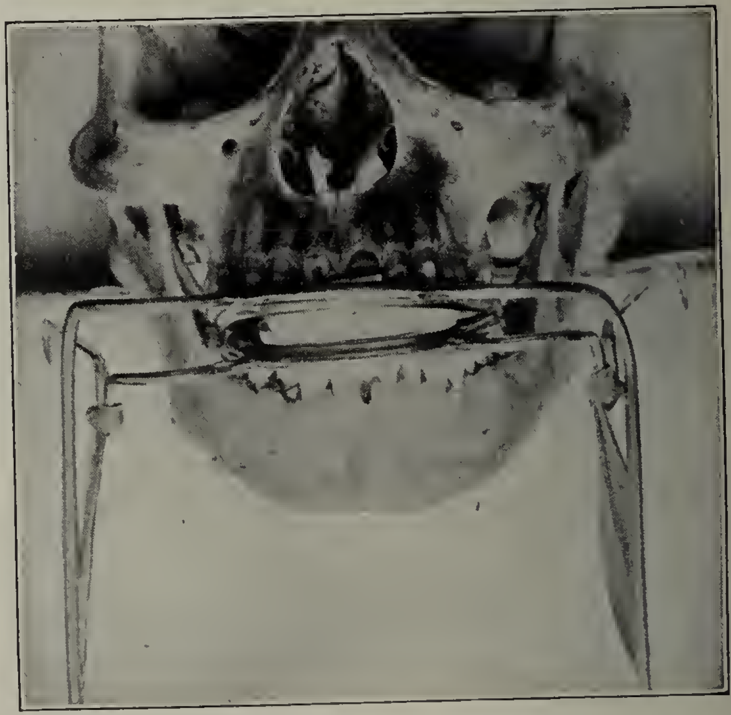

Fig. 4.—Front view of appliance.

It is difficult to prove by figures that early fixation will shorten treatment, because so many other factors must be considered, such as the amount of original displacement, injury to teeth, and infection. The same applies also to relative time of union as between single and double fractures. In our series, the average time for union after fixation for single fractures was thirty-seven days, and for double fractures 43.3 days.

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[2] Ivy, R. H.: Practical Method of Fixation in Fractures of the Mandible, Surg., Gynec. & Obst. **34**: 670 (May) 1922.

[3] Blair, V. P.: Surgery and Diseases of the Mouth and Jaws, St. Louis, C. V. Mosby Company, 1918.

RESULTS OF TREATMENT

Results were satisfactory in all cases in this series. That is, firm union was obtained with restoration of the original occlusion of the teeth. When teeth were lost as the result of the injury or previously absent, the patients were discharged with the jaws in such a condition that artificial dentures could be satisfactorily applied.

TRISMUS

Trismus, or temporary limitation of the opening of the mouth, is a frequent complication of fractures of the mandible, owing to muscular contracture and infiltration with inflammatory exudate. This limitation will usually disappear in the course of time, following ordinary exercise, but it can be overcome much more rapidly by the use of a dilator which we have had made. This appliance is universal, i. e., it does not have to be made especially for the individual case; it is easily fitted in the mouth by the patient or some one in the house with him, and it is practically as stable as an apparatus that has been made from dental impressions of the individual. The construction is extremely simple, the two parts being flat metal trays passing between the occlusal surfaces of the upper and lower teeth (Fig. 2). The trays can be inserted through a space of less than 1 cm. between the upper and lower incisor teeth. To the outer sides of each tray are soldered heavy wires, which pass out of the mouth and curve backward over the cheeks like Kingsley splints. The wire attached to the upper tray on each side turns down at a right angle about opposite the premolar region, and ends in a hook about 3 inches lower down. The wire attached to the lower tray passes directly backward, and is provided with a hook at a point opposite the downward turn of the upper wire. The dilating force is a heavy elastic band placed between these hooks on each side (Figs. 3 and 4). This application of dilating force in the manner described is original with Darcissac[4] of Paris, who, however, made individual apparatus from impressions in each case, casting metal caps to fit the teeth. The elastics produce a constant counteraction to the powerful elevator muscles of the mandible, which at the same time are permitted to function, the upper and lower jaws being at no time fixed. Lateral movements as well as opening and closing are possible. The dilating force can be readily regulated by the size and tension of the elastic bands. This appliance is useful not only following fractures, but also in limitation following any other cause, or as an adjunct after operations for ankylosis. It can be worn for fifteen or twenty minutes every few hours, and can easily be taken out and put in.

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[4] Darcissac: Dental Cosmos, March, 1922.

Prevention of Delinquency.—The National Committee for Mental Hygiene, through a recent gift from the Commonwealth Fund, has been enabled to establish a new department to be known as the Division on the Prevention of Delinquency. This division will furnish psychiatric service to a limited number of juvenile courts throughout the country, free or on a cost-sharing basis when requested. The selection of courts will depend largely on the interest shown, and the prospects for the establishment of a permanent clinic at the expense of the community. A demonstration clinic, including a psychiatrist, a psychologist, and a psychiatric social worker will be assigned to each court to which it is possible to render such aid.—*Mental Hygiene,* January, 1922.

TREATMENT OF NONUNION OF FRACTURES OF MANDIBLE BY FREE AUTOGENOUS BONE-GRAFTS *

FULTON RISDON, M.D.
TORONTO

The indications for bone-grafting of the mandible are: nonunion of fragments of long standing; to replace lost bone due to gunshot wounds; carcinoma; infection, cysts, etc., provided enough of the ascending ramus is in situ or to protrude the mandible when the mental process is deficient.

The preliminary steps may be thus summarized: The patient is examined to ascertain that all infection has been cleared up for at least five months, and that there are no teeth adjacent to the ends of the fragments. The roots of the teeth are always a menace to the graft, and, unless they are removed, sufficient bulk of the graft cannot be inserted. If it is found necessary to remove any teeth in this area, the operation should be deferred for two months. Of course, there are exceptions to this rule, one being when only one tooth remains in the posterior fragment; but in this case greater care is taken at the time of the operation to see that the root area is not included in the bed for the graft. A consultation should now be had with one's dental colleague if not before, as to the desirability of the type of splints to be used, and as to the width of the desired arch of the mandible. A modified Hammond splint has been used by our colleagues Drs. Campbell and Gordon, with a pin and tube attachments for locking the lower to the upper jaw; and the metal of choice has been Victoria metal, supplied by Claudius Ash, Sons & Co., of London, England. Any metal which, after it has been cast, has still some temper and is strong, meets all the requirements. We have used coin silver with equally good results, but care should be taken in the casting that the baser metals are not lost. Should this occur, it is easily detected, as when the casting is pressed over the teeth the splints spread at the widest part of the teeth and do not grip at the cervical margin.

These splints are cemented with Ames copper cement four days previous to the operation, and the pins are inserted in the tubes on the second day.

The diet of the patient must, of course, be changed, and he is placed on a semisolid diet, including soups, mashed potatoes, minced meats, egg-nogs, junkets, etc., and one bottle of stout a day. These patients do not lose weight but, of course, are not working.

The right or left hip is prepared by the nurse the day before, as the bone selected by us is always taken from the crest of the ilium. We have used the rib with success, and also the tibia, but prefer the ilium for the reasons that it is very easily and quickly obtained; it is more cancellous than either of the bones named above, and greater bulk of bone can be obtained. We assume to a large extent that the theory of absorption of the entire graft and its replacement later by bone-forming elements, as outlined by Gallie and Robertson, is the accepted theory of bone regeneration. If we accept this, the more cancellous the selected bone is, consistent with its strength, the greater proportion of successes should follow its use, and this we have found to be a fact in actual practice.

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* In this work Dr. Carl Waldron, now of Minneapolis, was associated with the author.

* Read before the Section on Stomatology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

The type of anesthesia employed is of considerable importance, as the anesthetist must at all times after induction be some distance away from the field of operation. We prefer the intratracheal, in which a catheter is passed under direct vision between the cords into the trachea, and the anesthetic given by a machine, such as the Connell. We have also used rectal anesthesia, but discarded it after seeing the advantages of the intratracheal method. Anesthesia is induced much more rapidly, and the patient recovers more quickly and is more under the control of the anesthetist. We have not attempted any operations under local anesthesia, although we know it could be used, but we feel that this is too important an operation for that type of anesthesia, as the patient might interfere at any moment.

The technic of the operation is most exacting, and in no other field of surgery is it more so. I believe that the entire success of the operation, having previously excluded infection, depends on this most exacting, tedious, excellent technic.

The first step must exclude the mouth, and this is done by placing a sterile piece of rubber dam parallel with the lower border of the mandible, some distance from the line of the incision, and held in position by adhesive tape. When this is turned back it covers the mouth and prevents moisture from soaking through the towels. The neck is now cleansed with pure alcohol, continued for fifteen minutes. After the incision has been made, as a rule about 4 or 5 inches long, the scalpel is discarded for another and the wound completely walled off by towels with clips. Under no circumstances is the gloved hand permitted to come in contact with the wound, sutures or sponges. This is all done by freshly sterilized instruments, even to the tying of ligatures. This is known as the nontouch technic or bone-technic, introduced by Sir Arbuthnot Lane. We had the privilege of very close association with him during the war, and we feel deeply indebted to him for his kindness and patience in teaching us his methods.

The hip area is prepared in the operating room again, with alcohol, the same technic being observed, and the bone is obtained by a chisel and a mallet. We discarded the electric saw, because we felt that it burned the bone owing to the rapid revolutions of the small circular saws, and in this way destroyed the bone-forming elements. If water was used to overcome the resultant heating, moisture gained access to our wound and soiled our towels. We prefer bone rongeurs, hand drills and the more laborious methods, as they have given better results in our hands. We prefer a square butt joint if possible, and use Belgium iron wire to hold the graft in position. These wires are not removed, and no drainage is placed in the neck wound but is inserted in the hip area. The wound is closed with metal clips rather than sutures, and the splints left in the mouth for three months.

In our clinic seventy operations were performed, resulting in sixty-six successful bone-grafts, four failures, and no deaths, an average of 90 per cent. of successes. In the last two years we have done twenty-one, with one failure, and that failure was due to an opening into the mouth at the time of the operation.

30 Avenue Road.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. IVY AND RISDON

Dr. Carl W. Waldron, Minneapolis.—Dr. Ivy has presented a practical means of treating most of the simple fractures of the mandible; I think he has largely overcome the difficulty many had in the method of wiring the teeth. In our war work the splint which Dr. Risdon has shown served admirably but in civil practice on account of the lack of trained technicians, I feel that Dr. Ivy's methods are better. With reference to his views that certain teeth must be temporarily retained, to prevent loss of a fragment, I cannot agree. We followed that practice in our Canadian service for years. The British service was radical. We saw later many nonunions in which we felt that we would have secured good strong union with our methods. With reference to bone grafting, I agree with Dr. Risdon that the iliac crest is preferable. Before I left England I saw some 100 bone grafts of the mandible clinically. Many had splints in place which did not prevent manipulation. I was convinced those cases treated by iliac crest grafts were by far the most successful grafts. The graft advocated by the Frenchmen has certainly a place, particularly where there are thin fragments without a basis for an iliac crest graft; in such cases I feel that the osteoperiosteum graft has a place.

Dr. William S. Bainbridge, New York: In the navy we have not had as good results as we hoped we might have with bone grafts. I think it is due largely to the lack of technic and perhaps the finesse of key working which was so important. Troops from India were fed on their own food to which they were accustomed because of religious belief. Some of the British surgeons called my attention to a lamentable failure of healing wounds and bone repair in certain regiments. Those that had poor teeth, mouth conditions bad, poor healing and repair of bones, far more nonunion and much pain were from the same part of India. The British surgeons in charge of the men discerned that there was only one reason why this regiment suffered. They had not brought from India the olive sticks the natives use for the cleaning of the teeth. They were provided with ordinary tooth brushes which they would not use. When however, the mouths were cleaned up and the men furnished with olive sticks, their conditions improved and when bone was transplanted and bone repair inspected, conditions were found improved.

Dr. F. B. Moorehead, Chicago: Success in bone graft surgery is due to certain fundamental principles; the nontouch method developed by Lane, and quite equal in importance, is the securing of a perfectly well healed field; one quite free from infection. Nothing should be allowed to touch the wound except a sterile instrument; the fingers should be kept out entirely. After watching Dr. Risdon's work, I am quite converted to the use of the crest of the ilium as better material for transplanting purposes than either the rib or the tibia.

Dr. T. L. Gilmer, Chicago: Dr. Ivy has been good enough to refer to what he calls my method of wiring the teeth of the mandible to those of the maxilla in the treatment of fracture of the mandible. For the last eight or ten years I have abandoned the method he credits me with, except for temporary purposes. The method of wiring I now usually employ has an advantage over the older method and I think over Dr. Ivy's method. It consists of wiring an expansion bar such as is used by orthodontists to the buccal and labial surfaces of the teeth of the mandible and maxilla. These bars are wired together by two or three small wires. By this method one is able to cut the wires, holding the teeth in occlusion, every few days, so that the mouth may be opened for cleansing. This is done without danger of displacement of the fragments of bone, since the expansion bar holds the teeth in alinement. Fractures of the mandible occasionally occur without completely severing the periosteum and in such cases the fragments are not displaced. If the patient does not use the jaw for mastication he will be better off without immobilization. The treatment of ununited fractures by bone grafts is often good practice. In a few instances when other methods have failed I have employed the Cole pedicle graft with excellent results.

DR. FRANK J. TAINTER, St. Louis: During the war I was connected with several clinics in which we had to treat a number of fractures of the mandible with loss of substances. They were all repaired by bone grafting, the ileum graft, the rib and the pedicle graft. I happen to be connected with Dr. Cole who first described the Cole's pedicle graft. In the treatment of fractures there are a few principles that should always be taken into consideration, first, absolute reduction, and second, immobilization. No matter where you take the bone, if the fragments are not properly immobilized you cannot expect a good result following a bone graft. The type of fractures we had the most difficulties with were those that left the posterior fragment with no teeth on it. We feel that the graft from the ileum lent itself better to the curves and to what was expected of it than any other bone taken from any other place, but our results from the pedicle graft were far better than from any free graft. The pedicle graft has a good blood supply, nearly always carries with it small muscle, and even in the face of infection one may secure perfect results. I am quite sure the pedicle graft described was not Cole's pedicle graft; Cole always insisted that whenever any bone was splinted all the bone that could be exposed should be opened up and freshened and the bone graft put in. I wish to speak of the splint shown by Dr. Ivy, a most ingenious thing for the correction of trismus of the jaw. I think it the most perfect mechanical appliance on the market. Ruggles suggested the use of a clothes pin for the same purpose and we have been successful with it. In our clinic work we never had trismus following our cases.

DR. THEODORE BLUM, New York: I have been using the so-called army method for correction of fractures of the mandible since 1916, when I first saw it demonstrated by Lieutenant Graham of the U. S. Army in Belmont. The only slight improvement which I would like to suggest to Dr. Ivy's method would be that the wire should not be turned at the height or convexity of the tooth but that the wire should be placed at the interproximal space and it would then be covered by the loops.

DR. ROBERT H. IVY, Philadelphia: I have never found it necessary in any operation involving the face, mouth or jaws to use intratracheal anesthesia. For these cases I employ intrapharyngeal ether introduced through nasal tubes. With this method it is not necessary to disturb the intermaxillary fixation, and the mouth can be kept closed. The use of wire for the fixation of bone grafts has been condemned by some authorities, but in my experience silver wire gives the greatest satisfaction and much better approximation can be obtained by twisting the wire than by using any animal suture material. For the general run of cases the ilium graft is superior to any other type. Other methods are indicated in special cases. The pedicle graft has the advantage that it can be used with greater chance of success in the presence of infection. My chief reason for employing the method of wiring the teeth in ordinary civil life fractures of the mandible is to get away from the bother of taking impressions and making splints. The wiring does not necessarily fix the fracture any better than a properly made interdental splint. Splints do just as well, perhaps better, when there is an organized staff to make them, but it is difficult to get the work done under ordinary conditions. I am quite familiar with the present method used by Dr. Gilmer for fixation of fractures of the mandible, and admit its efficiency. My idea is to simplify matters as much as possible so that the average surgeon can handle these cases without having to resort to special apparatus or special men to make it.

DR. FULTON RISDON, Toronto: I have used the ordinary eye that is used for ladies' dresses, wiring it around each tooth on both sides of the fracture, doing the same to the teeth in the upper jaw in the region of the fracture and attaching the eyes together with silk rather than wire. In handling a large number of these cases we found silk of much more service than the wire, because in our hands it did not loosen so quickly. There is really nothing to this little appliance, but it has helped me with some cases. In reference to the anesthetic for bone grafting, we prefer the intratracheal method. In using this a catheter is placed between the cords and out between the lips, as in most of these cases some teeth are missing. Under no circumstances do we use an open-bite splint. The interesting feature of this anesthesia is that one does not have pneumonia as a complication, at least that is our experience.

Clinical Notes, Suggestions, and New Instruments

CARPOMETACARPAL DISLOCATION

EDWARD H. McLEAN, M.D., OREGON CITY, ORE.

Cases of multiple dislocations at the carpometacarpal articulation are of sufficiently rare occurrence to warrant their being recorded for statistical reasons.

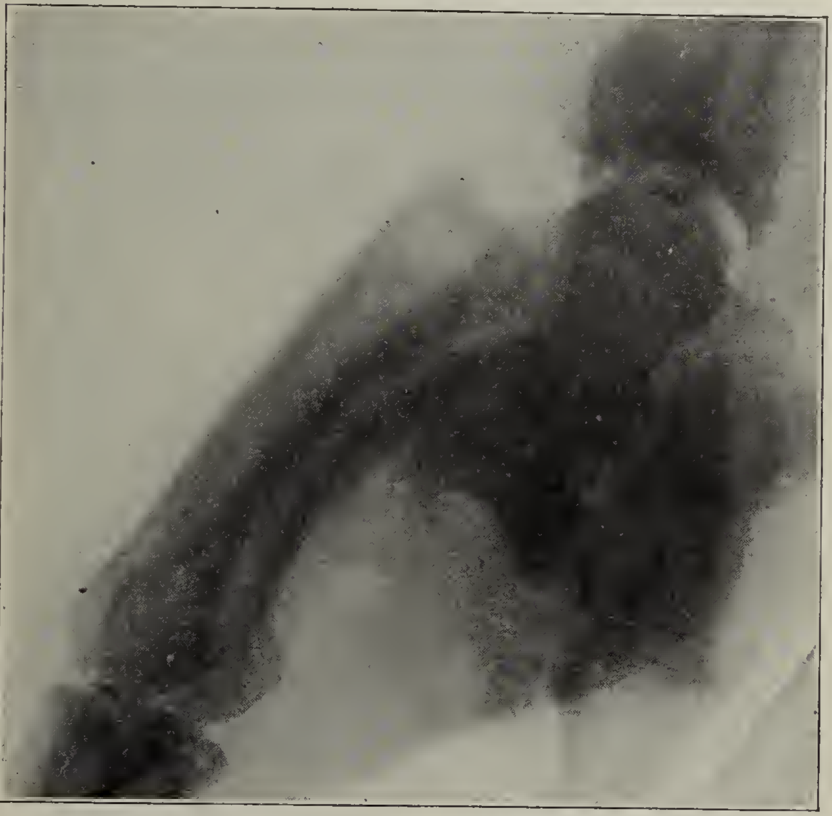


Fig. 1.—Carpometacarpal dislocation: lateral view before reduction.

A farmer, aged 40, was injured while pulling stumps. He was using a puller in which a 14 foot pole acted as a lever. The chain by which two heavy farm horses were hitched to the pole parted, releasing the pole, which struck the patient on the back of the right hand, right forearm, and right lower thorax. He was thrown violently to the ground, striking on the left hand with the arm outstretched.

The injuries sustained consisted of fractures of several ribs on the right side, of the left clavicle, and of the right ulna, laceration of muscles of the right forearm, laceration and contusion of the right hand, and the dislocation to be described, occurring in the right hand.

On account of the marked swelling of the hand, the condition was not suspected until after about a week of local treatment. At this time, an unusual thickening of the wrist and hand, with apparent shortening of the metacarpus, was noted. Examination by roentgen ray revealed a posterior dislocation of the four inner metacarpals on the carpus with about an inch of overriding, anterior dislocation of the thumb metacarpal, with an inch of overriding, and fracture of the base of the index metacarpal.

Reduction was easily accomplished by traction and direct pressure. The presence of fragments of the base of the index metacarpal between it and the base of the middle finger prevented complete reduction of the former.

Two years after injury, the patient has a hand that is nearly normal functionally. He is unable to close the index finger completely to make a tight fist, but he can milk and do other farm work requiring the use of the finger. Excision of the fragments of the base of the index metacarpal would have given a better result, but the patient was unwilling to submit to operation.

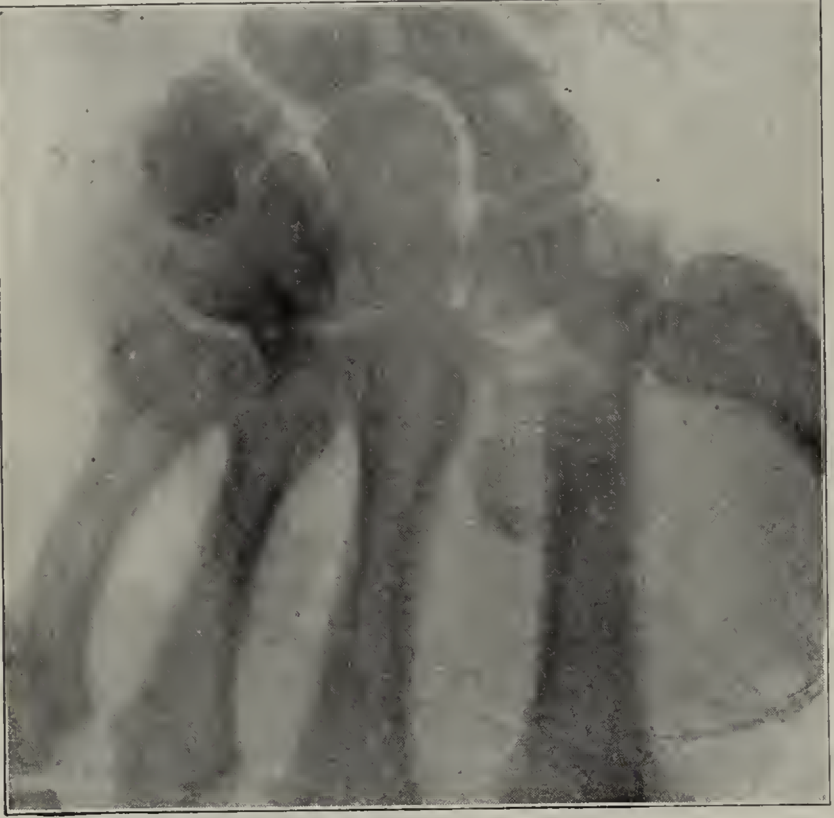


Fig. 2.—Carpometacarpal dislocation: anteroposterior view after reduction.

DIRECT VISION ADENOTOME

I. D. Kelley, Jr., M.D., St. Louis

Working on the assumption that the existing method of adenoid removal with the instruments thus far devised is unsurgical, because of the fact that to carry out this operation the operative field has not been in the direct line of vision of the operator, I investigated thoroughly the postnasal space. I found it possible to construct an instrument that would not only remove the adenoid as completely as any instrument thus far devised, but also bring the adenoid area in direct vision of the operator previous to and at the time of removal, and do away with the untoward results in previously devised operations, such as blind technic, stripping of the posterior pharyngeal wall, partial adenoid removal, and loss of the removed adenoid.

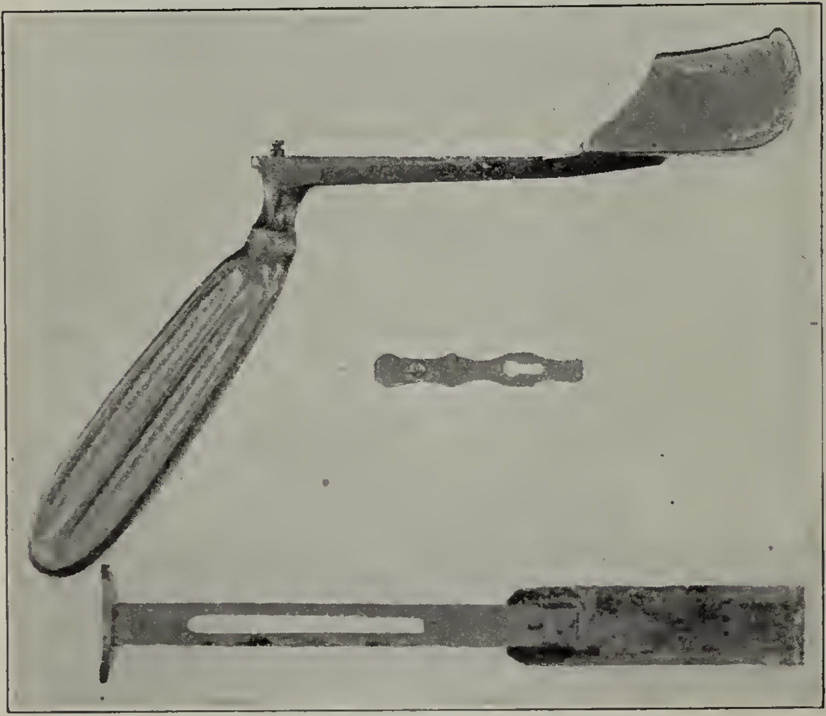


Fig. 1.—Parts of direct vision adenotome.

The principles which this instrument employs are (1) elevation of the soft palate by the oral route sufficient to expose to view the circumference of the posterior nasopharyngeal wall, and (2) a cutting blade adhering to the curvature of this wall, working from below upward, incising the adenoid from its nasopharyngeal attachment.

The instrument consists, as seen by the accompanying illustrations, of a hood or soft palate retractor, the distal or blade end of which, when put into position, conforms to and rests directly against the postnasopharyngeal wall. This is attached to a steel shank, from the proximal end of which extends a hand grip at such an angle as to prevent chin or chest interference when gripped and placed in position. On the upper surface of this shank is placed a steel shaft, to which is attached at its proximal end a thumb pressure plate, and to its distal end by means of an eye and post a flexible steel blade running in two slots on either side of the distal end of the hood, traversing the surface from below upward and held in position on the shank by a steel clamp.

The instrument is to be used in conjunction with either indirect illumination (as seen in the illustrations) or direct illumination, when so desired, by placing a small electric lamp in the upper inner surface of the hood, carrying the wiring along the under surface of the shank and out through the end of the handle.

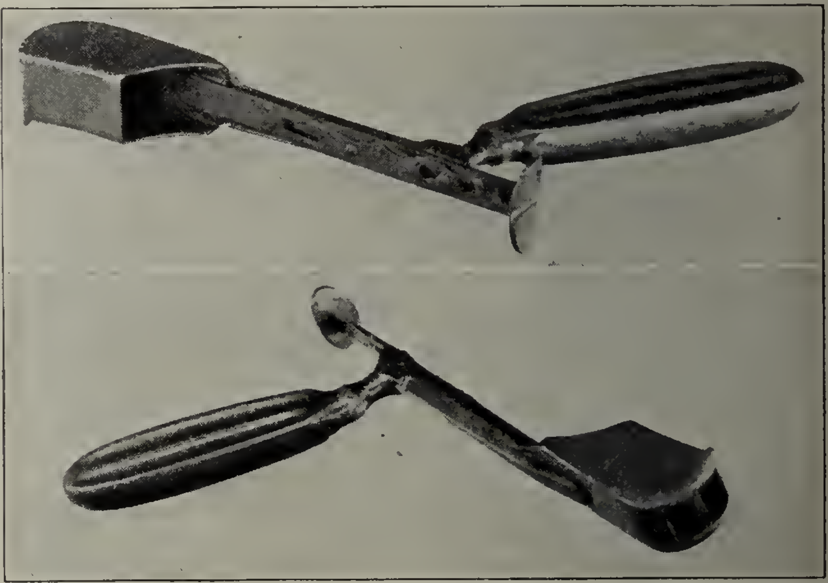


Fig. 2.—Two views of instrument assembled.

TECHNIC FOR USING THE INSTRUMENT

Under local or general anesthesia, the mouth is widely opened with a gag and the instrument introduced through the oral cavity under the lower border of the soft palate. The distal end of the instrument is then elevated behind the soft palate until the upper surface of the hood assumes a plane corresponding to the angle of the vault of the nasopharynx with the posterior wall. It is then gently pushed into approximation with the posterior wall, whereupon the adenoid will be in full vision of the operator. In this position, by means of the thumb plate, the blade is pushed home, the instrument removed, and, inside the hood, producing when the blade is closed a cup, will be the adenoid, severed from its postnasal attachment.

The instrument is to be made in several sizes corresponding to the dimensions of the nasopharyngeal space in persons of varying ages.

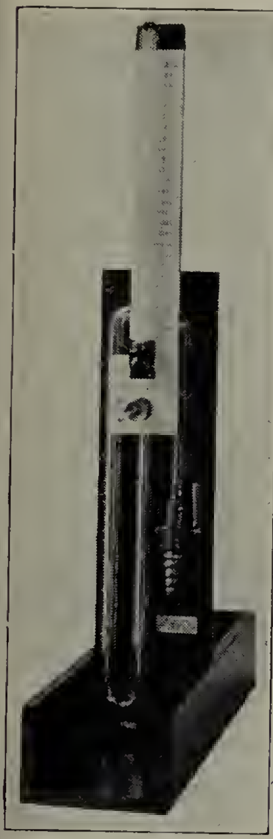
608 Humboldt Building.

State Aid for Crippled Children.—Backed by 460 rotary clubs in Ohio, legislation has been enacted providing first for treatment of all crippled children at state expense, and secondly for the establishment of special schools and classes for crippled children, the state allowing $300 per child.

FOLDING SPHYGMOMANOMETER

Philip A. Sheaff, M.D., Philadelphia

The apparatus here illustrated is simple, dependable and readily portable. The scale registers from 0 to 300 mm. The apparatus is susceptible of refined adjustment and has the upper half of the glass tubing permanently attached. It folds up, having no rubber washer to get lost or wear out, the joint being a ground one composed of steel automatically closing the exit of mercury when not in use. Consideration of varying capillarity in the surfaces of the mercury is eliminated, as the two surfaces are the same diameter.



Folding sphygmomanometer.

CONVENIENCE

The apparatus can be readily carried in a coat or hip pocket, and when it is not in use it may be maintained in the upright position in any book case, although it may be placed in the recumbent position without disaster, if one is careful.

When closed, it is held shut by a spring lock, and measures $1\frac{5}{8}$ by $2\frac{9}{16}$ by $8\frac{7}{8}$ inches.

The instrument here illustrated and described is home made, but for practical service has given me much satisfaction.

4006 Baring Street.

HEAD REST FOR GANGLION OPERATION *

Alfred W. Adson, M.D., and George G. Little, M.E., Rochester, Minn.

A head rest for use in a ganglion operation should be easily adjusted and applied to the head, and at the same time hold the head firmly during the operation without producing undue pressure on any particular part of the head. Such a head rest (Figs. 1 and 2) has been developed and used satisfactorily in many ganglion operations. The head rest may be slipped on a Balfour operating table, but if the distance between the bar arms is varied (*M*, Fig. 1) it will fit any operating table; it is adjusted with two universal joints so that the head can be raised, lowered, or tilted from side to side as the surgeon desires. It is especially designed to support the patient's head, gently yet securely, during a ganglion operation in such a manner that the field of operation is wholly unobstructed.

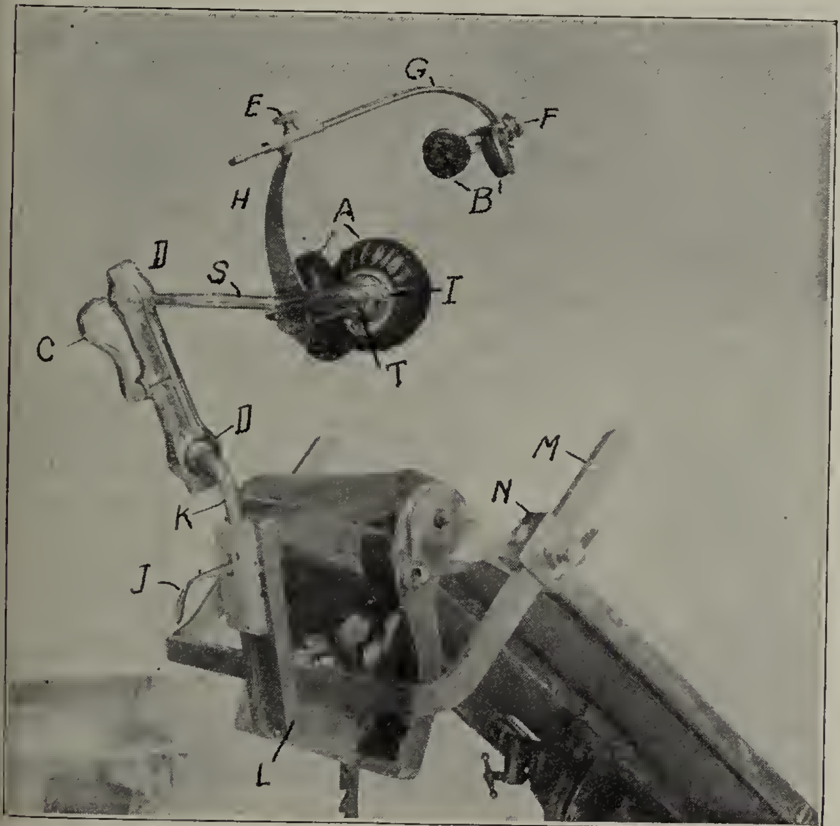


Fig. 1.—Ganglion head rest attached to a Balfour table.

In Figure 1 the two pads *A* are secured to a common cross bar and swivel on their respective centers, *T*, while the bar is supported at the ends by pins *I*; this allows the head piece a free swinging movement at *I* while holding the head securely. Arm *H* is secured rigidly to the cross bar, and supports the adjustable arm *G*, which is locked in position by screw *E*. The two front pads *B* are supported on short adjustable arms and locked in position by screw *F*. The forked arm *S* and the arm *K* have ball terminals fitted into sockets *D* and *D*, and are locked by movement of the handle *C*. The handle *J* locks the arm and block *K* in position on the slide *L*. Slide *L* is adjustable along bar *M*, which in turn is secured to and locked in position on the side bar of the table by block *N*.

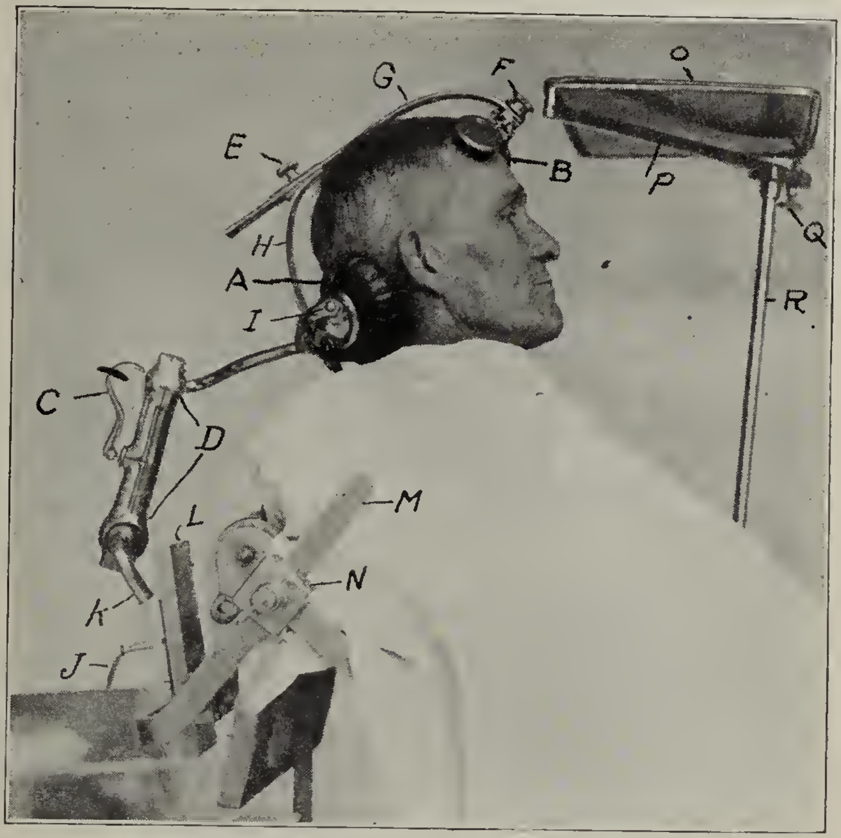


Fig. 2.—Patient in position with head securely supported.

Figure 2 shows the patient in position with the head securely supported. The instrument tray and stand, attached to the side of the Balfour table, are adjusted to hold the towels away from the patient's face, and to leave ample room for the anesthetist.

Nutrition Classes in Rochester a Success.—According to a report recently made public by Dr. Herman J. Norton, the nutrition class in the Rochester public schools has accomplished excellent results. All the nutrition classes gained better than an average of 285 per cent. of the normal rate of gain. The average normal gain of a boy or girl in grades three to eight, inclusive, ranges from one-half to three-fourths pound (0.23 to 0.34 kg.) per month; in the nutrition classes it was not unusual for the children to gain from 2 to 3 pounds (0.9 to 1.3 kg.) in weight in thirty days. These classes were run on the plan devised by Dr. Emerson of Boston. Enough nutrition classes have been established in Rochester to care for 7,000 children. A half-pint bottle of milk a day was provided for all children who were 4 per cent. or more below average weight for height and who were unable to buy milk themselves. The report states that this milk was an important feature of the work.

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* From the Section on Neurologic Surgery and the Surgical Instrument Shop, Mayo Clinic.

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SATURDAY, JULY 22, 1922

WHY DOES THE TUBERCULOSIS DEATH RATE FALL SO RAPIDLY?

It is well known to sanitarians, says Haven Emerson, that the death rate from tuberculosis in the United States, in Great Britain and in Germany had been falling in a fairly uniform manner from a time earlier than Koch's discovery of the tubercle bacillus till the outbreak of the World War. This has made some thoughtful persons doubt the assertions of public and private health agencies that reduction of tuberculosis has been largely due to, or at least has been very materially increased by, the campaigns of education and enforcement of early diagnosis, notification, early treatment, segregation, pasteurization of milk, infant welfare, and correction of malnutrition. The effect of these various influences has been analyzed in detail by a recent writer.[1]

Some evidence has been published tending to show that where the education and the organization of a community to prevent tuberculosis have been thorough, and where the conditions of housing, industry and economic independence have been favorable, the death rates from all forms of tuberculosis have fallen more rapidly than they have elsewhere, even taking into consideration all factors of age, sex and race composition of the communities concerned. This applies more particularly to the large populations of the United States, Great Britain and Germany. In France, in contrast, there has been not only a high tuberculosis death rate, but a rate which remained at a fairly uniform level over a long period up to the outbreak of the war. In France, however, the tuberculosis death rate has fallen considerably in Paris, from 437 in 1887 to 328 in 1914, so that the stationary death rate for France depends on the absence of any fall at all in the small communities of that country, presumably because conditions of life and sanitation have remained relatively unaltered.

Since 1914, in the United States and in New York City, there has been so great an increase in the rate of decline in the number of deaths from tuberculosis that it is important for us to consider what have been the dominant factors of the many possible causes of such a phenomenon. It is at once obvious that if these factors can be brought under control and duplicated elsewhere or their action made continuous or permanent, we can foresee the eradication of tuberculosis as a disease of importance within the next twenty years in this country; and, again, that while there are not only great suffering and formidable losses from the disease, and the public is spending large sums to protect itself and deal generously with those already attacked, it is the special duty of public and private agencies engaged in combating the disease to take account of their claims, their methods and their demonstrable accomplishments and, perhaps in the process, to develop a change in their point of view and acquire a new sense of proportion and perspective in pushing their present advantage against tuberculosis. In the last fifty years there has been a fall of 77.9 per cent. in the tuberculosis death rate in New York City; in the last eleven years, a fall of 51 per cent., and in the calendar year of 1921, a fall of 18.1 per cent.

Of all the factors involved in this beneficent change, Haven Emerson[1] seems inclined to lay most stress on the improved financial and living conditions of the poor, including, with this, decreased alcoholism and the lessened expenditure for alcohol. He says that it is probably not too much to say that in the next twenty-five years as great a percentage of reduction in tuberculosis can be attained as has been accomplished in the last fifty years, by adding to our methods and resources those which will build up bodily resistance by providing for and following a higher standard of living, and those which will diminish the hazards of occupation and of occupancy.

The influenza epidemic, paradoxical as this may seem, has had undoubtedly a considerable influence in reducing recent tuberculosis mortality as shown by vital statistics, since deaths occurred because of influenza, which masked or at least permitted a preexisting pulmonary tuberculosis to go undiscovered, with the result that many who would have died of pulmonary tuberculosis within the last four years, and would have been reported as dying from tuberculosis, died of influenza without record of the simultaneous tuberculous involvement.

A factor of much significance in the vital statistics of large cities, and especially in New York, is the racial change in our population due to unrestricted immigration of the Jewish people, especially from Germany, Russia and Poland up to 1914, and the limitation of all immigration since that date and more particularly since 1917. The Jews have notoriously a much lower tuberculosis death rate than most other people, especially the Irish, Scandinavians and Italians, whom they have largely replaced among the immigrants of recent years.

Another factor not emphasized by Emerson, but which some other epidemiologists might stress, is the fact that our growing concentration of population has led to more universal exposure of the young to tuberculosis under favorable conditions for resistance, whereby they acquire a greater or less degree of immunity to subsequent fatal reinfection. Furthermore, we cannot disregard the possibility, even though it has not yet been firmly established as a fact, that the survival of several generations exposed to tuberculosis confers at least some increased capacity to overcome the disease. To what else can we attribute the racial resistance of the Jews to tuberculosis after generations of life in crowded, unhygienic conditions?

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[1] Emerson, Haven: Am. Rev. Tuberc. 6: 282 (June) 1922.

It will be noted that these favorable factors were not developed with the object of reducing tuberculosis, but rather they are merely social and economic events of a character to cause a reduction of the disease, which always reflects in its prevalence the great movements of races, changes in wealth and in industry, and pandemics of other diseases. Hence it becomes extremely difficult to estimate the influence that has been exerted in pushing down the tuberculosis death rate by the purposeful efforts that have been made so vigorously in this country. It would be of the greatest importance to know just what the effect has been of notification, segregation, hospitalization, and the host of sanitary measures and educational campaigns that have been introduced; but their influence on the falling mortality curve cannot be picked out and measured specifically. Emerson holds that it is possible to see the effect of improving milk supplies by pasteurization, for since this has been enforced in New York, there has been a notable change in the rate of reduction of the nonpulmonary forms of tuberculosis in this city. In 1914 the rate was 27, in 1921 it was 14 per hundred thousand. That much of the lymphatic, bone and joint tuberculosis has been of bovine origin is admitted, and as a specific instance of the change since the general pasteurization of 98 per cent. of all our city milk supply, instead of finding 64 per cent. of a series of 100 cases of tuberculous adenitis to be of bovine origin, as was the case in 1912-1913, only 16 per cent. of a series from the same hospital source were found to be of bovine origin in 1917 by Dr. W. H. Park. Whether or not adult pulmonary tuberculosis has been affected by reduction of the tubercle bacillus content of milk, the reduction of milk-borne bovine lymphatic tuberculosis of children is an accomplishment of great and lasting importance.

In the absence of any possible way of estimating the value of each of the many other factors that have so wonderfully reduced the menace of tuberculosis, we can scarcely discard any of them that may reasonably be considered to play a part in the total result. Medical, sociological and industrial betterments must continue their parallel progress in the future, since together they have accomplished one of the most remarkable advances yet made in human welfare.

THE TRUE STATUS OF ENDOCRINOLOGY

The symposium on so-called internal secretions, and the various facts, problems and hypotheses often discussed under the name of endocrinology, at the St. Louis session of the American Medical Association,[1] cannot fail to have a wholesome, stabilizing influence on the medical profession. It is high time that physicians, to quote one of the authors, should have their feet on the ground when they attempt to enter domains where so few paths have been cleared, and where the directions for advancing to undiscovered goals are so largely the figments of unrestrained imagination. Professor Carlson of Chicago, in particular, has attempted with commendable frankness and fervor to dissociate fact from fiction in the entangled claims about the ductless glands. He deserves serious attention when he says that we cannot practice quack methods and escape the just censure of society. This dictum is correct if, as Carlson firmly believes, much of the glandular therapy of today, however harmless to the patient, injures the good name of the medical profession with intelligent laymen.

It is beyond the scope of these editorial columns to review the varied claims that have been made for the rôles of the "principal endocrine organs"—the thyroid, the parathyroids, the thymus, the lymph glands, the suprarenal glands, the gonads; the pituitary, the pineal, the insular tissue of the pancreas (islands of Langerhans), with the added possibility conjectured by Barker [1] that other organs, as the spleen, the kidneys, the liver, the salivary glands and the prostate, also perform endocrine functions in addition to their other physiologic activities. The outstanding facts are that extirpation experiments on healthy animals have shown the loss of a few of these organs or tissues to be followed by unmistakable symptoms of abnormality. Disease may bring about similar lack of function in the case of some of the structures referred to; and it is highly probable that corresponding glandular hypofunctions in man will induce similar disease syndromes. Latterly there has been a marked tendency to conceive of function in the case of the ductless glands on the basis of hormone production; that is, specific substances are produced by the structures under consideration, and, being carried to remote cells through the circulatory mechanisms, influence these parts as excitants or depressants, promoting or retarding their usual performance. It is still possible, however, to interpret the symptoms produced by the extirpation of the ductless glands on the detoxication theory which formerly was foremost in the discussions in this field. Thus, the products of the endocrine structures are supposed to perform the task of neutralizing poison and substances of endogenous or intestinal origin circulating in the body. It is by no means easy to distinguish between the effect of a detoxicant and that of a "regulator."

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[1] Barker, L. F.: Endocrinology, J. A. M. A. **79**: 89 (July 8) 1922. Cannon, W. B.: Some Conditions Controlling Internal Secretion, p. 92. Aub. J. C.: The Relation of the Internal Secretions to Metabolism, p. 95. Carlson, A. J.: Hypofunction and Hyperfunction of the Ductless Glands, p. 98. Hoskins, R. G: Some Principles of Endocrinology Applicable to Organotherapy, p. 104.

The hormone theory of internal secretion has received a great impetus from the discovery that the extracts of certain tissues, and subsequently that chemical substances identified in them, exert pronounced physiologic effects on the organism. The action of epinephrin and thyroxin are the classic illustrations. It was a natural conjecture, though by no means a logical deduction, that the potent suprarenal constituent is in truth a secretory product which is discharged from the glands into the blood stream in order to accomplish in the physiologic economy in every-day life what the laboratory investigator has demonstrated that the isolated product can do. The evidence, however, is far from substantiating this. At any rate, the hypothesis that blood pressure is ordinarily sustained by suprarenal secretion and that disturbances of the latter condition pathologic variations in arterial tension is being abandoned. At most it is asserted, though even this is debated vigorously, that the suprarenal output of epinephrin represents an acute emergency response in times of physiologic stress. This is far from saying that epinephrin is an indispensable hormone and that the essence of suprarenal function lies in secreting it. It has been demonstrated that an amount of epinephrin required to cause a rise of blood pressure is sufficient to stop all motions of the stomach and intestines.[2] "A ridiculous mechanism it would be," says Cannon,[1] "that would stop digestion in order to provide a few extra millimeters of arterial tension! There is no satisfactory evidence that in natural, quiet existence, the suprarenal medulla gives off any secretion whatever."

It is a fundament of much of the current endocrine theory that the hormones produced, the internal secretions, the "incretions," as they have lately been designated, may act on distant cells in a modifying way, either directly through transport in the blood to them, or indirectly through intermediation of the nervous system. Yet it is well to remember that no chemical methods are at present available by which we can demonstrate the presence of admitted hormones and their quantitative variations in the blood and tissues, or even in the glands themselves. Epinephrin can be estimated; but who will say that it is a true internal secretory hormone? Iodin can be determined in the blood and thyroid; but is this element an index of all that the thyroid is assumed to accomplish, and is all iodin present as thyroxin? Little wonder, then, that we have been admonished that "no single phase of endocrine dysfunction is satisfactorily worked out today, either clinically or experimentally." It affords little help to hear that endocrinology has "arrived." Progress in endocrinology can at best come only slowly, and, to quote Rowntree,[3] through correlated, adequately controlled investigations in which the findings are subjected to interpretations based on analytic and critical judgment. Endocrinology needs a leadership willing to admit the magnitude of its shortcomings. Its real contributions will then become more evident.

SMALLPOX

Like a volcano which rumbles and smokes long before it explodes, smallpox gives the world a timely warning. Within the last five years, local epidemics have occurred in Scotland, Germany, France, Spain, Australia, Burmah, the Philippines, Mexico, Brazil, Argentina, Chile, Costa Rica, Santo Domingo, Canada, and in several of our own states, in one of which an epidemic exists at present. There is evidence in these outbreaks to indicate that smallpox is becoming more virulent as well as more common. The mortality rate in some instances has been as high as 40 per cent. The number of cases in 1921 in ninety-three American cities was reported by the Metropolitan Life Insurance Company to be 138 per cent. greater than in 1920, and the number of deaths in proportion to the number of cases, six times greater. A contagious disease so virulent cannot be taken lightly, however restricted the area in which it prevails.

The history of the disease in the prevaccination epoch shows that long periods of quiescence are followed by virulent epidemics. The intervals are characterized by less virulent, sporadic cases, or by a mild type of the disease, such as has prevailed in the United States for about twenty years. Susceptible material gradually accumulates during these years, chiefly from the large number of children that grow up unvaccinated. By processes as yet not well understood, the virulence of the disease increases again, outbreaks become epidemics, and smallpox once more stalks abroad as "Captain of the Men of Death." In the eighteenth century, only one person in twenty-five in England escaped the disease. It was constantly present in London, where the deaths at times numbered from 3,000 to 15,000 yearly. In the same century, Boston had seven severe epidemics. With a population in 1721 of 11,000, Boston had more than 6,000 cases of smallpox and 850 deaths, a mortality rate of 77 per thousand. To understand what that rate means, one should compare the epidemic of influenza of 1918, which caused only 8 deaths per thousand, about an eighth or a ninth of Boston's mortality rate from smallpox in 1721. In recent years, few large cities have suffered more than Philadelphia where, within the thirty-three years ending in 1904, three epidemics occurred, with more than 30,000 cases and 7,600 deaths. In this day of rapid intercommunication, it is well to recall that smallpox was introduced into Montreal in 1885 by an unvaccinated Pullman car porter, causing 15,000 cases and 3,164 deaths.

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[2] Hoskins, R. G., and McClure, C. W.: The Adrenal Glands and Blood Pressure, Arch. Int. Med. **10**: 343 (Oct.) 1912.

[3] Rowntree, L. G.: Abstract of Discussion, J. A. M. A. **79**: 107 (July 8) 1922.

Indifference to the disease and prejudice against the chief means of prevention make the present situation more serious. A long period of comparative immunity has made people careless regarding vaccination; and some physicians have become careless and have failed to urge vaccination on their patients. To make matters worse, a vicious propaganda has misled many people to oppose vaccination openly. Thus the percentage of the population that is unprotected has grown and, unless conditions in this regard improve, outbreaks of smallpox may be expected. To encourage vaccination at this particular time is to do a public service.

IS GERMAN DOMINATION OF DRUGS AGAIN IMMINENT?

Previous to 1914, the large proportion of the synthetic chemicals and drugs employed by American chemists and physicians was supplied by German chemical interests. So slight, indeed, had been the sporadic attempts to create an American organic chemical industry that it was not even necessary for German importers to carry large stocks of necessary drugs. Shortly after the outbreak of the war, serious shortages occurred, and the prices of imported drugs in America rose precipitously. Arsphenamin—then known only under the proprietary name "salvarsan"—sold at fabulous prices, and many were deprived of this spirocheticidal agent. So commercially important was the drug that it composed a large portion of the cargo of the *Deutschland* on its historic voyage. During the period of necessity, The Journal repeatedly urged editorially that the patents on this drug be abrogated. Concomitantly a shortage of dyes—interdependents of drugs—had occurred.

In 1917, after war between the United States and Germany had been declared, Congress passed the "Trading-with-the-Enemy Act," which provided that German-owned patents could be operated by American citizens on the granting of a license from the Federal Trade Commission. The nonproprietary names "arsphenamin" (for salvarsan), "barbital" (for veronal), "cinchophen" (for atophan) and "procain" (for novocain) were coined, and a number of American firms were licensed and began to supply the drugs under these names. This was not accomplished, however, without considerable research work, because German patentees had, in many instances, violated the spirit of our patent laws; the very basis of the American patent system—nonsecrecy—had been circumvented. Although both process and product letters of patent had been issued to foreign subjects, nevertheless frequently the patents were not workable, and the descriptions were inadequate for successful manufacture. The Germans apparently took out American patents with a view to stifling any prospective American chemical industry.

Shortly after the Federal Trade Commission began to grant licenses, the Alien Property Custodian (who had seized many patents along with other German property) was authorized to dispose of seized property, the proceeds from the sales to be held by the government until settlement was made with the enemy. So it was that at first certain firms formerly under German control, such as the Bayer Company, were sold, together with the patents in which the firm's ownership was proved. It was soon evident, however, that the establishment of a permanent chemical industry—so necessary for public health and national defense—could not be obtained in this manner. A corporation, the Chemical Foundation, Inc., was then organized, to which the remaining 4,700 German patents were sold, by executive order, for the nominal sum of $250,000. The purpose of the foundation was stated to be the holding of patents, as a trustee, for the American chemical industry, "for the Americanization of such institutions as may be affected thereby, for the exclusion or elimination of alien interests hostile or detrimental to said industries, and for the advancement of chemical and allied science and industry in America." Licenses have been granted to any firm that could present satisfactory evidence of its reliability in chemical manufacture; no firm may have a monopoly on any patent. As has been stated, all moneys earned are to be spent for altruistic purposes. The Chemical Foundation has served as a bulwark in establishing chemical independence in the United States. Today no shortage of drugs exists, while the quality of American-made synthetics is second to none. The American chemist deserves credit for accomplishing this in spite of the many handicaps, such as the lack of facilities and the hindrances caused by the nonworkable patents. Of course, drug manufacture cannot be successful without dye manufacture at the same time. But the drug industry has been maintained in the days since the war in large measure through the efforts of the Chemical Foundation, which has kept the patents strictly in American hands, and has worked for the protection of the industry. Other aid has been the embargo on foreign dyes.

Now, however, a grave situation impends. The embargo on dyes—without which an independent pharmaceutical industry is impossible—is about to expire; the Senate, by a close vote, has refused to extend time, and the tariff is unsettled. President Harding, on the advice of the Department of Justice, has instructed the Alien Property Custodian to take steps to secure the return to the custodian of all patents sold, under the "Trading-with-the Enemy Act," to the Chemical Foundation, Inc., and has informed the custodian that, in carrying out the instructions he shall act only on the advice of the attorney-general. What is the significance of this action?

Considerable agitation has been noticed in Congress for the return of property of private owners among the peoples recently at war with the United States. Such a bill is now before the House. There is some soundness in the argument of the inviolate rights of personal property, but more emphasis should be given to the statement of the *Oil, Paint and Drug Reporter,* in this connection, that the "question of generosity toward unrepentant, pledge evading enemies shrinks into insignificance in comparison with the companion proposal that would nullify the industrial victory which apparently has been America's sole gain from the defeat of her adversaries." Another argument is that the patents were sold to the foundation at too nominal a price. No fault can be found with the demand of the President for an investigation, if he has evidence that indicates that the public trust was violated in selling the patents at too low a figure. Certainly, a clean-cut investigation should be most welcome particularly to the adherents of the foundation, although the method of attack seems unfortunate. On the other hand, Mr. Francis Garvan, president of the Chemical Foundation, insinuates that a group of lawyers from Germany, representative of the German dye and drug "cartel," together with representatives of German importers, visited the Department of Justice shortly before the attack was made on the foundation, and submits evidence which indicates that strong German influences are at work in this politicocommercial intrigue.

The physicians of the United States must never again be dependent on a foreign country for essential drugs; the attendant evils of the past inadequacy are still fresh in our minds. The organic chemical industry of America must be maintained in the interest of public health and national security. Whether by the Chemical Foundation or by some other method, American chemical industry must be encouraged. The American people should know what is really behind the recent agitation, which is apparently so favorable to the German chemical trust. Germany was successful in creating a chemical monopoly not only because labor was cheap but, more important, because the German government subsidized and protected the industry. America can be independent only if its chemical industry enjoys reasonable protection. Never again should we face the dilemma of 1915 and 1916; never should we permit any foreign domination of our therapeutics.

Mental Hygiene in Industry.—The movement for a mental hygiene of industry is an endeavor to apply the mental sciences, psychology and psychiatry, in personnel administration for the purpose of developing the personality of each individual worker in the interests both of good work and of human happiness. It is an effort toward what might be called scientific large-scale production of individualization.—M. C. Jarrett, *Hospital Social Service* **36**:365 (May) 1921.

Current Comment

THE METABOLISM OF PREMATURITY

The metabolism of the new-born has been the subject of extensive investigations in several laboratories of this country. The outcome has been consonant with the now well established idea that the energy exchange of the young adolescent is decidedly larger than that of the age after puberty. An adult may have a basal metabolism of approximately 1 calory per kilogram of body weight for each hour. In children below 1 year of age, the figure may reach two and one-half times this. Murlin and Hoobler[1] state that 60 calories per kilogram each day may be called the heat production of normal, recently fed infants at complete rest. New-born babies, however, have been found to have a metabolism less than this and not exceeding 48 calories per kilogram each day. Whether the figures for the different ages of early infancy are not essentially alike when the comparisons are made on the much debated basis of body surface rather than body weight need not be discussed here. It is of interest, however, to learn from studies by Talbot, Sisson, Moriarty and Dalrymple[2] at Boston that the basal metabolism of prematurely born but organically sound babies is strikingly low from any point of view. This fact is interpreted to be dependent on the circumstance that there is a small amount of active heat-forming tissue in such incompletely developed infants. They have an unstable body temperature tending to subnormal, and are unable to compensate readily for loss of heat. The relatively large food requirement under these conditions has long been recognized. Rubner and Langstein[3] have found more than 40 per cent. of the calories ingested as food to be retained by prematurely born infants, thus attesting the enormous "growth impulse" which they possess.

MEDICAL LICENSURE IN ILLINOIS

Following the licensure scandal in Illinois a year ago, at least two investigating bodies have recommended to Governor Small that Director W. H. H. Miller be removed or suspended from office. One was the special committee appointed by the governor himself to make an investigation. Neverthless, the governor has refused to heed the recommendations. Although Director Miller was charged with trafficking in examination papers and physicians' and pharmacists' licenses, his attorneys are attempting to prove, not that Miller et al. were not guilty of the acts indicated, but that they were violating no law and, therefore, that the acts did not constitute a crime! How will the licensing boards of other states regard these actions? Will they be willing to continue reciprocal relations with Illinois when the licenses granted are under such suspicion? Can any excuse be found for such bartering in certificates and licenses as has apparently been done? How about the interests of the public which the state employee is supposed to conserve?[1]

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[1] Murlin, J. R., and Hoobler, B. R.: The Energy Metabolism of Ten Hospital Children, Am. J. Dis. Child. **9**:81 (Feb.) 1915.

[2] Talbot, F. B.; Sisson, Warren; Moriarty, Margaret E., and Dalrymple, Alice J.: The Basal Metabolism of Prematurity, abstr. J. A. M. A. **78**:1835 (June 10) 1922.

[3] Rubner, M., and Langstein, L.: Arch. f. Physiol., 1915, p. 39.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Malaria Experiment.—The city of Florence has been selected by the government as the location for investigations on matters of health, especially the transmission of malaria. The Rockefeller International Health Board is also interested in the work. Surg. Lunsford D. Fricks, U. S. Public Health Service, is in charge. He will establish headquarters shortly. Mr. Bruce Mayne of the government health department in Memphis and Mr. Bedell of the International Health Board, Rockefeller Foundation, have been placed in immediate charge of the work by Dr. Fricks. Mr. Mayne will do the research work, while Mr. Bedell has been assigned to northern Alabama to assist and advise with the county health officers in reference to problems of drainage and mosquito control.

CALIFORNIA

Physician's License Restored.—At a meeting of the Board of Medical Examiners, State of California, June 28-29, the license of Dr. Calvin Luther Case, Oakland, which was revoked, Jan. 9, 1917, was restored. This entitles Dr. Case to again practice as a physician and surgeon in the state of California.

Ophthalmologic Course. — Professor Fuchs of Vienna recently accepted the invitation of a group of ophthalmologists in San Francisco to give a private course of lectures during his visit on the coast as the guest of the California Academy of Medicine. The course commenced, July 10, at the Stanford University Medical School. It will consist of thirty hours and will extend over three weeks.

Typhoid Campaign.—The state board of health has started an active intensive campaign for the improvement of sanitary conditions of Japanese vegetable, berry and fruit farms. The Japanese association and the tenants of the farms showed a marked willingness to cooperate with the state board of health in this work. To date, more than 100 old cesspools have been filled in and eighty new ones provided, the land owners supplying the material and the Japanese tenants performing the necessary labor to install the new equipment.

COLORADO

New Medical Society.—The Tri-County Western Slope Medical Society was organized in Delta, June 22, consisting of the counties of Montrose, Delta and Grand Junction. This society was formed for the purpose of promoting social intercourse among medical practitioners of the three counties and for the education of and promulgation among the people of medical knowledge. Dr. Arthur William McArthur, Delta, was elected president of the society.

DISTRICT OF COLUMBIA

Typhoid at Church Supper.—After a supper given by the Grace Lutheran Church in Washington, recently, forty-four guests were stricken with typhoid fever. According to Health Officer Fowler, most of the food was prepared the previous day and not kept on ice. Also two apparently healthy typhoid carriers aided in the preparation of the supper.

FLORIDA

New Medical Society.—At a meeting of physicians at Sebring recently, the Highlands County Medical Society was organized, with Dr. Robert J. McMurray, Sebring, president; Dr. Joseph L. Cloud, Avon Park, vice president, and Dr. J. H. Bogle, Sebring, secretary-treasurer.

Personal.—Dr. Ralph N. Greene, former state health officer, has been chosen president of St. Luke's Hospital, Jacksonville, to succeed G. H. Wall, superintendent of the institution, who has resigned, the resignation to become effective, August 1.——Col. Raymond C. Turck, state health officer, has been awarded the distinguished service medal for services rendered during the Meuse-Argonne offensive in 1918.

Maternity Welfare Offices.—The state offices under provisions of the Sheppard-Towner act have been established in the state board of health building at Jacksonville, under Dr. William B. Keating, director of the state child welfare bureau, and were opened July 1. Approximately $16,000 will be spent on the work, it was stated, during the next year. The state will be divided into subdistricts, with a supervising nurse at the Jacksonville headquarters.

ILLINOIS

Physician Fined.—It is reported that Dr. Edward A. Weisenhorn of Teutopolis recently paid a $40 fine and costs for failure to report births that had occurred in his practice. The court action against Dr. Weisenhorn was instigated by the local state's attorney at the request of a special agent of the state department of public health.

Baby Conferences Unusually Popular.—The popularity of the better baby conference movement in Illinois is indicated by the heavy demands on the state department of public health for professional aid in organizing and directing local conferences at various points. Up to June 30, 1922, the department had furnished the personal services of an experienced physician and nurse to twenty-five different communities during the half year, while a schedule has been arranged for supplying similar services to thirty-four additional communities during the remainder of the summer and fall. Of the total of fifty-nine conferences, twenty-seven have been or will be held in connection with county fairs.

Consultation Service in Venereal Disease Cases.—The division of social hygiene of the state department of public health is cooperating with the division of venereal diseases of the U. S. Public Health Service in carrying out a recently developed plan whereby the advice and counsel of several of the nation's most prominent syphilographers and genito-urinary surgeons are made available to the practicing physicians without cost. The plan is referred to as the "consultation by correspondence" service. Private practitioners may forward descriptive information and other essential data relative to any of their patients, either to the state department of public health at Springfield or to the U. S. Public Health Service at Washington, and this information will be placed promptly in the hands of the proper authority, for detailed and comprehensive discussion and reply.

Chicago

Personal.—Prof. William E. Quine, dean of the medical faculty of the University of Illinois, will be tendered a banquet and reception on the occasion of his visit to Los Angeles this month, by his old students and friends.——Dr. Caroline Hedger, medical director of the Elizabeth McCormick Fund, Chicago, is doing field work for the state college at Pullman, Wash., on behalf of a positive health program for children.

INDIANA

Physician's License Revoked. — The Indianapolis *News* states that at a session of the state board of medical examiners, July 12, the license of William A. Wenz, Indiana Harbor, was revoked. It was charged that Dr. Wenz has been operating a quack medical office and that he had charged a foreign-born patient more than $500 for a tonsillectomy.

IOWA

Health Conference.—A four-day public health conference was held at the University of Iowa, Iowa City, June 18-22, in cooperation with the state board of health, and under the direction of Dr. Daniel C. Steelsmith of the county and city health department, Dubuque. An extensive program of lectures and demonstrations by prominent medical authorities on subjects of health was carried out, and many health workers and nurses in the state attended the conference.

New Laws for Tourist Camps.—The secretary of the state board of health announces that hereafter all tourists' camps throughout Iowa will be under strict sanitary regulations, and will be regularly inspected to insure enforcement of the health law. The regulations as adopted by the health board, to be enforced by local boards, pertain to the provision of an adequate supply of pure water and the proper disposal of garbage and other waste material. A fly proof building shall be provided, with water flush toilets, and care taken that it be kept clean. Garbage must be kept in covered metal containers distributed through the camp grounds. Water faucets must be located at convenient places, and under no circumstances may water be dipped from a spring, or a barrel or any other receptacle. In grounds having an unpiped water supply, a sign of warning must be placed directing attention to safe water. A competent caretaker will be placed in charge of every camp, whose duty it will be to see that the grounds are kept in a sanitary condition.

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[1] Pennsylvania has suspended reciprocal relations with Illinois on licenses issued during and since 1921.

KANSAS

New Dispensary.—A new dispensary was opened in connection with St. Francis Hospital, Wichita, July 17. The dispensary is nonsectarian and will furnish medical care and drugs, free of charge. A social worker will check up each case to insure that all patients are deserving. Dr. Leon Matassarin is medical director.

LOUISIANA

Fire Destroys Laboratory.—Destruction of many irreplaceable specimens is, according to health officials, the principal damage resulting from the fire which broke out in the bacteriologic laboratories of the state board of health in New Orleans, July 8. Damage to the building and equipment is estimated at $3,000.

Maternity Bill Killed in the Senate.—Following the argument for indefinite postponement of Representative Dymond's maternity bill, as reported in The Journal, July 8, the Senate failed to pass the bill, July 5, by a vote of nineteen yeas to seventeen nays. Reconsideration of the bill was blocked by Senator G. H. Couvillion, who denounced the provisions of the bill as an invasion of state rights. This bill provided that Louisiana give its assent to the terms of the Sheppard-Towner act.

MARYLAND

Maple Heights Sanatorium.—Dr. Martin F. Sloan, formerly director of the Eudowood Sanitarium, has recently purchased a tract of 85 acres at Sparks, Baltimore County, on which he proposes to build a sanatorium for the treatment of lung diseases. The sanatorium will be known as the Maple Heights Sanatorium and will be in operation about September 1. It will have accommodations for twelve patients, and other units will be put up as the needs arise.

Legislative News.—A bill was recently passed in the Senate providing for the appointment of a health officer for Allegany County and one providing for a commission to govern the Eastern Shore Tuberculosis Hospital. The bill providing for the extension of the Injunction and Abatement Law, relating to places of prostitution, was killed in the Senate Committee. House bill 310, prohibiting experiments on dogs, was killed in the House.

New Diphtheria Clinic.—A new diphtheria immunization clinic will be established in Hagerstown, the Washington County Health Demonstration has announced. Work on the construction of the new clinic will be started in a few weeks. It will be modeled and conducted along the same lines as the clinics at Johns Hopkins Hospital, Baltimore, and will be in charge of Dr. Adolph S. Rumreich of the Johns Hopkins School of Hygiene. All material used at the clinic will be certified by the Johns Hopkins Department of Immunology.

Personal.—Dr. G. Canby Robinson, professor of medicine at Johns Hopkins University, Baltimore, during the current year, will spend the summer in study at the University of Copenhagen before assuming his duties as professor of medicine at Vanderbilt University Medical Department, Nashville, Tenn.——Dr. Champe C. McCulloch, Jr., colonel, M. C., U. S. Army, has been appointed health officer for Allegany County as the first full-time health officer in Maryland. Arrangements are also being made that may result in his serving as deputy state health officer.——Dr. John W. Klemm, Mount Rainier, has filed application with the supervisors of elections as a candidate for the democratic nomination as representative to Congress from his district.

MASSACHUSETTS

Licenses Revoked.—It is reported that the license of Dr. Philip A. E. Sheppard, Boston, has been revoked for unprofessional conduct in making unwarranted claims in the practice of his profession.——The license of Dr. Alfred J. Boyle, Boston, has also been revoked, for violation of the Harrison Narcotic Law.

Personal.—Dr. Alfred H. Quessy was recently elected president of the state supervisors of the Massachusetts Medical Association.——Dr. William Duane, Harvard Medical School, will deliver the Caldwell Lecture at Los Angeles in September at the annual meeting of the American Roentgen Ray Society.——Prof. Harvey Cushing, Boston, recently returned to this country from England where he acted as director of the surgical unit of St. Bartholomew's Hospital, London, for a fortnight, under the plan in operation the past few years that exchange visits of foreign surgeons with the Peter Bent Brigham Hospital, Boston, should be arranged, the visiting surgeon to be temporary surgeon-in-chief in place of Dr. Cushing for some period in each year. Prof. G. E. Gask was deputized at Harvard in 1921 and Sir Cuthbert Wallace has just returned to England from filling a similar office this year. Professor Cushing while in London delivered the Cavendish Lecture on "Meningiomas" before the West London Medico-Chirurgical Society.

Special Free Course at Boston University.—Arrangements have been made for a free course in laboratory technic for nurses who are graduates of recognized hospitals in the conjoint pathologic laboratories of Boston University and the Massachusetts Homeopathic Hospital, Boston. The course covers one year of actual time, during which large numbers of examinations are made by each student and toward the end of the course partially independent work and responsibility are provided by service in one of the smaller branch laboratories. Didactic and laboratory instruction similar to that given to medical students is provided in bacteriology and immunology, including Wassermann tests, hematology, urinary analysis and preparation of tissues. In addition, the students are taught to perform the various tests and technical procedures used in a general pathologic laboratory for a hospital of more than 500 beds and a class A medical school. An optional three months course in roentgenray technic can be arranged in addition, also free of charge. The number of students will be strictly limited in order to give each one every opportunity for advancement. The hospital will provide board, room and laundry, without cost to the student, and award the final certificate on completion of the course. For further information apply to the Department of Pathology, Boston University, 80 East Concord Street, Boston.

MICHIGAN

Academy of Surgery of Detroit.—At the annual meeting held in May the following officers were elected: president, Dr. Max Ballin; vice presidents, Drs. Alexander W. Blain and Charles S. Kennedy, and secretary-treasurer, Dr. William W. Barrett. Dr. Cyrenus G. Darling, Ann Arbor, read a paper entitled "The Importance of Early Operations."

Presentations to Medical Society.—Three hundred volumes from the library of the late Dr. Albert H. Steinbrecker have been presented to the Wayne County Medical Society by his widow. Other volumes have been given by Drs. Belle Warner, Herbert M. Rich and Homer E. Safford.——A portrait of the late Dr. Theodore A. McGraw has been presented to the society by his family and will be hung in the council room, together with the portrait of Dr. Howard W. Longyear, which was recently received.

MINNESOTA

Hospital News.—The board of directors of St. Luke's Hospital, Duluth, have recently perfected an organization of the attending physicians and surgeons. An advisory medical board of seven has been appointed and regular monthly meeting will be held at the hospital. Dr. John J. Eklund was elected president and Dr. Mark H. Tibbetts, secretary, of the organization.——The St. Cloud Commercial Club has started a movement for the erection and maintenance of a tuberculosis sanatorium, with state aid, for the central counties of the state.

Personal.—Dr. C. Hamlin Pelton, St. Paul, has been appointed superintendent of the Elyria Memorial Hospital, Elyria, Ohio.——Dr. George E. Fahr of the Medical School of the University of Minnesota, Minneapolis, read a paper on "The Present Status of Digitalis Therapy," at the fifty-fourth annual meeting of the Wabasha County Medical Society.——Dr. Philip E. Stangl has recently completed a new two-story office building at St. Cloud, which he will occupy with Drs. Fred H. Stangl and Irwin E. Bowing of Chicago. Dr. Fred Stangl was formerly associated with the Cook County Hospital, Chicago, and Dr. Bowing was roentgenologist to the Lutheran Deaconess Hospital.

MISSISSIPPI

Physician Sentenced to Penitentiary.—It is reported that Dr. Isaac F. Barnes, Gulfport physician, was sentenced in the federal court, June 27, by Judge Holmes, to serve two years in the penitentiary at Atlanta, Ga. Dr. Barnes was convicted on a charge of violating the Harrison Narcotic Law.

MONTANA

Joint Medical Meeting.—The physicians and druggists of Fergus and Judith Basin counties, held a joint meeting at Lewiston in June. Every physician and druggist of Lewiston and most of the physicians and druggists of the two counties attended. Another meeting will be held in the near future.

NEW HAMPSHIRE

Public Health Association.—At a special meeting of the house of delegates and the council of the New Hampshire State Medical Society in Concord, June 29, it was voted to sponsor a movement for the organization in the state of a public health association composed of professional men and women and interested people, for the purpose of promoting public health matters in New Hampshire. The new organization will work in full cooperation with the state board of health. Dr. Olin West, Chicago, explained the work of the American Medical Association in his address to the meeting.

NEW JERSEY

New Vaccination Order.—Hundreds of pupils attending normal schools in New Jersey will be compelled to submit to a vaccination, as the result of a recent decision by the state board of education that hereafter vaccination in schools coming under the jurisdiction of the board shall be governed by the practice of the district in which the school is located. The board's action was prompted by criticism of the fact that, while vaccination is required in the public schools, pupils in the state normal schools and in the affiliated practice schools are exempt.

NEW YORK

Licenses Revoked.—It is reported that the board of regents of the University of the State of New York has recently revoked the licenses of Solomon Rothman and Michael Di Preta, who were found guilty of violation of the Medical Practice Act. Proceedings have been initiated by the board of medical examiners similarly to disqualify several others for violations of state and federal laws.

New York City

Columbia University Prize Honors.—Dr. Edgar FahsSmith, formerly provost of the University of Pennsylvania, was awarded the Chandler Gold Medal at the annual commencement of Columbia University. In the School of Medicine, the Harold Lee Mierhof memorial prize was divided between Harold Alexander Abramson of New York and Samuel Harold Gray of Brooklyn.

Night Clinic for Reconstruction Hospital.—For the convenience of disabled workers who have been able to return to work but who still require after-care of industrial disabilities, the Reconstruction Hospital opens its outpatient department between 7 and 9 o'clock every Monday, Wednesday and Friday nights. This affords a much needed opportunity for continuing treatment to the partially disabled who must work during the day. Dr. Christopher G. Smith is chief of the night clinic.

New Veterans' Dispensary.—The U. S. Veterans' Bureau is establishing a dispensary at its headquarters in the Grand Central Palace, which it is claimed will be the largest and most up to date in the world. It will include a complete dental clinic, complete physiotherapy and hydrotherapy outfits, the most modern roentgen-ray unit obtainable and every known facility for the speedy examination of patients. The equipment will cost $200,000 and will make available to veterans every phase of medical treatment except hospitalization.

OHIO

New Medical School and Veterinary Hospital.—Bids have been asked for the $3,000,000 medical school, animal hospital and power house for Western Reserve University. The development is part of the Lakeside Hospital group to be built on Euclid Avenue, Cleveland, from the donation by Samuel Mather.

Hospital News.—Delegates from Pythian lodges from all parts of the state were in Springfield for the recent dedication of the new hospital addition to the Pythian Home for the Aged, which has just been completed.——The contract has been awarded for the erection of a $100,000 addition to the city hospital, Hamilton.——The Stillwater Sanatorium near Dayton, the sanatorium for Montgomery and Preble counties, has just completed an addition, which will be known as the Beck Memorial Building and provides accommodation for forty patients.——The construction of buildings, which will care for 100 additional children and sixty adults at the Cleveland Tuberculosis Sanatorium, Warrensville, will be started August 1. This work will cost, it is estimated, $295,000.——Governor Davis has approved the purchase of 1,704 acres of land near Grafton for $192,493 for a site for a new institution for the feeble-minded.

University News.—As was announced in this column, July 1, the trustees of the Ohio State University, Columbus, decided to amalgamate the homeopathic medical school with the regular medical department and to establish two homeopathic chairs. Since then the board, at a meeting, July 11, has taken further action by abolishing the chairs of homeopathic materia medica and practice of homeopathic medicine. It is reported that the vote was 3 to 2. The homeopathic hospital will be taken over by the regular staff about the middle of August. There is some doubt as to the disposition of the moneys held by Ohio State University for endowment of certain homeopathic activities in the university, especially the $150,000 of General Motors stock, given by Mr. Kettering of Dayton. It is thought that the moneys will be returned to the donors. The University of Michigan has also voted to abolish the chairs of homeopathy in the medical school. The faculty of the medical college of Ohio State University will be enlarged considerably next year. No appointments have yet been made.

OREGON

Personal.—Dr. Vern L. Hamilton, Coquille, was recently appointed city health officer.——Dr. H. M. Peery has been appointed secretary of the Coos and Curry Medical Society to succeed Dr. Tilden T. Manzer, who is leaving Marshfield.

Workmen's Compensation Act.—The Supreme Court of Oregon has decided that according to the meaning of the workmen's compensation act of that state, an occupational disease is not a "personal injury by accident" and therefore is not compensable. The questioned disease in this case was lead poisoning.

Hospital News.—The Fraternal Hospital Association recently purchased a tract of land at Astoria for $25,000 for the purpose of erecting a modern hospital building at a cost of approximately $200,000.——A new hospital will be erected in North Bend at a cost of $50,000. The building will have accommodations for fifty patients.

University News.—Dean Richard B. Dillehunt announces that the General Education Board has appropriated $113,000 for the construction of a new unit of the University of Oregon Medical School, Portland. This sum was duplicated by the state legislature, and the new building will be opened, September 1. The total cost was $250,000. This unit will provide for extension of all the preclinical departments and for offices and laboratories for clinical departments, and will enable the registration of seventy-five students per class. The present capacity is only sixty. An additional sum of $50,000 was appropriated by the General Education Board, to become available on completion of the building. The Portland City and County Medical Society and the Portland Academy of Medicine each donate $500 annually to the support of the medical school library, and Dr. Charles Mayo, Rochester, Minn., this year relinquished the fund of $100 provided for an endowed lecture, donating the sum to the library.——The Portland Free Dispensary has been reorganized and its capacity trebled. The daily attendance has increased from an average of thirty-five to ninety-five during the year.——The Multnomah Hospital, with a capacity of 250, now being constructed on the campus of the University of Oregon, will be opened to the public about December 1.

RHODE ISLAND

The Fiske Fund.—At the annual meeting of the Rhode Island Medical Society, June 1, no prize was awarded under the Fiske fund on the subject of "Radium Therapy." The subject selected for 1923 is "Has Surgery Lessened the Incidence of Cancer?" A prize of $200 is offered for the best essay on this subject.

SOUTH DAKOTA

Physician Loses Suit.—It is reported that a jury in the circuit court at Chamberlain awarded Mrs. Bessie Feltman damages of $7,500 against Dr. Abner B. Dunn. The plaintiff instituted the suit asking damages for an alleged permanent deformity, which she charged was due to improper care on the part of the defendant. It is believed that the case will be appealed.

TEXAS

University News.—At a recent meeting of the board of regents of the University of Texas Department of Medicine, Galveston, it was announced that only eighty students will be admitted to the medical department at the next session 1922-1923. Entrance will be based on scholarship, and preference will be accorded men and women from Texas institutions. This action was made necessary by the inadequacy of the present buildings and laboratory equipment.——The first graduate course held at the University of Texas was concluded, July 1. Forty-nine physicians from widely scattered areas registered with others in attendance. The course was so successful that it is expected to become an annual feature and will expand to large proportions.

UTAH

University News.—During the year 1921, the regents of the University of Utah School of Medicine, Salt Lake City, have approved two important measures pertaining to the medical school. 1. On recommendation of the medical faculty, the regents have approved the proposition of limitation of students in the medical classes. Beginning next year, therefore, classes in the medical school will be limited to twenty-five students. 2. Recently the medical faculty recommended that the college requirements be raised from two to three years. The regents approved this recommendation, and it will go into effect for the year 1924-1925.

VIRGINIA

Personal.—Dr. Manfred Call was elected dean of the Medical College of Virginia, Richmond, at the annual meeting, to succeed Dr. Edgar C. L. Miller.——Dr. C. E. Wallace has been assigned to the Cape Charles quarantine station at Old Point Comfort, to take over the work which has been conducted for the last two and a half years by Dr. Floyd C. Turner, who has been transferred to Ellis Island, N. Y.

Chiropractor Loses Damage Suit.—In a newspaper clipping from Norfolk, it is reported that damages of $5,000, for alleged malpractice, were awarded to E. C. Jackson by a jury in the circuit court at Portsmouth, June 30, against Hugh D. Via, a chiropractor. The plaintiff stated that Via promised to cure him of a "kink in his back," but that after three treatments he had to go to a hospital, where his back was placed in a plaster cast. Much discussion was given at the trial to the training required of chiropractors.

Tuberculosis Associations Organized.—During the first two weeks in June, twelve antituberculosis societies were organized in the state by the following counties: Isle of Wight, Southampton, Sussex, Prince George, Dinwiddie, Greensville, Brunswick, Nottoway, Amelia, Goochland, Charlotte and Halifax. Farquier County already has a tuberculosis association, so there are now thirteen permanent county organizations to combat the disease in their respective communities. Similar organizations are being formed rapidly in the remaining counties of the state.

WASHINGTON

Washington Tuberculosis Association.—At the annual session in Seattle, it was resolved to petition the next legislature to make Washington state eligible for funds under the Sheppard-Towner act. The following officers were elected for the ensuing year: president, Mrs. R. C. McCredie, Sunnyside; first vice president, Dr. Christen Quevli, Tacoma; second vice president, Dr. H. S. Brode, Walla Walla; secretary, Prof. John Weinzirl, Seattle, and treasurer, Charles R. Case, Seattle.

WISCONSIN

Personal.—Dr. Arthur H. Broche, formerly health officer of Oshkosh, has been elected again to that post to succeed Dr. Bertha Thomson.——Dr. William W. Johnston has been elected health commissioner of Racine, under a plan of organization of the department of health which diverts authority in the health administration from the chief of police to the health officer.——Prof. Benjamin H. Schlomovitz, director of the department of physiology and pharmacology, Marquette University, Milwaukee, has resigned to become director of the laboratories of the National Soldiers' Home and Hospital, now under construction in Milwaukee.——Dr. William A. Rauch, Eaton, has been appointed resident physician at the South View Hospital, Milwaukee.

PHILIPPINE ISLANDS

Public Health News.—According to a recent number of the *Monthly Bulletin* of the Philippine Public Health Service, the School of Public Health of the University of the Philippines is to be reopened. A degree of doctor of public health or its equivalent will be conferred on all candidates who successfully complete the course.

CANADA

New Hospital Opened.—The lieutenant-governor of Ontario officially opened the Willet Hospital at Paris, Ont., July 1. A large contingent of Parisians now in Toronto presented the hospital with an operating table, Mayo rack and stool and cabinet, following the official opening.

Queen's University.—In the Dominion and Ontario Medical Council examinations, nine out of ten men from Queen's University Faculty of Medicine, Kingston, Ont., passed the Dominion examinations and twenty-six out of thirty-one passed the Ontario Medical Council examinations.

Personal.—Dr. Augusta Stowe Gullen, Toronto, was elected vice president for Ontario at the recent annual convention of the National Council of Women at Port Arthur.—Dr. Edward Charles E. Camepau, St. Therese, Que., who has been in active practice for more than twenty-five years, has recently been ordained to the priesthood.——Dr. W. R. Reeds, medical missionary at Honan, China, has arrived in Toronto to take a graduate course in medicine in the University of Toronto.——Dr. Rowland B. Orr, Toronto, has been elected president of the Ontario Historical Society.——Dr. William S. Todd, Hartford, Conn., ex-chairman of the International Board of Examiners in Optometry, was entertained at luncheon in Toronto recently by local optometrists.

GENERAL

Spencer Fullerton Baird Centenary.—In response to the request of the Smithsonian Institution, Washington, D. C., President George E. de Schweinitz, with the approval of the Executive Committee of the Board of Trustees, has appointed Dr. Victor C. Vaughan as the American Medical Association representative on the National Committee which is to have charge of a movement to commemorate on Feb. 3, 1923, the one hundredth anniversary of the birth of Spencer Fullerton Baird. Professor Baird was a noted American naturalist, served as assistant secretary of the Smithsonian Institution in 1850 and as secretary in 1878, and was the author of several books and almost a thousand contributions to natural science.

Pacific Northwest Medical Association.—At the first annual session of the Tri-State Medical Association, held in Spokane, July 6-8, the following officers were elected for the ensuing year: president, Dr. J. Earl Else, Portland, Ore.; first vice president, Dr. Alexander Munro, Vancouver, B. C.; second vice president, Dr. Joseph E. Tyree, Salt Lake City; secretary-treasurer, Dr. Frederick Epplen, Spokane, Wash., and councilor, Dr. Andrew A. Matthews, Spokane. Dr. Else served during the last year as provisional chairman at the head of the organization. Among the visiting physicians who delivered lectures before the meeting were, Drs. Edward C. Rosenow, Rochester, Minn.; Frank Billings, Chicago; Wallace I. Terry, San Francisco; Louis J. Hirschman, Detroit; William Engelbach, St. Louis; Henry A. Christian, Boston; Joseph C. Bloodgood, Baltimore, and Alfred W. Adson, Rochester, Minn.

Personal.—Dr. Henry Hall Forbes, associate professor of diseases of the nose and throat, New York Post-Graduate Hospital, sailed for Paris, July 8, to attend the Tenth International Congress of Otology, before which he will read a paper on the "Bronchoscopic Treatment of Lung Abscess." Later, he will attend the meeting of the British Medical Association at Glasgow, where he will read a paper before the section on laryngology on "The Use of Radium in Cancer of the Esophagus and Larynx in America."——Dr. Bowman Crowell, New York, who has just returned from South America, where for the last four years he has been combating the Chagas disease in Brazil, has been appointed professor of pathology and experimental medicine at the Medical College of the State of South Carolina, Charleston.——Dr. Charles J. Hatfield, Philadelphia, president of the American Tuberculosis Association, recently sailed on the *Finland* for Europe to attend the International Conference on Tuberculosis in Belgium.——On the *Homeric* for Southampton were Drs. David Riesman, Philadelphia; Arnold C. Klebs, Chicago; Samuel G. Gant, New York; H. H. Fries, Frederic E. Sondern, David H. McAlpin, Frederick Braun, Henry B. Epstein, Miles Farrow, Irwin H. Hance, Mark J. Schoenberg and Shober Smith.——Dr. E. E. Montgomery and wife, Philadelphia, have gone for a trip to Alaska, to return in about two months by way of the Canadian Rockies.

Counterfeit of Liquor Prescriptions.—A warning has been sent out to druggists of the country by Prohibition Commissioner Haynes, declaring that the Internal Revenue Bureau has discovered new counterfeit physicians' prescription blanks that are being used to obtain liquor. The statement of the commissioner declared that the filing of any considerable number of these counterfeit permits by druggists may be regarded as proper grounds for the revocation of the druggists' permits. Describing the difference between the genuine and the counterfeit prescription blank the commissioner said:

> The counterfeit is a printed form made on paper which is cheaper and considerably lighter in color than the paper on which the genuine forms are engraved. The green ink used over the entire face of the counterfeit is appreciably lighter in color than that used on the genuine form. The counterfeit is also somewhat shorter than the genuine blank, the latter, after being detached from the stub, being 6⁹⁄₁₆ inches in length, while the similar portion of the counterfeit is barely 6½ inches long. The printing on the counterfeit is much lighter in color than the genuine blank, and on the counterfeit the edges of the letters and the shading is blurred. On the genuine, all lettering and shading is black, with clear-cut outlines. The water-marking on the counterfeit is much less distinct than on the genuine blank, the details of the Treasury seal on the counterfeit being very indistinct, and the word "prohibition" being so faint as to be hardly distinguishable. The Treasury seal and the word "prohibition" are very plainly marked on the genuine blanks. On the counterfeit, the letter "A" printed in red ink preceding the book number is not in alignment with the figures following it, the bottom of the letter "A" being perceptibly lower than the bottom of the figures. On the genuine prescription blank the letter "A" is on a line with the book number.

Bequests and Donations.—The following bequests and donations have recently been announced:

Home for old people and convalescent mothers, New Orleans, a trust fund of $750,000 for the endowment of such a home, in memory of her father and her husband, to be known as the Holmes-Thomas Home, by Mrs. Georgine Thomas of New York.

Servants for the Relief of Incurable Cancer, $500,000, as a memorial to her husband, Charles H. Klein, by the will of Mrs. Mamie Klein.

South Side Hospital, Bay Shore, N. Y., $250,000 by collections.

Presbyterian Hospital, New York, $50,000; New York Orthopedic Hospital, $25,000; Babies' Hospital, $15,000, and Woman's Hospital, $10,000, by the will of Mrs. Henry B. Hyde.

Long Beach, N. Y., $30,000, to found a hospital, by subscriptions, and a site donated by the mayor.

Beauvoir Soldiers' Home, Beauvoir, Miss., $15,000, donated by fifteen counties by appropriations.

Bayonne Hospital, Bayonne, N. J., $5,000, to the endowment fund, by the Misses Mahnken.

Pennsylvania Hospital, Philadelphia, $5,000, for the maintenance of a free bed, by the will of John A. Crane.

Home for Incurables, Philadelphia, $4,000, by the will of Daniel W. Clark.

U. S. Veterans' Tuberculosis Camp, Tupper Lake, N. Y., $3,463, from the Manhattan Club of New York City.

St. Elizabeth Hospital, Elizabeth, N. J., one half of the residue of the estate of Mary A. Reilly of Elizabeth; and $2,500 from the estate of Patrick J. McGuire of Plainfield, N. J., following the death of his wife.

Alice Home Hospital, Lake Forest, Ill., $2,000, from the proceeds of a county fair.

Protestant Deaconess Hospital, Evansville, Ind., $1,000, as a memorial to Benjamin Bosse by his widow, Mrs. Anna Bosse; and $500 by the family of Frederick H. Riechmann.

Brooklyn Hebrew Orphan Asylum and Jewish Hospital of Brooklyn, $1,000 each; the Sydenham Hospital and the Hebrew Infant Asylum, New York, $500 each, by the will of Benoit Wasserman.

Community Hospital, Hutchinson, Kan., $325, from the auction of three pure bred bulls presented to the hospital.

Union Hospital Association, New Philadelphia, Ohio, $200, to equip a room in the new wing, by Lodge 510, B. P. O. Elks.

Dunson Hospital, La Grange, Ga., the library of her late husband, Dr. Henry W. Terrell, to the physicians' consulting room and library, by Mrs. H. W. Terrell.

LATIN AMERICA

Rockefeller Commission in Honduras.—The Rockefeller Foundation has sent a hookworm commission to Honduras. One of its members, Dr. D. B. Wilson, accompanied by Dr. Brizzio, director of public health, has already visited several towns.

Pasteur Celebration in Mérida.—The Mérida branch of the Mexican Medical Association has decided to hold a medical contest in honor of Pasteur. The prizes will consist of medals and diplomas to the local physicians who will submit the best papers on local diseases and means of control. The prizes will be awarded on Dec. 27, 1922, the centenary of Pasteur's birthday.

Argentine Pediatric Literature.—The May issue of the *Archivos Latino-Americanos de Pediatría* is a volume of ninety-six pages, devoted entirely to the classified presentation of the titles of articles on children's diseases published in Argentina since 1916. This journal is the official organ of the Sociedad Argentina de Pediatría as also of the Sociedad de Pediatría de Montevideo. The directors are Prof. Aráoz Alfaro and Prof. L. Morquio. The editors in charge are Drs. Iribarne and Pelfort.

The University of Lima Reopens.—After more than a year of suspension, this important institution of learning has resumed operation, although, as the *Crónica Médica* remarks, "the air is not quite clear even yet." During the long suspension, the university lost by death two leaders, Odriozola, the rector, and Prado, the vice rector. Dr. Gastañeta has been elected to the post of dean. His friends, and the university authorities and students celebrated his election with a festival meeting with moving addresses on the historic occasion of the reopening of the university.

The "Prensa Médica Argentina."—This Buenos Aires exchange appears in a new form, changing as it enters its ninth year from a broad sheet like a daily to about the size of The Journal. Its editorial staff contains many familiar names, such as D. J. Cranwell, M. R. Castex, Bonorino Udaondo, Bosch Arana and Mazza, besides thirty-three others constantly appearing in medical literature. It has rather specialized in the last year or so in the practical study of inherited syphilis, publishing profusely illustrated observations which have thrown light in many dark corners.

Mexican Committee for the Sixth Latin American Medical Congress.—An organizing committee for Mexican participation in the Sixth Latin American Medical Congress has been appointed as follows: honorary presidents, Drs. Gabriel Malda, Guillermo Pavia, J. Ramon Xaza and Nicolas León; president, Dr. Gregorio Mendizábal; vice president, Dr. Alfonso M. Pruneda; treasurer, Dr. Joaquín G. Cosío; secretary, Dr. Ricardo E. Cicero; members, Drs. E. Avalos, A. B. Vasconcelos, F. Castillo Nájera, M. Cordero, G. Diaz Lombardo, G. Esclona, J. Ulises de la Garza, J. de J. González, E. Landa, J. M. Noriega, F. Ocaranza, F. Paz, T. G. Perrin, R. Silva and D. M. Vélez. The subject assigned to Mexico is medical reciprocity in Latin America. The essayist will be Dr. A. Pruneda, secretary of the public health department. In addition, papers will be presented by other physicians.

Personal.—Dr. Salvador Bermudez of Mexico has been granted a two months' fellowship by the Rockefeller Foundation, at the Johns Hopkins Public Health School.——Dr. A. Esguerra Gómez, professor of pathology of the University of Bogota, has been appointed a member of the Radium Institute of Paris. Dr. Esguerra was designated by Professor Regaud to make the first applications of the radium donated by American women to Mme. Curie.——Dr. F. A. Risquez, one of the most prominent Venezuelan physicians, celebrated, April 27, 1922, his forty years of university teaching.——Prof. Aloysio de Castro and Prof. Afranio Peixoto of Rio de Janeiro have been elected corresponding members of the Academia das Sciencias of Portugal.——The *Brazil-Medico* records that Dr. Afranio Amaral of the Instituto de Butantan is to sail in July for the United States on a trip of inspection. He will be accompanied by Dr. W. de Oliveira, a public health officer of Botucatú, and Dr. J. Fragoso, sanitary inspector of Piracicaba.——Prof Moraes Frias of the University of Porto is on his way to visit Brazil.

FOREIGN

Prophylaxis of Diphtheria in the Netherlands.—The city of Dordrecht has made arrangements for active immunization of schoolchildren against diphtheria when the parents desire.

Swiss Surgical Meeting.—The ninth annual meeting of the Swiss Surgical Association was held at St. Gall early in

July. The main subject appointed for discussion was "Constitution and Surgery," with addresses by Askanazy, Vulliet and A. Kocher.

Social Insurance in Germany.—The *Münchener medizinische Wochenschrift* warns that a small cloud is visible to the medical profession on the horizon in the recent demand of certain German housewives that the business of being a housewife should be recognized as a regular trade.

Anniversary of van Swieten.—Our Vienna exchanges mention that June 18 was the hundred and fiftieth anniversary of the death of Gerard van Swieten, 1700-1772. He was a pupil of Boerhaave and was called from Leyden to Vienna by the Empress Maria Theresa. He reorganized the entire system of medical education in Austria.

A Discriminating Publication.—The *Revista de Higiene y de Tuberculosis* of Valencia, Spain, is particular in choosing its exchanges. It has published a list of papers, with which it refuses to exchange, because of their being devoted to the advertising of "patent medicines." The list follows: *Le Monde Médical, La Médicine Pratique, Revista de Técnica Médica, La Medicina Internacional, Revista de Información Terapéutica, Clinique et Laboratoire, La Rassegna di Clinica, Terapia, Boletín del Suero Cuguillère, Revista de los Laboratorios Americanos* and *L'Avenir Médical.*

Italian Congress of Radiology.—At the fourth annual congress held in Bologna, May 9-11, under the presidency of Prof. A. Busi, the following officers were elected: honorary president, Prof. Senator O. Corbino; president, Professor Bertolotti, Turin; vice president, Professor Balli, Modena, secretary-treasurer, Professor Ponzio, and chief editor of the journal of the society, Professor Perussia, Milan. Palermo was chosen as the place for the fifth congress to be held in October, 1923, under the presidency of Professor Scaduto. Professors Ceresole, Alessandrini, Tandoia, Maragliano, Rossi and Spagnolio were among those who read papers at the meeting.

Personal.—A bust of Dr. E. Lang, the founder of the Lupus Institute at Vienna, was recently unveiled at the opening of the new carbon arc lamp hall.——The Wiesbaden roentgenologist, Prof. Alban Köhler, has been elected an honorary member of the Spanish Society for Radiology and Electrology.——Prof. P. Mühlens of Hamburg has been asked by the government of Jugoslavia to study and report on malaria in that country. He has accepted an invitation to lecture in Barcelona in the fall on malaria, spirochetosis and affairs in Russia.——The king of Spain has decorated with the Grand Cross del Mérito Militar, the following Belgian physicians, in token of appreciation of their services to the Spanish army training camps. Dr. Voncken, Dr. De Block, Dr. Wibin and Dr. Vandermissen.——At the recent annual meeting of the organized ophthalmologists of Germany, the Graefe prize was awarded to Behr of Kiel, Hertel of Leipzig and Köppe of Halle.——The *Ugeskrift for Læger* mentions that Prof. M. H. E. Tscherning of Copenhagen has been decorated by the government of Norway, and Drs. Marner, Hempel-Jörgensen and I. Hansen have been decorated by the Austrian Red Cross.

Deaths in Other Countries

Dr. **W. Gauld**, formerly medical missionary at Swatow, China, died in London, June 14, aged 82.——Dr. **Archibald L. McLean**, at the Royal Prince Alfred Hospital, Sydney, May 13, following a long illness.——Dr. **Alfred Sutton**, Surgeon, A. M. C., of Australia since 1900; was mentioned in dispatches four times during the late war and received several decorations, died recently at Brisbane, Australia.——Dr. **Jacques Bertillon**, aged 71, inventor of the finger print system of identification, which his brother adapted for practical use. He had charge of the bureau of statistics at Paris, in which position his father and grandfather had preceded him.——Dr. **G. Bayer**, director of the hospital at Hannover-Linden.——Dr. **G. Meschieri** of Pollenza, Italian bacteriologist.——The *Dermatologische Wochenschrift* mentions the death of Dr. **E. von Negri** of Amsterdam, known by her works on granuloma malignum, etc., and of Dr. **W. B. Zogbaum** of Christiania, the inaugurator of the first institute in Norway for treatment with radiant energy.

CORRECTION

Appointment as School Health Director in Utah.—In The Journal, July 8, page 142, it was stated that Dr. C. C. Jensen, Riverton, Utah, had been appointed as state director of health education. The item should have said that C. N. Jensen, Ph.D., state superintendent of public instruction at Salt Lake City, would hold this position.

Government Services

Organization of New Reserve Units

The Surgeon-General of the Army announces the authorization of the following new units in the organized reserve: General Hospital No. 51 (Georgetown University School of Medicine); General Hospital No. 52 (Syracuse University School of Medicine); Surgical Hospital No. 15 (Italian Benevolent Institute and Hospital, New York); Evacuation Hospital No. 20 (Flower Hospital Unit, New York); General Hospital No. 54 (State University of Iowa College of Medicine); General Hospital No. 6 (Massachusetts General Hospital Unit); General Hospital No. 48 (Metropolitan Hospital, Department of Public Welfare, New York), and General Hospital No. 53 (St. Louis University School of Medicine).

Vocational Training of Veterans

Figures just issued by the U. S. Veterans' Bureau show that a total of 601,515 veterans of the World War have applied for vocational training, of which number 312,930 applications have been approved. In addition to the 30,000 factories and industrial organizations which are affording placement training to the 36,704 veterans, there are 3,228 institutions engaged in the work of remaking men who are disabled or partially disabled. Of this number, there are 162 universities, 253 colleges, 98 state normal schools, 1,041 commercial schools, 244 public schools, and 266 institutions teaching miscellaneous subjects. Of these, 49 are government institutions. The number receiving instruction has almost doubled in the period from July, 1921, to May, 1922. July 1, 1921, there were 85,338 men actually taking vocational training, and on May 1, 1922, there were 108,919.

Chicago U. S. Veterans' Bureau

The District Office at Chicago (No. 8) has moved from the Leiter Building to the Butler Brothers Building. The cooperation section of the administrative division occupies space on the tenth floor, approximating one half of a city block, while the district office occupies the entire eleventh floor. The change was made in accordance with the general economic program now being practiced by the bureau. It is estimated that between $100,000 and $150,000 a year will be saved in rental alone.——Col. C. R. Forbes, director of the U. S. Veterans' Bureau, made an inspection trip to District 8 recently. He inspected the new offices and the new site for the $3,000,000 hospital for neuropsychiatric cases, to be established at Great Lakes. He expressed himself well pleased with the morale and the conditions of the district, and addressed a communication to this effect to all of the employees of the district, thanking them for their service and cooperation.

Hospital for Tuberculous Service Men

A 500-bed hospital, costing $1,500,000, for former service men suffering with tuberculosis will be erected at Tupper Lake, N. Y., instead of the proposed 250-bed institution at Liberty, N. Y., according to an announcement made by Acting Director Rogers of the U. S. Veterans' Bureau. Mr. Rogers also announced that the Veterans' Bureau is to turn over to the Treasury Department the sum of $750,000, to enable it to increase the capacity of the hospital to be erected at Chelsea, N. Y., from 250 to 500 beds, making the total cost of the Chelsea hospital $1,500,000. These projects when completed will give the New York district facilities for caring for 1,000 tuberculous patients. Decision to abandon the proposed site at Liberty, N. Y., it was explained by Director Rogers, was made on recommendation of the General Hospitalization Board. It was found that the land there was unsuitable and the 150 acres at Tupper Lake, to be donated by the chamber of commerce of that town, was selected instead. Survey of the land at Tupper Lake is already under way and bids for the construction of the new hospital will be called for shortly. Assistant Secretary of the Treasury Clifford also announced that the Treasury Department had selected the Hall property at Aspinwall, Pittsburgh, as a site for a new veterans' hospital, to care for disabled ex-service men of the Pittsburgh district. The institution will contain 250 beds and will cost approximately one million dollars

The Hall property consists of 145 acres overlooking the Alleghany River. With the location of this hospital, the Treasury Department has completed its program for hospital construction under the act passed by Congress last year appropriating the sum of $18,600,000. Since then $35,000,000 has been appropriated by Congress, the matter of its expenditure being placed in the hands of the U. S. Veterans' Bureau. Assistant Secretary of the Treasury Clifford gave out information to the effect that the Perryville, Md., project, increasing the size of the veterans' hospital there by 300 additional beds had been completed. The Bronx Hospital, New York, of 1,000 beds has been completed.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 26, 1922.

The Prevention of Venereal Disease

The Society for the Prevention of Venereal Disease has made a step forward and promulgated a detailed policy. It takes its stand on three main principles: 1. It is the duty of every good citizen to live a chaste life. 2. It is the office of medical science to prevent the consequences of sexual immorality. According to the Royal Commission on Venereal Diseases, the number of persons affected with syphilis, acquired or congenital, cannot fall below 10 per cent. of the whole population of the large cities, and the percentage of those affected with gonorrhea must greatly exceed this. The tragic fact is that the evil passes to innocent women and children. 3. Venereal disease can be prevented by immediate self-disinfection, provided it is intelligently applied. Self-disinfection may fail by misuse or delay; but this is no argument against its efficacy. The society also insists on the obligation of seeking and testing new measures of prevention. It looks with favor on all curative measures, and heartily approves of venereal clinics. It teaches that instruction in the methods of self-disinfection should not be refused to males who have reached adolescence, to adult women if they desire it, or even to younger persons at the discretion of their parents or those responsible for their welfare. It advocates the propagation of such knowledge as may tend to diminish venereal disease and its grave consequences by lectures and leaflets, assuming that the lectures are attended and the leaflets received only by such persons as have reached adolescence.

Following this preamble, the society's policy is laid down under five headings: 1. To instruct the public as to (*a*) the great importance of self-disinfection at the time of exposure and (*b*) the methods of doing this. 2. To give such instruction only to men above the age of 18, to adult women on demand, and to younger persons in special cases at the discretion of those responsible for their welfare. 3. To insure the sale of the disinfectants required with full instructions to such persons and to such persons only. 4. To convey instructions regarding the nature and application of such disinfectants to such persons (1) by leaflets supplied (*a*) with disinfectants at the time of sale, and (*b*) by attendants at public conveniences on demand; (2) by lectures; (3) by medical officers of venereal clinics; (4) by officers or officials in charge of naval, military, and industrial units. 5. To advocate such further steps for the prevention of venereal disease as may from time to time be deemed advisable by the executive committee.

Medical Society for the Study of Venereal Diseases

A meeting has been held in London at which it was decided to form a medical society for the study of venereal diseases. The chairman, Dr. David Watson of Glasgow, stated that those engaged in venereal work had expressed a desire for a society in which these diseases would receive due consideration. A constitution was adopted and it was agreed that, subject to the approval of the council, local divisions of the society may be formed. The question of the publication of a journal was remitted to the council for consideration. The officers elected to act until the first general annual meeting, to be held in July, were: president, Dr. David Watson, Glasgow; vice presidents, Dr. Wilfred Fox and Mr. F. S. Kidd, London; committee, Dr. Mary Liston, Edinburgh, Mr. D. Vinrace, Dr. D. Wyndham Powell and Col. L. W. Harrison, London; secretary and treasurer, Mr. E. R. T. Clarkson, London.

Protest Against a Medical Play

An English version of Baron Rothschild's play "Le Caducée" is to be produced in London. It may be remembered that the principal character is a fashionable surgeon who is a scoundrel. He performs unnecessary operations from which patients sometimes die, and he divides the fees with obscure physicians. He invites newspaper representatives and photographers to his operations in order that they may advertise him. The *British Medical Journal* has made a protest against the play. It holds that "the whole atmosphere of the play is distasteful to any one to whom the honor of the medical profession has a meaning at all, besides being grossly untrue to life." It has also been pointed out in the press by a physician that anything that tends to lower a patient's confidence in medical advice when an operation is necessary is to be deplored, as the sick require all the moral support that can be obtained. On the other hand, Dr. Arthur Bourchier, who is producing the play and taking the rôle of the surgeon, declares that there are black sheep in every flock and that the play represents the black sheep as he works in Paris and, no doubt, in London. He fails to see why the public should not be warned against such villains. As Baron Henri de Rothschild is a physician, he knows what he is writing about. Mr. Bourchier added that a special performance had been arranged in aid of the funds of Guy's Hospital.

Protection of the Race Against Multiplication of Mentally Defective

Mental deficiency is hereditary and those who suffer from it are prolific, more prolific than the general public, as the moral and economic restraints which diminish fecundity do not come into play. Their multiplication is not only a burden to the community but tends to deteriorate the race. In a series of articles, this evil has been discussed in the *Morning Post,* and the suggestion of Sir Archdall Reid, that all mental defectives should be sterilized and thus rendered incapable of propagation, is recommended. A correspondence in which many well known persons joined shows that public opinion in this country is not ripe for such a remedy. In the United States, legislation has gone to the extent of permitting compulsory sterilization, but it is not employed. The patient is consulted or, if his mental powers do not allow this, the question is submitted to his relatives.

Dr. A. F. Tredgold, a well-known expert on mental deficiency, points out that segregation is just as efficient as sterilization and has other advantages. All mental defectives are incapable of maintaining existence and at the same time conforming to the laws of the community without some amount of control, either for their own protection or the protection of others. Many spread venereal disease and many commit crimes. Hence, a considerable proportion should be detained in institutions, even if they are sterilized. Dr. Tredgold states that there are thousands of defectives in this country who, either for their own sakes or for that of the public, should be in institutions, and the failure to provide accommodation on the ground of economy is an extremely short-sighted policy. He does not consider it possible to apply sterilization to all grades of mental defectives without risk of including nondefectives. In the case of idiots and imbeciles, diagnosis is easy, and such risk does not exist. But these classes comprise less than one fourth of the total number of defectives. Many of them are naturally sterile and therefore do not need the operation. The great danger of propagation arises in the class of the feebleminded, to which fully three quarters of all defectives belong and which is highly prolific.

Diagnosis in these cases may be very difficult. During the unstable period of adolescence, there are many varieties of mental abnormality, readily confused with defect, which are often temporary and amenable to treatment. There is, moreover, a very large class, known as "border-landers," who occupy a position between defectives and normal persons. While considering sterilization justifiable and advisable in particular cases of defect, Dr. Tredgold points out that it does not remove the necessity for segregation and institutional care in a large proportion of cases.

PARIS

(From Our Regular Correspondent)

June 23, 1922.

Cancer in France

More than half of Volume 5 of the new Traité de Médecine, recently published under the supervision of Profs. G. H. Roger, F. Widal and P. J. Teissier, by Masson et Cie, is devoted to the study of cancer. The authors, G. Roussy, associate professor of the faculty of medicine of Paris, and Maurice Wolf, former head of the department of pathologic anatomy of the faculty of medicine of Strasbourg, discuss our present knowledge of cancer from various standpoints: biologic, anatomicopathologic, clinical, experimental and therapeutic. To this, Roussy and Wolf have added an interesting chapter on cancer viewed from a social standpoint, including statistics and information concerning the campaign against cancer as it is organized in various countries. It is interesting to note what has been done in France along these lines.

CANCER STATISTICS IN FRANCE

Roussy and Wolf begin by stating that the French are not fond of statistics, and that few statistics are published in France as compared with America, England and Germany, where statistical researches occupy an important place in medical science. Whatever may be their value, the official statistics furnished by the ministry of the interior concerning mortality due to cancer in France from 1906 to 1916 are here presented.

NUMBER AND PROPORTION OF INHABITANTS DYING FROM CANCER

	Total Number of Deaths			Proportion per Thousand Inhabitants		
Year	Cities of 5,000 or More	Communes of Less Than 5,000	Total for All France	Cities of 5,000 or More	Communes of Less Than 5,000	Total for All France
1906	14,339	12,967	27,306	1.00	0.52	0.70
1907	14,384	14,900	29,284	0.99	0.60	0.75
1908	14,757	15,367	30,124	1.01	0.62	0.76
1909	14.907	15,738	30 645	1.01	0.63	0.77
1910	15,256	16,047	31,303	1.02	0.65	0.79
1911	15,897	15,871	31,768	1.04	0.65	0 80
1912	15,979	15,894	31,873	1.05	0.65	0.80
1913	16,429	16,405	32,834	1.08	0.67	0.83
1914	14.202	12.274	26,476			
1915	13,971	10,396	24,367			
1916	14,407	10,920	25,327			

Large cities have, as a rule, a greater cancer mortality than small cities. Thus, in 1913, the proportion of deaths due to cancer per thousand inhabitants was: cities of from 100,001 to 551,000, 1.20; 30,001 to 100,000, 1.17; 20,001 to 30,000, 1.07; 10,001 to 20,000, 1.05; and 5,000 to 10,000, 0.79. The percentages of deaths from all causes due to cancer in France were: 1906, 3.51; 1907, 3.69; 1908, 4.05; 1909, 4.06; 1910, 4.41; 1911, 4.10; 1912, 4.60; 1913, 4.67; 1914, 3.82; 1915, 3.85, and 1916, 4.27.

Present Status of the Campaign Against Cancer

With the beginning of the twentieth century, the campaign against cancer received a new impulse, which became manifest in France, England and the United States at approximately the same time. Dr. Roussy, who was entrusted with a scientific mission to America (The Journal, Jan. 22, 1921, p. 257) lauds "the spirit of organization and method prevailing in the United States" which has made possible the creation, in New York, Chicago, Boston, Buffalo, St. Louis and other cities of many hospitals, institutes and laboratories admirably organized for the study of cancer. "In France," Roussy and Wolf state, "we must frankly admit that we have been left far behind." It is only during the last few years that the movement in favor of the campaign against cancer began to materialize. The department of public welfare of Paris opened cancer services at the Brévannes and the Salpêtrière hospitals, but these services lack resources and equipment. The general council of the department of the Seine made the necessary appropriation in 1921 for the creation of a service for the treatment of cancer in the Paul-Brousse Hospital at Villejuif. This service was placed under the direction of Dr. Roussy, and opened in October, 1921. The municipal council of Paris showed its interest in the movement by purchasing 2 gm. of radium and by instructing the department of public welfare to organize in its hospitals centers for the treatment of tumors with radium and roentgen rays. Two of these services are in operation at present, at the Hôtel-Dieu and at the Tenon Hospital. The Radium Institute of the University of Paris, annexed to the Sorbonne, comprises a physical laboratory in charge of Madame Curie, and a biologic laboratory in charge of Regaud. This laboratory comprises a department of physics (roentgen rays and radium), a department of pathologic anatomy (histology, biopsy), and an experimental and therapeutic department (roentgen rays and radium). The Radium Institute has also a collection of anatomic specimens and a library. To the institute is annexed a patients' service in the Pasteur Hospital with consultation for outpatients. We must also mention two associations for the study of cancer. One, the Association française pour l'étude du cancer, founded in 1908 by Prof. Pierre Delbet, is above all, a scientific society, publishing a monthly bulletin in which appear works pertaining to cancer. The other association was founded during the war by Professor Hartmann, and is called the Ligue franco-américaine contre le cancer. It deals especially with the sociological aspects of the campaign again cancer. I have mentioned in previous letters various forms of its activity.

Table Utensils and Contagious Diseases

Table utensils play an important rôle in the diffusion of contagious diseases, and I recently mentioned the poor conditions under which washing of glassware is done in restaurants (The Journal, March 4, 1922, p. 666). Drs. Dejust, Wibaux and L. Dardel recently presented an interesting communication concerning pathogenic bacteria on table utensils and the best methods of disinfection. They studied the conditions under which a glass article can be rid of bacteria by the use of running water, by running water plus rubbing, or by the use of a soap solution, these methods being followed or not by drying with a cloth. This research disclosed the slight efficacy of washing with water even when it is accompanied by rubbing. Of thirty articles of glassware soiled by cultures of *Bacillus prodigiosus* and washed with water without being wiped, twenty-two were still infected with the bacilli. On the other hand, of twenty-four such articles washed in the same way but wiped, only five remained infected. Of six articles washed with a 2 per cent. soap solution without being wiped, five presented the bacilli, while of twenty-two articles washed with a 2 per cent. soap solution, followed by wiping, none showed *B. prodigiosus*. The influence of drying with a cloth is obvious, especially when it follows washing with soap.

The Physical Reeducation Centers

The army recruiting bill contains an innovation which is being sharply criticized. Criticism is directed against the "reeducation centers" established for young men who are neither accepted for service nor exempted but are referred to another examination later. The postponement is based on their lack of physical development owing to defective living conditions, or unhygienic surroundings, or the fact that their physical condition, while temporarily below par, owing to a recent illness, appears susceptible of rapid improvement. The committee on hygiene of the chamber of deputies considers this innovation open to criticism. Monsieur Justin Godart, chairman of the committee and former undersecretary of state of the sanitary service, stated that these reeducation centers are to receive convalescents and weakly young men who have been brought up in a poor environment. But how, in practice, can we distinguish between these two classes of young men? If their condition must be the result of "defective living conditions or unhygienic surroundings," inquiry must be made concerning their home environment and their surroundings at work. As regards convalescents, it would probably be preferable to let them remain at home instead of transplanting them, while at their lowest point of resistance, to a collective mode of existence, which always entails a critical period of adaptation and presents dangers of contamination. Thus, the committee on hygiene of the chamber of deputies opposed the creation of these reeducation centers as dangerous and likely to entail unnecessary expense since their purpose would be to complete regimental ranks rather than to fill an urgent need. Dr. Sabatier, medical inspector in chief, with the rank of brigadier general, is also of the opinion that the army is not qualified to undertake to give to underdeveloped young men as a class the physical development required to make them fit. As there would be many young men of delicate constitution to deal with, it is to be feared that the reeducation centers would not accomplish their purpose and would, unless carefully supervised, entail the care of many patients, and many pensions and deaths.

Proprietaries and the Academy of Medicine

I mentioned recently the protest of the *Journal des Praticiens* based on the fact that certain communications presented to the Academy of Medicine, while seemingly of a scientific character, in reality served as an advertisement for new pharmaceutic specialties (THE JOURNAL, June 3, 1922, p. 1735). A recent occurrence supports their contention. The *Bulletin de l'Académie de Médecine* of March 28 contains a communication by Dr. E. Doumer, professor in the medical department of the University of Lille, concerning the good results secured from the use of paper compresses impregnated with a mixture of a certain acid and paraffin in the treatment of rheumatism and gout. Immediately, Paris physicians received a reprint of the article contained in the *Bulletin*, together with a circular giving the address of the manufacturer of the compresses, the price per package, etc. The *Journal des Praticiens* remarks in an editorial: "It is impossible to imagine a more shameless use for commercial purposes of a supposedly scientific communication, and a more flagrant attempt to derive a commercial advantage from the prestige of the Academy of Medicine." The *Journal des Praticiens* requests a modification of the academy's rules, so that a communication concerning a new remedy must first be submitted to a committee, which would take all necessary precautions to inquire into the subject. If presentation of the communication is authorized, the author would be requested not to abuse the authority "and thus transform the Academy of Medicine into a sort of broker's office to help the sale of a pharmaceutic specialty."

Award of Hanbury Gold Medal to Professor Perrot

The Hanbury gold medal has been awarded to Prof. Emile Perrot, professor of the faculty of pharmacy of Paris, for his works on medicinal plants and materia medica in general. This medal commemorates the works of the famous English naturalist, and is awarded every two years to promote and reward original researches in the chemistry and natural history of drugs.

New Genito-Urinary Journal

The first number of a new medical journal entitled *Archives des Maladies des Reins et des Organes Génito-Urinaires* has just been published. This publication is under the direction of Prof. L. Ambard of Strasbourg and Dr. E. Papin of Paris, and will appear in volumes of 128 pages, six times a year. (G. Doin, publisher, 8 Place de l'Odéon, Paris.) The first number contains a study by Papin and Ambard on the innervation of the kidneys; an article by Pasteau on the treatment of traumatic stricture of the ureter; another by Verliac on the value of laboratory research applied to diagnosis of tuberculosis of the kidney, and an essay by Ambard and Lux on diabetes insipidus. The first number is devoted to original articles, but the publishers intend to put the reader in touch, in the following numbers, with all the works concerning the kidneys and genito-urinary organs, and to give an extensive bibliography, as well as general reviews and clinical, therapeutic and technical laboratory data of interest to urologists.

Tribute to Cajal

Prof. Ramon y Cajal of Madrid has been granted an honorary degree by the council of Bordeaux University.

VIENNA

(From Our Regular Correspondent)

June 23, 1922.

Convention of the German Gynecologic Society at Innsbruck

The third Austrian university town, Innsbruck, was selected by the German Gynecologic Society as a meeting place for its yearly convention at this time. Owing to the pressure of time—it lasted only three days, June 8-11—and to the hardships of travel in central Europe, little attention was paid to purely social activities, more earnest work being the aim. Surgeons from northern Europe, Switzerland, Japan, Jugoslavia and America were present. More than 208 papers were presented, exceeding the number read at any previous meeting of the society. The young men were in the majority at the convention, because the older men were unfitted for the hardships attending the journey and the overcrowded conditions of the city. Thus, their ripe opinion had to be foregone. The papers were divided under four heads: treatment of cancer by actinic methods (radium or roentgen rays), the mechanism of labor, internal secretion, and the treatment of infection following abortion. At the convention in Halle nine years ago, radiotherapy seemed to promise a new era in the problem of cancer of the genital organs; but at this year's meeting the high expectations met with disappointment. Professor Bumm of Berlin pointed out that the results obtained by a number of competent observers have shown clearly that, in selected cases, a permanent cure can be obtained by means of radiotherapy alone or in combination with surgery; but it is far from being a cure for more than a modest percentage of cases. An interesting addition to the instrumentarium of the radiologist is an invention by three Innsbruck physicians, demonstrated at the congress, which employs the spectroscope of the roentgen rays to measure their intensity. Thus, a simple and effective control of the dosage is obtained. In the second group of papers, Dr. Warnekros of Berlin challenged the teaching of Sellheim of Halle. He had studied the different phases of labor, as well as the conditions during the last weeks of pregnancy, by roentgenograms, and he attributed a liberal share of the work necessary for the expulsion of the fetus to energy stored in the joints and ligaments of the pelvis. However, the majority of those present favored Sellheim's theory.

The problem of internal secretions was discussed in a number of papers, Halban, Aschner, Fellner and Hofmann contributing to the discussion. No new point of view was brought out. The correlation between ovary and thyroid, ovary and pituitary gland, and the corpus luteum and the uterine mucous membranes formed the subject of some interesting papers by clinical assistants. At present, the situation is best termed as being still "in statu nascendi," in spite of the amount of knowledge accumulated within the last ten years. Much time was taken up by the discussion of the treatment of puerperal sepsis (infection following abortion) and the justification of interruption of pregnancy. Early surgical interference together with vaccine treatment was urgently recommended, while a number of men, including Dr. Menge of Heidelberg and Dr. Kupferberg of Mayence, were strongly opposed to the lenient or, as it was termed, unlawful attitude of the practitioner toward destruction of fetal life. It may, however, be added here that at present there is an inclination among the legislators of Central Europe to make the interruption of pregnancy a legitimate procedure in many more or less suitable cases.

Besides these four groups of papers, several interesting papers were read, among them one by Novak of Vienna on parthenogenetic generation in rats, by Werner on tuberculosis of the female organs and by Graff on the use of oxygen to inflate the tubes and control their permeability. Thaler has succeeded in establishing regular periods in several cases of amenorrhea, with the aid of a weak (irritative) dose of roentgen rays. Zacherl's (Graz) results in treating myomatous growths with radium are very encouraging. Marked interest was evoked by the cinematographic methods of teaching used now in Vienna. Professor Weibel presented his films, one showing the exact details of an operation for cancer of the uterus (Wertheim's operation). Another one showed the development of the human ovum and its fertilization, as demonstrated in the students' classes here. Professor Frankl presented his models of human and animal embryos from the very earliest stages. Dr. Kogerer read a paper on posthypnotic painless childbirth, which caused quite a heated discussion. The next convention is to meet at Heidelberg.

Austrian Professors Lecturing Abroad

In the last year, several professors of Vienna University have been invited to lecture at foreign universities as a recognition of the high esteem of the standard of research in this city. Dr. Lorenz, who visited the United States, met more or less marked opposition. Others, for example, Fuchs, have met only adherents. Fuchs lectured in Spain and South America, and is now in the United States. Professor Haber lectured in Spain, on modern surgery; while Frankl, the gynecologic researcher, went to Dublin. Professor Ruttin, the otologist, well known to many men studying in Vienna in the Allgemeines Krankenhaus, lectured in Holland and others are called to Roumania and Warsaw. A series of exchanges has been arranged between German and Austrian universities, and students also will profit by frequent exchanges. Here the minor German universities chiefly are under consideration, and it is expected that such arrangements will bring about uniform methods of scientific instruction in these countries.

The Relative Frequency of Progressive Paralysis in Vienna in the Last Twenty Years

Professor Pilcz, working in the statistical office of the ministry of health, and in the clinic for mental diseases of Vienna, has undertaken the task of ascertaining whether the condition known as progressive paralysis is increasing. Several authors have answered this question in the affirmative, and it is rather difficult to weigh such statements simply by considering the case histories. It must not be forgotten that the relative frequency of such cases in the hospitals for the insane depends on the kind and number of patients housed in such institutions altogether. Thus, Kraepelin says that care must be exercised in giving the diagnosis, as well as the incidence, of syphilitic infections per se, before conclusions as to an increase or decrease can be reached. Professor Pilcz has examined the records of the Vienna hospitals for the insane since 1902, and has computed the number of cases of progressive paralysis in proportion to the number of lunatics admitted, also to the entire population, and furthermore to those of the ages of from 30 to 50 years, and in respect to sex incidence. He found that, while, in 1902, out of 794,770 males and 906,000 females living in Vienna, 683 males and 510 females were admitted, among whom were 217 and sixty-seven, respectively, classed as suffering from progressive paralysis (273 and seventy-four, respectively, per 10,000 of the entire population), in 1912, the figures were 978,655 males and 1,093,000 females, with about 388 cases of males and 114 of females diagnosed as progressive paralysis admitted to the asylums, or 396 and 104 per 10,000. In 1921 the figures were 851,302 males, 990,024 females, with 224 and eighty-seven cases, respectively, or 263 and 87 per 10,000. His investigations tend to show that, for about fifteen years, a constant, well marked drop in the relative incidence of these patients is noticeable, being most evident in the years 1920 and 1921. This subsidence appears even more marked in persons of from 30 to 50. Here the percentage of progressive paralysis among all insane patients dropped from 1,536 per 10,000 for males in 1910 to 789 in 1921, and from 359 to 260 for females. The years of the war show a variation, as the number of mentally defective is very high, and the number of those suffering from progressive paralysis is relatively low. The conditions are nearly the same among the rural population as far as could be ascertained by the case histories, so that the working of the same factors may be assumed. It appears that, in Vienna at least, a marked drop in the number of cases of general paralysis of the insane is evident. The explanation cannot be sought in more efficient diagnosis; it is possible that the "genus morbi" has changed, just as the character of syphilis has changed within the last few years, and that fewer syphilitics fall victims to progressive paralysis, for unknown reasons. Thus, for instance, Mattauschek could show that out of 617 officers of the Austrian army treated for syphilis in the five years from 1884 to 1889, sixty, or 7.72 per cent., developed progressive paralysis; but of 1,139 officers treated from 1894 to 1899, only thirty-seven, or 3.25 per cent., suffered in the same way. Perhaps the low figures for 1920 and 1921 are the result of the malarial treatment of large parts of the populations instituted a short time ago, when many soldiers suffered from malaria and syphilis in combination. Professor Pilcz has renewed and continued investigations of these problems every ten years in order to clear up this riddle.

BUENOS AIRES

(From Our Regular Correspondent)

May 21, 1922.

Medical Congresses

The organizing committee of the Sixth Latin American Medical Congress, which will be held at Havana in November, has appointed the following Argentine committee: Drs. M. Castex, E. B. Demarta, D. Cabred, S. Mazza, A. Sacco, J. Ingenieros, P. Chutro, B. A. Houssay, D. Cranwell, C. Jacob, M. Acuña, F. Iribarne, H. Caretti, A. Oyenard, J. Llambias, C. Bonorino Udaondo, M. V. Quiroza, G. Bosch Arana, F. Rosenbusch, J. A. Dominguez and J. Arce.

The Second National Medical Congress will be held in October. The subject which will be discussed by all the sections is "Echinococcus Disease."

More Quarantine Stations

The national government has already equipped properly the two quarantine stations at Jujuy and La Rioja. In addition, two disinfecting stations have been equipped at Chilecito and Olata. Another quarantine station will be soon established at San Luis, a special building being constructed for this purpose.

Importance of the Suprarenal Medulla

Drs. Houssay and Lewis have kept alive fifteen dogs deprived of the whole left suprarenal medulla and the right suprarenal capsule. These animals lived perfectly without showing asthenia, decreased tension or any other trouble; but as soon as the remaining suprarenal cortex was removed, the dogs died, in from twenty-two to twenty-six hours. These experiments show that the existence of the cortex is necessary to life, but the medulla does not fill any essential rôle. In all cases, serial tissue examinations were made.

Smallpox

The smallpox epidemic still persists in the province of Cordoba, where many of the inhabitants are opposing vaccination, which is precisely contrary to conditions on the coast. The disease has appeared at Zapala and Minas (Neuquen), and near the Chilean border.

New Hospitals

The new buildings for the Misericordia and San Juan de Dios hospitals, at La Plata, have been officially dedicated. The Misericordia Hospital is connected with the Policlinico, where a radium institute for cancer has just been established. The Policlinico Hospital is now cooperating with the La Plata Medical School.

Medical Schools

At the Buenos Aires Medical School, Dr. Julio Iribarne was unanimously elected dean. Dr. Iribarne is a young assistant professor who has shown himself very active in reform movement in the last few years. The new budget carries larger appropriations, and it is intended to enlarge some courses, reduce the number of pupils (5,000) and increase the salaries of professors. It is expected the proposed changes will benefit both teaching and research work.

At Cordoba, the student strike has just been called off.

Prof. George F. Nicolai, from Germany, who has been engaged to teach physiology, has just arrived. Dr. Nicolai, whose pacifist views gained him much publicity during the war, became known for his research work in physiology of the heart and electrocardiography, although of late he has been doing clinical work.

At the Rosario Medical School, an attempted strike has just failed. The students became incensed at the government for appointing directly the first directing board of the school and the dean.

Tribute to Dr. Lorentz

The societies of public health and biology have rendered a public tribute to the memory of the late Dr. Emilio Lorentz. Although his death was untimely, he had already distinguished himself as a competent and painstaking research worker. Together with Dr. I. Aphatie, he discovered, after Ghedini and before Weinberg, the reaction of complement fixation for the diagnosis of echinococcus disease, besides carrying out several immunologic (Wassermann test) and bacteriologic investigations. He was the director of the army laboratory.

BERLIN

(From Our Regular Correspondent)

June 24, 1922.

Retirement of Professor Rubner

Rubner the physiologist, of the University of Berlin, having completed his sixty-eighth year, will be retired from his position, October 1, under the old age pension act. Rubner has been an instructor in the University of Berlin since 1891. The professorial chair that was created for and by Robert Koch was held by him only a few years. One reason for this was that there were many fields of hygiene in which he took no particular interest; then, again, he did not find in the imparting of instruction the pleasure that some men do. Consequently, Rubner—a pupil of Voit and Ludwig—who had already won a reputation by his excellent work in the field of physiology pertaining to nutrition, was appointed to take his place. As a result of his previous training, the predominant factor and the main interest of Rubner's work lay in the domain of physiology. Therefore, after the death of the physicist Engelmann, he was glad of the opportunity that thus arose of securing the chair of physiology in Berlin. His transfer from one chair to another has another point of interest, since at the suggestion and under the direction of Rubner a new hygienic institute was built. But when Rubner changed chairs, he also changed institutes, so that the old hygienic institute, which had formerly, under du Bois-Reymond, been established as the physiologic institute, was placed at the disposal of Flügge, who succeeded Rubner. It will doubtless be remembered by some that when Rubner was called to succeed du Bois-Reymond, it caused some public excitement, not only on account of prospective buildings and equipment, but also because of personal considerations. Hermann Munk, who at that time was professor of physiology at the Tierärztliche Hochschule in Berlin, was recognized as having a strong claim on the chair. It is still uncertain who will become Rubner's successor. The Halle physiologist Abderhalden would seem to deserve first consideration, and perhaps Höber, who occupies in Kiel the chair of physical medicine, may be in line.

Scurvy in Germany

In addition to the cases of scurvy reported in a previous letter, a number of others have arisen. Professor Umber, director of the Charlottenburg Hospital, recently presented a number of patients at a meeting of the Berlin Medical Society. He stated that not only had the subject of scurvy never been discussed before the Berlin Medical Society, as far as he knew, since the sixties, but that he himself, during his long practice extending over many decades, had but recently seen the first scurvy patients (seven severe cases since the first of January). Others reported their observations on scurvy in Berlin and other large German cities. All were agreed that the cases were due to lack of fresh vegetables and the consequent deficiency in vitamins in the diet.

Umber stated that he had brought about a rapid recovery of the patients by prescribing a decoction of pine needles. This remedy was first proposed by a Swedish military surgeon, who applied it during the expedition of Charles XII to Russia. The needles are pounded with a pestle, and a "tea" is made from them.

State Institute for the Study of Efficiency Engineering and Industrial Hygiene

A recognition of the importance of industrial psychology, which, owing to the influence of propaganda from America, is coming to the front here more and more, is the underlying factor that has induced the head committee of the Prussian legislature to adopt unanimously the suggestion of the minister of public welfare that a state institute for the study of labor problems and industrial hygiene be created. The need of applying psychologic principles to all industries was discussed at length, and special reference was made to the excellent results secured in America by the introduction of a practical system of psychology—more particularly, the Taylor system. The Greater Berlin Street Railway Company, by training motormen in accordance with modern psychologic, scientific principles, effected a saving of 12,000,000 marks for the last fiscal year, while the number of accidents was also materially decreased. With greater efficiency, a saving of 10 per cent. in the amount of electric current required was brought about, and the wear and tear on the rolling stock and the roadbed was distinctly reduced. Another great gain lay in the fact that with the application of scientific, psychologic principles the motormen and conductors could be trained for the work in one third the time formerly required.

Marriages

Herbert Fay Hempstead Jones to Miss Edna Marie Penick, both of Little Rock, Ark., June 15.

J. Howard Van Ness to Miss Elizabeth Maentz, both of Allegan, Mich., at Battle Creek, June 15.

Merlin Jones Stone, Ogden, Utah, to Miss Corynne Constance Wall of Temple, Texas, July 8.

James Russell Young, Jr., Rexburg, Idaho, to Miss Eve English of Pocatello, Idaho, recently.

Ellsworth Johnson, Windom, Minn., to Mrs. Carolyn H. Clark of St. Cloud, Minn., in June.

Leo Joseph Starry, Oklahoma City, to Miss Maree Patch of Colorado Springs, Colo., June 21.

William H. Speith, Indianapolis, to Miss Viva Pearl Wilson of Roachdale, Ind., June 25.

Elmer Harry Hansen, Minneapolis, to Miss Mary E. O'Brien of Cloquet, Minn., in June.

Louis Charles Lehr, Washington, D. C., to Mrs. Eleanor Moale Hillen of Baltimore, July 1.

Burtis E. Goldberg to Miss Helen Cleave Anderson, both of Arlington, N. J., June 29.

Alfred H. Budge, Boise, Idaho, to Miss Bernice Rickert of Waterloo, Iowa, June 30.

George Starr White, Los Angeles, to Miss Deborah Logan of Oxnard, Calif., recently.

Thomas H. Morris to Miss Ruth Compton, both of Plainfield, N. J., June 6, 1922.

Albert G. Peters, Pontiac, Ill., to Miss Evelyn Cole of Decatur, Ill., June 17.

William F. Clevenger to Miss Louise M. Weaver, both of Indianapolis, July 5.

Attilio Robertiello, New York, to Miss Eleonora Candela of Brooklyn, July 5.

Leon S. Seidler to Miss Edith Freudenberg, both of Chicago, July 2.

Roy Sexton to Mrs. Mary Harvey, both of Streator, Ill., July 3.

Deaths

Edmund James Armstrong Rogers ⊕ Denver; McGill University Faculty of Medicine, Montreal, 1881; L.R.C.P. and L.R.C.S., Edinburgh, Scotland, 1881; formerly a civil engineer; emeritus professor of surgery at the University of Colorado; surgeon to St. Luke's Hospital and the Colorado Sanitarium; served three terms on the state board of health; governor of the Colorado Society of Colonial Wars, 1900; president of the Colorado State Medical Society, 1903-1904; member of the British Medical Association and the American Climatological Society; died, July 3, aged 70.

William John Maroney ⊕ New York; Yale University School of Medicine, New Haven, Conn., 1890; member of the New York Obstetrical Society; formerly assistant professor of obstetrics at the Fordham University School of Medicine; on the staffs of St. Ann's Maternity Hospital, the New York Foundling Hospital and St. Vincent's Hospital of the City of New York, where he died, July 10, aged 49, following an operation for perforated diverticulum of the sigmoid.

Gaylor Joel Pettit ⊕ New York; New York Homeopathic Medical College and Hospital, New York, 1896; U. S. Naval Reserve Corps; in charge of the naval hospital at Portsmouth, Va., during the World War; died of strangulation caused by abscess of the larynx, on board the U. S. S. *St. Paul,* of which he was ship surgeon, at Hamburg, Germany, June 21, aged 55.

George Eaton Simpson ⊕ Howard, R. I.; Medical School of Maine, Portland, 1899; member of the American Medico-Psychological Association and the New England Society of Psychiatry; for sixteen years assistant superintendent of the State Hospital for Mental Diseases; died, July 9, aged 41, following a long illness.

Calvin Pratt, Bridgewater, Mass.; Medical School of Harvard University, Boston, 1866; member of the Massachusetts Medical Society; Civil War veteran; formerly president of the board of trustees of the Bridgewater Academy, and consulting physician of the Bridgewater State Farm; died, June 17, aged 78, from heart disease.

David Michael Roudabush, Williamsport, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1906; member of the Medical Society of the State of Pennsylvania; aged 42; was electrocuted, July 3, when he accidentally picked up a live wire in the cellar of his home.

Lucian Nicholson, Paris, Texas, Chicago College of Medicine and Surgery, Chicago, 1915; member of the State Medical Association of Texas; on the staff of the Sanitarium of Paris; city health officer; died, May 4, aged 33, from multiple abscesses of the lungs.

William James Wanless, Shangli-Miraj, India; University of the City of New York, 1889; formerly of Toronto; medical missionary for the Board of Foreign Missions of the Presbyterian Church in the United States; died recently in India, aged 56.

Charles Adams Gray, Hinsdale, N. H.; Bellevue Hospital Medical College, New York, 1869; member of the New Hampshire Medical Society and formerly president of the Connecticut River Valley Medical Association; died, April 27, aged 75.

William Thomas Jamison, Los Banos, Calif.; Barnes Medical College, St. Louis, 1897; member of the Medical Society of the State of California; died, June 27, aged 51, at the St. Francis Hospital, San Francisco, from chronic interstitial nephritis.

William Richard Jackson ⊕ Mobile, Ala.; Medical College of Alabama, Tuscaloosa, Ala., 1888; member of the staff of the City Hospital; formerly professor of surgery at University of Alabama School of Medicine; died suddenly, July 3, aged 58.

Jacob Irving Roe ⊕ Wilkes-Barre, Pa.; Medical Department of Columbia College, New York, 1875; on the staff of the Wilkes-Barre Hospital; died, July 2, aged 67, at the Pennsylvania Hospital, from bronchial pneumonia.

Eben Stedman Cox, Galveston, Texas; Louisville Medical College, Louisville, Ky., 1884; member of the State Medical Association of Texas; for twenty years health officer of Galveston County; died suddenly, June 24, aged 63.

⊕ Indicates "Fellow" of the American Medical Association.

William L. Dunn, Glade Spring, Va.; Medical College of Virginia, Richmond, Va., 1863; member of the Medical Society of Virginia; Confederate veteran; died, June 26, aged 82, following a long illness.

William Henry Merry, Lynn, Mass.; Medical Department, University of Louisville, Louisville, Ky., 1876; surgeon captain with the British Naval and Military Veterans' Association of Massachusetts; died, June 27, aged 71.

Adrian C. Karsten, Horicon, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1897; member of the State Medical Society of Wisconsin; died suddenly, July 1, aged 56, from cerebral hemorrhage.

Waldo Percy Goff, Clarksburg, W. Va.; Jefferson Medical College, Philadelphia, 1894; member of the West Virginia State Medical Association; died suddenly, July 3, aged 51, from heart disease.

William Henry Grotthouse, Columbus, Ohio; Miami Medical College, Cincinnati, 1893; member of the Columbus Academy of Medicine; also a druggist; died, June 30, aged 53, from carcinoma.

Stephen Longstroth Richards ⊕ Salt Lake City, Utah; Ensworth Medical College, St. Joseph, 1893; on the staff of the Latter Day Saints' Hospital; died, July 5, aged 68, following a long illness.

Robert Stewart, Chicago; Rush Medical College, Chicago, 1895; on the staff of St. Bernard's Hospital; died, July 13, aged 58, at the Wesley Memorial Hospital, from tumor of the brain.

Robert Cushman Flagg, Middlebury, Vt.; University of Vermont College of Medicine, Burlington, Vt., 1906; member of the Vermont State Medical Society; died, July 1, aged 44.

Alexander Kemp De Jarnette ⊕ Sheridan, Wyo.; University of Louisville Medical Department, Louisville, Ky., 1916; died, June 4, aged 32, at Colorado Springs, Colo.

Matthew Henry Ellis ⊕ Albany, Ore.; University of Michigan Medical School, Ann Arbor, 1879; veteran of the Spanish-American War; died, May 31, aged 64.

Roscius Morse, Estacada, Ore.; University of Buffalo Department of Medicine, 1907; died, May 11, aged 46, at St. Vincent's Hospital, Portland.

William V. Hall, Denton, Texas; Medical Department of the University of Tennesse, Nashville, 1884; Confederate veteran; died, June 21, aged 82.

Thomas Joseph Francis Cox ⊕ Sacramento, Calif.; Medical Department, University of California, San Francisco, 1896; died suddenly, July 5, aged 49.

John Thomas Frawley, Perry, Ohio; Cleveland University of Medicine and Surgery, Cleveland, 1896; died, June 7, aged 54, from pneumonia.

Albert Benjamin Herrick, San Diego, Calif.; University of Michigan Medical School, Ann Arbor, 1879; died, June 28, aged 70, at Santa Rosa.

Jesse O. Davy, Springfield, Ohio; Medical College of Ohio, 1869; member of the Ohio State Medical Association; died, June 23, aged 71.

Charles A. Groff ⊕ Philadelphia; Jefferson Medical College, Philadelphia, 1875; died, July 3, aged 75, from disease of the liver.

Otto Henry Rohde, Los Angeles; Eclectic Medical College of the City of New York, 1896; died, June 24, aged 76, at Hollywood.

Thomas C. Craig, Easton, Kan.; Medical College of Virginia, Richmond, Va., 1867; Confederate veteran; died, June 29, aged 78.

James C. Sharp, Alma, Ark.; Medical Department University of Tennessee, Nashville, Tenn., 1892; died, July 7, aged 53.

Lawrence Whiteford Nettles, Camden, S. C.; College of Physicians and Surgeons, Baltimore, 1885; died, June 26, aged 69.

Abner B. Everitt, Toledo, Ohio; Medical Department of Western Reserve University, Cleveland, 1883; died, July 3, aged 75.

William Dillon, Urbana, Ill.; Medical College of Ohio, Cincinnati, 1882; died, July 4, aged 72, following a long illness.

Wellman Calvin Blake, Bellingham, Mass.; Dartmouth Medical School, Hanover, N. H., 1884; died, June 27, aged 63.

Broer Rollo Johnson ⊕ Cadillac, Mich.; Rush Medical College, Chicago, 1920; died, July 8, aged 27.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

HAELEPRON TABLETS NOT ADMITTED TO N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has adopted the following report declaring Haelepron Tablets inadmissible to New and Nonofficial Remedies.

W. A. PUCKNER, Secretary.

Haelepron Tablets are made by Bodenstein and Gaslinsky, Berlin, Germany, and sold in the United States by the Haelepron Sales Co., New York. The following nonquantitative statement of the composition of Haelepron Tablets appears on the trade package:

> "Haemaglobin, Lecithin, Calc. Lact., Protein vegetab., Ferr. sacch., Ferr. pyrophos."

A similar statement appears in the advertising except that here the preparation is said to contain "Protein animal and vegetable," and instead of one calcium salt, "Calc. Lact.," and two iron salts, "Ferr. sacch., Ferr. pyrophos," being claimed the presence of two calcium salts, "calcium lactate" and "calcium saccharate," and one iron salt, "pyrophosphate of iron," is declared.

In the information sent the Council, the following report of an analysis of Haelepron Tablets is given:

> "Water 8.86, Nitrogen (Protein) 48.10, Ether Extract (Fat) 7.08, Mineral Salts (calcium lactate saccharate Pyrophosphate of Iron) 10.61, Cellulose 1.93, Extractive substance (non-nitrogenous and not cellulose) 23.42."

In the circular it is claimed: "The Protein substances are chiefly blood albumin (Haemoglobin) besides the proteids of Milk, Egg and certain plants. And the mineral residue consists altogether of a variety of lime and iron salts." According to the Haelepron Sales Co., this indefinite mixture is "Indicated whenever nutrition impaired, in nervous conditions and dysemias." The indiscriminate use of the tablets is suggested by the declaration that they are "tolerated by everyone" and their use does not "interfere with . . . other medicines taken simultaneously."

The Council finds Haelepron Tablets inadmissible to New and Nonofficial Remedies because (1) their composition is indefinite and semi-secret, (2) the recommendations for their indiscriminate use are unwarranted, (3) the name is not descriptive of their composition and (4) they are an irrational and useless combination which can have little if any effect on the conditions for which they are recommended.

PLATT'S CHLORIDES: DECEPTION OR IGNORANCE?

An advertisement for Platt's Chlorides calls attention to the fact that chlorin antiseptics are at present in favor. The statement is then made that "chlorid of lime" is perhaps the best known of the older chlorin antiseptics. To quote:

> "As prepared and combined (with other related salts) under the name of Platt's Chlorides it ["chlorid of lime"] has served well for years for disinfection purposes about the house. Platt's Chlorides is still the choice of a great many discriminate [*Sic!*] people and is to be found in homes and in hospitals everywhere. In fact, with our present appreciation of chlorin, this preparation is sure to win more friends than ever before."

"Chlorid of lime" is an unscientific name for calcium hypochlorite or chlorinated lime (the pharmacopeia gives it as a synonym for *calx chlorinata*). An analysis of Platt's Chlorides made several years ago in the A. M. A. Chemical Laboratory failed to show any active (free) chlorin derivative. True chlorids were present, but chlorin in the negatively charged (combined) form as in chlorid (Cl^-) is not known to have any germicidal effects; it is active only when it is in a positively charged form as in the free state ($^-Cl^-Cl^+$) or in hypochlorites and derivatives (HO^-Cl^+). A recent specimen of Platt's Chlorides has also been tested for hypochlorites. The chemical laboratory again reports the absence of active chlorin (Cl^+) compounds; further it points out that hypochlorite could not be present as the product contains considerable iodid which would be incompatible with hypochlorite.

The question naturally arises: Is this misinformation concerning Platt's Chlorides a case of deception or is it merely ignorance due to the fact that the household phrase "chlorid of lime" resembles the name calcium chlorid, the latter being present in Platt's Chlorides? The evidence points to deception because the label on the bottle states (in accordance with the requirement of the federal law) that calcium chlorid in Platt's Chlorides is *inert* material!

Platt's Chlorides has been the subject of previous reports. The Council on Pharmacy and Chemistry declared it "inadmissible to New and Nonofficial Remedies because its composition is uncertain and indefinite and because the claims made for it are exaggerated and misleading."

Correspondence

NUTRITION IN RICKETS

To the Editor:—Dr. A. F. Hess, in his Cutter Lecture at Harvard a few weeks ago, remarked that "advance in our knowledge of rachitis promises to be greater during this decade than through the preceding 250 years." He asserts that the dietary deficiencies play a very significant part in the etiology of rachitis.

A number of years ago, when I was connected with the West End Children's Hospital and Dispensary, Boston, we were having a large number of rachitic children in our daily clinics, a majority of them from among the colored population. The superintendent, Dr. H. C. Haven, informed me that he had made quite an exhaustive study of rachitis with especial reference to the causes of the disease, and he came to the conclusion at that time that environment, lack of sunlight and fresh air were the probable causes. He stated that among the colored in Africa, in a climate to which they are adapted, there are no cases of rachitis.

Three winters later while in the South, I studied the children of that warm climate who were in the fresh air and sunshine practically the year around, and I failed to find a case of rachitis among them. I have no doubt that with a properly regulated diet with plenty of sunlight and fresh air, we have the best treatment for rachitis extant. Surely sunlight is the enemy of disease.

C. S. Scofield, M.D., Richford, Vt.

"A PRACTICAL TROCAR AND CANNULA FOR REMOVING ASCITIC FLUID"

To the Editor:—I have just read with interest the article contributed by Dr. William W. Duke (The Journal, July 8, p. 134) in which he describes and illustrates an improved trocar and cannula. He concludes his article by saying, "The advantages of this cannula would appear to offset its only disadvantage, slightly increased cost." This quotation impels me to write of an improvement I had made in a cannula about fifteen years ago, and following somewhat the lines of Dr. Duke's instrument, but which can be had at practically no added cost to the instrument in common use.

Two oval openings near the end of the cannula were made corresponding to the size of the inlet, and perfectly smooth, so that they could not interfere with the entrance of the trocar into the cavity to be drained. To avoid weakening the lumen of the cannula, these openings were not placed opposite each other, or on the same level.

When the cannula is in place, there is a continuous flow of the fluid until complete evacuation is accomplished.

Dr. Duke's instrument has, however, a distinct advantage in its added length, which affords a wider range of usefulness.

J. Harris Pierpont, M.D., Pensacola, Fla.

"THE ALLEGED INSUSCEPTIBILITY TO INTOXICATION BY POISON IVY"

To the Editor:—In The Journal, July 15, is a current comment in which the statement is made that, "contrary to the theory of 'desensitization' by internal administration of tincture of rhus, it appears that the susceptibility may be increased with successive intoxications."

The question of desensitization by internal administration of the tincture of the drug is unrelated to the question of increasing susceptibility to successive external exposure to the plant. It is to be regretted that destructive criticism of the treatment by desensitization should be published without adequate clinical testimony, for many patients may, as a result, be deprived of the value of this treatment.

In October, 1919, I published a short paper in The Journal on "Desensitization of Persons Against Ivy Poison." Since that time I have treated in the neighborhood of fifty patients who were susceptible to ivy poison, and most of whom were subject to yearly attacks. In not a single patient has ivy poison developed since, when the treatment was carried out prior to exposure; in a number of cases the patient escaped an attack of ivy poisoning during the season when the medicine was taken, but was attacked the following season when the medicine was omitted.

In my opinion, it is possible in practically all persons to prevent attacks of rhus dermatitis by taking, internally, ascending doses of a 1 per cent. solution of the tincture, beginning with a drop, well diluted, and increasing to sixty drops a day. The uniform success that I have observed with this treatment convinces me absolutely that persons can be desensitized during the period of administration of the drug, and usually for about a month after the cessation thereof.

Jay Frank Schamberg, M.D., Philadelphia.

POSTGRADUATE STUDY IN VIENNA

To the Editor:—The American Medical Association of Vienna wishes to announce the restoration of friendly understanding between their organization and the teaching-body of the University of Vienna. A committee, elected by the association, after an investigation of charges of discrimination against Americans, which were reported by members of our association, finds that these charges could not be substantiated.

We further wish to state that, through the efforts of our committee, working with a like committee from the teaching-body, sufficient numbers of book courses in English in all branches may be had at prices of from $3 to $5 an hour for the group taking such courses.

John J. Gelz, M.D.,
Bernard Kaufman, M.D.,
William Wilson, M.D., Vienna.

Public Health in Spain.—In a recent lecture, Dr. César Juarros, the Madrid neurologist, discussed sanitary conditions in Spain. Tuberculosis has shown an increase in its mortality from 7,700 in 1911, to 8,200 in 1915, 9,800 in 1920. Typhoid fever showed a similar increase from 4,500 in 1911, to 5,100 in 1915, and 6,998 in 1920. A similar situation prevails as regards malaria and smallpox.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BLOOD TRANSFUSION

To the Editor:—In the last examination of the National Board of Medical Examiners the following question was included: "Explain the dangers of transfusing an incompatible blood, and tell how you would determine whether or not the blood of A is compatible with that of B so that A's blood could be safely transfused into B."

Please give an answer to this question and omit my name if published in The Journal.

G. W. H.

Answer.—The chief danger of transfusing an incompatible blood is based on the possibility that the blood transfused may contain iso-agglutinins or isohemolysins for the blood of the recipient or that the blood of the recipient may contain bodies which agglutinate or hemolyze the cells of the donor's blood. It is clear, therefore, that a donor should be chosen for the transfusion whose blood shows no interagglutination or hemolysis with the patient's serum and corpuscles. If such a donor cannot be found, it is safer, as Kolmer states, to use a person whose serum is agglutinative toward the patient's cells than one whose cells are agglutinated by the patient's serum. Should an incompatible blood be transfused, it is evident that agglutination may lead to the formation of emboli and thrombi, while the intravascular hemolysis may be associated with marked hemoglobinemia, hemoglobinuria and an intense anemia of the pernicious type.

A further danger to be considered in transfusion is the possibility of transmitting syphilis by this procedure. Hence, the blood of the donor selected should have given several negative Wassermann tests.

For the determination of compatibility of the blood of A with that of B, 2 or 3 c.c. of the blood of A is obtained by the usual serologic method, and 0.5 c.c. placed at once in a centrifuge tube containing 5 c.c. of a 1 per cent. solution of sodium citrate in physiologic sodium chlorid solution. The remainder of this blood is placed in a small, dry test tube, and the serum is allowed to separate. From B (the recipient) 3 or 4 c.c. of blood is obtained in the same manner, and the same procedure is followed with this blood as with that of A (the donor).

The sodium citrate tubes are centrifuged, the supernatant fluid is pipetted off, and the cells are washed again with physiologic sodium chlorid solution. This procedure is repeated if necessary in order to free the cells from every trace of serum. After the final washing, enough physiologic sodium chlorid solution is added to the cells to make a total volume of 5 c.c.

The serum tubes are centrifuged and the clear serum is separated. This serum should be clear, and show no trace of hemolysis. The following series of tests should then be set up, the small serologic test tubes being used:

1. Four drops of A's (donor's) serum plus 1 drop of B's red cell emulsion.
2. Four drops of B's (recipient's) serum plus 1 drop of A's red cell emulsion.
3. Control: Four drops of A's serum plus 1 drop of A's red cell emulsion.
4. Control: Four drops of B's serum plus 1 drop of B's red cell emulsion.
5. Control: One drop of A's red cell emulsion plus 4 drops of physiologic sodium chlorid solution.
6. Control: One drop of B's red cell emulsion plus 4 drops of physiologic sodium chlorid solution.

One cubic centimeter of physiologic sodium chlorid solution is added to each tube, and the tubes are shaken and placed in the incubator for two hours, being inspected about every half hour. Agglutination in Tubes 1 and 2 may be recognized macroscopically by the clumping of the red cells. Hemolysis is noted as in the Wassermann test. If there is any question about hemolysis, let the tubes stand in the ice-box over night. Tubes 3, 4, 5 and 6 should show neither agglutination nor hemolysis. In the interpretation of this test, if there is no reaction (agglutination or hemolysis) in Tubes 1 and 2, then the blood of A is compatible with that of B, and may safely be used for the transfusion.

A quicker and less elaborate method for determining the compatibility of the blood of A is that of Minot: From a prick in the finger or ear, 9 drops of blood from B and 1 drop from A are collected and allowed to fall into a small test tube containing 3 or 4 drops of a 1.5 per cent. sodium citrate solution in physiologic sodium chlorid solution. In another tube, containing the same amount of the sodium citrate solution, 9 drops of blood from A and 1 drop from B are collected. The blood in each tube is mixed by shaking the tubes and allowing them to stand for fifteen minutes. At the end of this time, the two tubes are examined for agglutination by means of the microscope.

OXALIC ACID IN FOOD

To the Editor:—What foods contain calcium oxalate?

J. R. Scott, M.D., Nonkanahwa, N. Y.

Answer. — Calcium oxalate is the usual form in which oxalic acid appears in the diet. The amount of oxalic acid in different articles of food, in parts per thousand, as determined by Esbach, is:

Black tea infused five minutes	2.060
Cocoa-powder	3.520 to 4.500
Pepper	3.250
Coffee	0.127
Parsley	0.006
Common beans	0.158
Potatoes	0.046
Good bread	0.047
Crust	0.130
Buckwheat flour	0.171
Barleymeal	0.039
Maize flour	0.033
Sorrel	2.740 to 3.630
Spinach	1.910 to 3.270
Rhubarb	2.466
Brussels sprouts	0.020
Cauliflower	0.003
Beetroot	0.390
Tomatoes	0.002 to 0.052
Carrots	0.027
Chicory	0.103
Endive	0.017
Lettuce	0.016
Dried figs	0.270
Currants	0.130
Prunes	0.120
Gooseberries	0.070
Plums	0.070
Raspberries	0.062
Oranges	0.030
Lemons	0.030
Cherries	0.025
Strawberries	0.012

BACHELET ELECTRO-MAGNETIC THERAPEUTIC WAVE GENERATOR

To the Editor:—I am enclosing a mass of wonderfully attractive literature on the "Bachelet Electro-Magnetic Therapeutic Wave Generator." Although declared to be radioactive, the pamphlet states that "any physician may use the Bachelet without fear of injury to himself or his patient." That this last statement is quite true I do not doubt, but it seems inconsistent with the manufacturer's claims of radioactivity. In fact, it seems to me that the manufacturer is treading perilously near the path that leads to federal fraud orders debarring him from the use of the mails.

The enclosed literature should make wonderful mental pabulum for the layman and pseudoscientific physician with a leaning toward questionable practices; but I would like to hear from you as to its real value—if it has any, which I doubt.

John H. Schaefer, M.D., Clovin, Calif.

Answer.—So far as one can judge from the advertising matter and literature, the "Bachelet Electro-Magnetic Therapeutic Wave Generators, Radio-Active" device (price, from $50 to $350) is simply a form of induced current. Aside from the psychic effect of the apparatus, it is hard to see why results from it would be any more beneficial than those obtained from a small faradic coil costing about $5. Essentially, the only results obtained from the faradic induced current are two: first, a stimulation of the peripheral circulation; second, muscle contraction when the lower motor neuron is intact. The claims made for the "Bachelet Electro-Magnetic Therapeutic Wave Generators, Radio-Active," make one wonder whether this concern has had its literature written by a copy-writer trained in the "patent medicine" school of advertising.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 5. Sec., Dr. Harry C. DeVighne, Juneau.

NEW HAMPSHIRE: Concord, Sept. 7-8. Sec., Dr. Charles Duncan, Concord.

California February Examination

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports the oral and written examination held at Los Angeles, Feb. 13, 1922. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 64 candidates who took the physicians' and surgeons' examination, 33, including 13 osteopaths, passed, and 31, including 14 osteopaths, failed. Of the 15 candidates who took the drugless practitioners' examination, 7 passed and 8 failed. One candidate took the examination for chiropody and passed. One hundred and nineteen candidates were licensed by reciprocity. Eight candidates were licensed on government credentials. Six candidates received osteopathic certificates by reciprocity. Six candidates received drugless certificates by reciprocity. Of the 3 candidates who took the test of competence, 1 passed and 2 failed. Two candidates were licensed to practice midwifery. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Los Angeles	(1921)	82.1
Stanford University	(1922)	87.2, 87.2, 90.8
University of California	(1921)	*
Northwestern University	(1918)	75.6
Rush Medical College	(1921)	90.3
Johns Hopkins University	(1921)	91.6
University of Michigan Medical School	(1907)	82.2
University of Minnesota	(1922)	86.8, 87.3
University of Nebraska	(1921)	86.5
University of Cincinnati	(1921)	79.9, 85.2
Jefferson Medical College	(1919)	76.5
University of Pennsylvania	(1919)	85.6
McGill University	(1920)	89.2
University of Toronto	(1909)	84.8
Royal College of Surgeons, England	(1909)	78.4
University of Zurich	(1921)†	81
Osteopaths		75, 75, 75, 75, 75.6, 75.8, 76, 80, 80.3, 81, 82, 83.3, 83.4
FAILED		
California Medical College	(1905)	37
College of Physicians and Surgeons, Los Angeles	(1920)	66.9
College of Physicians and Surgeons, San Francisco	(1918)	62.9
Medical College of Indiana	(1894)	70
College of Physicians and Surgeons, Keokuk	(1895)	67
Keokuk Medical College	(1891)	*
University of Louisville Medical Department	(1905)	*
Detroit College of Medicine and Surgery	(1905)	42
Saginaw Valley Medical College	(1903)	*
Hahnemann Medical College of the Kansas City Univ.	(1902)	65
St. Louis College of Physicians and Surgeons	(1888)	54
Toledo Medical College	(1898)	60
University of Cincinnati	(1921)	62.3
Jefferson Medical College	(1900)	64
Dallas Medical College	(1903)	49
Nagasaki Special Medical School	(1918)†	67.7
University of Moscow	(1909)†	71.5
Osteopaths		60.5, 63, 63.1, 63.7, 63.8, 65.8, 66.5, 67.2. 67.3, 70, 70.7, 70.7, 70.8, *

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Denver and Gross College of Medicine	(1910)	Colorado
University of Colorado	(1911) Colorado, (1913)	Ohio
Yale University	(1907)	Mass.
George Washington University	(1906) Wyoming, (1908)	Dist. Colum.
Atlanta Medical College	(1914)	S. Carolina
American Medical Missionary College	(1900)	Tennessee
Bennett College of Eclectic Medicine and Surgery	(1907)	Iowa
Bennett Medical College	(1912)	Illinois
Chicago College of Medicine and Surgery	(1915)	Illinois
Chicago Homeopathic Medical College	(1894)	Idaho
College of Physicians and Surgeons, Chicago	(1905) (1906), (1908) Illinois	Wisconsin
Hahnemann Medical College and Hospital of Chicago	(1894), (1900)	Illinois
Jenner Medical College	(1906) Illinois, (1917)	Washington
Northwestern University	(1892) Illinois, (1904) (1906), (1908) Illinois, (1909) Indiana, (1910) Illinois, (1914) Minnesota	N. Dakota
Rush Medical College	(1890) Iowa, (1894), (1896) (1899) Maine, (1901) N. Dakota, Washington, (1904) Idaho, Illinois, (1907) Texas, (1910) Illinois	S. Dakota
University of Illinois	(1916) Illinois,	Washington
Central College of Phys. and Surgs,. Indianapolis	(1901)	Iowa
Indiana University	(1909)	Indiana
Medical College of Indiana	(1905)	Indiana
Drake University	(1891), (1904)	Iowa
Sioux City College of Medicine	(1896)	Iowa
State University of Iowa College of Med.	(1888), (1901) (1906) Washington	Iowa
Louisville Medical College	(1905).	Illinois
Louisville National Medical College	(1908)	Kansas
University of Louisville Medical Department	(1913)	Kentucky
Tulane University	(1891) Tennessee, (1920)	Louisiana
Baltimore Medical College	(1897) New York, Ohio, (1904)	Oregon
Johns Hopkins University	(1908)	Minnesota
University of Maryland	(1883)	New Jersey
Harvard University	(1897) Oregon, (1917)	Mass.
Tufts College Medical School	(1897)	Mass.
Detroit College of Med. and Surg.	(1889) Colorado, (1902)	Washington
University of Michigan Medical School	(1869) 1896) Idaho. (1902) Michigan, Washington, (1908) Pennsylvania, (1909) Oregon	Illinois
University of Minnesota	(1909), (1921)	Minnesota
Ensworth Medical College	(1910)	Nebraska
Kansas City Medical College	(1898) Illinois, (1904)	Kansas
St. Louis College of Physicians and Surgeons	(1898)	Georgia
St. Louis Univ. School of Med.	(1916) Missouri, (1918)	Colorado
Univ. Med. College of Kansas City	(1901) Colorado, (1903)	Arizona
John A. Creighton Med. College	(1902) Nebraska, (1907)	Utah
Lincoln Medical College	(1897)	Nebraska
University of Nebraska	(1905), (1909)	Nebraska
Bellevue Hospital Medical College	(1887) Montana, (1898)	Minnesota
Columbia University	(1900), (1909) New York, (1919)	Alaska
Long Island College Hospital	(1890)	Arizona
New York Homeopathic Medical College and Flower Hospital	(1914)	New York
Eclectic Medical Institute	(1891)	Nevada
Medical College of Ohio	(1891) South Dakota, (1901)	Ohio
Starling Medical College	(1904) Michigan, (1906)	Ohio
University of Oregon	(1916)	Oregon
Hahnemann Medical College and Hospital of Philadelphia	(1909) Minnesota, (1912)	Penna.
Jefferson Medical Coll.	(1888) New Jersey, (1908) Oregon,	Washington
Medico-Chirurgical College of Pennsylvania	(1897)	Penna.
University of Pennsylvania	(1919)	Hawaii
University of Pittsburgh	(1919)	Penna.
Western Pennsylvania Medical College	(1904)	Penna.
Woman's Med. Coll. of Pennsylvania	(1915) Ohio, (1893)	Utah
Meharry Medical College	(1907), (1912) Georgia, (1917)	Arkansas
University of Tennessee	(1914)	Texas
Vanderbilt University	(1913)	New York
University of Texas	(1919) Oklahoma, (1920)	Texas
Marquette University	(1919)	Oregon
Milwaukee Medical College	(1903)	N. Dakota
University of Manitoba	(1893)	N. Dakota
University of Toronto	(1884)	Penna.
Western University	(1915)	Minnesota
Osteopaths	Indiana (1), Michigan (1), Missouri (3)	Oregon (10)

College	Year Grad.	Endorsement with
ENDORSEMENT OF CREDENTIALS		
Hahnemann Medical College of the Pacific	(1918)	U. S. Army
Columbian University Medical Department	(1904)	U. S. Navy
George Washington University	(1913)	U. S. Army
Bennett Medical College	(1915)	U. S. Army
Rush Medical College	(1911)	U. S. Navy
Baltimore Medical College	(1913)	U. S. Navy
Johns Hopkins University	(1912, 2)	U. S. Navy

* No grade given.

† Graduation not verified.

Arkansas May Examination

Dr. J. W. Walker, secretary, Arkansas State Board of Medical Examiners, reports the written examination held at Little Rock, May 9-10, 1922. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Five candidates were examined, all of whom passed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Little Rock	(1910)	79.7
University of Arkansas	(1911)	77.1
Tulane University	(1921)	76.7, 84.6
University of Tennessee	(1922)	84.2

Dr. Walker also reports that from Nov. 9, 1921, to May 10, 1922, eighteen candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Birmingham Medical College	(1914)	Alabama
Hahnemann Medical College and Hosp. of Chicago	(1907)	Illinois
Northwestern University	(1920)	Illinois
University of Louisville Medical Department	(1921)	Kentucky
University of Minnesota	(1921)	Minnesota
Marion-Sims Medical College	(1892)	Kansas
Missouri Medical College	(1885)	Texas
National University of Arts and Sciences	(1916)	Missouri
St. Louis University School of Medicine	(1916)	Missouri
Washington University	(1919)	Missouri
Omaha University	(1901)	Nebraska
Memphis Hospital Medical College	(1903), (1907) (1910) Louisiana, (1912) Missouri, (1913) Tennessee	Mississippi
Vanderbilt University	(1921)	Tennessee
University of Tennessee	(1916)	Mississippi

Book Notices

The Pathological Gall-Bladder Roentgenologically Considered. By Arial W. George, M.D., and Ralph D. Leonard, A. B., M.D. Annals of Roentgenology, Volume II. Cloth. Price, $10 net. Pp. 198, with 137 illustrations. New York: Paul B. Hoeber, 1922.

The authors of this atlas on roentgenologic studies of the gallbladder are too well known to those acquainted with medical literature to require any introduction. It would be surprising, therefore, if the reader were not brought in contact with the best there is to be had on this particular subject. One must marvel at the splendid technic that enables the collaborators to depict in such a clear and unmistakable way pathologic conditions which have been verified time after time by exploratory operation. The text is in English, French and German. The print, paper and reproductions are excellent. Emphasis is laid on the careful preparation of the patient for examination, and a description of the technic is given. A statement of the approximate amount of amperage is omitted. The authors recommend a high milliamperage with a medium focus radiator type of tube. The latter tubes, however, for the purpose of conservation, are restricted to 30 milliamperes. Hence a more explicit statement at this point might be desirable. What would appear to be especially interesting is the subject of indirect evidence of disease of the gallbladder. So well known are the difficulties underlying the differential diagnosis of diseases of the gallbladder from duodenal ulcer that any technic, whether clinical or laboratory, that aids in solving this trouble would be widely welcomed by all. Not every one can be a Leonard or a George, but every one can profit by their experience. A study of their technic and results will be of great help to the physician in his daily struggle with this baffling problem.

Ueber die Altersschätzung bei Menschen. Akademische Antrittsrede bei der Uebernahme der Professor für innere Medizin in Erlangen. Von L. R. Müller, Direktor der Medizinischen Klinik in Erlangen. Paper. Price, 132 marks. Pp. 62, with 87 illustrations. Berlin: Julius Springer, 1922.

Probably the most valuable feature of this little book is the illustrations showing the appearances of the human body at various ages. It is emphasized that, at present, only general estimates can be made of the age of human beings by the study of the bodily conditions. No scheme has been devised by which one can evaluate correctly the varying influences of the many different factors that determine the rate of senescence. The book should be of special value to insurance examiners and others who are concerned with the determination of the expectancy of life.

Pathologische Histologie. Ein Unterrichtskurs für Studierende und Aerzte. Von Dr. Max Borst, O. Ö. Professor der Allgemeinen Pathologie und der Pathologischen Anatomie an der Universität München. Paper. Price, 250 marks. Pp. 371, with 238 illustrations. Leipsic: F. C. W. Vogel, 1922.

In this excellent book the author presents a beautifully illustrated description of the pathologic histology of the principal diseases, based on the experience of twenty-five years in giving courses to medical students. The book should prove a reliable and useful guide to the study of pathologic his-ology. The illustrations merit a word of special praise. All are drawn by W. Freytag in Wurzburg from original preparations, most of them in colors. They represent a noteworthy artistic and technical achievement.

Anleitungen zu den Präparierübungen an der Menschlichen Leiche. Von Georg Ruge, O. Ö. Professor der Anatomie und Direktor der Anatom. Anstalt in Zürich. Fifth edition by Dr. med. Walther Felix, O. Ö. Professor der Anatomie und Direktor der Anatom. Anstalt in Zürich. Cloth. Price, 155 marks. Pp. 724, with 267 illustrations. Leipsic: Wilhelm Engelmann, 1921.

The value of this work is in the highly essential correla-on of the technical minutiae of the study of human anatomy in the dissecting room with that in the larger textbooks and lases, aiming to guide the student in correct methods of orderly dissection and exposure. The book, including the covers, is just a little more than an inch thick, notwithstanding the large number of pages, an accomplishment in book making which other publishers should imitate.

Miscellany

VACCINATION IN THE PHILIPPINES

The statement made by the antivaccinationists that vaccination has proved a failure in the Philippines as a means of preventing smallpox is the exact opposite of the facts. This is conclusively shown in an authoritative statement in the current number of The Journal of the American Medical Association by Dr. Victor G. Heiser, consultant in health to the Governor General of the Philippines, and Dr. Charles N. Leach of Manila. It is true that lately there was a large increase of deaths from smallpox in the Philippines, coincidentally with a nominal existence of public vaccination, but this apparent revival of smallpox is shown to have followed a widespread neglect of vaccination.

Previous to the American occupation of the Philippines there were 40,000 deaths a year from smallpox in the islands. When the Americans introduced compulsory vaccination the disease disappeared wherever vaccination was applied. The death rate from smallpox in the provinces surrounding Manila fell from 6,000 annually to not one. For seven years prior to 1914 there was not one death from smallpox in the city of Manila. Then laxity began to prevail, and it is proved that the local officials began to report vaccinations where none or very few had taken place. Vaccination is under any circumstances a difficult matter in Philippine country districts. The average temperature is from 90 to 100 degrees all the year round. Ordinary vaccine remains potent only a few days without ice, and outside of the cities it is impossible to procure ice. This condition of things prevented the universal application of vaccination in the Philippine country districts, with the result that in these districts the disease was kept alive. Finally it was discovered that while in one province the officials, with cheerful enthusiasm, reported 50,000 more vaccinations than there were inhabitants in the province, the vaccine virus was found to have been thrown into waste-paper baskets and other receptacles of rubbish. This condition of things was exposed; active vaccination was resumed, and the islands are again almost free of smallpox.

It was upon the temporary revival of smallpox, consequent upon the neglect described, intentional in some cases and unavoidable in others, that the antivaccinationists based the claim, which they are still making, of the "failure of vaccination in the Philippines." The simple fact is that, in the recent smallpox epidemic, 93 per cent. of the deaths were shown to have occurred among the unvaccinated. As matters now stand, vaccination is proceeding on a better scale than ever, for methods have been discovered for making vaccine that will remain potent under tropical conditions.

If in spite of this renewal of the protection afforded the prevalence of smallpox should continue, there might be some claim for the assertion that "vaccination is a failure in the Philippines." As a matter of fact, the resumption of active vaccination has already terminated the epidemic. What Dr. Heiser and Dr. Leach say about the matter appears perfectly true; namely, that "those who have advocated the abolition of vaccination have been the cause of many of the deaths among the unvaccinated, and in view of the frightful loss of life that may occur in smallpox epidemics they are assuming a grave responsibility indeed if they continue their campaign."
—Editorial, *Boston Evening Transcript.*

Treatment of Insomnia.—There is no specific for insomnia. The underlying cause must be ascertained and removed before a cure can be expected. Even then the ability to sleep often needs to be wooed back. There is an art in making yourself comfortable and also an art in procuring pleasant dreams.—*Nation's Health* **4**:212 (April) 1922.

Medicolegal

Courts Selecting Physicians to Make Examinations

(Landis v. Wichita Railroad & Light Co. (Kan.), 203 Pac. R. 1109)

The Supreme Court of Kansas, in affirming a judgment in favor of the plaintiff in this personal injury case, says that, just before the impaneling of the jury, the defendant's attorneys asked the trial court to appoint two or three physicians of its own choosing to examine the plaintiff. The plaintiff being willing to be examined by two physicians chosen by the defendant, the court refused to make any selection on its own account. The defendant complained of this refusal, arguing that the report of an examination would have carried more weight with the jury if made by persons selected by the court. Merely to illustrate the difference of opinion on the subject, and without approving the doctrine, it may be mentioned that a statute requiring the court to select expert medical witnesses to testify in murder cases has been held unconstitutional, in part, at least, because of the very fact that the jury would be likely to give exceptional credence to their testimony; the court saying:

> The expert witnesses provided for by this section testify under a sanction which gives to their testimony practically the same weight as if it were delivered by the court itself, and if that testimony, being against the accused, were either wilfully or ignorantly mistaken, its baneful results would be appalling. To give to the testimony of a witness or witnesses this extraordinary certificate of candor, ability and truthfulness, while the other testimony in the case must be judged by ordinary standards, is to subvert the very foundations of justice. (*People* v. *Dickerson*, 164 Mich. 148, 129 N. W. 199.)

The Supreme Court of Kansas has held that, in some circumstances, the trial court has discretionary power to appoint physicians to make an examination of a person whose condition is in controversy; but, if a refusal to do so can ever amount to an abuse of discretion, the court finds no basis for holding such to have been the case here. In other words, it is held here that no abuse of discretion is shown in the refusal of the trial court to select physicians to examine a plaintiff the extent of whose injuries was in issue, the plaintiff being willing to be examined by physicians chosen by the defendant.

A Bequest for Teaching Medicine Held Void as Against Public Policy

(In re Hill's Estate (Wash.), 204 Pac. R. 1055)

The Supreme Court of Washington says that this action was brought for the purpose of testing the validity of a paragraph of the will of one S. G. Hill, deceased. In that paragraph, the testator directed the trustee named in the will to invest the residue of the estate in bonds and apply the income in perpetuity, after deducting the expense of handling the trust, in order to pay for the services of a competent homeopathic physician or physicians, who should give instruction at or near some reputable homeopathic school of medicine in the United States, to demonstrate to students the effectiveness of homeopathic remedies and treatment in cases of chronic diseases; the physician presenting these lectures and clinics to use as textbooks and confine the instruction to the proposition, principles and methods laid down in Hahnemann's "Organon of the Art of Healing;" "The Nature of Chronic Diseases" (Hahnemann's), and J. T. Kent's "Lectures on Homeopathic Philosophy;" and should also be required to teach his students the use and application of Kent's "Repertory of Homeopathic Materia Medica." Further provision was made to the end that there should be no subversion or distortion of the instruction and information which the testator wished to become available to such students in medicine as might desire to receive the same.

On the trial there was testimony by physicians who practiced according to the methods and principles of the allopathic school, and also those who practiced according to the principles and methods of the homeopathic school. Disregarding entirely the testimony of the allopathic physicians, and looking only to the evidence of those testifying who belonged to the homeopathic school, the great weight of the evidence sustained the finding or conclusion of the trial court that, if the books mentioned were taught without subversion or distortion, it would lead to sickness and death, and would deprive ailing persons from receiving treatment which is recognized by the modern homeopathic school. It might be said that the evidence almost conclusively established that fact. The evidence showed that, since the books mentioned were written, there had been a large development in medical science as practiced by the homeopathic school; that the books were not modern, and that if the principles and methods there taught only were applied in the healing of disease, it would be detrimental to the public health.

Since the evidence showed that the teaching of the books without a subversion or distortion would be inimical to the public health, the question arose as to whether the bequest for that reason was void. It can hardly be doubted that, if it were a bequest which tended to support an immoral purpose as recognized by modern standards of correct conduct, the will would be void for that reason. If a will making a bequest for an immoral purpose should be declared void, by the same course of reasoning it would follow that, when providing for the teaching of medicine which would be detrimental to the public health, it would likewise be illegal and could not be carried into effect. In other words, in such a case, it becomes the duty of the court to declare that the bequest is void on the ground of public policy. If the bequest had not been limited to instruction in the books mentioned without subversion and distortion, and had recognized that the principles and methods of those books were to be taught in connection with the modern methods of the homeopathic school, an entirely different question would be presented. As the record stands, the bequest and the teachings required thereby are not supported by any modern school of medicine. It was contended that the bequest was void also on other grounds, but these need not be considered, because the fact that the bequest was void on the ground of public policy disposed of the case.

Implied Authority to Make Exploratory Incisions and Extend Operation

(King. v. Carney (Okla.), 204 Pac. R. 270)

The Supreme Court of Oklahoma, in reversing a judgment obtained by the plantiff, and remanding the cause for a new trial, holds that the general directions of a patient to his surgeon, authorizing him to perform an operation for the cure of a specific physical ailment, not only authorizes the surgeon to operate, but also, by clear implication, authorizes him to diagnose the case for the purpose of discovering for himself the exact cause of the malady he is called on to treat, and to make whatever initial exploratory incisions may be necessary for this purpose. If, in the course of an operation to which the patient consented, the physician discovers conditions not anticipated before the operation was commenced, and which, if not removed, will endanger the life or health of the patient, he will, though no express consent was obtained or given, be justified in extending the operation to remove and overcome them.

This was an action for damages for an alleged unauthorized operation. The plaintiff, Mrs. Carney, the court says, had been married twice, and had one child by her first husband. After her second marriage, she bore no children, but suffered from several miscarriages. Wishing to correct this condition, she called on defendant King, told him that her family physician had stated that her condition was caused by laceration of the uterus, and said: "I want to be fixed so I can bear children, and we will never be happy without that." The defendant testified that he made an incision in the plaintiff's abdomen and an examination from which he found that the ovaries were badly affected; that there were many adhesions around the ovaries, intestines and uterus; that the fallopian tubes were sealed, both ends being full of pus; and that, on discovering the condition, he removed the diseased organs and the contiguous infected tissues. Up to this point the defendant and the surgeon who assisted with the operation were permitted to testify without objection. On the witnesses being asked questions tending to prove that the fallopian tubes, the ovaries and surrounding tissue were so badly diseased that it was necessary to remove the diseased organs and affected parts to preserve the plaintiff's life and health, and that it would have been dangerous to her life and health not to do so, objections were made and sustained by the trial court. But the supreme court holds that the state of the pleadings warranted the introduction of testimony tending to show an emergency, and that the exclusion of this testimony constituted reversible error.

It was contended that, under the pleadings and the proof, the plaintiff's directions to the defendant were so limited that he was authorized only to perform the simple operation of mending the laceration of the uterus, which is properly performed through the vaginal opening. But the plaintiff's specific directions to the defendant, "I want to be fixed so I can bear children, and we will never be happy without that," it seems to the supreme court, not only authorized he defendant to cure the condition, if possible, but by clear implication authorized him to diagnose the case for the purpose of discovering for himself the exact cause of sterility and to make whatever exploratory incisions might be necessary to accomplish this purpose. It is quite clear that making the initial incision in the plaintiff's abdomen was a proper and necessary step along this line. And the mere fact that the plaintiff may have believed, or had been advised by her family physician, that her condition was caused by a laceration of the uterus did not relieve the operating surgeon of the duty of discovering for himself the cause of the physical defect he was called on to remedy. When this conclusion is reached, the relevancy of the testimony excluded becomes clearly apparent.

Validity of Act Prohibiting Prescribing of Beer

(Falstaff Corporation v. Allen et al. (U. S.), 278 Fed. R. 643)

The United States District Court, in Missouri, in holding valid the amendment to the Volstead Act providing that only spirituous and vinous liquors may be prescribed for medicinal purposes, says that counsel for the complainant disclaimed in behalf of beer any medicinal value or property whatever. They contended that this amendatory act invaded the inviolable rights of natural liberty; and that the Eighteenth Amendment to the Constitution could not, and as a matter of law did not, confer on Congress the authority to say what particular thing or agent might or might not be prescribed as a medicine, by physicians residing in the several states. Courts take judicial notice that beer, of the sort here involved, is an intoxicating liquor; but they do not judicially notice whether beer is or is not valuable as a therapeutic agent. It followed, then, that, for the purpose of this case, the beer which the complainant desired to make and sell without any interference from the defendants must be regarded as an intoxicating liquor which possessed no recognized medicinal value whatever. In the final analysis, it might well be insisted that the Eighteenth Amendment does not, in terms, forbid the use of beer as a food; but it will hardly be contended that its use for such a purpose can be permitted in the face of this amendment, and the statutes passed by virtue thereof, even though chemical analysis discloses that it possesses some food value, and even though in other times it may have constituted, to many, both food and drink. In other words, since the adoption of the Eighteenth Amendment, the privilege of drinking beer is no longer governed by the state of mind of him who drinks it; for, since it is an intoxicating liquor, its use is forbidden by the amendment. When beer is used as a drink, it necessarily follows that it is so used either as a beverage, or as a medicine. If it has no value as a medicine, then, when it is used as a drink it is used as a beverage, and this the Eighteenth Amendment and the laws passed thereunder forbid. Color is lent to the appropriateness of the restriction here complained of by the fact that a large number of the states have deemed t absolutely necessary to pass laws which prohibit the prescribing for medicinal purposes of any intoxicating liquors whatever, save alcohol, and those statutes, thus restricting the privileges of physicians, have been upheld in every case, so far as this court's examination of the holdings extends. Before the effective date of the Eighteenth Amendment, the Supreme Court of the United States upheld, in *Ruppert v. Caffey*, 251 U. S. 264, 40 Sup. Ct. 141, the war-time prohibition definition of an intoxicating liquor as being any liquid which contained more than one-half of 1 per cent. of alcohol; and held, in effect, that Congress, in the light of what experience had demonstrated to the several states to be necessary in enforcing prohibition, could arbitrarily declare a fact to exist; wherefore this case should not be differently decided if the question as to beer having a medicinal value were directly involved. If it be that the power conferred on Congress by the Eighteenth Amendment had the effect to narrow, or wholly wipe out, constitutional rights and guaranties heretofore deemed vested and inviolable, the situation may be regrettable, but it canot be helped. The people may be mistaken; their course may be tending toward restrictions of human liberty; but, under our form of government, the majority rules; and when they change the organic law, this change must stand, and be fairly construed and honestly enforced, until it, in turn, shall be again changed in due and legal form.

Statutes Relative to Privileged Communications and Vital Statistics

(Hunter v. Hunter et al. (Miss.), 90 So. R. 440)

The Supreme Court of Mississippi, Division A, reverses a decree that was rendered in favor of the contestants of the will of one Hunter, and remands the cause for a new trial, because the physician under whose care the testator was for about two weeks prior to his death was permitted to testify that the testator, who made the will a few days before his death, was afflicted with senile dementia. The court says that it was error to admit the testimony of the physician; it was a privileged communication of the patient under his charge, which could not be disclosed, except at the instance of the patient. It was argued that the statute relative to privileged communications was repealed by implication by the enactment of the law creating a bureau of vital statistics, a section of which law provides that any copy of the records of birth, sickness or death, when properly certified to by the state registrar of vital statistics, to be a true copy thereof, shall be prima facie in all courts and places of the facts therein stated. But the point made did not arise in this case, because no certificate of the registrar showing the death or sickness of the testator was offered as evidence in the case. So far as the question was before this court in the present case, the court holds that the privileged communication statute was not repealed by the vital statistics act, unless it was repealed to the extent that a registrar's certificate, made up from statistics or information obtained from the attending physician of the patient, may be introduced in evidence to show the character of sickness or cause of death of the patient. But the court does not decide at this time how far and to what extent the recent act modifies or annuls the former statute, because the question did not properly arise in this case.

Society Proceedings

COMING MEETINGS

American Roentgen Ray Society, Los Angeles, Sept. 12-16. Dr. H. E. Potter, 122 S. Michigan Ave., Chicago, Secretary.

Colorado. Congress of Ophthalmology and Oto-Laryngology, Denver, July 28-29. Drs. M. D. Brown and J. M. Shields, Metropolitan Bldg., Denver, Secretary.

Utah State Medical Association, Salt Lake City, Aug. 31-Sept. 2. Dr. W. L. Rich, Boston Bldg., Salt Lake City, Secretary.

Washington State Medical Association, Tacoma, Sept. 5-6. Dr. C. H. Thomson, 508 Cobb Bldg., Seattle, Secretary.

Wisconsin, State Medical Society of, Green Lake, Sept. 6-8. Dr. Rock Sleyster, Wauwatosa, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

June, 1922, **163**, No. 6

*Value of Quinidin in Cases of Auricular Fibrillation and Methods of Studying the Clinical Reaction. T. Lewis, London.—p. 781.
*Influence of Rigid Salt Restriction in Diet of Chronic Nephritis. J. McLester, Birmingham, Ala.—p. 794.
Close Relationship of Erythrogenetic and Leukogenetic Functions of Bone-Marrow in Disease. Roentgen-Ray Treatment. E. Pendergrass and H. K. Pancoast, Philadelphia.—p. 797.
*Pachymeningitis Hemorrhagica Interna: Study of Five Cases of Non-traumatic Hemorrhagic Spinal Fluid. A. D. Dunn, Omaha, Neb.—p. 819.
Diaphragm Irregularities. R. C. Matson, Denver.—p. 826.
*Aneurysm of Left Ventricle. M. H. Kahn, New York.—p. 839.
Use of Electric Cautery in Laryngeal Tuberculosis. G. B. Wood, Philadelphia.—p. 855.
*Pancreatitis Following Mumps: Report of Case with Operation. L. W. Farnam, New Haven, Conn.—p. 859.
*Epidemic Encephalitis: Seventy-Eight Cases. G. E. Price, Spokane.—p. 871.
*Febrile Stages in Chronic Nephritis: Their Significance as Observed by Functional Renal Tests. J. O. Ritchey, Indianapolis.—p. 882.
Brachial Monoplegia Due to Thrombosis of Subclavian Vein. G. Wilson, Philadelphia.—p. 899.

Quinidin in Auricular Fibrillation.—In approximately 50 per cent. of cases, quinidin, as it is used at the present time, will restore the normal rhythm in the fibrillating auricles, Lewis says. The usefulness of the drug from the clinical standpoint is limited. The chief limitation consists in the early and very frequent resumption of auricular fibrillation. Lewis deprecates the general use of the drug. He urges that it should be employed only under strictly controlled conditions; it is a treatment emphatically for the wards rather than for use in an outpatient department.

Rigid Salt Restriction in Nephritis.—The following results of the salt-free diet were noted by McLester. The patient found the food unappetizing and usually ate but little. The blood urea, instead of decreasing, showed a tendency to increase. The blood chlorids, irrespective of diet, varied but little; while the urine chlorids, reflecting the degree of the patient's adherence to the diet, fell to a very low figure. The systolic pressure, as a rule, showed a moderate fall. This fall was never marked. In two of the patients there developed weakness and prostration to a distressing degree. One of the patients suddenly experienced retinal hemorrhages and other fundus changes at the end of two weeks of this diet. From these observations, McLester concludes that the almost complete elimination of chlorids from the diet of patients with nephritis and vascular hypertension accomplishes little, if anything, more than does the salt poor diet ordinarily prescribed.

Diagnosis of Hemorrhagic Pachymeningitis.—Headache, sudden in onset, with signs of meningeal and spinal root irritation when associated with a uniformly bright, bloody spinal fluid, Dunn says, is suggestive of pachymeningitis hemorrhagica interna. Repeated lumbar puncture has proved of therapeutic value.

Aneurysm of Left Ventricle.—Kahn reports two cases of aneurysm of the left ventricle. In both cases the precordial pain was a prominent feature during the course of the illness; but it was not of the typical sternobrachial radiating anginal character. Although necropsy findings did show pericardial changes in both instances, clinically this was not diagnosed, and it is difficult to state the exact period at which the pericarditis began. The outstanding features in the two cases were: (1) precordial distress and the prominent circulatory symptoms; (2) myocardial failure, hydrothorax, congestion and enlargement of the liver and congestion of the viscera; (3) electrocardiographic changes, indicating progressive disease in the myocardium; (4) striking similarity in the electrocardiographic records due to the involvement of the apical portion of the left ventricle in both instances, and (5) coronary obstruction involving the descending branch of the left coronary artery. The necropsy findings showed aneurysm of the apex and wall of the left ventricle with pericardial adhesions. A brief review of the recent literature on cardiac aneurysm is presented. Wood's plea for the greater use of the electric cautery in the treatment of laryngeal tuberculosis is not a new idea, nor am I presenting any special technic. Any sanatorium not equipped both in its personnel, and in its instrumentarium for the cauterization of tuberculous lesions of the upper respiratory tract is not giving its tuberculous patients the utmost of modern medicine, and the laryngologist who fails to avail himself of its advantages is not a proper person to treat this disease.

Pancreatitis Following Mumps.—Farnham reports a case of epidemic parotitis, which was followed by abdominal symptoms diagnosed as acute pancreatitis, and an operation showed a swollen, acutely inflamed pancreas with a large quantity of peritoneal exudate. The organism isolated from the peritoneal exudate was *Streptococcus viridans*.

Analysis of Cases of Epidemic Encephalitis.—Approximately one fourth of the cases of epidemic encephalitis seen by Price terminated fatally. Of the remaining three fourths, approximately 61 per cent. were left with persistent or permanent sequels. Relapses were of frequent occurrence, bore no definite relation to the severity of the initial symptoms and could occur several months after apparent recovery. Prognosis could not be determined from the character and intensity of the initial symptoms. Change in the abdominal reflexes is a frequent and important symptom in epidemic encephalitis, probably not hitherto sufficiently emphasized. Epileptiform attacks may occur as the sole manifestation of the infection. Rest, quiet and care in preventing too early activity on the part of the patient are essential in the treatment of epidemic encephalitis.

Febrile Stages in Chronic Nephritis.—Many observers have noted the seeming part infection plays in the etiology of nephritis. Ritchey's observations show that during febrile elevations, either due to infection or some other agent, there is a noticeable and oftentimes measurable depression in renal function. A great majority of all cases of chronic nephritis manifest temperature elevations at times throughout the course (acute stages). In chronic nephritis, fever, with an associated increase in albuminuria, shows an added acute process. While function is not consistently depressed in acute infectious fever, it is found to be so during febrile reactions in cases of chronic nephritis. In chronic nephritis, as shown by fever with simultaneous untoward clinical symptoms and functional impairment as measured by phthalein excretion, urea and creatinin retention and signs of renal irritation as determined by albuminuria and sediment increase, there are superimposed acute processes. The clinical findings of Ritchey's six cases, checked in two cases with necropsy findings, would suggest that the course of chronic nephritis is determined by these added acute processes and that the prognosis depends in large measure on their cessation or continuation.

American Journal of Ophthalmology, Chicago

June, 1922, **5**, No. 6

Tumors of Lacrimal Gland: Report of Mixed Tumor. L. A. Lane, Minneapolis.—p. 425.
Unusual Circular Lesion of Retina. W. A. Cassidy and S. R. Gifford, Omaha.—p. 434.
New Model of Schematic Eye for Skiascopy (Retinoscopy) and Ophthalmoscopy. M. U. Troncoso, New York.—p. 436.
Amblyopia Ex Anopsia and Recovery of Vision. W. H. Luedde, St. Louis.—p. 441.
New Protractor Card for Verifying Axes of Cylindrical and Sphero-Cylindrical Lenses. S. L. Olsho, Philadelphia.—p. 451.
Illuminated Perimeter with Campimeter Features. C. E. Ferree and G. Rand, Bryn Mawr, Pa.—p. 455.
Concerning Congenital Coloboma of Lens. W. B. Weilder, New York.—p. 465.
Dacryocystitis Cured by Autogenous Vaccine. W. N. Sharp, Indianapolis.—p. 468.
Encephalopathy with Ocular Complications Probably Due to Lead Poisoning. A. C. Sautter, Philadelphia.—p. 468.
Monocular Trachoma. H. G. Thomas and F. S. Baxter, Oakland, Calif.—p. 470.
Self Expression of Lens. K. C. Wold, St. Paul.—p. 470.

American Journal of Public Health, Chicago

June, 1922, **12**, No. **6**

School Health Supervision Based upon age and Sex Incidence of Physical Defects. S. J. Baker, New York.—p. 465.
Influenzal Meningitis. T. M. Rivers, Baltimore.—p. 476.
Practical Value of Frost Little Plate Method in Routine Colony Count of Milk Samples. H. M. Hatfield and W. H. Park, New York.—p. 478.
Bottled Beverages and Soda Fountain Syrups. W. W. Skinner, Washington, D. C.—p. 487.
Work of American Bakers Association in Development of Sanitary Code for Baking Industry. H. E. Barnard, Chicago.—p. 494.
Reasons for Failure of Methods to Control Diphtheria. J. W. Robinson, Los Angeles.—p. 497.
Bacterial Action of Dry Cleaning. L. E. Jackson, Pittsburgh.—p. 507.
Methods Suggested for Extermination of Mosquitoes. W. V. Becker, Philadelphia.—p. 509.
American Red Cross Diet in Famine Districts of China. H. C. Embrey.—p. 514.

American Review of Tuberculosis, Baltimore

June, 1922, **6**, No. 4

Power of Spirit. J. A. Miller.—p. 241.
Experiment in Employment of Persons with Arrested Pulmonary Tuberculosis. H. R. M. Landis, Philadelphia.—p. 253.
*Diagnosis of Pulmonary Tuberculosis from Standpoint of Industrial Physician. F. A. Craig.—p. 265.
*Causes of Rapidly Increasing Fall of Tuberculosis Death Rate in Last Five Years. H. Emerson, New York.—p. 282.
Sanatorium-Home Treatment Program for Tuberculosis Patients. H. A. Pattison, New York.—p. 305.
Sanatorium Follow-Up Studies. D. E. Wiesner, New York.—p. 320.
Practice of Artificial Pneumothorax by Hippocratic School. A. K. Krause, Baltimore.—p. 327.

Diagnosis of Pulmonary Tuberculosis. — The history, the temperature and loss of weight, Craig says, are findings of considerable value in the diagnosis of pulmonary tuberculosis. A systolic blood pressure which is below the normal for the age of the patient is a very suggestive finding.

Causes of Fall in Tuberculosis Death Rate. — It is suggested by Emerson that among the possible causes of the decline in the death rate from tuberculosis are (1) those intentionally directed as specific measures against the distribution of the tubercle bacillus from the diseased to the well, (2) those that are accessory and tend to affect the general bodily resistance of those particularly exposed or susceptible, or are intended to inform the public so that intelligent self-protection may become more general, and (3) those events, social, economic and so far as the antituberculosis campaign is concerned, quite accidental, in which we may see an unsought, unplanned, and, to many, an unexpected bearing on tuberculosis. The specific measures mentioned are: (1) Early and accurate diagnosis of all forms of tuberculosis and especially of the pulmonary form at special public dispensaries as well as by the private practitioner of medicine. (2) Bacteriologic diagnosis of specimens of sputum for those suspected of having pulmonary tuberculosis. (3) Notification of tuberculosis as a communicable disease to the officers of public health. (4) Segregation in a manner to diminish if not wholly to prevent the distribution of the tubercle bacillus from those with "positive sputum" to others, during the active or open carrier stages of the disease. This includes sanatorium treatment, or its equivalent, under skilled medical and nursing direction, of those in the active stages of the disease, whether showing "positive sputum" or not, to abbreviate periods of activity or relapse, and to accomplish early and more nearly permanent arrest of the disease. (5) Home nursing services for the education of families in which one or more cases of tuberculosis are under the care of a private physician or dispensary, so that the resistance of the members of the family may be raised to and maintained at a level which will reduce the probability of development of active stages of the disease, and that the infectious discharges of the patient in the form of sputum spray and saliva and in eating and toilet articles often used in common, may be promptly destroyed or rendered innocuous. (6) Enforcement of laws and ordinances designed to reduce the habit of spitting in public places where the opportunities are great for the fouling of shoes, clothing and articles of common use by discharges from the respiratory tract. (7) Enforcement of laws and ordinances forbidding the common use of such articles as drinking cups, eating utensils, towels, etc. (8) The compulsory pasteurization of milk and milk products, except such as come from herds or cows proved to be free from tuberculosis. (9) Exclusion of parts or all of the carcasses of animals slaughtered for food purposes in which gross tuberculous lesions are found before or after slaughtering. (10) Examination and exclusion of those found to be suffering from active or open tuberculosis from industries concerned with the handling and serving of food. (11) The control of flies, especially in homes and in hospitals or sanatoria, where active open cases of tuberculosis are under care, and where food is prepared or served.

Annals of Otology, Rhinology and Laryngology, St. Louis

March, 1922, **31**, No. 1

Problem of Middle Ear Mechanics. A. G. Pohlman, St. Louis.—p. 1.
Intranasal Reconstruction. F. J. Pratt and J. A. Pratt, Minneapolis.—p. 46.
Gravity Drainage and Swabs vs. Irrigation and Wicks in Otitis Media. G. E. Barnes, Herkimer, N. Y.—p. 107.
Tonsillar Tubercles Containing Intracellular Concretions Simulating Foreign Body Pseudotubercles. C. V. Weller, Ann Arbor, Mich.—p. 110.
Demonstration of Physics of Suction Applied to Nose with Modification of Usual Technic. S. Iglauer, Cincinnati.—p. 125.
New Local Anesthetic for Nose and Throat Work. A. E. Bulson, Jr., Fort Wayne, Ind.—p. 131.
Study of Schwabach Test in One Hundred Cases. R. Sonnenschein, Chicago.—p. 137.
Tonsillectomies in Adults for Rheumatism with Critical Review of Results. H. Hastings, Los Angeles.—p. 157.
Hyoscin and Morphin as Preliminary to Local Anesthetics. L. M. Hurd, New York.—p. 167.
Nasociliary Neuralgia. G. Sluder, St. Louis.—p. 172.
Vocational, Occupational or Industrial Diseases of Ear, Nose and Throat. J. A. Donovan, Butte, Mont.—p. 176.
Tinnitus Aurium. T. J. Harris, New York.—p. 192.
Postoperative Treatment of Radical Mastoid Operation. J. A. Stucky, Lexington, Ky.—p. 200.
Tic Douloureux in Relation to Latent Maxillitis. H. B. Lemere, Omaha.—p. 204.
Dichloramin Treatment of Mastoid Wounds. R. A. Fenton, Portland, Ore.—p. 214.
Acute Lacunar Adenoiditis. S. Salinger, Chicago.—p. 220.
Problem of Hard of Hearing and Electrical Hearing Devices. G. E. Shambaugh, Chicago.—p. 225.
Bacteriology and Histopathology of Adenoids. I. Pilot, Chicago.—p. 231.

Archives of Dermatology and Syphilology, Chicago

June, 1922, **5**, No. 6

*Study of Trichophyton Purpureum Bang, Trichophyton Interdigitale Priestley and Trichophyton "B" Hodges. M. Ota, Mukden, Manchuria.—p. 693.
Variability in Susceptibility to Poison Ivy. E. D. Brown, Minneapolis.—p. 714.
*Neurorecurrences Following Treatment with Arsphenamin. E. L. Zimmermann, Baltimore.—p. 723.
*Simple Quantitative Precipitation Reaction for Syphilis. R. L. Kahn, Lansing, Mich.—p. 734.
*Itchy Points. N. Toomey, St. Louis.—p. 744.
*Radium in Treatment of Subungual Verrucae. S. Ayres, Jr., Los Angeles.—p. 748.
Verruca Plana Juvenilis. J. B. de Medina, Madrid, Spain.—p. 750.

Trichophyton Purpureum.—After examination of the literature, together with the mycologic investigations of his own material, Ota arrived at the conclusion that: *Trichophyton purpureum* (Bang), *Epidermophyton rubrum* (Castellani), *Trichophyton* A (Hodges) and probably also *Trichophyton rubidum* (Priestley) are one and the same organism; and as it has the character of an ectothrix, it would be more apt to call it *Trichophyton* than *Epidermophyton*.

Neurorecurrences After Arsphenamin Therapy. — Thirty-nine neurorecurrences are tabulated by Zimmermann. Their symptomatology, genesis and prognosis are discussed. Pathologically there are two types, a diffuse meningovascular process and a process limited to one or more focalized lesions. In the former the spinal fluid is always abnormal, in the latter it may show marked abnormalities or may be entirely normal. Prophylaxis of such lesions depends on a thorough mercurial treatment. It seems immaterial whether mercury is administered during or immediately following a course of arsphenamin.

Quantitative Precipitation Reaction for Syphilis. — Kahn adds to his previous discussion of his precipitation reaction for syphilis in which strongly reacting serums showed precipitation within several minutes and weak ones at the end of three hours' incubation in the water bath. He records further observations regarding: (1) the preparation of antigen; (2) the dilution of antigen for the tests; (3) the preparation of serum for the tests; (4) the optimum quantities of serum and antigen to be used in the tests; (5) the temperature and time of incubation, and (6) the reading of results.

Itchy Points.—An itchy disorder is described by Toomey which has characteristics so unique and notable that the diagnosis may be made simply by close clinical observation. The disease, or type of itching, is very rare. It has probably been confused most often with tic and psychotic (neurotic) scratching. The clinical course of the disorder presents features that are peculiar not only in the distribution and character of itching but also in the local appearance of the itchy points. The appearance of the skin over a pruritic point, if it has not been manipulated, shows absolutely no recognizable change from the normal. If the skin has been scratched or titillated, there will be the usual response to mechanical irritation. Repeated fingering of the itchy points may lead to a secondary infection of one or more of the follicles. The itching has characteristic limitations. It is essentially composed of one or more points, each of which seems to be more minute than the point of a steel pin. If two or several itchy points coexist, they are never grouped or even located close to one another. The disturbance of sensation is not a burning or stinging feeling but is a tantalizing itching of the severe tickling variety. The itching is not continuously present. Nor is it always worse at any certain time of the day or night. The itchy points favor certain areas. A factor common to these areas is the presence of a bony prominence under the skin. The cause and mechanism of this type of itching are completely unknown. Local applications are useless. From the little that is known of this disorder, it is not possible to form any principles of prognosis or direct medication.

Radium for Subungual Warts.—Strikingly satisfactory results were obtained by Ayres in two cases by the use of radium.

Boston Medical and Surgical Journal

June 22, 1922, **186**, No. 25

*Treatment of Diabetes Mellitus. E. P. Joslin, Boston.—p. 833.

Treatment of Diabetes Mellitus.—Joslin urges that centers of instruction for diabetic patients should be promoted. These may form around an individual doctor or a group of doctors or a hospital, but the necessity of such centers is the detailed nature of the instructions which diabetic patients must receive and the expense of the laboratory tests. It is easier to teach a group of patients and far less time consuming than to teach individual patients. The time required to perform ten tests for sugar in the urine exceeds by little that required for one test. When it comes to blood sugar estimations the difference in expense between performing ten tests and one is almost negligible. Wholesale methods must be introduced into medical practice to reduce expense and render these tests available for all. Private laboratories should be encouraged wherever they exist, and hospitals, whether private or public, should extend the facilities of their laboratories to physicians in need of the same. Physicians must learn to cooperate in their laboratory work just as surgeons have learned to cooperate in their surgical work. Very few surgeons have their own anesthetists; very few physicians should have their own laboratories. The latest and newest methods of treatment are being constantly demanded by patients. If the physicians are not able to furnish the results of these methods and tests at suitable fees then the laity will demand that the state furnish them just as it furnishes diphtheria antitoxin and Wassermann tests. Nurses who are trained in diabetic treatment are of the greatest assistance to physicians. This will never be appreciated unless tried. For patients, too, who can afford it the simplest way to carry out treatment is to have the diet arranged by a nurse. Severe cases are incomparably better treated in this manner than by remaining in a hospital.

June 29, 1922, **186**, No. 26

Mental Hygiene in Relation to Present-Day Nursing. **L. V. Briggs**, Boston.—p. 867.
Pyelography: Preliminary Report. O. S. Lowsley, New York.—p. 873.
Importance of Early Operation in Congenital Umbilical Hernia. L. F. Watson, Chicago.—p. 875.
Treatment of Asthma and Associated Diseases in Children. A. R. Cunningham, Boston.—p. 876.
*Cholesteatoma of Temporal Bone. J. M. Shefferd, Fall River, Mass.—p. 877.

Cholesteatoma of Temporal Bone.—In the case reported by Shefferd, the tympanic cavity, the mastoid process and part of the squamous portion of the temporal bone were converted into one common irregular cavity.

Georgia Medical Association Journal, Atlanta

June, 1922, **11**, No. 6

Some of Phases of Texts on Pneumonias. E. C. Thrash, Atlanta.—p. 211.
Address to Eighteen Living Ex-Presidents of Medical Association of Georgia. F. K. Boland, Atlanta.—p. 217.
Ectopic Kidney: Report of Case. W. W. Anderson, Atlanta.—p. 221.
Median Episiotomy. D. C. Elkin.—p. 224.

Iowa State Medical Society Journal, Des Moines

June 15, 1922, **12**, No. 6

Medical Problems in Iowa. A. M. Pond, Dubuque.—p. 205.
Types of Severe Anemia. A. Stengel, Philadelphia.—p. 208.
The Present Status of the Treatment of Pernicious Anemia. P. B. McLaughlin, Sioux City.—p. 214.
*Pernicious Anemia: Study of One Hundred and Twenty-Seven Cases. F. J. Rohner, Iowa City.—p. 216.
Control of Hemorrhage in the Tonsil Operation. F. W. Bailey, Cedar Rapids.—p. 222.
Some Determining Factors in Nasal Sinus Diseases. G. F. Harkness, Davenport.—p. 224.
Combined Anesthesia. C. Ryan, Des Moines.—p. 230.

Diagnosis of Pernicious Anemia.—Of the diagnostic points chosen by Rohner five are considered of distinct positive evidence, and five contribute greatly to the diagnosis of pernicious anemia because of their negative evidence. Of positive value are: (*a*) history of remissions, (*b*) evidence of posterolateral cord involvement, (*c*) a red blood cell count below two and one-half millions, (*d*) a leukopenia, (*e*) abnormality of the red blood cells. Of the negative points, that is, factors that are against the diagnosis of pernicious anemia if absent are: (*a*) history of paresthesia, (*b*) glossitis, (*c*) a plus color index, (*d*) absence of free hydrochloric acid in the Ewald test meal, and (*e*) the abnormal excretion of urobilin and urobilinogen.

Journal of Experimental Medicine, Baltimore

June, 1922, **35**, No. 6

Ten Year Old Strain of Fibroblasts. A. H. Ebeling, New York.—p. 755.
Action of Four Aromatic Cinchona Derivatives on Pneumococcus. A Comparison with Optochin. L. D. Felton and K. M. Dougherty, New York.—p. 761.
Source of Virus in Blackhead of Turkeys; Administration of Ipecac and of Sulphur. E. E. Tyzzer and M. Fabyan, Boston.—p. 791.
*Experimental Studies of Nasopharyngeal Secretions from Influenza Patients. VIII. Cultural and Morphologic Characters of Bacterium Pneumosintes. P. K. Olitsky and F. L. Gates, New York.—p. 813.
Peptase, Lipase, and Invertase of Hemolytic Streptococcus. F. A. Stevens and R. West, New York.—p. 823.
*Experimental Plethora in Dogs and Rabbits. E. B. Krumbhaar and A. Chanutin, Philadelphia.—p. 847.

Culture of Bacterium Pneumosintes from Influenza.—After artificial cultivation for a period of more than three years, *Bacterium pneumosintes* has maintained its original morphologic and cultural characteristics, when grown in the original medium. Adaptation to a saprophytic existence has been accompanied by a loss of pathogenicity. The strains used by Olitsky and Gates now grow readily under strictly anaerobic conditions in a variety of mediums with peptone broth as a base, enriched with fresh tissue, blood, or by the growth of other bacteria. Surface colonies have been obtained on blood agar plates in an anaerobic jar. These various methods of cultivation are adapted to special purposes. In broth cultures *B. pneumosintes* grows in larger forms than in the ascitic fluid-tissue medium, but the identity of the micro-organisms is proved by their serologic reactions and by reversion to the minute forms on transfer to the original medium. These methods of cultivation are being used in studies of the nasopharyngeal secretions of influenza patients obtained during the present recurrence of influenza in New York City.

Experimental Plethora.—The effects of repeated transfusions of blood on the blood-destroying and blood-forming apparatus of normal and splenectomized dogs and rabbits are described by Krumbhaar and Chanutin. An anemia which developed despite continued blood transfusions in two dogs splenectomized during plethora was also studied.

Journal of Nervous and Mental Diseases, New York

June, 1922, **55**, No. 6

Diagnostic Value of Vegetative Disturbances in Diseases of the Nervous System. E. A. Spiegel, Vienna.—p. 465.
Neurosyphilis in Ex-Service Men. R. H. Prince, Philadelphia.—p. 485.
Findings in Five Cases of Corpus Striatum Disorder. T. Raphael and F. C. Potter, Kalamazoo, Mich.—p. 492.

Kansas Medical Society Journal, Topeka

June, 1922, **22**, No. 6

Atresia of Vagina. L. F. Barney, Kansas City.—p. 163.
Trend of Modern Diagnosis. R. D. Mussey, Rochester, Minn.—p. 167.

Military Surgeon, Washington, D. C.

June, 1922, **50**, No. 6

Tuberculosis and Its Relation to Warfare Gases.—p. 609.
Columbus Barracks Measles. H. H. Rutherford.—p. 619.
Mumps: Epidemiology and Influence of Disease on Noneffective Rate in Army. C. G. Sinclair.—p. 626.
Daily Physical Exercise Factor in Preventive Medicine. V. T. Scott. —p. 648.
Anti-Bolshevik Crimean Army of Denikin and Wrangel — Sanitary Department. C. S. Ford.—p. 652.
Varicocelectomy with Shortening of Scrotum. C. E. Fronk.—p. 687.
Notes on History of Military Medicine. F. H. Garrison.—p. 691.

New Jersey Medical Society Journal, Orange

June, 1922, **19**, No. 6

Surgical Affections of Right Upper Quadrant of Abdomen. C. G. Heyd, New York.—p. 151.
*Diabetes in Negro: Report of Eight Cases. H. I. Goldstein, Camden. —p. 157.
Organized Reserves. D. A. Kraker, Newark.—p. 162.
*Schick Test as Public Health Measure. J. Shapiro, Union Hill.—p. 164.

Diabetes in Negro.—Eight cases of diabetes in the negro are reported by Goldstein in a series of sixty-five cases of diabetes mellitus. Apparently, diabetes in the negro is much less common than in the white population. Syphilis is not an important causative factor in negro diabetics.

Schick Test for Schoolchildren. — Of 1,600 schoolchildren tested by Shapiro about 600 were found to be positive. He advocates the procedure.

New York Medical Journal and Medical Record

June 21, 1922, **115**, No. 12

Modern Commentaries on Hippocrates. J. Wright, Pleasantville, N. Y. —p. 721.
Tongue as Source of Systemic Infection. T. R. French, Brooklyn.— p. 725.
Auricular Fibrillation. F. W. Price, London.—p. 730.
Influenzal Sinusitis. H. Smith, New York.—p. 734.
*Bronchoscopic Cases of Dental Origin. H. H. Forbes, New York.— p. 738.
Four Cases of Open Safety Pin in Esophagus of Children Under Eleven Months of Age. E. J. Patterson, Pittsburgh.—p. 739.
Two Cases of Lung Tumor Treated Bronchoscopically. S. Yankauer, New York.—p. 741.
Treatment of Suppurative Conditions of Lung. T. E. Carmody, Denver. —p. 742.
*Pneumoperitoneum as Aid in Diagnosis of Cardiospasm. S. Iglauer, Cincinnati.—p. 745.
Hodgkin's Disease in Which Endoscopy Led to Diagnosis. L. M. Hurd, New York.—p. 746.
*Clinical Study of Biliary Secretions Obtained by Nonsurgical Drainage. G. W. McCaskey, Fort Wayne, Ind.—p. 747.
*Weight Reduction and Its Remarkable Effect on High Blood Pressure. R. H. Rose, New York.—p. 752.
Gallstone Colic: Its Cause and Treatment. H. Halpert, Scranton, Pa. —p. 755.
Dangers of Operations for Rectal Fistula. C. J. Drueck, Chicago.— p. 757.
Diagnosis of Carcinoma of Rectum. A. A. Landsman, New York.— p. 758.
Perforated Gastric and Duodenal Ulcer. A. H. Harrigan, New York. —p. 760.
Operating Room. J. F. X. Jones, Philadelphia.—p. 766.

Bronchoscopic Cases of Dental Origin.—Forbes cites five cases in which the foreign body aspirated into the bronchi was of dental origin, as: Gold crown in right main bronchus; tooth plate in left primary bronchus; lung abscess from root and small pieces of tooth inhaled, and amalgam fillings loosened during tooth extractions and aspirated while under the anesthetic.

Pneumoperitoneum as Diagnostic Aid in Cardiospasm.—Judging from the experience gained in a case cited, Iglauer believes that pneumoperitoneum should be of considerable value in the study of obscure cases of cardiospasm. From the evidence offered by pneumoperitoneum it seemed likely that the symptoms of cardiospasm in his case were due to adhesions between the diaphragm and the liver encroaching on the subdiaphragmatic esophagus.

Biliary Passages Seat of Focal Infection.—The importance of the gallbladder and bile ducts as the site of a focal infection is strongly emphasized by McCaskey who agrees with Friedenwald that a search for focal infection cannot be considered complete without a study of the bile obtained by nonsurgical drainage of the biliary apparatus. The clinical method of obtaining the biliary secretions for chemical and microscopical study is beset with difficulties which may be slight or insurmountable. In about 5 per cent. of the patients, McCaskey entirely failed to get the tube into the duodenum on the first trial. In some of them he subsequently succeeded. The time required varied from half an hour to three hours, and in a few extreme cases to several hours. He uses the fluoroscope constantly to determine when the tube is in proper position. By revealing the curves which the tube makes, the fluoroscope constitutes the most positive demonstration of the location of the tube. In approximately 70 per cent. of observations a dark colored, or B, bile was obtained by either an abrupt or gradual transition. In the remaining 30 per cent. it rarely ever happened that the light yellow bile underwent no changes, excepting in those cases in which the gallbladder had been removed or there was good reason to suspect that it was not functioning because of obstructed ducts or other causes. Both the gradual transition and the slighter grades of darkening, in McCaskey's opinion, are probably due to a slow extrusion of bile from the gallbladder. With regard to the cases showing sudden transitions there is no reasonable doubt.

Effect of Weight Reduction on Blood Pressure. — Weight reduction through dietetic adjustment Rose asserts causes improvement in several important symptoms either due to or associated with obesity. One of the most uniformly noticed and the most important of these is the reduction of blood pressure. The amount of this reduction is much greater than could be obtained by the use of drugs. Excepting Bright's disease, focal infection and incurable diseases, this method gives promise of being a therapeutic measure which can be relied on to reduce blood pressure. Cases amenable to this method of treatment maintain the low blood pressure if the diet is normalized at the conclusion of the reduction. Symptoms which seem to be dependent on the increased blood pressure are relieved as the blood pressure falls. These are shortness of breath, palpitation, edema of the lower extremities, and albuminuria. One of the worst forms of headache is due to high blood pressure. It is very successfully relieved by this method of treatment.

Northwest Medicine, Seattle

June, 1922, **21**, No. 6

Cesarean Section in Treatment of Eclampsia: Report of One Postmortem Delivery. H. E. Wheeler, Spokane.—p. 165.
Surgical Prevention of Sterility Due to Salpingitis. E. F. Ziegelman, Portland, Ore.—p. 168.
Cosmetic Surgery of Face, Neck and Breast. F. A. Booth, Seattle.— p. 170.
Barium Meal Study in Gallbladder Diagnosis. L. Kallen, Medford, Ore. —p. 172.
Analysis of Cases Handled by Salt Lake City Office of United States Public Health Service During 1921. B. W. Black, Salt Lake City, Utah.—p. 179.
Antiseptic Dye Treatment of Gonorrhea in Female; Experimental Studies. R. Jones, Seattle.—p. 182.
Diagnostic Problems in Pulmonary Tuberculosis. R. C. Matson, Portland, Ore.—p. 185.

Painless Labor. C. A. Smith, Seattle.—p. 189.
Helpful Technic for Operations on Thyroid. J. B. McNerthney, Tacoma, Wash.—p. 189.
Quinidin in Auricular Fibrillation. K. Winslow, Seattle.—p. 191.

Ohio State Medical Journal, Columbus

July, 1922, **18**, No. 7

*Syphilis of Aorta. C. W. McGavran and E. Scott, Columbus.—p. 477.
*Right Aortic Arch. R. O. Brigham, Toledo.—p. 484.
Megacolon. W. H. Fisher, Toledo.—p. 487.
Heart Disease in Pregnancy. W. G. Dice, Toledo.—p. 491.
Headaches. C. H. Hay, Cleveland.—p. 495.
Rarity of Adult Contact Tuberculosis. S. A. Douglass, Dayton.—p. 501.
Ether in Tuberculosis. C. R. Coate, Pleasant Hill.—p. 503.

Syphilis of Aorta.—As a result of observations it is the judgment of McGavran and Scott that the time to look for syphilis of the heart is when syphilis is first recognized as syphilis and the patient is known to be syphilitic. From that time on watch for it as one would for a beginning endocarditis in a case of rheumatic fever.

Right Aortic Arch.—The specimen of the right aortic arch described by Brigham is the first one observed in the anatomical laboratory of the University of Michigan during the dissection of about 1,400 cadavers, a fact showing the relative infrequency of incidence. The specimen was found in a male subject about 50 years of age. The heart was normal, and it occupied the normal position in the thorax. The arch lay anterior and to the right of the trachea and oesophagus. The branches of the arch were a reversal of the normal, namely, a left innominate, which gave origin to the left subclavian and the left common carotid. On the right side the right subclavian and the right common carotid were given off. This reversal was not accompanied by the transposition of any other organ of the body. The arch did not rise high above the heart as is sometimes the case. The descending aorta crossed the midsagittal plain obliquely to the left side before passing through the diaphragm. The fibrous remains of the left arch were about four centimeters in length. It extended from the left subclavian artery to the descending aorta and passed downward and backward to the left of the trachea, left recurrent laryngeal nerve and esophagus. The ligamentum ductus arteriosus was present on the left side about 2 cm. below the fibrous remains of the left arch and was about twice its diameter. The ductus was about 2 cm. in length. It united with the descending aorta about five millimeters distal to the attachment of the fibrous remains of the left aortic arch and communicated with the left pulmonary artery. The position of the ligamentum ductus arteriosus shows that it was the persistence of the left sixth brachial vessel. The left recurrent laryngeal nerve passed around the ductus arteriosus. The right recurrent laryngeal nerve passed beneath the arch of the aorta.

Philippine Journal of Science, Manila

February, 1922, **20**, No. 2

Citrus-Canker Control Experiments in Japan. H. A. Lee and A. Shino. p. 121.
New Brenthidal from the Philippines and Borneo. V. R. Kleine.—p. 153.
Foliar Transpiring Power of Coconut. S. F. Trelease.—p. 167.
Cultivation of Leishmania Infantum and Leptomonas Ctenocephali on Triple-N Medium. L. Leiva.—p. 179.
Digestive Properties of Philippine Papain. H. C. Brill and R. E. Brown.—p. 185.
Review of Philippine Paleontology. R. E. Dickerson.—p. 195.

Public Health Journal, Toronto

May, 1922, **13**, No. 5

Problems of Girlhood and Motherhood. E. Guest.—p. 193.
Study of Infant Deaths in Toronto During Summer of 1921. A. G. Fleming.—p. 199.
Some Provincial Vital Statistics. A. C. Jost.—p. 204.
Sex Education.—p. 215.
Victorian Order of Nurses for Canada.—p. 220.
Mental Defect and Venereal Disease. F. E. Brown.—p. 222.

Rhode Island Medical Journal, Providence

June, 1922, **5**, No. 6

Significance of Bladder Symptoms in Women. E. Stone and J. McCann, Providence.—p. 253.
Treatment of Ear Infections in Contagious Diseases. J. J. Gilbert, Providence.—p. 257.

Southern Medical Journal, Birmingham, Ala.

June, 1922, **15**, No. 6

*Pulsus Alternans: Its Significance and Recognition by Ordinary Clinical Methods. R. Lyons, New Orleans.—p. 431.
Use of Copper Filter in Roentgen-Ray Treatment of Deep Seated Malignancies. T. A. Groover, A. C. Christie and E. A. Merritt, Washington, D. C.—p. 440.
European Impressions and Personal Experience in the Use of High Voltage Roentgen Rays in Deep Seated Malignancy. R. H. Millwee, Dallas, Texas.—p. 444.
Practical Status of Deep Therapy with Advent of Higher Roentgen-Ray Intensities. E. C. Ernst, St. Louis.—p. 448.
*Lamblia Intestinalis; Report of Cases. J. E. Knighton, Shreveport, La.—p. 457.
*Lamblia Intestinalis Infestation and Its Treatment. S. K. Simon, New Orleans.—p. 458.
Micrococcus Lanceolatus, with Necropsy Report. O. W. Hill, Knoxville, Tenn.—p. 465.
Field Work on Tuberculosis. H. Boswell, Sanatorium, Miss.—p. 466.
Possibilities of Cooperation of Railroad Officials with Local, State and Federal Boards of Health in the Prevention of Disease. J. P. Bowdoin, Adairsville, Ga.—p. 468.
Operative Treatment of Certain Fractures: Femur, Humerus, Forearm. E. W. Ryerson, Chicago.—p. 473.
Method of Treating Selected Fractures of Long Bones. W. B. Owen, Louisville.—p. 476.
Treatment as Applied on the Fracture Service of City Hospital, Dallas. W. B. Carroll, Dallas, Tex.—p. 479.
Treatment of Cancer of Uterus with Radium. L. Frank, Louisville.—p. 489.
Present Status of Radium Therapy. E. S. Lain, Oklahoma City.—p. 495.
Management of Tuberculous Laryngitis. W. V. Mullin, Colorado Springs.—p. 501.
Indications for Operation on Middle Turbinate. H. Bailey, Springfield. Mo.—p. 509.

Pulsus Alternans.—Lyons has been impressed by the fact that if blood pressure readings were performed more carefully, bearing in mind the possibility of the presence of pulsus alternans, this symptom would be far more frequently detected by physicians in general practice than it is at present. Owing to the fact that many physicians take graphic records only of cases which show an irregular cardiac action, the presence of pulsus alternans frequently eludes them, for here the pulse may be regular with little or no acceleration. Furthermore, pulsus alternans may be very transient, rendering the taking of graphic records impractical in many instances. The careful use of the auscultatory blood pressure method in all cardiorenal cases, especially accompanied by hypertension, will be of great value in detecting this condition.

Magnesium Sulphate in Lamblia Intestinalis Infestation.—Knighton believes that the intestinal tract may be rid of these parasites by introducing magnesium sulphate solution in fairly large quantities into the duodenum. Of course, the solution does not come in contact with those that are adhering to the walls of the gallbladder and are not expelled. The remaining parasites multiply rapidly and soon reinfect the duodenum.

Lamblia Intestinalis Infestation.—Simon reports eight cases and besides recording the many sided clinical aspects presented, he directs attention to the importance of recognizing the infection and to the need of determining the rôle it might play in the causation of some of the doubtful cases of intestinal disturbances peculiar to the South. The eradication of giardia infection, once it has become firmly entrenched in the intestinal tract, has proved a signally unsuccessful undertaking. In two cases reported previously by Simon, duodenal lavage, with Jutte solution, was given a thorough tryout. In one case the cysts promptly disappeared from the stools, but control has been lacking in determining the permanence of this effect. In the other case the results proved disappointing.

West Virginia Medical Journal, Huntington

May, 1922, **16**, No. 10

Clinical and Surgical Study of Fifty Consecutive Pathologically Demonstrated Cases of Gallbladder Diseases. R. K. Buford, Charleston.—p. 419.
Interpretation of White Blood Count. F. C. Hodges, Huntington.—p. 428.
Radium in Treatment of Cancer of Cervix Uteri. L. Frank, Louisville.—p. 432.
Opportune Appearance of Mental Symptoms in Those Accused of Crime or Facing Crisis in Life. T. Diller, Pittsburgh.—p. 438.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

May 1922, **26**, No. 12

Radiographing Spine and Pelvis. H. J. Suggars.—p. 382.

British Journal of Psychology, London

April, 1922, **2**, No. 3

Experimental Study of Mechanism of Hallucinations. M. Prince, Boston.—p. 165.
Spiritual Significance of Psychoanalysis. B. M. Hinkle.—p. 209.
Two Cases of War Neurosis. J. Young.—p. 230.
Mental After-Effects of Sleeping Sickness in School Children. C. Burt.—p. 237.

British Medical Journal, London

June 10, 1922, **1**, No. 3206

Hyperthyroidism. G. R. Murray.—p. 905.
*Pulmonary Sign in Acute Infections of Biliary Tract. D. P. D. Wilkie.—p. 908.
Cesarean Section: With Special Reference to Present-Day Indications for Operation. C. J. G. Taylor.—p. 909.
Cesarean Section. S. J. Cameron.—p. 911.
Eclampsia: Evolution as Causative Factor. S. E. Kark.—p. 912.
Continuous Treatment in Surgical Tuberculosis. F. W. Goyder.—p. 914.
Nitrogen Method as Aid to Differential Diagnosis in Mental Disease. R. V. Stanford.—p. 915.
Poisoning by Butter of Antimony. W. Bell.—p. 917.
Differential Diagnosis Between Cerebral Hemorrhage and Diabetic Coma. E. D. Spackman.—p. 918.
Treatment of Early Cases of Cholera with Volatile Oils. G. O. F. Sealy.—p. 918.
Antenatal Treatment of Congenital Syphilis with Arsphenamin and Mercury. N. F. Rowstron.—p. 318.

Pulmonary Sign in Acute Infections of Biliary Tract.—Wilkie has found that crepitations at the right lung base occur in quite a fair percentage of cases of acute biliary infection. This pulmonary sign may also be found when the infection is located in the ducts and when the gallbladder is not the chief seat of trouble.

Edinburgh Medical Journal

June, 1922, **28**, No. 6

*Etiology of Malignant Disease and Leukemia: Lymphoma and Lympho-Sarcoma Experimentally Produced in Mouse. J. Young.—p. 233.
Myiasis Oestrosa: Occurrence in Human Subject of Larva of Hypoderma Bovis. D. M. Greig.—p. 258.
Spinal Anesthesia. D. N. Kalyanvala.—p. 267.

Etiology of Malignant Disease and Leukemia.—The bacteriologic investigations made by Young and experimental results he believes support the view that malignant disease and the related leukemic phenomena, both in the human subject and in the mouse, are dependent on an infection of body cells by an organism which, in each case, has specific characters. Whether the human and mouse organisms are identical and depend for their slightly differing morphologic characters on the difference in the hosts is still undetermined. The experiments demonstrate that the human organism is capable of producing proliferative lesions in mice. Experimental proof of the relationship of the organism to carcinoma is lacking in the sense that only in a small proportion of cases has a malignant epithelial growth been found in the injected animals. The production, on the other hand, of a progressive and malignant neoplastic change in mesodermic cells in a large number of injected animals indicates that the mouse organism is capable of producing a true malignant tumor. The experiments suggest that in the healthy animal the only tissue that is capable of responding to the stimulus of the organism by proliferating in a malign fashion is the lymphoid tissue, which is presumably built up of cells that retain their embryonic power of free division into adult life. Earlier Young suggested that human carcinoma is an infection by an organism which passed one phase in the cancer cell. This has been followed in the present paper by the complete and convincing demonstration of such an intracellular phase in the experimentally produced malignant phenomena of the mouse. Finally, the investigations incidentally provide data in support of the contention that the leukemic phenomena and lymphosarcoma are related to one another in regard to their ultimate etiology, and that these states are, on etiologic grounds, related to ordinary malignant disease.

Irish Journal of Medical Science, Dublin

May, 1922, **5**, No. 3

*Case of Infantile Splenic Anemia (Von Jaksch). J. Craig and A. C. O'Sullivan.—p. 97.
Milk and Public Health. J. W. Bigger.—p. 102.
New Medical School at Frankfurt-am-main. W. Doolin.—p. 112.
Blood Crisis in Pernicious Anemia Precipitated by Blood Transfusion. J. H. Pollock.—p. 119.
Fatal Otitis Media Without Perforation. H. C. Drury.—p. 121.

Fatal Case of Infantile Splenic Anemia.—A fatal case of infantile splenic anemia occurring in a girl twin, aged 16 months, is reported by Craig and O'Sullivan. The other twin—a boy—and three older children were healthy as were also the parents of the children. The twins were breast-fed.

Journal of Tropical Medicine and Hygiene, London

June 1, 1922, **25**, No. 11

*Genuine Case of Malarial Polyneuritis. R. W. Mendelson.—p. 139.

Malarial Polyneuritis.—In Mendelson's case the neuritis began with difficulty in walking and in using the upper extremities. This difficulty rapidly increased, to such an extent that the man could neither walk nor control the movements of his arms. On being admitted to hospital in an unconscious state, a blood examination demonstrated a severe infection with *Plasmodium falciparum*. Immediate and intensive antimalaria treatment was instituted: 40 gm. quinin were given intravenously the first twenty-four hours, after which the patient regained consciousness. Intensive treatment was continued for one week; the blood showed parasites until the sixth day of treatment. One week after the patient entered the hospital the paralysis was complete in the lower extremities. The upper extremities were also affected, but to a less degree. The trunk muscles, those of the neck and face, eyes, tongue, respiration, heart and other organs were not affected to an appreciable degree, if at all. No sensory disturbances; no mental symptoms; very slight edema of both ankles. Urine, negative.

Lancet, London

June 10, 1922, **1**, No. 5154

Radiations in Treatment of Cancer. R. Knox.—p. 1131.
Acute Intestinal Obstruction. D. P. D. Wilkie.—p. 1135.
*Certain Conditions Associated with Deficient Secretion in Upper Alimentary Tract. T. I. Bennett and E. C. Dodds.—p. 1138.
*Nitrous Acid Poisoning. W. St. C. McClure and H. Heap.—p. 1142.
*Complement Fixation in Gonorrhea: One Thousand Tests. T. E. Osmond.—p. 1143.
Basal Fibrosis of Lung in Children. G. T. Hebert.—p. 1145.
*Case of Infantile Acute Endocarditis. E. F. Skinner.—p. 1147.

June 17, 1922, **1**, No. 5155

Clinical Symptoms of Cerebellar Disease and Their Interpretation. G. Holmes.—p. 1177.
Bacterial Origin of Dental Caries. J. McIntosh, W. W. James and P. Lazarus-Barlow.—p. 1183.
Researches on Yellow Fever. H. Noguchi.—p. 1185.
Acute Suppuration of Middle Ear: Early Drainage of Mastoid Antrum. D. McKenzie.—p. 1191.
Diathermy in Surgical Practice. W. H. Clayton-Greene.—p. 1192.
Case of Foreign Body Impacted in Right Secondary Bronchi. G. N. Biggs.—p. 1194.
Gangrene of Small Intestine. J. N. Greene.—p. 1194.
Case of Acute Mania. Following Operation for Extraction of Senile Cataract. G. B. Lowe.—p. 1195.

Deficient Secretion in Upper Alimentary Tract.—Bennett and Dodds assert that complete absence of gastric hydrochloric acid, and hence of active gastric ferments, is frequently encountered in healthy persons. A precisely similar phenomenon is frequently seen in dyspeptic subjects. The increased rapidity of gastric emptying time in such cases may be the cause of increased hunger contractions, aerophagy and flatulence. In rare cases an increased secretion of mucus is seen in such subjects; this is sometimes an indication of true gastritis and may be secondary to a pulmonary or nasopharyngeal infection. In other rare cases of achylia there is delayed gastric emptying; in such subjects there is usually marked visceroptosis. In a patient proven to have pancreatic sclerosis, the fall of alveolar carbon dioxid tension, which normally occurs on the passage of food through the pylorus, was absent. In patients suffering from pernicious anemia there is, in addition to complete achylia gastrica, a marked diminution in the "pancreatic fall" of alveolar carbon dioxid tension. Such patients have clinically been shown frequently to have signs of pancreatic insufficiency. Similar pictures of alveolar carbon dioxid tension and achlorhydria have been found in severe secondary anemias and cachectic conditions. The authors believe that the achylia of pernicious anemia is secondary to the blood condition. At least four types of pictures are given by the laboratory examination of cases of gastric carcinoma. A type characteristic of extreme pyloric stenosis; a type characteristic of cachexia; a type with excessive secretion of mucus; a type difficult to distinguish from benign achylia.

Nitrous Acid Poisoning.—McClure and Heap record the accidental poisoning of six persons by nitrous acid caused by the inadvertent admixture of sodium nitrate with their food. The symptoms were the same in all, but varied in degree. The first signs of illness appeared between fifteen and thirty minutes after eating. The patients at first felt dizzy and "swimmy," with a great "flushing and throbbing" of the head. They had difficulty in breathing as if they were being stifled; there was a slight pain in the stomach and a feeling of nausea. All but one vomited. They all showed a well marked greyish blue color of the face and lips. No pain was complained of; there was no diarrhea. They all recovered.

Complement Fixation in Gonorrhea.—In Osmond's opinion, the complement-fixation test in gonorrhea does not seem to have received the recognition it deserves. He considers its value in diagnosis at least as great as that of the Wassermann reaction in syphilis. The reaction becomes positive earlier in the disease than does the Wassermann in syphilis, and it does not tend to disappear as a result of treatment till some time after the disease is cured. A series of 1,000 tests is discussed.

Infantile Acute Endocarditis.—Skinner's patient was only 4 months old and was brought to him because of an intractable eczema. Apart from the skin eruption the child appeared remarkably well. The baby was taken to the hospital and put to bed about 5 p. m., receiving his first feed at 6 (modified cow's milk taken well with no regurgitation), after which he went to sleep, waking at 2 a. m. He was again fed, and went to sleep immediately, waking once more at 6, when he was given a third feed. Again he went to sleep, and at 8 a. m. when the day nurse went to dress the eczema, she found the child sleeping and decided to leave him for half an hour, intending to carry out the dressing later; but on returning at 8:30 the baby was dead. He had made no cry, and had not even turned over; there was no cyanosis or frothing at the mouth, nothing to suggest a cause of death. At the necropsy it was found that all the organs were healthy with the exception of the lungs and heart. On the surfaces of both lungs were several bluish marks about the size of a mustard seed which on closer examination proved to be minute subpleural hemorrhages. The heart appeared normal in size and color, but on section it was observed that the tricuspid valve was somewhat less smooth than normal, and, perhaps, a little pinker than might have been expected, though the right auricle and pulmonary artery appeared to be perfectly healthy. The mitral valve, however, was found to be gravely involved, the free edges and auricular surfaces of the flaps being extensively covered with a growth of soft vegetations, not large, and quite recent, being shiny and pink in color and extremely friable. The coronary arteries appeared to be patent and there were no congenital defects of any kind present. There had been no clinical signs of any pulmonary or cerebral disturbance, nor were there present any pathologic features, such as pulmonary infarcts or thrombosis of cerebral blood vessels to account for such a sudden death. The most likely explanation, Skinner states, is the onset of ventricular fibrillation consequent on the presence of an embolus in a coronary artery sufficiently small to have passed beyond the openings.

Sei-I-Kwai Medical Journal, Tokyo, Japan

May, 1922, **41**, No. 2

Experimental Investigation on Antibody Formation Against Transplantable Mouse Carcinoma. K. Yamagiwa and T. Kimura.

South African Medical Record, Cape Town

May 27, 1922, **20**, No. 10

Typhus Literature. A. Pijper.—p. 182.
Case of Posterior Lenticonus. F. H. Robinson.—p. 196.

Archives des Maladies du Cœur, Etc., Paris

May, 1922, **15**, No. 5

*Capillaroscopy. C. Laubry and J. Meyer.—p. 265.
*Gonococcus Endocarditis. G. Lion and Levy-Bruhl.—p. 289.
Ventricular Extrasystoles with Paroxysmal Tachycardia. L. Gallavardin.—p. 298.
Thrombostasis in the Heart. R. Lutembacher.—p. 307.

Capillaroscopy.—Laubry and Meyer found capillaroscopy interesting in hypertension but were unable to obtain any clinical information from it which could not be determined by other means.

Gonococcus Endocarditis.—The serodiagnostic test was positive for the gonococcus in the woman of 29 with infectious endocarditis. She died about two months after the first symptoms. They had followed a painful, acute polyarticular disease supposed to be rheumatism. Only 50 instances are on record of endocarditis with gonococci cultivated from the vegetations in the heart. Two cases in this compilation are quoted from The Journal. All but 13 were men in the 50 cases. The clinical picture in the case reported here included daily attacks of fever of the sepsis-pyemia type, preceded by chills and followed by profuse sweating. The only sign of embolism was the punctate purpura. In some of the cases on record there were metastatic abscesses in spleen, liver, kidneys, lungs or joints. In other cases the fever was continuous, suggesting typhoid, which seemed to be confirmed by the stupor, diarrhea and enlargement of the spleen. Auscultation in the case reported revealed the murmur of insufficiency, but the palpitations and other functional symptoms were masked by the severe infection and weakness. Agglutination of the gonococcus by the serum was the only clue to the nature of the disease before necropsy. The gonococcus was cultivated from the blood in some of the cases but only once in four or five tests. The sero-agglutination test is the simplest, and the most constant in its findings, by Porges' technic. He acidifies the culture and boils it, and then neutralizes it, after which it can be agglutinated by the patient's serum. In this case, agglutination occurred at 1:50, but 1:20 is the rule for gonococcus rheumatism, etc. The serodiagnosis may allow the use of an autovaccine early enough to abort the disease.

Bulletin de l'Académie de Médecine, Paris

May 30, 1922, **87**, No. 22

Necessity for Abolishing Privilege of Home Distilling. G. Thibierge.—p. 570.
*Medical Impressions of America. F. de Lapersonne.—p. 574.
*Cholelithiasis from Surgical Standpoint. P. Bazy.—p. 578.
Fibrous Abscess in the Liver. T. Legry.—p. 582.

Medical Impressions of America.—This communication was summarized in the Paris letter, p. 146.

Cholelithiasis from Surgical Standpoint.—Bazy advocates removing the gallbladder when there is cholecystitis, whether there are gallstones or not. "We should treat it as we treat appendicitis."

Bulletin Médical, Paris

May 20, 1922, **36**, No. 21

*Treatment of Ptosis. G. Lyon.—p. 407.
Auscultation of Abdomen. A. C. Guillaume.—p. 412.

May 27, 1922, **36**, No. 22

What Has Been Accomplished in the Line of Hygiene for Children. H. Méry.—p. 431.
Care for Children in Tuberculous Families. P. Armand-Delille.—p. 434 and p. 437.
Experimental Psychology. J. M. Lahy.—p. 438.
Medical Inspection of Schools and Choice of Trade. G. Heuyer.—p. 441.

Treatment of Ptosis.—Lyon insists that gymnastic exercises are the only rational treatment for ptosis. The exercises should be done standing and reclining, and breathing exercises should be alternated with the others. Drawing in the abdominal wall while holding the breath, and relaxing the wall as one breathes deep, is direct exercise for the stomach. Among the more useful exercises done while reclining is to make movements with both arms and legs as if swimming, spreading the legs as far apart as possible. Swimming and canoeing are the only sports he advises, and these only when the ptosis shows signs of improvement. Rubbing and hydrotherapy aid in making the abdominal wall over, as it were, and thus conquering the tendency of the tissues to sag.

Bulletins de la Société Médicale des Hôpitaux, Paris

May 12, 1922, **46**, No. 16

*Tertiary Syphilitic Joint Lesion. P. Lechelle.—p. 756.
Fatal Insufficiency of Liver in Dysentery. Labbé and Bith.—p. 760.
*Painful Gynecomastia. Laederich and Le Goff.—p. 764.
*Fatal Emetin Polyneuritis. F. Soca.—p. 768.
*Sign of Impending Pericarditis. Dargein and Plazy.—p. 772.
General Hypertrichosis with Dog-Like Face. P. Pagniez and L. de Gennes.—p. 773.
*Obliterating Thrombo-Angeitis. A. Gilbert and A. Coury.—p. 776.
*Bronzed Diabetes. M. Labbé and H. Stévenin.—p. 785.
*Thoracoplasty for Tuberculosis of One Lung. R. Burnand.—p. 788.
*Treatment of Tabetic Pains. Sicard and J. Lermoyez.—p. 797.

Tertiary Syphilitic Joint Lesion.—The right ankle had long been swollen and painful in the woman of 41, apparently a tuberculous "white swelling," refractory to all treatment for years. Finally the Argyll Robertson sign gave the clue to the nature of the osteo-arthropathy, and it rapidly retrogressed under treatment for syphilis.

Painful Gynecomastia.—Laederich's patient was 76 when his mammary glands became much enlarged and painful. Under roentgen irradiation conditions returned to clinically normal, but the testicles became tender. An abscess developed in one breast after the first roentgen exposure, but the abscess was in the nonexposed breast.

Emetin Polyneuritis.—Soca's case of fatal polyneuritis followed eighteen days of treatment with a total of 1.05 gm. of emetin for dysentery. He wrote that he had encountered about thirty cases of toxic action from emetin, and it proved fatal in quite a number. Symptoms of toxic action were regularly observed when the dose of 8 cg. was repeated several days in succession. In this fatal case death occurred with bulbar symptoms. [The death of Soca, a leading clinician of Montevideo, professor and senator, was recorded in THE JOURNAL, May 13, 1922, p. 1471.]

Sign of Incipient Pericarditis.—Dargein was able to confirm in two cases the change in the second sound at the pulmonary orifice, to which Josserand has called attention as warning of the erethism of the heart as disease is becoming established. The sound is described as a ringing, clangorous clapping *(éclatant, clangoreux, vibrant, claqué)*.

Obliterating Thrombo-Angeitis.—Gilbert and Coury describe the first case to be published in France of the "nonsyphilitic arteritis obliterans of Jews." The man of 36 is an immoderate smoker, but the intense and continuous pains from the vascular affection, the suppuration, and several operations in the course of the year had not entailed anemia. He has been free from pain since a Lisfranc amputation in August, and the trophic troubles in the hands have retrogressed although the left radial pulse is imperceptible, as also the pulse in the right foot. The affection seems to be restricted to Jews from Central Europe.

Attenuated Bronzed Diabetes.—The special character of Labbé's case was that although the glycosuria could not be reduced below 20 or 30 gm. a day, and there was cirrhosis of both liver and pancreas, yet the condition had persisted for fourteen years before the fatal exacerbation.

Thoracoplasty for Pulmonary Tuberculosis.—Burnand calls attention to the success in six of seven cases treated by resection of the first ten ribs, the resected segments close to the vertebrae, and from 3 cm. to 15 or 20 cm. long. The results, he says, have been "so satisfactory, so rapidly satisfactory, so complete," that he recently sent three more patients to Roux for this thoracoplasty. One man of 40 in this group succumbed to septicemia from infection of the wound, but the cavity in the lung had been completely obliterated. The operation should be done under regional anesthesia, and any progressing lesion in the other lung, no matter how minute, is an absolute contraindication. Burnand knows of an instance of fatal pulmonary edema after the thoracoplasty in a patient with lesions in both lungs. He advises the thoracoplasty only when therapeutic pneumothorax is out of the question, but it has certain advantages over the latter. On the other hand, it does not allow the functional recuperation of the lung thus treated.

Treatment of Tabetic Crises.—Sicard and Lermoyez present evidence that the tabetic crisis is brought on by some superposed factor affecting the circulation, a change in temperature or barometer pressure, an error in diet, or abuse of alcohol. These seem to induce a kind of vasomotor shock, a hemoclastic crisis, and treatment to combat this shock may ward off and cure the pains in tabes. Epinephrin is the treatment of choice for this. In three patients suffering from tabetic gastric crises, rebellious to subcutaneous injection even of large doses of morphin, the intravenous injection of 0.5 mg. of epinephrin in 10 c.c. of physiologic saline was followed in from half an hour to two hours by complete or nearly complete subsidence of the pain. The injection can be repeated in a few hours or the next day. They even injected up to 1 mg. without disturbance. Calcium chlorid had been tried without effect in these cases.

Journal de Médecine de Bordeaux

May 25, 1922, **94**, No. 10

Treatment of Habitual Constipation. J. Carles.—p. 295.
*A Case of Megaesophagus. G. Chavannaz and Nard.—p. 300.
Results of Heliotherapy at the Arès Aerium. Lapauze.—p. 302.
French Medical Mission in Spain. P. Mauriac.—p. 304.

Conservative Treatment of Dilatation of the Esophagus.—Chavannaz and Nard report a case of megaesophagus in a woman of 53. The symptoms had developed after acute bronchitis. The patient found that she was suddenly unable to swallow solid food and, later, even liquids did not pass into the stomach. The Wassermann test was negative, and she seemed healthy otherwise. Radioscopy two months after the onset of symptoms revealed stenosis of the cardia and extreme dilatation of the esophagus, which was filled with fluid. Esophagoscopy confirmed the spasm of the cardia. They applied systematic measures to dilate the cardia, at weekly sittings, and immediately witnessed the transformation of the patient. The vomiting ceased and solid food began to pass into the stomach. Four months later the woman had gained over 13 kg. in weight, and esophagoscopy showed that the esophagus had returned to normal size.

Paris Médical

May 20, 1922, **12**, No. 20

Recent Literature on Diseases of Liver, Spleen and Pancreas. E. Chabrol.—p. 409.
*Manifestations in the Stomach of Cholelithiasis. P. Harvier.—p. 425.
Remote Results of Gallstone Operations. P. Mathieu.—p. 428.
*Edema of Ascending Colon. P. Carnot and E. Libert.—p. 430.

May 27, 1922, **12**, No. 21

Necessity for Reform in the Management and Care of Mental Disease. H. Claude.—p. 433.

Gastric Manifestations of Cholelithiasis.—Harvier confirms that the gastralgic form of lithiasis is quite frequent. The attacks of pain are transient, but they resemble those of tabes and pancreatitis. The paroxysm seems to be an equivalent for liver colic, and tenderness in the gallbladder region and along the course of the phrenic nerve may give the clue. In other cases the cholelithiasis induces dyspepsia; the clinical picture may resemble that with any functional or organic disease of the stomach or duodenum. The remissions characteristic of an active ulcer are common with this gallstone dyspepsia. The pains are more likely to develop and be more intense at night than during the day, and they may spread to the right shoulder, and are aggravated by deep breathing, stretching the trunk, jars, and fatigue. Fat and eggs are liable to bring on an attack, as also the approach of the menses. Hypochlorhydria usually accompanies gallstone dyspepsia of long standing.

Edema of the Intestine.—The edema of the ascending colon, in Carnot's case, was the result of compression of the superior mesenteric vein by two large gallstones in the common bile duct.

Schweizerische medizinische Wochenschrift, Basel

May 18, 1922, **52**, No. 20

*Transmission of Smallpox by Flies. H. Hunziker and H. Reese.—p. 469.
*Spinal Cord Tumors. O. Veraguth.—p. 476.

Smallpox and Flies.—The conditions in a recent epidemic of 43 cases at Basel indicated the possibility that contagion had occurred by means of flies.

Spinal Cord Tumors.—Veraguth describes the case of a woman of 53 who recovered completely after removal of a subdural neoplasm. The special feature of the case is that intercostal neuralgia for eleven years, rebellious to all treatment, disappeared completely after removal of the spinal tumor. The neuralgia had evidently been the first sign of trouble, but the tumor was eleven years developing to a size that induced other symptoms. In another case a sarcoma required resection of part of the second to the seventh cervical vertebrae. The cure was complete ,and the motor function of the spine does not seem to be impaired in the least. The upper vertebrae might have been spared, as the tumor was found lower than anticipated. The extreme tenderness of the vertebrae above was misleading. The woman of 32 had been under treatment for six weeks for supposed severe hysteria before the tumor was suspected. In the case first mentioned, a medical authority had insisted to the very last that the symptoms were of purely psychic origin.

Policlinico, Rome

May 15, 1922, **29**, No. 20

Theory and Practice of Protein Therapy. S. Belfanti.—p. 637. Conc'n.
*Amebic Abscess in Liver. O. Falzi.—p. 648.
*Peritoneal Urine Reaction. S. Solieri.—p. 651.
*Indicanuria. V. Sebastiani.—p. 653.

Emetin in Amebic Abscess in Liver. — Falzi reports the complete and permanent cure under emetin alone of an amebic abscess in the liver of a man of 29. No microorganisms could be cultivated from the pus obtained by puncture of the liver, but the ameba was found in the stools, and the history showed recurring dysentery during the preceding six years, with symptoms from the liver. He increased 8 kg. in weight during the forty-five days of emetin treatment.

The Sgambati Peritoneal Urine Reaction.—Solieri expatiates on the importance of this reaction as a guide not only for diagnosis and prognosis but also as an indication when and how to operate. The reaction was described recently in The Journal, June 17, 1922, p. 1914. This sign may warn of impending perforation in typhoid; as the ulceration approaches the serous membrane, the peritoneum suffers, and gives the Sgambati reaction before perforation has actually occurred. The urine should be tested for it every day during the second week and later, as operative intervention is incomparably less dangerous before than after the bowel has perforated.

Test for Indicanuria.—Sebastiani has found that commercial hydrochloric acid to which 2 per thousand iron filings or iron rust have been added forms a sensitive and reliable test for indican in the urine.

May 22, 1922, **29**, No. 21

The Intermediate Metabolism in Athrepsia. S. de Villa and G. Aiello.—p. 673.
Hydatid Cysts in Unusual Locations. L. Baccarini.—p. 676.
Epidemic Singultus. F. Buffone.—p. 682.
*Peritonitic Meteorism. A. Cerioli.—p. 683.

Prophylaxis of Peritonitic Meteorism. — Cerioli queries whether it might not be possible to introduce a tube into the rectum in abdominal operations in which peritonitic complications are feared. The assistant might introduce the tube, and the operator manipulate and guide it until the tip reached the colon. Necropsy findings have shown the feasibility of this, and that it might have averted the fatal outcome.

Riforma Medica, Naples

April 17, 1922, **38**, No. 16

*The Secondary Rays in Roentgenization. C. Guarini.—p. 361.
*The Mechanism of the Cardiac Reflexes. S. Lafranca.—p. 364.
Therapy of Diphtheria. R. Fuà.—p. 373.
Recent Literature on Appendicitis. E. Aievoli.—p. 375.

April 24, 1922, **38**, No. 17

The Sinus Node in the Mammalian Heart. D. Pace.—p. 385.
Pathogenesis of Nephrosis. U. Parodi.—p. 389.
Radiography of Interlobar Hydatid Cyst. A. Lama.—p. 391.
Dosage in Pharmacology. P. Piccinini.—p. 392.
Nosography of Febriculae. I. Jacono.—p. 394.

The Secondary Rays in Roentgenization.—Guarini describes Ghilarducci's many years of experiments with direct radiotherapy supplemented by the generating of secondary rays by bismuth taken internally, or by a sheet of lead opposite the source of the rays or by ionophoresis of a silver salt. The latter method was successfully applied in a case of cancer of the cheek and nose, published Feb. 24, 1921. He has been successful also in treating lupus by irradiating from the sound side with a sheet of lead in close contact with the lesion. Guarini has been applying this method also and reports a case of lupus of the cheek and lip, of three years' standing, cured by three applications of this combination. The rays were applied through the mouth to the inside of the cheek, with a sheet of lead pressed against the patch of lupus outside. The success was equally complete in a case of lupus of the hand, and another with a lesion on the ankle. He is now applying this Ghilarducci method on a large scale.

The Heart Reflexes.—Lafranca analyzes the mechanism of the various reflexes affecting the heart in normal and pathologic conditions. Among them he mentions the contraction of the myocardium under precordial percussion, while dilatation is observed with percussion of the first dorsal vertebrae.

Deutsche medizinische Wochenschrift, Berlin

April 28, 1922, **48**, No. 17

*Diet in the Treatment of Diabetes. H. Strauss.—p. 546.
Weather in Relation to Disease. Prinzing.—p. 549.
Orthopedic Treatment of Rachitic Deformities. Wollenberg.—p. 551.
Colloid Instability as Reaction to Toxic Action. Darányi.—p. 553.
Mycosis Fungoides and Noma. Rüsing and Schulte.—p. 555.
Therapeutic Inflammation and Fever. P. Schober.—p. 556.
*Treatment of Hyperhidrosis. M. Joseph.—p. 557.
Masked Scurvy. Edith Alexander-Katz.—p. 557.
Apparatus for Pneumothorax Treatment. A. Hofvendahl.—p. 558.
Theory of Internal Secretion in Relation to Normal and Pathologic Physiology. A. Weil.—p. 559.
Respiratory Disturbances from Surgical Affections. G. Ledderhose.—p. 562.

Problems of Diet in the Treatment of Diabetes.—Strauss remarks that, valuable as have been the experiences of the war with regard to the effect of undernutrition on certain cases of diabetes, they have changed nothing in the plan of treatment that he had previously worked out for diabetic patients. It is more important than ever to study carefully the individual tendency to endogenous acidosis, to discover for each diabetic the kind of diet that best corresponds to his tolerance for carbohydrates and best fits his capacity for the combustion of acetone bodies. These seldom run parallel. Special tolerance tests must in every case precede the institution of any particular diet. For some patients the control of the amount of protein ingested is even more important than the carbohydrate intake. Starchy substances that have to be acted upon for some time by the gastro-intestinal juices before they are dissolved are better tolerated than those in more easily digestible form. For the same reason, a proper proportion of fat should be taken with the meals as the fat prolongs the stay in the stomach and thus retards absorption of carbohydrates from the intestine. Reduction of the protein intake often increases the carbohydrate tolerance. For the permanent diet of patients with marked acidosis, a practically carbohydrate-free diet is not admissible in most cases. According to the severity of the cases there should be a more or less frequent change in the diet, the purpose being at times to combat glycosuria and at other times acidosis. In numerous cases he found von Noorden's *Mehlsuppen* (flour soups) of great value. He combats severe acidosis and resistant glycosuria with fast days and days of drinking, but no food. He does not approve of protracted fasting, as he has seen in several cases sudden loss of weight and marked weakness resulting therefrom. On vegetable days and "beverage" days he uses alcoholics freely, holding that these save on the total calories required, and also keep down the acidosis. The fat intake must be reduced in some cases. The restriction of fat and the general undernutrition during the war prevented often the development of the typical coma of diabetes, so that more diabetics made progress than in peace times. His study of 1,500 cases of diabetes in soldiers during the war showed that a much larger proportion of the moderate cases were favorably influenced by treatment than is the case in civilian practice. He ascribes this to the fact that the diabetes was recognized earlier and given thorough treatment more promptly. The surgical complications of diabetes were also remarkably rare in these diabetic soldiers.

Treatment of Hyperhidrosis.—Joseph recommends in hyperhidrosis of the palms, soles and axillae, in mild cases, application twice daily of a 5 per cent. solution of chromic acid; or of a 1 per cent. watery solution of tannic acid; or a mixture of tannic acid 40, glycerin 40, and tincture of iodin 20; or of trichloracetic acid 1, balsam of Peru 1, formic acid 3, chloral hydrate 5, and alcohol to make 100 parts. For the night he advises a powder consisting of salicylic acid 5, boric acid 10, tartaric acid 10, zinc oxid 40, and talc 40 parts. In moderately severe cases he applies twice daily a 4 per cent. solution of formaldehyd, which, if necessary, he increases to 20 per cent. At night the foregoing powders are applied. If the formaldehyd proves too strong an irritant, the addition of sodium carbonate will lessen the irritation. A milder solution is: formaldehyd 2, sodium carbonate 2, and water to make 100 parts. In very severe cases he has found roentgen irradiation effective, but this causes a roughness and dryness of the skin, with slight atrophic changes.

Klinische Wochenschrift, Berlin

March 18, 1922, **1**, No. 12

*Natural Immunity in Children. A. Czerny.—p. 561.
Present Stage of the Eclampsia Problem. P. Esch.—p. 563.
Abdominal Colic with Porphyrinuria. I. Snapper.—p. 567.
Shuttle Method for Examining Intestinal Contents. Van Der Reis.—p. 570.
Tuberculosis in Relation to Food Scarcity. A. Gottstein.—p. 572.
Sulphur in Treatment of Arthritis Deformans. R. Meyer-Bisch.—p. 575.
Erythrocyanosis Cutis Symmetrica. F. Bolte.—p. 578.
Cure of Epiphora by Incision of Stricture. Heimann.—p. 580.
Inflammation and the Nervous System. A. Kuttner.—p. 580.
Innervation of Antagonist Muscles; Experiments on Patients Cinematized by Sauerbruch Method. Bethe and Kast.—p. 581.
Experimental Research on Kidney Changes in Diphtheria. Wolff.—p. 581.
Histologic Changes in Brain in Hyperkinetic Affections of the Mouse Following Diphtheria Infection. F. H. Lewy.—p. 582.
Roentgen Findings in Chronic Partial Cardiac Aneurysm. Christian and Frik.—p. 582.
Evidence That the Indications for Cholecystectomy Should be Extended. H. Zoepffel.—p. 583.
*Kindergarten Teacher in Children's Hospital. H. Benario.—p. 593.

Natural Immunity in Children.—Czerny discusses various factors affecting natural immunity in children; among others, a diet poor in purin. An infant gets along very well on food poor in purin. At what age a diet rich in purin must be introduced, is still a matter of controversy. We observe the highest susceptibility to disease, combined with a marked tendency to hyperplasia of the lymphatic tissues, in children who subsist for long periods on food poor in purin. There are no doubt children who will thrive for years on a diet poor in purin. There are also a great many children who need food rich in purin from the time they are 2 years old. Research on metabolism shows that not every child is able to extract from primitive forms of food all that his organism needs, and that, in many cases, we must prescribe proteins, fats and carbohydrates in a definite known form, or harm will arise.

The Kindergarten Teacher in the Hospital.—Hertha Benario emphasizes the need of kindergarten teachers in the children's wards of hospitals; more particularly, in the surgical and dermatologic wards, in order to prevent a retardation in the mental development of children. She urges that welfare societies inquire into this need and endeavor to supply the desired instruction.

Medizinische Klinik, Berlin

May 21, 1922, **18**, No. 21

Congenital Pyloric Stenosis. M. Borchardt.—p. 651.
General Principles for Treatment of Wounds. Sonntag.—p. 655.
Drug Treatment of Headache. H. Kionka.—p. 657.
*Pleuropericardial Friction. E. Frey.—p. 659.
*Multiple Sclerosis of Endocrine Glands. F. Hochstetter.—p. 661.
*Therapeutic Use of Static Electricity. E. Horwitz.—p. 664.
Congenital Pneumatocele in Parotid Gland. J. Rudich.—p. 666.
*Test for Bilirubinemia. A. Vogl and B. Zins.—p. 667.
Treatment of Disease of Posterior Urethra. E. Portner.—p. 669.
Recent Publications on Social Insurance. P. Horn.—p. 671.

Friction Between Pleura and Heart.—Frey describes three cases of an unusual friction sound accompanying the heart beat, traced to inflammation of the left mediastinal pleura from a tuberculous process in the superior lobe of the left lung. The friction sound was heard first at the apex but then changed to the base, and it was audible only during expiration, instead of with inspiration, as at first. He queries whether this is a general law for pleuropericarditic friction, depending on the distention of the lung at the apex during inspiration, and, at the base, depending on the narrowing of the space during active expiration.

Multiple Sclerosis of Endocrine Glands.—Hochstetter relates that necropsy confirmed this diagnosis. The thyroid, testicles and suprarenals showed the most pronounced sclerosis; the parathyroids and pituitary were sclerotic and atrophied, and the spleen, kidneys, liver and lungs were more or less indurated. The whole syndrome had developed in six years in the previously robust farmer of 38. The first symptoms had been intense thirst, sleeplessness, headache and impotence. Chronic bronchitis and emphysema followed. At the fourth year, pains suggesting polyneuritis, and extreme weakness, apathy and emaciation dominated the clinical picture, with low blood pressure, polydypsia and polyuria, but the urine was free from albumin and sugar. Death occurred from heart weakness. He regards this "connective tissue diathesis of the glands" as a disease *sui generis*. The fact that excessive thirst was the first symptom, and that the pituitary showed the most advanced changes suggests that this gland was the first affected. No venereal or infectious disease was known in the antecedents, and tobacco and liquor had been used only in moderation.

Static Electricity in Medicine.—Horwitz describes the application of static electricity by electrodes, air baths and sparks as he has found it extremely useful in hundreds of cases of functional nervous disturbances of all kinds, neuralgia in the head, insomnia, neurasthenia, hysteria, and nervous heart and stomach disturbances.

Bilirubinemia.—Vogel and Zins treat 0.5 c.c. of the blood serum or exudate with twice the volume of 20 per cent. trichloracetic acid. The precipitate is stirred up with a glass rod and this emulsion is filtered through a folded filter. The precipitate left on the filter turns green as it dries, the depth of the tint corresponding to the proportion of bilirubin present. They say that this is a specific and sensitive test for pathologic bilirubinemia. When negative, the tint is yellowish or white.

Münchener medizinische Wochenschrift, Munich

April 28, 1922, **69**, No. 17

*Treatment of Gastric and Duodenal Ulcer. Crämer.—p. 615.
Quartz Lamp Treatment of Tetanus. A., von Beust.—p. 618.
The Mastic Reaction in the Cerebrospinal Fluid. E. Sahlgren.—p. 618.
Origin and Significance of Secondary Murmurs in Functionally Cured Pulmonary Tuberculosis. H. Alexander.—p. 619.
Swimming Pool Conjunctivitis. F. Best.—p. 621.
Dangers in the Abortive Treatment of Gonorrhea. Fuchs.—p. 622.
Prevention of Mercurial Stomatitis. Heermann.—p. 623.
Roentgen Sarcoma; Pathogenesis of Sarcoma. A. Beck.—p. 623.
Central Luxation of Head of Femur. F. Rehm.—p. 625.
Chlorin for Sterilization of Tuberculous Sputum. Lorentz.—p. 625.
Microscopic Examination of Blood in Lead Workers. H. Engel.—p. 626.
Management of Meningococcus Material Intended for Examination in Bacteriologic Institutes. K. Hundeshagen.—p. 627.
Crimes Committed in an Hypnotic State. E. Speer.—p. 629.
Preservation of Sterile Water in Ampules. G. L. Dreyfus.—p. 631.
Luminous Paint to Aid in Roentgen Work. Holzknecht and Jahoda—p. 632.
An Adjustable Infusion Apparatus. W. P[illegible]t.—p. 633.

Method of Counteracting Rigidity of Abdominal Muscles During Palpation. T. Hausmann.—p. 633.
Curvilinear Incision. A. Kortzeborn.—p. 634.
Influences Affecting Lactation. Grumme.—p. 634. Comment. Schoedel.—p. 635.
Course and Treatment of Pernicious Anemia. P. Morawitz.—p. 637.
Prevention and Treatment of Abdominal Adhesions. Vogel.—p. 638.

Treatment of Gastric and Duodenal Ulcer.—Crämer discusses particularly such points as admit of a different interpretation than is usually found in the textbooks. He holds that hyperchlorhydria is not so much the cause as it is the effect of the ulcer. Processes similar to gastric ulcers occur in the bladder, in the vagina, in the rectum and in the lower portion of the esophagus, where there is no gastric juice, and duodenal ulcer develops in a strongly alkaline medium. If hyperacidity prevents the healing of a gastric ulcer, as is so often asserted, how does it happen that so many ulcers heal spontaneously without attracting any attention by their symptoms? We cannot assume that anacidity was present in all such cases. If postoperative jejunal ulcer is caused by the gastric juices, why does it occur in scarcely 2 per cent. of all gastro-enterostomies? Several years ago, a patient reported that the bismuth suspension that he had taken for roentgenography had helped him very much—that he had had much less pain since then. After this observation had been made repeatedly, Crämer concluded that the bismuth suspension, since it filled the whole stomach, opened up the folds of the mucosa and adhered to ulcerous spots, and this might be the cause of the improvement. Others have observed similar results. Since that time he has often prescribed a bismuth suspension breakfast twice a week, with improvement or a cure in the case of many old ulcers that he had hitherto treated in vain by other methods. As for lavage with gastric ulcer, it is always indicated with motor disturbances or marked gastritis. Marked pyloric stenosis, together with high-grade stasis of the gastric contents and moderate vomiting, is a strong indication for operation. If after four weeks' medical treatment (rest, special diet, daily gastric lavage, Cohnheim's oil treatment) there is no particular improvement, the urine does not increase much in quantity, the stasis does not decrease particularly, the weight does not increase, and the general condition does not improve, in such cases surgical intervention should not be delayed. Following operation, the after-treatment is of the greatest importance. Often successful internal treatment is not possible until after an operation.

May 5, 1922, **69**, No. 18

Ideas and Theories of Inflammation. L. Aschoff.—p. 655.
Cholesterinuria and Indigouria. G. Dorner.—p. 661.
Chronic Appendicitis and Liver Disease. L. Saathoff.—p. 662.
Ileus with Yellow Atrophy of the Liver After Intravenous Treatment; Two Cases. Zieler and Birnbaum.—p. 664.
Ileus with Yellow Atrophy of Liver in Syphilitic. F. Breuer.—p. 666.
Syphilis of the Lungs Unrecognized for Fifteen Years. Winkler.—p. 667.
Second Neurorelapse Following Combined Treatment of So-Called Seronegative Primary Syphilis. F. Krömeke.—p. 668.
Arterial Flaps and Epithelial Inserts. J. F. S. Esser.—p. 669.
Experiences with Direct Blood Transfusion (Oehlecker). Bonhoff.—p. 671.
Neo-Arsphenamin in Wounds of the Buccal Cavity. Ritter.—p. 672.
*Umbilical Cord Sign of Separation of Placenta. H. Hegewald.—p. 673.
Kretschmer's Theory of Constitution in Relation to Anthropology. W. Mayer-Gross.—p. 676.
Diagnostic Puncture. F. Penzoldt.—p. 676.

Cord Sign of Separation of Placenta.—Hegewald states that under light pressure with the fingers on the fundus of the uterus, the clamped umbilical cord stiffens if the placenta is still adherent, and relaxes as the pressure on the fundus is released. He says that this shows the exact moment when the placenta is ready for Credé expression. When the placenta has separated, the impulse is not transmitted to the vessels in the cord.

Wiener klinische Wochenschrift, Vienna

May 4, 1922, **35**, No. 18

Microscopy of Eye and Ophthalmoscopy in Red-Free Light. Lauber.—p. 407.
Intra-Uterine Fetal Injuries. A. Greil.—p. 412.
Effect of Galactose on Blood Sugar Content. Kahler and Machold.—p. 414.
Blood Changes with Stenosis of Upper Air Passages. M. Krassnig.—p. 417.
Colloidal Benzoin Reaction in Cerebrospinal Fluid. F. Mras.—p. 417.

May 11, 1922, **35**, No. 19

Tuberculosis of the Eye. F. Dimmer.—p. 431.
Urochromogen Excretion in Women's Diseases. E. Klaften.—p. 435.
Effect of Diuretics on Fibrinogen. Kollert and Starlinger.—p. 439.
*Treatment of Sequels of Epidemic Encephalitis. I. Piticariu.—p. 441.
"Excretion of Pigments in Gastric Juice and Bile." F. Rosenthal and M. Falkenhausen.—p. 442. Reply. Saxl and Scherf.—p. 444.

Treatment of Sequels of Epidemic Encephalitis with Intravenous Injections of Patients' Own Lumbar Puncture Fluid.—In three cases of persisting clonic spasms and in one case of parkinsonism continuing long after subsidence of the acute encephalitis, Piticariu injected intravenously the patients' own lumbar puncture fluid. No benefit was derived from simple lumbar puncture, without subsequent intravenous injections. Through lumbar puncture he aspirated with a record syringe 10 c.c. of spinal fluid, which he immediately injected into the ulnar vein of the same patient. The injections were given at intervals of from five to seven days. In mild cases four injections sufficed; in the severer cases as many as seven injections were required. Soon after the first injection, the symptoms began to decrease, and later disappeared entirely or nearly so. He theorizes that the cerebrospinal fluid may contain antibodies during convalescence from the epidemic encephalitis.

Zeitschrift für klinische Medizin, Berlin

April 19, 1922, **94**, No. 1-3

*Gout. II. Gudzent and Keeser.—p. 1.
*The Polychemical Urobilin Reaction. T. Hausmann.—p. 12.
*The Heart During Physical Work. Bruns and G. A. Roemer.—p. 22.
*The Immune Biology of Typhoid. H. Oeller.—p. 49.
*The Spleen. J. Weicksel.—p. 90.
*Pathologic Amino-Acid Content of Urine. S. Zandrén.—p. 101.
*The Jugular Pulse. R. Ohm.—p. 140.
*Asthma. W. Sternberg.—p. 196.

Pathogenesis of Gout.—Continuing their research on gout, Gudzent and Keeser recorded the uric acid content and nonprotein nitrogen in organs from cadavers and organs removed at operations, and the organs of fowls. They explain how their findings allow deeper insight into the intermediate metabolism of purins.

Polychemical Test for Urobilin.—Hausmann announces that addition to urine of a 10 per cent. or other strong solution of a salt of any heavy metal or organic or inorganic acid seems to suspend the action of some force which otherwise impedes extraction of urobilin with chloroform or ethyl acetate. No other pigment can be extracted with chloroform in this way except bile pigment, and the latter cannot be extracted with chloroform when a 10 per cent. solution of copper sulphate has been used. On the other hand, it is readily extracted with chloroform from natural urine. The amounts used must be large: 2 c.c. of the concentrated solution of the salt or 6 to 8 drops of the concentrated acid for each 20 c.c. of the urine.

Effect on Heart of Strenuous Physical Work.—Bruns and Roemer give the results of comprehensive roentgen-ray study of the changes in the size of the heart compared with pulse and blood pressure in man and animals. They show that mechanical influences alone cannot explain the changes observed. Besides the action on the heart of the waste products generated in the course of strenuous physical exercise, we have to reckon with psychic influences. The importance of the latter in modifying the size of the heart was abundantly demonstrated in their experiments. This factor does not enter into experiments on animals, as the animals are under the influence of an anesthetic or decerebrated.

The Immune Biology of Typhoid.—Oeller declares that the old conception of typhoid solely from the standpoints of bacteriology and pathologic anatomy must now give way to the newer conception of disease from the standpoint of allergy and vital reactions. This standpoint has been reached in tuberculosis, but typhoid is much better adapted for study from this standpoint as the whole process—which in tuberculosis may be spread over a lifetime—occurs in typhoid within a few weeks.

Function of the Spleen.—Weicksel's research on the physiology and pathology of the spleen has confirmed the close connection between it and the liver, the bone marrow and the lymph glands, and its importance in destruction of the blood and formation of bilirubin.

Pathologic Excretion of Amino-Acids in the Urine.—Zandrén compares the amino-aciduria in thirty-three cases of advanced tuberculosis with the findings in six healthy subjects and eleven with disease of various kinds but sound livers, and a number of cases of other disease or poisoning. All this evidence testifies to the importance of excretion of amino-acids as a sign of severe insufficiency of the liver.

The Jugular Venous Pulse.—Ohm discusses the conditions in health and disease as the jugular pulse wave is modified by the work and the filling of the heart. He gives twenty-five tracings and fifteen roentgenograms to explain the findings and their mechanism. The pulse wave was studied with a tiny mirror swinging on an axis glued to the skin. A rod was fastened to the center of the axis, the outer end of the rod resting on the vein, and transmitting the movements of the vein to the mirror. This study of the jugular pulse throws light on the functional capacity of the heart.

Asthma.—Sternberg calls attention to some new standpoints for treating asthma, based on the physiology of the respiratory movements and speech movements, and the laws of playing on musical instruments. From these he deduces a physiologic mechanotherapy, a pedagogic didactic method which aims to insure the relaxation of the muscles. The inability to relax promptly is the main factor in asthma, in stuttering, etc. The physiologic pause in the respiration—the relaxation period—must be cultivated and lengthened by systematic exercises. He emphasizes that technical skill in playing on an instrument increases as the movements are made without conscious effort of the will. This fact alone, he says, shows the absurdity of combating asthma by counting exercises or other devices which fasten the attention on the anomaly.

Zentralblatt für Gynäkologie, Leipzig

March 25, 1922, **46**, No. 12

*Surgical Era in Gynecology. A. Mayer.—p. 449.
Psychodiagnosis and Psychotherapy in Gynecologic Practice. W. Stemmer.—p. 458.
*Collection of Data on Septic Abortion. H. A. Dietrich.—p. 467.
A Rare Injury of the Uterus. W. Sigwart.—p. 473.

April 1, 1922, **46**, No. 13

Defense of the Alexander-Adams Operation. H. Fehling.—p. 482.
Value of the Alexander-Adams Operation. G. Siefart.—p. 483.
Therapy of Placenta Praevia. C. Meyer.—p. 485.
Diagnostic Curettage of the Uterus with Fatal Result Due to Endogenous Infection. L. Lederer.—p. 496.
Rare Human Monster: Rhachipagus Parasiticus. H. Polthier.—p. 501.
Case of Primary Carcinoma of the Tube. C. Stanca.—p. 508.

The Surgical Era in Gynecology; Neglect of Borderline Subjects.—Mayer expresses regret that, in recent years, many surgeons seem to overlook the fact that many gynecologic symptoms do not have their origin in a purely gynecologic affection of some organ but, on the contrary, have their roots in the patient's general condition. The brilliant success of operative gynecology was mainly due to the fact that it is an organ specialty. This is its strength and at the same time this is its weakness. He knows of young women who have had a series of operations, from amputation of the portio, the Alexander-Adams, appendectomy and nephropexy to gastro-enterostomy, with hysterectomy finally as the dysmenorrhea and vomiting persisted. There is a tendency to overlook general disease "sailing under a gynecologic flag."

Record for Septic Abortion.—Dietrich gives in detail a blank form that he recommends for recording the results of treatment of septic abortion. He regards the subject as important in view of the increase in the number of cases. If directors of hospitals and also specialists and general practitioners will furnish him with their data, he will gladly later undertake their collation. Dietrich is *Oberarzt* in the Universitäts-Frauenklinik at Göttingen (Germany), where communications may be addressed.

Zentralblatt für innere Medizin, Leipzig

March 18, 1922, **43**, No. 11

*Modification of Iodin Bile Pigment Test. E. Silberstern.—p. 185.

Improved Technic for Test for Bile Pigments in Urine.—Silberstern reports that the ordinary iodin test is made more sensitive and reliable if the iodin is dissolved in chloroform or ether instead of in alcohol. He uses 0.5 part of iodin to 76.5 parts of chloroform, shakes up 1 c.c. of this iodin solution with 2 to 4 c.c. of the fluid to be examined and sets it aside. This is more convenient than estimation from the mere line of contact between the fluids. A green tint as compared with the mother solution is the positive response.

Acta Chirurgica Scandinavica, Stockholm

April 29, 1922, **54**, No. 5

*Invagination After Gastro-Enterostomy. S. Lundberg.—p. 423.
*Hematoma in Sheath of Abdominal Rectus Muscle. E. Perman.—p. 434.
*Infant Surgery. S. Johansson.—p. 455.
*Spontaneous Rupture of Bladder. N. A. Nicolaysen.—p. 507.

Retrograde Invagination After Gastro-Enterostomy.—Lundberg compares with the necropsy findings in his case, six cases he has found in the records in which the upper portion of the jejunum had slipped backward inside the efferent loop. The invaginatum in his case was 20 cm. long, and showed signs of gangrene. Pain and vomiting had been the first sign of trouble. The vomit finally contained blood. The woman died the fourth day. The five patients were all cured who were operated on in from eighteen to forty-eight hours, although the intussusception had not been recognized beforehand except in a case in which it was a recurrence.

Hematoma in Sheath of Rectus Muscle.—In one of Perman's 11 cases the hematoma was the common professional injury early in cavalry training. In some of the others indirect trauma was known. Fifteen of the total 20 cases he has compiled were in women, all but one over 35. The correct diagnosis was made before the operation only in 6 cases. The severe pain, tenderness, muscular rigidity, nausea and vomiting, the absence of any direct trauma, and the disregard of the patient's statements as to mild pain following lifting, coughing, overexertion—all mislead the diagnosis. The period of mild pain may last for some time before the acute clinical picture develops. One patient was a hemophiliac, one a hard drinker. Torsion of an ovarian cyst had been assumed in 6 cases; appendicitis or ruptured tubal pregnancy in some of the others. A yellowish edema in the subcutaneous tissue was noted in 3 cases. In 5 there was suggillation. In 3 cases the hematoma subsided under conservative measures alone, but evacuation of the hematoma shortened the healing time materially in the others, and infection was never observed in these 20 cases. An abscess developed from the hematoma in a further case in which the lesion had followed a kick from a horse. The article is in English.

Operations on Infants.—Johansson's profusely illustrated report (in English) of operations on infants includes 45 for harelip or cleft palate, 2 cases of atresia of the small intestine, neither infant surviving, and 8 cases of recovery after correction of deformity of the rectum, and 104 operative cases of inguinal hernia, all but 4 in boys. He believes in operating early for inguinal hernia in an infant. In his total 115 cases, strangulation had occurred already in 16 per cent. There is also the liability to a vicious circle from gastro-enteritis. The only contraindication he admits is a weight less than 3,000 gm. He operates rapidly; his average time was eleven minutes, always under general anesthesia. In 11 cases of septic osteomyelitis, 9 were cured by the intervention.

In the 6 cases of coxitis the cure was realized without resection, although 3 were very severe. In one, nothing but an extension bandage had been applied. His impression is that an autogenous vaccine tends to shorten the course and limit the big surgical procedures, especially with resection of joints. The whole head of the femur was absorbed in one case. All the others healed with only slight functional derangement. These coxitis cases proved very instructive, he says, as they showed that conservative and expectant treatment is justified in infants in many cases in which otherwise, according to prevailing surgical principles, more radical treatment is indicated. His experience with burns teaches the necessity for hospital treatment for burns in children, even slight burns. The prognosis is unfavorable even with burns of slight extent and intensity. All the 6 infants in this group finally recovered. He adds that the weight dropped by 200 to 400 gm. in 40 per cent. of 98 infants operated on under general anesthesia, but this drop was transient. The temperature usually runs up for a day or two, but this is of no consequence. Pediatric care is so important for infants that he advises having the surgeon come to the children's clinic for the operation, rather than taking the child to the adult department. In a case of purulent pyelonephritis in a 5 months infant, he exposed both kidneys, and found them studded with miliary abscesses. He drained the pelvis. Instances are on record in which a cure was realized by this, but this child died the same day.

Spontaneous Rupture of Bladder; Healing Without Operation.—Intraperitoneal rupture of the bladder was diagnosed in the man of 47 from the sudden pain, intense desires to urinate and impossibility to void a drop of urine. There had been no trauma but there was a history of old syphilis. The fluid drawn by catheter the second day resembled a peritoneal effusion, containing only 1.33 per thousand urea, while the blood serum, fifty hours after the first symptoms, contained 2.21 per cent. urea. An immediate operation was advised, but this was refused because the condition seemed hopeless, the man apparently moribund. The next morning there was some improvement and 600 c.c. of actual urine was voided. It contained 9 per thousand urea, but only 1 per thousand albumin. The uremia rapidly declined and the general condition improved to correspond. He was discharged in good condition the thirty-third day. The man had been under treatment for the last four years for syphilitic atrophy of the optic nerve, his syphilis dating from twenty-three years before, and there had been occasional slight urinary disturbance for several years. The patient probably would not have survived an operation. Over 50 per cent. of the operative cases of rupture of the bladder terminate fatally. (In German.)

Hospitalstidende, Copenhagen

May 10, 1922, **65**, No. 15

*Ileus from Congenital Malformations. E. Dahl-Iversen.—p. 237. Conc'n.
Centering the Roentgen Tube. A. O. Wolff.—p. 242.

May 16, 1922, **65**, No. 16

*Fibro-Adenoma in Male Breast. H. Rud.—p. 253. Conc'n No. 17, p. 269.

Ileus from Congenital Malformations.—Summarized, July 15, p. 254.

Fibro-Adenoma in Male Breast.—Rud quotes Williams', Palermo's and others' statistics reporting 6 benign to 25 malignant tumors in the male breast in 2,422 mammary tumors; 14 per cent. benign in 751 tumors in male breast, and so on. In Denmark, 2 of 42 benign mammary tumors were in men, and 5 of 330 malignant ones. Rud has found only 4 instances on record of a tuberculous tumor in the male mamma, and 10 of a syphilitic tumor. He gives the details of 5 cases in which he removed a fibro-adenoma of the male mammary gland; his patients were all between 18 and 22. Some of the growths were diffuse, others circumscribed. Gynecomastia is usually bilateral, and mastitis generally rapidly subsides. In his cases there was a history of trauma in 4; the interval before the tumor was noticed ranged from three weeks to eight months. In the total of 60 cases he has compiled, trauma is mentioned too often for it to be a mere coincidence, and mastitis had preceded the tumor in the majority. Treatment is imperative, rest and moist heat for the mastitis, and removal of the benign tumor, as it usually continues a progressive course and is liable to become malignant. In doubtful cases, he urges radical mammectomy with removal of glands and fat tissue in the axilla. Even if an excised scrap seems to be benign, there may be malignant tissue elsewhere. But as a rule the extirpation of the tumor itself is sufficient; warning of the necessity for watching for any signs of recurrence. If the tumor is not circumscribed, he advises removing the entire mammary gland.

May 26, 1922, **65**, No. 18

Trauma of Spinal Cord with Unusual Course. A. V. Neel.—p. 285. Cont'd.
*Rupture of Bladder During Expression of Urine. P. Zachariae.—p. 293.

June 6, 1922, **65**, No. 20

*Differences in Mode of Life in Town and Country. P. Heiberg.—p. 317.
Bleeding Angioma in Kidney. Two Cases. A. Sennels.—p. 329.

Rupture of Bladder During Expression of Urine.—The woman had been unable to void the bladder spontaneously after delivery, and this was aided by compression from without. The fifth day symptoms of peritonitis developed and laparotomy revealed a large rupture in the fundus of the bladder although the urine had been constantly free from blood and attention had not been called to the bladder. He has found only one analogous case on record; this was a spontaneous rupture as the woman stooped over, the ninth day after delivery. The bladder was probably overfilled, and this is perhaps the explanation of Zachariae's case.

The Diet in Town and Country.—Heiberg's comprehensive statistical tables compare conditions in regard to nourishment and expense in rural and industrial life.

Hygiea, Stockholm

May 31, 1922, **84**, No. 10

*Food of Factory Workers in Sweden. E. Abramson.—p. 395.

Food of Factory Workers.—The conditions are compared of workers who eat at home and those eating at the free common dining room supported by a certain factory owner. The calories actually consumed, the differences with age, sex and work, the expense per capita, etc., are considered. Fourteen tables give data for comparative research in this line.

Norsk Magazin for Lægevidenskaben, Christiania

June, 1922, **83**, No. 6

*Uncontrollable Vomiting of Pregnancy. K. Brandt.—p. 425.
Erythroblastosis in an Infant. O. Jervell.—p. 434.
*Acute Pancreatitis. K. Haugseth.—p. 443.
Fracture of Cervical Vertebrae from Indirect Force. F. Harbitz.—p. 444.
Dangers of Spinal Anesthesia. S. Widerøe and S. Dahlstrøm.—p. 450.
Infusion of Salt and Sugar Solutions. S. Widerøe.—p. 454.

Uncontrollable Vomiting of Pregnancy.—Brandt says that the treatment of this condition in his service has been so uniformly successful that he regarded it as almost infallible, until two recent fatal cases confirmed anew that there is nothing certain in medicine. He keeps the woman in bed, strictly isolated, with rectal drip of 2 or 3 liters of saline, and every evening 3 gm. of sodium bromid in 100 gm. water, by the rectum, with absolutely nothing to eat or drink for a few days, recording the pulse, temperature and amount of urine, and the amount and character of the vomit. As long as the urine total kept above 600 to 800 gm. and the pulse below 100, he was serene. The fetus cannot be incriminated alone for the intoxication, as in one of his 2 fatal cases of uncontrollable vomiting, the supposed pregnancy did not exist. Only a hydatidiform mole was found in the uterus of the sextipara. Cachexia of unknown cause dominated the clinical picture in this case; the interval since the last menstruation had been only two months when first seen, but the debility had been noted before this. In another case of uncontrollable vomiting, with impairment of vision and mental confusion, gradual improvement followed induced abortion, but the woman still has multiple neuritis and a tendency to psychoneurosis, and is still in bed, the sixteenth week. In a fourth case, the previously healthy woman began to vomit at the third week of pregnancy, and systematic treatment was begun the eighth week. Her condition did not seem serious; the urine totaled 900 gm. but the sixth day the pulse was 120, and two days later 134. The ninth day she became blind, and then the uterus was evacuated. She died the next day. The abortion had been delayed too long after the warning of the acceleration of the pulse.

Acute Hemorrhagic Pancreatitis.—Haugseth adds another to the few cases on record of recovery after operative treatment. The pancreas felt swollen and hard, but all the symptoms from it slowly subsided after removal of the gallbladder, which contained numerous gallstones. Drainage tubes down to the pancreas and to the stump of the cystic duct relieved the pain, and gradual recovery followed. Small scraps of necrotic tissue were expelled through the pancreas fistula, but the tube could be discarded the fifth week.

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POSTOPERATIVE LUNG COMPLICATIONS *

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Scientific investigation and clinical experience agree in demonstrating that the causes which underlie the production of postoperative lung complications are manifold, and the best means of obviating them is still a desideratum.

Clinical reports indicate that lung complications most frequently follow abdominal operations, especially stomach, gallbladder (upper abdominal) and pelvic work, with carcinoma of the stomach furnishing the largest mortality.

A review of the records of lung complications following operations performed in the Presbyterian Hospital of Chicago was prompted by a desire to establish, if possible, the rôle which the anesthesia played in their causation.

Does the anesthetic contribute to the result? Does one anesthetic contribute to it more than another? Pathologic reports indicate that the anesthetic stands rather as one member of a group of agents which in general produce a similar clinical picture; nevertheless, the anesthetic should be carefully selected and judiciously administered.

GENERAL CONSIDERATIONS

In dealing with the process of infection through the upper respiratory tract, we have to reckon with the organisms usually inhabiting the mouth, throat and nose (*Staphylococcus albus* and *aureus,* diphtheroids, pneumococci and occasionally influenza bacilli and streptococci), colonizing in the lung epithelium. Conditions that might predispose to or influence such a contingency are general feebleness, especially in the aged, or lack of resistance in the individual, combined with a concentrated ether vapor, which is capable of destroying the protective epithelium, making colonization possible. That ether is likely to produce respiratory complications is questionable, particularly when a good anesthetic ether has been used and properly administered. The dreaded "mucus inundation," so frequently discussed by English authors, is certainly not witnessed in a properly conducted open administration. A too concentrated vapor during induction is responsible for the large majority of such accompaniments. Pulmonary lesions found after experimental etherization [1] can be satisfactorily accounted for by the concentration of the ether vapor. Dresser found that "the ether vapor within the closed mask sometimes reached a concentration as high as 34 per cent., while 6 or 7 per cent. is the strongest concentration which can be inhaled without irritation to the air passages." He regards any concentration of vapor which cannot be inhaled by a conscious patient without coughing as harmful to the lung epithelium. That ether is the only cause of pneumonia following its administration is contrary to clinical observation. The first deep note absolving anesthesia by the ether route as being responsible for all lung complications was sounded when Gottstein's report in 1898 from von Mikulicz' clinic in Breslau showed that lung complications as frequently followed local as general anesthesia. His studies have been verified by more recent investigators.

J. Frederick W. Silk [2] of London protests against the misleading term "ether pneumonia," which is still in vogue with certain writers. From August, 1915, to March, 1919, Silk was employed in visiting the principal war hospitals in the United Kingdom and the sick base at Malta, with a view to superintending and reporting on the administration of anesthetics. A thousand visits were paid to about 200 hospitals. "The complaints of postoperative bronchial and pulmonary troubles were frequent, and, in accordance with traditional teaching, were set down offhand to the anesthetic, especially when ether had been used." Silk observed that the complaints came from certain hospitals, and these troubles chiefly occurred in the practice of certain surgeons, and frequently the staffs of other hospitals in the immediate neighborhood were never troubled in this manner. In the work of individual surgeons, Silk was suspicious that an element of simple sepsis had to be considered, as in one hospital a half dozen patients had high temperatures for two or three days after operation before pulmonary symptoms appeared.

Postoperative pneumonia is frequently a lobar pneumonia, due to emboli which have entered the circulation at the site of the operation. The time at which the symptoms develop varies from a few hours to a week or more. They are sudden in their onset with pain in the chest, elevated temperature, cough and quick respiration and pulse. As a rule, constitutional disturbance is not great. Homans reported the consolidation of an entire lobe, following pulmonary infarction. This author says: "If such instances of obvious embolic infarction occur, may not others unrecognized serve as the origin of pneumonia, abscess or gangrene?" Bibergeil reported a case of lobar pneumonia in which multiple emboli were found in the pulmonary artery. Fractures of the long bones are occasionally followed by fat emboli, which produce infarcts of the lungs, the symptoms of which are so similar to pneumonia that it is sometimes difficult to differentiate the two.

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* Chairman's address, read before the meeting on anesthesia in the Section on Miscellaneous Topics at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Gatch, W. D.: The Use of Rebreathing in the Administration of Anesthetics, J. A. M. A. **57**: 1593 (Nov. 11) 1911. Dresser: Bull. Johns Hopkins Hosp. **6**: 7, 1895. Poppert: Deutsch. Ztschr. f. Chir. **67**: 505, 1902. Offergelt: Beitr. z. klin. Chir. **83**: 505, 1907.

[2] Silk, J. F. W.: Am. J. Surg. **34**: 280 (Nov.) 1920.

In addition to the factors already mentioned, others doubtless come into play, such as excessive air limitations during etherization and the adoption of the same posture for a protracted period after operation, so that mucus plugging and hypostatic congestion are favored. Aspiration from the mouth or pharynx of foreign substances, both solid and liquid, weak heart action with low blood pressure producing hypostatic congestion, generalized sepsis, cooling of the body surface, diminished lung expansion caused by pain or tight bandages, and morphin, which allays the reflex excitability of the air passages and thereby favors the retention of aspirated material, all contribute their quota to lung complications. Undoubtedly many are secondary to some preexisting bronchial or lung affection, the effect of the anesthetic being secondary. In thirty-five of the fifty-five cases reported by Armstrong,[3] a septic focus in some part of the body was present before the development of the lung complication.

Patients who have painful abdominal wounds refrain from deep breathing and coughing, which favors basic engorgement of the lungs and the retention in the bronchi of blood, septic matter or vomitus which may have passed into the larynx. It is quite conceivable that the use of imperfectly cleaned rebreathing bags, tubes and masks may favor the occurrence of lung complications, particularly if the preceding patient had a recent acute mouth, throat or lung infection. Postoperative pneumonia may be caused by bacteria or their toxins, carried through the lymph or blood stream after operation on infected tissue, or by exacerbation of preexisting focal infections. Lung abscesses following tonsil and adenoid operations are held by some observers to be embolic in their origin, but the aspiration of septic material or fragments of tonsillar tissue directly through the air passages into the alveoli is a much more probable cause.

Preventive treatment of respiratory complications following operation is an exceedingly important consideration. Aspetic technic and a minimum traumatism of the tissues during operation decrease the possibility of thrombosis and embolism. The anesthesia should be as light and short as possible. No solid food should be allowed for at least six hours before operation. The stomach should be aspirated in emergency operations. The mouth and throat should be disinfected as far as possible with a mild wash containing alcohol. The head should be turned to the side to allow mucus to escape and prevent the aspiration of vomitus. The operating table should be covered by thick, dry pads and the patient by blankets to prevent loss of body heat during the operation and when being conveyed through halls and elevator shafts. Vierordt[4] gives eleven calories an hour as the normal elimination of heat by the lungs, and ninety calories by the skin. When these figures are contrasted, the necessity of preventing the loss of heat by the skin through radiation, evaporation and conduction is apparent.

The side posture during tonsil and adenoid operations is desirable, as it prevents blood from flowing into the trachea and the aspiration of infected tissue into the lungs. Respiration should not be hampered by tight bandages or unrelieved pain following abdominal operations, as the normal descent of the diaphragm is inhibited, thereby interfering with pulmonary ventilation, coughing and expectoration. In mouth, jaw and throat operations, an early awakening from the anesthetic is desirable, so that a semirecumbent or sitting posture may be assumed, to assist in clearing the bronchi of aspirated blood, pus or tissue.

ANALYSIS OF A SERIES OF CASES

In a continuous series of operations performed in the Presbyterian Hospital of Chicago, lung complications occurred in 107 patients, fifty of whom died. There were thirty-one females and seventy-six males, and the ages ranged from 5 months to 90 years. Twenty-six patients developed pulmonary emboli, twenty-one of whom died, a mortality of more than 80 per cent. There were fifteen males and eleven females in this series. The ages ranged from 27 to 75 years. The time of development was: second day, one; third day, two: fourth day, three; fifth day, three; sixth day, three; seventh day, four; tenth day, three; twelfth day, two; thirteenth day, one; seventeenth day, one; twenty-first day, one; twenty-fourth day, one, and twenty-eighth day, one. The heart findings before operation were negative except in two patients who had mitral murmurs, and one who had a myocarditis. The lung findings were all negative except in one patient, who had an old healed tuberculosis. One patient, who suffered very severe electric burns about the genitalia and arm, developed two embolic infarctions, one on the fourth and one on the sixth day following the removal of necrotic tissue and skin grafting. Another patient developed a thrombophlebitis and lung infarct on the tenth day following a cholecystectomy, and a year later an embolism on the fourth day following the repair of a ventral hernia of several years' duration. Both of these patients recovered. Three emboli followed thrombophlebitis. The operations were: herniotomy, five; suprapubic prostatectomy, five; cholecystectomy, one; appendectomy (gangrenous or ruptured), two; hysterectomy, one; ovarian cysts, two; ectopic gestation, one; Porro cesarean section, one; panhysterectomy, one; resection of the bladder for carcinoma, one; ruptured uterus, one; osteochondroma of ribs, one; gastrostomy, one; varicose veins, one; carcinoma of the stomach, one, and burns, one. Ether was administered twelve times, gas-oxygen-ether thirteen times, and a local anesthetic once.

Lung Abscess.—Only the abscesses which developed after operations performed in the Presbyterian Hospital of Chicago are included in this series. There were four cases. One developed fourteen days after drainage of an infected gallbladder; one occurred on the thirteenth day after the removal of a ruptured, gangrenous appendix, and two followed tonsillectomies in adults. One of the latter patients had a turbinectomy under local anesthesia, followed by a tonsillectomy under gas-oxygen. The latter patient was anesthetized with ether, and it was known at the time of operation that she aspirated a fragment of tonsillar tissue. The former developed a lung abscess on the fifth day, and the latter on the fourth day after operation. The last patient recovered, and the other three died: a mortality of 75 per cent. The lung findings were negative in all before operation. One tonsil patient had a systolic blow in the aortic region. Two were given ether; one, gas-oxygen-ether, and one, gas-oxygen.

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[3] Armstrong: Brit. M. J. 1: 1141, 1906.

[4] Vierordt: Daten und Tabelen für Mediziner.

Pneumonia.—There were seventy-six cases of pneumonia, with forty-eight deaths, a mortality of 63 per cent. These figures include eight cases of pneumonia which were really terminal, as they occurred in patients with carcinoma of the esophagus, in whom gastrostomy was made on account of starvation. It also includes four cases of pneumonia which followed the extraction of foreign bodies from the bronchi (tacks, screws, bullets, etc.). Excluding these twelve, there remain thirty-six, a mortality percentage of 47.3. Twenty-five patients had some form of lung lesion before operation, and seventeen had heart lesions.

Stomach.—There were 153 operations on the stomach; nine of the patients developed pneumonia. The ages ranged from 42 to 75 years; all were men, and with one exception were suffering with carcinoma of the esophagus or inoperable carcinoma of the stomach. The time of development of the pneumonia was: second day after operation, one; third day, five; fourth day, one; fifth day, one, and seventh day, one. There were eight deaths, a mortality rate of 5.2 per cent. It is interesting to note that all of these patients were men, and all but one were suffering from carcinoma. One patient had a lung complication, and three had heart lesion before operation.

Gallbladder and Bile Tracts.—There were 1,381 cases in this series, with ten pneumonias. The ages ranged from 48 to 72 years. There were four women and six men. The time of development of pneumonia was: second day, one; third day, five; fourth day, one; fifth day, one; twenty-fourth day, one, and forty-eighth day, one. There were six deaths, a mortality rate of 0.4 per cent. Two patients had heart lesions, and three had lung complications before operation.

Appendectomy.—There were 1,560 appendectomies, with nine cases of pneumonia. All of these patients were males, and the ages ranged from 2 to 44 years. All were suffering with gangrenous or ruptured appendixes. There were five deaths, a mortality rate of 0.3 per cent. One had a heart lesion, and three had lung complications before operation. The time of development of pneumonia was: at the end of twenty-four hours, two; second day, one; eighth day, two; sixth day, one; eighth day, one; tenth day, one, and eleventh day, one. Seven were given ether, one gas-oxygen, and one a local anesthetic and gas-oxygen.

Herniotomy.—There were 1,872 cases, with nine pneumonias. Eight males and one female comprised this series, and the ages ranged from 5 months to 70 years. There were five deaths, a mortality of 0.26 per cent. One patient had a heart lesion, and three had lung complications before operation. An inguinal hernia in a child, aged 5 months, who was in the early stages of pneumonia, became strangulated, which necessitated an immediate operation. This was performed under local anesthesia, except a few inhalations of ether during reduction, as it was impossible to replace the intestine on account of the straining. Death occurred three days later. It is interesting to note that two patients developed delirium tremens concomitant with the pneumonia, and both died. The time of development of pneumonia was: second day after operation, one; third day, two; fourth day, one; fifth day, two; sixth day, two, and eighth day, one. Ether was the anesthetic administered to six; gas-oxygen-ether to two, and local anesthesia to one.

Prostatectomy.—There were 174 prostatectomies, and nine of the patients developed pneumonia following suprapubic prostatectomy. The youngest patient in this series was 50, and the oldest, 90 years of age. There were eight deaths, a mortality of 4.6 per cent. In analyzing the preoperative conditions of these patients, the high mortality percentage is expainable on the ground that a large majority of these men were suffering with sepsis and some pathologic condition of the lungs, as chronic bronchitis or a myocarditis, cardiac insufficiency, and more or less arteriosclerosis either of the coronary arteries or of the general arterial system. Nephritis was also an occasional accompaniment; age and general debility were important factors, especially in the hypostatic type of pneumonia, which developed in from one to four weeks after prostatectomy. The time of development of pneumonia was: second day, three; fourth day, one; tenth day, one; fourteenth day, one; twenty-sixth day, one; thirty-sixth day, one, and end of fourth week, one. Ether was administered to three; gas-oxygen-ether, to one; local anesthetic-gas-oxygen to one, and gas-oxygen to four. One patient with carcinoma of the prostate died from hypostatic pneumonia following a suprapubic cystotomy and the removal of a small piece of tissue for diagnosis. One patient with feeble heart tones and almost complete anuria developed double pneumonia four days after operation.

Pneumonia developed after other operations as follows: Two after tonsil and adenoid operations, one in a boy, aged 10 years, who had chronic bronchitis and asthma. A cellulitis of the hand was drained in a diabetic patient under gas, and three days after pneumonia developed concomitant with a large increase in the sugar content. One patient developed pneumonia after a low forceps delivery and perineorrhaphy; one followed a normal delivery on the third day, and one on the seventh day after a currettage for an incomplete abortion. Bronchopneumonia developed three days after an ileostomy under local anesthesia for ulcerative colitis. This patient had crepitant râles before operation, and was in a very weak, emaciated state. This was clearly a terminal pneumonia, as was also the pneumonia which occurred thirty-one days after the removal of a carcinoma from the floor of the mouth. There was only one instance of pneumonia following kidney operations, which occurred after the removal of a hypernephroma. Three followed osteomyelitis; one, a cleft palate; three, foreign bodies in the bronchi; one, fifteen days after the aspiration of a knee in a patient with streptococcus infection; one, after nerve suture; one, after an extensive plastic operation for roentgen-ray burns, psoas abscess, plastic vaginal work, tracheotomy, exploratory laparotomy in which atrophic cirrhosis of the liver was found, tumor of the spinal cord, thyroidectomy and cervical rib. One case of pneumonia was clearly an aspiration pneumonia, as the patient vomited solid food on the second day after operation, became alarmingly cyanosed, and recovered, and on the following day symptoms of pneumonia developed. Attention is called to the observation that twenty-five had lung involvement and seventeen had heart lesions before the pneumonia complication, while, with the exception of two patients who had mitral murmurs and one a myocarditis previous to pulmonary infarctions, the heart and lung findings were negative, and this was also true of the patients who developed lung abscess. No effort was made to designate the type of pneumonia, because it could not be done with any degree of certainty, as many of the records simply stated "pneumonia"; furthermore, the time of development in many instances was determined through a study of the temperature sheets.

A woman, aged 29, developed acute miliary tuberculosis twenty-four days after a cholecystectomy, under gas-oxygen anesthesia. This patient had tuberculosis of both upper lobes of two years' duration.

Attention is called to the remarkable record of 12,045 tonsil and adenoid operations, with only four lung complications, two cases of pneumonia and two of lung abscess; also to the fact that about three times as many men developed lung complications as women in the total number of cases cited.

TRAINING IN SOCIOLOGY AND PUBLIC HEALTH AN ESSENTIAL IN MEDICAL EDUCATION *

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Near the home of my birth, where my youth and young manhood were spent, is one of the foothills of the Appalachian chain, which terminates in Alabama.

This mountain stands out boldly against the southern sky. I have spent hours in my childhood gazing upon it and wondering what was on the other side. In after years, when, to the music of a pack of foxhounds and the clatter of a good horse's hoofs, I reached its highest point, the thing that interested me most on the other side was not the beautiful plains, streams and wooded country, but still higher ranges of mountains in the distance, hiding other things.

I have recalled those dreams of my boyhood in my recent study of the work of the Council on Medical Education in its efforts since 1902 to elevate the standard of medical education in the United States. The history of this splendid work is as fascinating reading as a romance of the Elizabethan age. As in my boyhood experience, when high ground was reached, higher ground came into view, and point after point has been scaled until we stand today on a pinnacle of excellence unexcelled by any other country; but there is still higher ground beyond which we must reach.

There has been practically no advance in the teaching of preventive medicine in the last quarter of a century. Discoveries of methods of administration and methods of prevention have come forward by leaps and bounds, but they have remained to be learned by the physician after he has taken up his life work, and not in that important period when he is preparing for it. For that reason, habits of medical thought have not been directed along the lines of preventive medicine, but have been confined almost exclusively to the curative side of the science. We shall not reach the highest ground ahead of us until we have introduced into our schools of medical education a course of study which will bring the medical student into easy touch with natural laws governing the transmission and prevention of diseases, the methods to be employed by the health administrators in their control, and the part to be played by the medical profession in the accomplishment of this great task.

It is important to recognize that modern attempts to solve, or, at least, to reach an approximate solution of fundamental problems, have led in our own day to the development of a number of comparatively new sciences associated with the basic human needs: food, shelter, defense and propagation. They are still rudimentary in a large degree and practically unstandardized. For this reason they are likely to be lumped together in our minds under the general title of "the social sciences," and to receive from us scant consideration or respect. Examined closely, are not every one of these embryonic sciences which deal with the major problems of human existence fundamentally a part of medical science?

Who can say that "a knowledge of the living human body and its many complex normal functions and structures" is more important to the prospective physician than a knowledge of the food substances necessary to keep the body going or to bring it to maturity and productiveness?

Who can say that "a training in dispensaries and hospitals where the student can observe patients suffering from all the more common diseases" is more important to the future practitioner of the healing art than would be a training in courts and prison camps or in legislative halls, where he can study human nature in the raw, as it comes to grips with the problems of life?

If "he needs to be educated in regard to the many and varied forms of remedial agents and procedures which are of generally recognized value," is his need for an education in the many and varied forms of preventive work less imperative or less fundamental?

FIVE ESSENTIALS

If we grant, for the sake of the premise, that knowledge of remedial and preventive methods is of equal importance to the medical student, I am suggesting, for consideration, five essentials in the latter field which should be made a part of his medical education:

1. He needs to have a sympathetic understanding of the fundamental human problems in relation to the many complexities of modern life, and must become familiar with the trend of the best thinking along social lines.

2. He needs to know the place and function of sanitation in relation to the public welfare, the how and when and why of environmental influence on health. In other words, he needs to know when and how to make use of the knowledge of sanitary engineering, not necessarily to be himself a sanitary engineer.

3. He needs to be well grounded in the control of the communicable diseases and in bacteriology.

4. It is imperative that he should have a knowledge of hygiene, especially in its relation to the social and medical sciences which attempt to improve the race by approximating a solution of the basic problems of human existence; that is, the problems associated with the necessity for food, shelter, defense and propagation.

5. He needs to have a knowledge of psychology in its relation to conduct, with regard both to individuals and to groups, in order that he may truly educate both individuals and groups in right habits of action, by supplying motives which appeal to them.

The Council on Medical Education and Hospitals is recommending to the American Medical Association at this session that the last two years of undergraduate medical study be devoted to the four majors: practice

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* Chairman's address, read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

of medicine, surgery, obstetrics and public health. The colleges will be asked to pay less attention to courses in special branches during the undergraduate term, and devote more time to the education of medical practitioners.

I believe that more attention to the subjects outlined in the foregoing paragraphs will equip men to render a service to the individual and the community which will eventually bring the practice of medicine to a level of achievement undreamed of in the past. I believe that men who have received such preparation will be ready after their graduation to practice medicine in cooperation with the many and varied agencies for social betterment, with a greater degree of mutual understanding.

CONCLUSION

Let me emphasize the belief that the higher ground toward which we are rapidly moving will afford to administrators of public health a steadily enlarging field of usefulness because of the better understanding by the medical profession of the proper relation between the prevention and the cure of disease, and the appreciation by it of the opportunity to take its proper place of leadership in this great movement toward social tranquillity and the improvement of the race.

CLINICAL AND BACTERIOLOGIC STUDY OF ONE THOUSAND CASES OF LOBAR PNEUMONIA

WITH SPECIAL REFERENCE TO THE THERAPEUTIC VALUE OF PNEUMOCOCCUS ANTIBODY SOLUTION: PRELIMINARY REPORT *

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In the fall of 1920, an opportunity arose for conducting an extensive study of lobar pneumonia in the wards of Bellevue Hospital. Through the kind cooperation of the directors of the other medical services, all cases of lobar pneumonia admitted to the twelve medical wards were carefully studied from the bacteriologic standpoint with the idea of determining, if possible, the relationship between the exciting agent and the clinical course of the disease. The main object of the investigation, however, was to test the therapeutic value of a serum-free solution of pneumococcus antibody.[1] This product was first prepared by F. M. Huntoon,[2] who has described it at some length in a series of recently published articles.

The antibody solution is thus prepared by Huntoon:

> Horses are injected at regular intervals with emulsions of Types I, II and III pneumococci. The serum after a number of injections develops protective antibodies. To obtain a serum which protects mice against 1,000,000 lethal doses or more of Type I is readily accomplished. It is more difficult to obtain as high a protective power for Type II, and against Type III a serum can seldom be obtained which protects against more than 100,000 fatal doses.
>
> To this serum is added an equal volume of a heavy emulsion of living pneumococci Types I, II and III. The mixture is placed at 37 C. for one hour or 20 C. for twelve hours, and then centrifuged. The sediment is washed with salt solution to rid it of horse serum. The washed sediment is emulsified in salt solution containing 0.25 per cent. sodium bicarbonate and heated to 55 C. for from thirty minutes to one hour. This causes dissociation of the pneumococcus (antigen) and antibody. The mixture is centrifuged, and the supernatant fluid removed, chilled, recentrifuged and finally filtered through a filter candle. The final solution, which contains only 0.035 mg. of nitrogen per cubic centimeter, is in many lots able to protect mice against as many fatal doses of pneumococcus Types I, II and III as the original serum from which it was made.

This preparation is therefore a practically serum-free, aqueous solution of specific pneumococcus antibodies. It contains protective substances against pneumococcus Types I, II and III equal in amount to potent polyvalent antipneumococcus serum, yet is almost entirely free from the proteins of horse serum. It also contains, in addition to antibody, a small amount of pneumococcus protein which may conceivably act in the capacity of a vaccine and thereby induce a certain amount of active immunity.

In some experiments which will be published later, the therapeutic value of pneumococcus antibody solution has been tested in experimental pneumococcus pneumonia in monkeys. The results of these experiments are in agreement with protection tests on mice. The most striking results were observed in experimental pneumococcus Type I pneumonia. Following the injection of antibody, pneumococci immediately disappeared from the blood, and the animal made a rapid recovery. When antibody was administered to monkeys that had been inoculated with lethal doses of pneumococcus Type II, the results were not so striking. A certain number, however, were saved by this mode of treatment. In the case of experimental Type III pneumonia, no benefit whatever could be obtained by treating the infected monkeys with antibody solution. Since the antibody solution displays its highest protective power in mice against pneumococcus Type I, next highest against pneumococcus Type II and least against pneumococcus Type III, it would appear that the beneficial effect induced by its administration is, in large measure, proportional to the amount of protective substance present.

CLASSIFICATION OF CASES

An effort was made to determine the type of infection in every case of pneumonia in the series. For one reason or another this effort was unsuccessful in some instances, but in the majority of cases (92 per cent.) the exciting agent was isolated.

The mouse method was used almost exclusively in the examination of sputum. Agglutination and precipitation tests were carried out with the mouse exudate, and at the same time cultures were made on blood agar plates from both the heart's blood and peritoneum of the mouse. Whenever the readings from the mouse exudate indicated pneumococcus Type IV or atypical pneumococcus Type II, colonies were fished from the plates and the pneumococcus was retyped from the broth culture. Typings from cultures were also made whenever the mouse exudate gave a doubtful reaction. Practically all fatal cases were checked with postmortem cultures.

All cases of clinical pneumonia from which a pneumococcus was isolated were included in the series.

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* Read before the Section on Practice of Medicine at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

* From the Second Medical (Cornell) Division and the Pathological Department of Bellevue Hospital, and the Hygienic Laboratory of the U. S. Public Health Service. This study also received financial aid from the Metropolitan Life Insurance Influenza Fund.

[1] The pneumococcus antibody solution employed in this work was supplied by the Mulford Laboratories.

[2] Huntoon, F. M.: J. Immunol. **6**: 117 (March) 1921.

Practically all of these were lobar in type. Cases with frank consolidation of one or more lobes were also included, even if cultures failed to reveal pneumococci. A few cases of *Streptococcus hemolyticus* pneumonia were encountered in which the signs were not absolutely frank, but in every other respect the patients presented the picture of a lobar pneumonia. They were therefore included in the series.

TABLE 1.—BACTERIOLOGIC CLASSIFICATION OF ONE THOUSAND CASES OF LOBAR PNEUMONIA

Organism	Number of Cases
Pneumococcus Type I	320
Pneumococcus Type II	150
Pneumococcus Type III	133
Pneumococcus Type IV	231
Streptococcus hemolyticus	52
Streptococcus viridans	22
Bacillus influenzae	3
Bacillus of Friedländer	4
Staphylococcus aureus	2
Unclassified	83
Total	1,000

In Table 1 the 1,000 cases included in the present study have been classified according to the type of micro-organism isolated. In cases of mixed infection the pneumococcus has been given the preference; that is, if the sputum showed both pneumococcus and streptococcus, the case has been classified as a pneumococcus pneumonia. Cases in which pneumococcus was absent and streptococcus was associated with the influenza bacillus have been classified as streptococcus pneumonia. It will be seen from this table that out of 1,000 cases studied, 917 could be classified bacteriologically. In eighty-three cases either no pathogenic organisms were found in the sputum, or for some reason or other the sputum was not examined.

Of the 917 classified cases, 834, or 90 per cent., showed some type of pneumococcus. The remaining 10 per cent. were mostly streptococcus pneumonias. There were three cases in which *Bacillus influenzae* was isolated in pure culture from the sputum; there were four cases of Friedländer bacillus pneumonia, and two cases of *Staphylococcus aureus* pneumonia.

TABLE 2.—CLASSIFICATION OF EIGHT HUNDRED AND THIRTY-FOUR CASES OF PNEUMOCOCCUS PNEUMONIA

	Number of Cases	Incidence, per Cent.
Pneumococcus Type I	320	38.4
Pneumococcus Type II	150	18.0
Pneumococcus Type III	133	15.9
Pneumococcus Type IV	231	27.7
Total	834	

Table 2 shows the incidence of the various types of pneumococcus pneumonia. Out of a total of 834 pneumococcus pneumonias, 320, or 38.4 per cent., showed pneumococcus Type I; 150, or 18 per cent., showed pneumococcus Type II; 133, or 15.9 per cent., pneumococcus Type III; 231, or 27.7 per cent., pneumococcus Type IV. When these figures are compared with the figures of Dochez and Gillespie,[3] it will be seen that the incidence of Types I, III and IV pneumonia in the present series is slightly higher than theirs, while that of Type II is much lower. At the conclusion of the first year of this study, the incidence of Type I pneumonia was 42 per cent. of the total pneumococcus group. Type I pneumonia is therefore the commonest type of pneumococcus pneumonia, Type III the rarest.

Space will not permit a discussion in this paper of streptococcus pneumonia and the other more unusual forms. They will be considered in detail in a future article. Our interest was centered chiefly in pneumococcus pneumonia, since the agent which we proposed to test therapeutically was directed against this variety.

METHOD OF CONDUCTING ANTIBODY EXPERIMENT

In order to determine the therapeutic value of pneumococcus antibody solution, the twelve medical wards of Bellevue Hospital were divided into two groups. In six wards, all cases of lobar pneumonia were treated with the antibody solution. The other six were used as control wards. In these wards, patients with pneumonia received no antibody, but in other respects were treated in practically the same way as the patients receiving antibody. It was first determined that no selection of any kind was practiced by the admitting office in assigning patients to the various wards. In Bellevue Hospital, new patients are distributed by rotation, without regard to the character or severity of the disease. The control seemed, therefore, to be a fair one from every point of view.

RESULTS OF TREATMENT WITH ANTIBODY

Antibody treatment was started as soon as the diagnosis of pneumonia was made. The solution was given intravenously in most cases, the technic being similar to that of serum administration. The dose was from 50 to 100 c.c. given once, sometimes twice, occasionally three times a day.

The reactions produced by this solution have been one of the most striking features of the study, and deserve especial attention. The typical reaction may be thus described: There is no immediate reaction. From twenty to forty minutes after the injection, the patient begins to shiver and is soon in the midst of a hard chill. The cyanosis and dyspnea become more marked, and the patient often shows extreme anxiety. The chill lasts from fifteen to thirty minutes. At its conclusion, the patient complains of fever, and the temperature may have risen to 106 F. or even to 108 or 109. In rare cases, the temperature may rise to 110. In one case, the rectal temperature was too high to be recorded on the thermometer. When the thermometer was removed, the bulb was missing, and a careful reading of the mercury column recorded 113.1! The patient was wildly delirious during this period of hyperpyrexia, but ice packs were followed by a rapid drop, and on the next morning he showed a normal temperature and made an uncomplicated recovery.

In a certain number of cases, morphin and atropin have been administered subcutaneously one-half hour before the injection of antibody, with the hope that such a procedure would mitigate the severity of the reactions. In general, it may be said that the reaction was somewhat less intense after morphin and atropin, but the effect was not striking. An effort was also made to determine what relationship existed between the severity of the reaction and quantity of antibody injected. In our experience, the reaction is not directly proportional to the antibody dosage. Ten or fifteen cubic centimeters of antibody have in some cases produced sharp reactions, while in other cases 100 or even 200 c.c. has excited no reaction whatever. As a rule, however, the reactions are somewhat more severe and last longer when large doses are administered.

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[3] Dochez, A. R., and Gillespie, L. J.: A Biologic Classification of Pneumococci by Means of Immunity Reactions, J. A. M. A. **61**: 727 (Sept. 6) 1913.

The high temperature usually persists for only a short time: from thirty to sixty minutes. The rapid fall is accompanied by a profuse perspiration, which often drenches the patient's linen, and which may continue for several hours. The fall may be slight, but is usually extensive, often reaching normal or even subnormal limits. It may be temporary or permanent. It is more likely to be temporary if treatment is started early; permanent if the injection is given when the crisis is about due. In some cases, however, one or two injections appear to abort the infection completely, and the temperature remains normal on the third or fourth day of the disease.

These reactions have every appearance of the so-called "foreign protein reaction." They usually follow each injection of antibody, but tend to become somewhat less severe with each paroxysm.

In three cases, the reaction following injection with antibody appeared to be the immediate cause of death. In these three patients, the symptoms were very severe: chill, followed by high fever (from 106 to 109), delirium, cyanosis, dyspnea, rapid weak pulse, diaphoresis, congestion of lungs, coma and death. In two of these cases death was apparently due to cardiac failure. In the third case a long continued hyperpyrexia was probably responsible for the fatal termination.

TABLE 3.—COMPARISON OF DEATH RATE IN TREATED AND CONTROL SERIES

	Antibody Wards			Control Wards		
Type	Cases	Deaths	Rate %	Cases	Deaths	Rate %
Pneumococcus I........	158	21	13.3	162	36	22.2
Pneumococcus II.......	83	23	27.7	67	27	40.3
Pneumococcus III......	73	29	39.7	60	24	40.0
Pneumococcus IV......	110	18	16.4	121	29	24.0
Total...............	424	91	21.4	410	116	28.3
Streptococcus, etc.	48	24	50.0	35	12	34.3
Unclassified............	36	14	38.8	47	20	42.5

Treatment with antibody was usually continued until the temperature of the patient came down and remained below 100 permanently. Occasionally, one injection was sufficient. More frequently, from three to six injections were necessary. The average number of injections was 3.6 for each patient, and the total amount of antibody administered averaged 225 c.c. for each patient.

The results of the experiment are shown in Table 3. It will be observed that 424 cases of pneumococcus pneumonia occurred in the antibody wards, and 410 in the control wards. Nearly all the patients in the antibody wards were treated with this solution, the only exceptions being patients that were convalescent or who showed signs of cardiac failure on admission. These exceptions, however, were counted as "treated" in the statistics given below. There was considerable difference in the mortality rate for Type I cases, 13.3 per cent. for the 158 treated cases, as compared with 22.2 per cent. for the 162 untreated cases. In the Type II groups the treated cases showed a death rate of only 27.7 per cent., as compared with the control death rate of 40.3 per cent. In the Type III series, the percentage of fatalities was practically the same for the two groups, 39.7 per cent. for the treated; 40 per cent. for the untreated cases. Strangely enough, a considerable difference in mortality rate was noted in favor of the treated Type IV group, 16.4 per cent. against 24 per cent. Altogether, the treated pneumococcus cases showed a death rate of 21.4 per cent., while the control pneumococcus series presented a rate of 28.3 per cent.

Streptococcus pneumonia was not benefited in the least by antibody treatment. In fact, the death rate was higher for the treated series (50 per cent.) than it was for the untreated series (34.3). The number of cases, however, in the streptococcus groups is too small to permit of accurate conclusions.

In the small group of unclassified cases, the death rate was slightly lower for the "treated" wards (38.8 per cent.) than for the control wards (42.5 per cent.), but most of the former group did not actually receive antibody.

EFFECT OF ANTIBODY ON BLOOD CULTURES

Blood cultures were taken in 110 cases out of the total pneumococcus series. Of these, thirty-one cases, or 28 per cent., were positive. In several cases of pneumococcus Type I pneumonia, the blood became sterile after one administration of antibody. In one case of pneumococcus Type I pneumonia with 146 pneumococcus colonies to each cubic centimeter of blood and a complicating meningitis, three administrations of antibody of 100 c.c. each reduced the number of colonies to fifteen per cubic centimeter of blood, though the meningitis proved fatal. In two fatal cases of pneumococcus Type I pneumonia which were treated with antibody, blood cultures taken at the time of death were sterile. Postmortem cultures were taken in all but three of the fatal cases of pneumococcus Type I pneumonia. With two exceptions, these cultures showed living pneumococci in the lungs in spite of the previous administration of large amounts of antibody. In two of the fatal antibody cases, postmortem cultures showed that Type I pneumococcus had been entirely replaced by *Streptococcus hemolyticus.*

In fatal cases of pneumococcus Type II pneumonia, pneumococci were recovered from the lungs in spite of the previous administration of large amounts of antibody. In two of these cases, antibody failed to affect the number of pneumococci in the blood. In one case of pneumococcus Type II pneumonia, blood cultures taken before, immediately after and three hours after the administration of 200 c.c. of antibody did not show any numerical change. On the other hand, in one control Type II pneumonia, the count on three successive days was forty-two, thirty and three colonies per cubic centimeter, respectively, and on the fourth day the blood was sterile. One week later, however, the patient developed pericarditis and died.

In serious Type III and Type IV pneumonias with positive blood cultures, the repeated administration of antibody failed to influence the colony count.

CASES ILLUSTRATING EFFECT OF ANTIBODY TREATMENT

The following cases, selected from the series of cases treated with antibody, will serve to illustrate the character of the reactions and the effect of this agent on the course of the disease. They have been chosen, not to illustrate the most striking results, but as examples of various types of reactions:

Case 1.—J. S., a man, aged 31, with pneumococcus Type I pneumonia of the left lower lobe, at 1 p. m. on the second day of the disease received 50 c.c. of pneumococcus antibody intravenously. Twenty minutes later, he had a severe chill, and the temperature rose from 102 to 108 (Chart 1). This sudden rise was followed by a rapid fall to 103, and by the following morning the temperature read 101. A second injection of 50 c.c. was given on the third day, and was followed by a less severe reaction. The temperature remained below 103 on the fourth day, and no antibody was administered. On the fifth day a third and final injection of antibody (50 c.c.) was given. This produced a mild reaction which was followed by complete recovery.

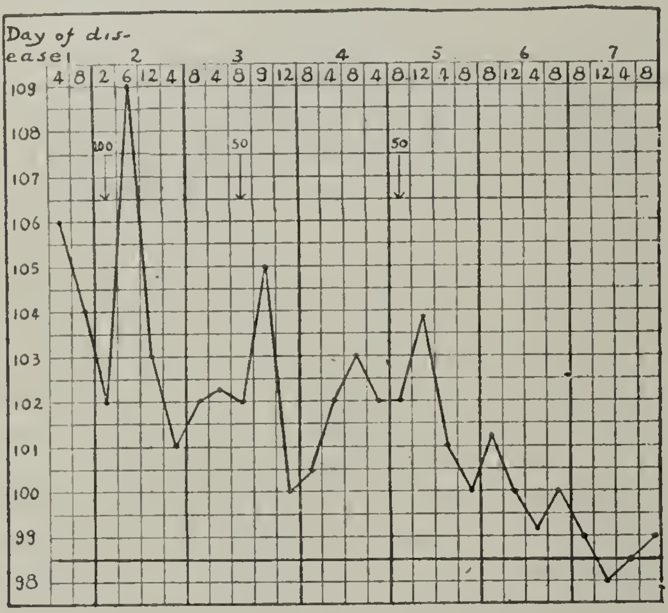


Chart 1.—Temperature in Case 1.

This case illustrates well the "stair-step" temperature curve which characterizes many cases of pneumonia treated with antibody. The first reaction is severe, and accompanied by a high shoot of temperature. With each succeeding injection the reaction is less marked, and the temperature steps down to normal.

Case 2.—H. D., a boy, aged 15, with pneumococcus Type I pneumonia of the right upper lobe, received the first injection of antibody on the fourth day of the disease. Although he received 100 c.c. intravenously, he showed very little reaction to the antibody, and the temperature did not rise (Chart 2). During that day and the two days following, this patient received, in all, eight intravenous injections of antibody, seven of 100 c.c., the last of 50 c.c. No reaction of any consequence was noted after any of the injections, and the temperature maintained a fairly level plateau. Crisis occurred on the seventh day.

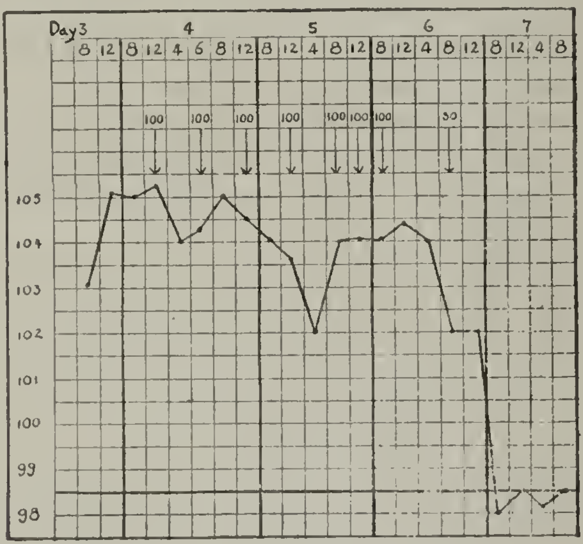


Chart 2.—Temperature in Case 2.

This case illustrates the comparatively rare type of case in which antibody produces little, if any, reaction. The antibody injections induced neither chills nor variations in temperature. In this particular case, however, the general condition of the patient appeared to be favorably influenced by the treatment.

Case 3.—M. R., a man, aged 27, with pneumococcus Type I pneumonia of the right middle and lower, and left lower lobes, received his first injection of antibody on the fourth day of the disease. Altogether he received thirteen intravenous injections of 50 c.c. each. Most of these injections were followed by definite reactions, but the temperature never dropped to normal even temporarily (Chart 3). The disease ran a rather long course, with crisis on the eleventh day. Ten days later, the patient developed a pneumococcus Type I empyema. Thoracotomy and drainage were performed, and the patient eventually recovered.

This case exemplifies a group in which antibody is followed by reactions, but in which the temperature does not drop to normal. The antibody appeared to exert very little influence on the duration of the disease, though the patient usually appeared more comfortable after the administrations.

Case 4.—J. P., a man, aged 42, with pneumococcus Type II pneumonia of the right lower lobe, on the third day of the disease received 50 c.c. of antibody intravenously. This was followed by a sharp chill and rise of temperature to 107.4 (Chart 4). During the next few hours the temperature fell rapidly to 100. The following morning, a second injection of 50 c.c. was given. Again the patient reacted with chill and fever of 104.5, and, following this, was free from symptoms.

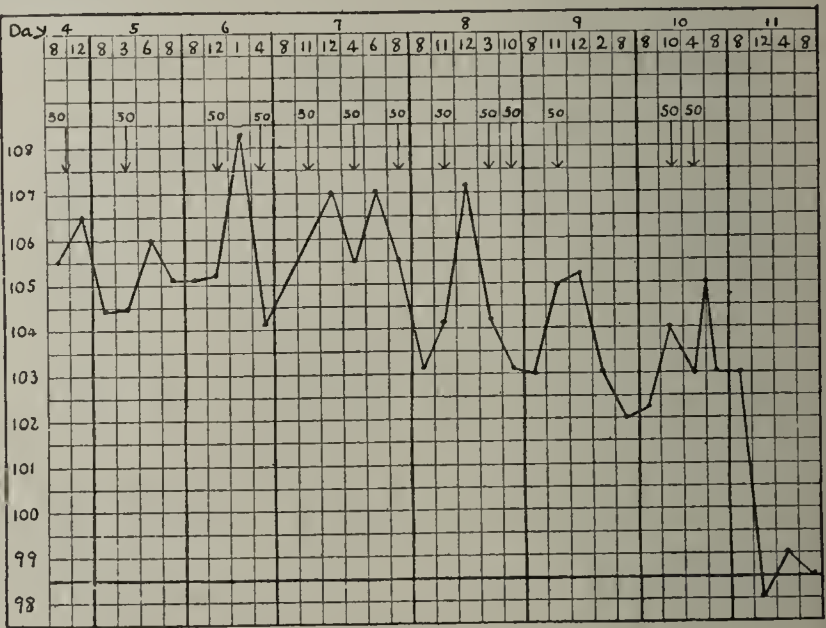


Chart 3.—Temperature in Case 3.

This case is a good instance of an abortive pneumonia terminating on the fourth day, a phenomenon so rare with pneumococcus Type II pneumonia that one is disposed to credit antibody for its occurrence.

Case 5.—P. N., a woman, aged 60, with pneumococcus Type III pneumonia of the right lower lobe, received the first injection of antibody on the third day of the disease. She received three injections of 50 c.c. each on that day, and two injections of 50 c.c. each on the day following (Chart 5). There was a sharp reaction after the first injection, and there were definite reactions after each of the other four. Crisis occurred on the fifth day.

This case illustrates a pneumococcus Type III pneumonia that appeared to react favorably to antibody. Unfortunately, there were not a great many in this group. As pointed out previously, the death rate for Type III pneumonia was not appreciably affected by antibody treatment.

Case 6.—F. H., a man, aged 44, alcoholic, with pneumococcus Type III pneumonia of the right and left lower lobes, received the first injection of antibody on the fifth (or sixth) day of the disease (Chart 6). He received altogether twenty-eight injections of antibody over a period of eight days. The blood culture remained positive, and the patient died of a terminal pneumococcus Type III meningitis.

In this case, antibody appeared to have no effect whatever on the course of the disease. In spite of huge doses (a total of 1,650 c.c.) of antibody, pneumococci persisted in the blood stream, and the patient died of pneumococcus meningitis.

From these examples it will be seen that antibody does not always act in the same way. While reactions usually do occur, they may be entirely absent. A reaction may follow one injection and be lacking after the next. There may be a severe chill or a mild one. A rise of temperature may follow an antibody injection, even though the chill did not occur. Profuse diaphoresis is sometimes seen without any preceding chill. Finally, the antibody may produce a striking effect on the course of the disease, or it may produce no effect whatever. In experiments on mice, it is well established that while antibody often protects these animals against 1,000,000 fatal doses of pneumococcus culture, no amount of antibody will protect them if overwhelming doses of culture are injected. The same principle probably holds true for man.

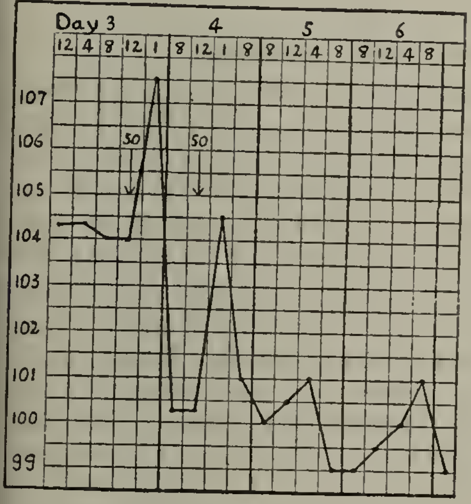


Chart 4.—Temperature in Case 4.

No examples of pneumococcus Type IV pneumonia have been included, as the antibody reactions in this group differ in no way from those in the fixed types.

EFFECT OF ANTIBODY ON DURATION OF DISEASE

Antibody treatment appears to have shortened the course of the disease in a considerable number of cases. In Table 4 it will be noted that in a series of 118 patients treated with antibody on or before the fifth day, thirty-four, or 28.8 per cent., showed normal temperatures on or before the fifth day of the disease; while in 201 control patients admitted on or before the fifth day, only sixteen, or 7.9 per cent., showed a normal temperature on or before the fifth day. In a similar way, 48 per cent., or almost half, of the patients admitted on or before the sixth day, had a normal temperature on or before the sixth day of the disease; while only 18.2 per cent. of the controls reached normal in the same length of time. On the other hand, only 31.8 per cent. of the treated patients continued to have fever until the tenth day of the disease or thereafter, while 42 per cent. of the controls had elevated temperatures for ten days or more.

TABLE 4.—DURATION OF PNEUMONIA IN PATIENTS THAT RECOVERED

	Antibody Wards			Control Wards		
	Tot. No. Tr.	T. 99	Per Cent.	Tot. No. Adm.	T. 99	Per Cent.
On or before 5th day.....	118	34	28.8	201	16	7.9
On or before 6th day.....	143	69	48.2	225	41	18.2
On or before 10th day....	...	91	31.8	...	118	42.0

EFFECT OF ANTIBODY ON COMPLICATIONS

Table 5 shows the incidence of complications in the treated and control series. In 424 pneumococcus patients admitted to the antibody wards, empyema occurred thirty-one times, with eleven deaths; whereas 410 pneumococcus cases in the control wards were complicated by empyema thirty-two times, with fifteen deaths. Meningitis occurred seven times in the treated series, and eleven times in the untreated. Endocarditis or pericarditis was observed six times in the treated cases, and nine times in the untreated cases. There were no cases of arthritis in the antibody series, and two cases in the control series. Altogether, there were forty-four severe complications in the antibody wards, with twenty-four deaths (54.5 per cent.), and fifty-four severe complications in the control wards, with thirty-seven deaths (68.5 per cent.).

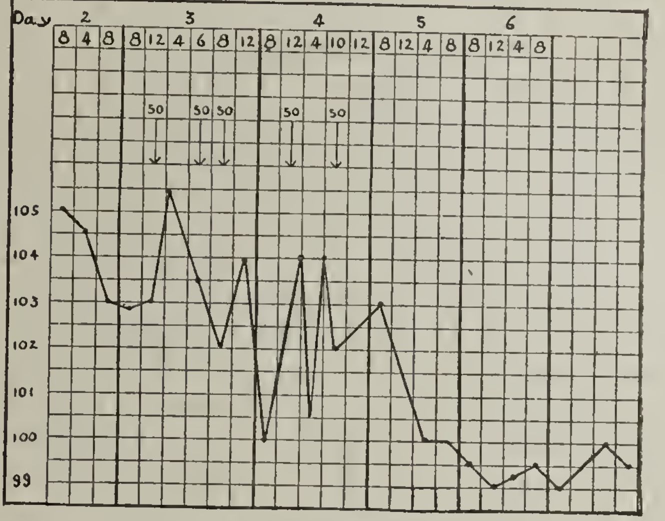


Chart 5.—Temperature in Case 5.

TABLE 5.—INCIDENCE OF COMPLICATIONS IN TREATED AND CONTROL SERIES

	Antibody Wards 424 Pneumonia Cases		Control Wards 410 Pneumonia Cases	
Complications	Total No.	Deaths	Total No.	Deaths
Empyema........................	31	11	32	15
Meningitis......................	7	7	11	11
Endocarditis, pericarditis.....	6	6	9	9
Arthritis.......................	0	0	2	2
Total.....................	44	24 (54.5)	54	37 (68.5)

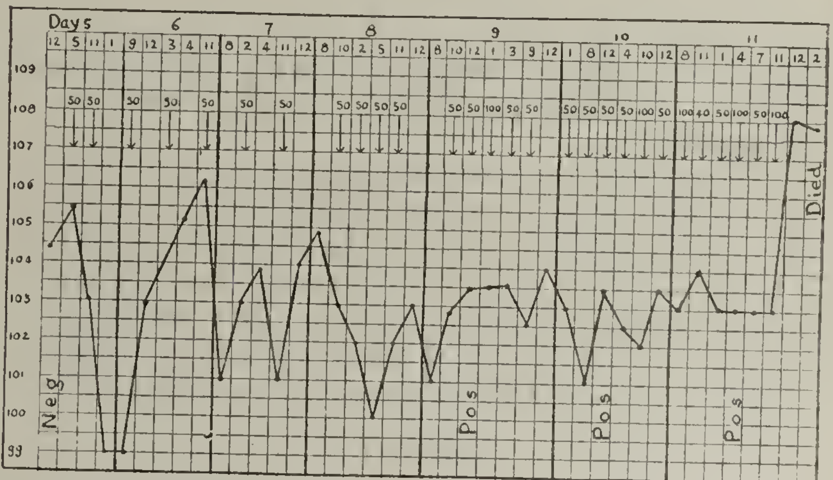


Chart 6.—Temperature in Case 6: *Pos* and *Neg*, blood culture positive or negative.

From these figures it will be seen that there is no evidence to show that treatment with antibody increases the incidence of empyema or any other severe complication. In the case of each of the severe complications, the incidence rate was less for the antibody series than for the control series.

RESULTS

From the evidence presented above it may be concluded that pneumococcus antibody solution is a therapeutic agent of considerable power. The most striking results are undoubtedly obtained in pneumococcus Type I pneumonia. The results in pneumococcus Type II pneumonia are not so impressive, and in pneumococcus Type III cases the antibody solution seems to possess no benefit whatever. It would appear from these facts that antibody solution owes its therapeutic value chiefly to the amount of protective substance present. Just why a considerable difference in death rate has been observed between the treated and the untreated pneumococcus Type IV pneumonias, we are unable to say. The beneficial effect of antibody is probably not referable to the shock reactions, otherwise an improvement would be expected in pneumococcus Type III and in streptococcus pneumonia as well as in the other pneumococcus types. As a matter of fact, the reactions associated with antibody injections are often very uncomfortable and in certain cases are actually injurious to the patient. It has been claimed, of course, that foreign protein reactions have therapeutic value in pneumonia and other infectious diseases. There is little evidence, however, in the present study to support such a theory.

Patients treated with antibody have never shown any symptoms of serum sickness, and this is a great point in its favor. Furthermore, there is no danger of anaphylactic symptoms following the administration of antibody.

Perhaps the most important feature of antibody is its polyvalent nature. It contains protective substance against the three fixed types of pneumococcus. Furthermore, the statistics on Type IV pneumonia indicate that it has some therapeutic value in this type also, probably the result of cross protection. In the treatment of 424 pneumococcus pneumonias, the death rate was 21.4 per cent., while, in 410 control cases, the death rate was 28.3 per cent. In other words, the figures indicate that in every hundred patients with pneumococcus pneumonia treated there was a saving of seven patients. This difference between two almost equal groups of unselected patients, coming from similar environment, during the same seasons, and treated in the same institution, certainly must have some significance.

It is possible that considerable benefit could be derived from antibody by administering it subcutaneously. In the present study it has been employed in this manner on a number of occasions, and has never produced constitutional reactions. Our experience, however, with this form of administration is still too limited to permit of an opinion as to its practical value.

SUMMARY

1. In a series of 917 cases of lobar pneumonia in which a definite bacteriologic diagnosis was obtained, 90 per cent. were of pneumococcus origin. The greater part of the remainder were referable to *Streptococcus hemolyticus* or *Streptococcus viridans*.

2. In the pneumococcus series, pneumococcus Type I predominated (38.4 per cent.). Pneumococcus Type IV was next in frequency (27.7 per cent.); pneumococcus Type II (18 per cent.); pneumococcus Type III (15.9 per cent.).

3. In 424 cases of pneumococcus pneumonia treated with pneumococcus antibody solution, the death rate was 21.4 per cent. A control series of 410 cases in the same institution showed a death rate of 28.3 per cent.

4. Pneumococcus antibody produces its most striking effect in pneumococcus Type I pneumonia. In a series of 156 treated cases the death rate was 13.3 per cent.; while a control series of 162 cases showed a death rate of 22.2 per cent. A definite but less marked effect was observed in cases of pneumococcus Types II and IV pneumonia which were treated with antibody. The antibody solution had no effect whatever on the death rate in pneumococcus Type III pneumonia.

5. The death rate of streptococcus pneumonia was not favorably influenced by antibody treatment.

6. In the series of patients with pneumococcus pneumonia treated with antibody, 28.8 per cent. recovered on or before the fifth day. In the control series, only 7.9 per cent. recovered on or before the fifth day.

7. There were forty-four severe complications in the series of 424 pneumococcus pneumonias treated with antibody, while the control series of 410 pneumococcus pneumonias showed fifty-four severe complications.

33 East Sixty-First Street.

ABSTRACT OF DISCUSSION

Dr. F. M. Huntoon, Glenolden, Pa.: We utilize the principle that antibodies in serum will combine with the bacteria with which the animals were immunized. By exposing bacteria to these immune serums, one causes the antibodies to attach themselves to the bacteria. Then by heating the sensitized bacteria in an alkaline solution, one can cause the antibody to split off. That, in brief, is the method of preparation of these antibody solutions. I want to emphasize not only the large number of cases observed but also the adequate control used in this series. There is an advantage in the cooperation of institutions for scientific interest. Five different institutions had combined resources to gain something of possible scientific value. The aim from the start has been to find out whether this material was therapeutically efficient. If so, it represented a distinct biologic advance, since we had eliminated the horse serum from consideration. The production of serum protein-free solutions has enabled us to do some research on the chemical nature of the antibody. An antibody is a definite substance. It is not a globulin, and if it is a protein at all, it is a peculiar albumin which is not destroyed by alcohol. It is not a fatty substance, and it is not injured by trypsin digestion. We can say what it is not, but we cannot say what it is.

Dr. Nellis B. Foster, New York: This antibody extract is being tried experimentally in two institutions: in Bellevue Hospital under Dr. Cecil, and in the New York Hospital under Dr. Connor and myself, both services being parts of the Cornell Medical School. In an experiment of this kind it is necessary to have a large amount of data to prove anything at all. Last year we had a large number of cases, but at the end of the year we did not feel that we had results that justified making a statement, and at present we do not feel that we have perfect therapeutic measures for treating pneumonia; but we do feel that we are one step farther in developing a substance for treating pneumonia. There are statistics on mortality at the New York Hospital for more than a hundred years. The mortality has never been lower than 25 per cent. During the last two years, it has been materially reduced by the use of this antibody extract, because that is the only material change in treatment during the last two years. Still, in the aggregate of several hundred cases of true pneumonia, we do not yet feel certain where we stand. Pneumonia is a disease which changes from year to year, and in a city like New York it has a higher mortality than in a rural population.

DR. WILLARD J. STONE, Pasadena, Calif.: I should like to ask Dr. Huntoon whether he has reason to believe that the subcutaneous use of this product would be followed by good results.

DR. HUNTOON: I have no experience to decide the question. I know only the laboratory side.

DR. MARY FREEMAN, Perrine, Fla.: I should like to ask whether there were fatalities from the immediate reaction after the giving of that serum. The clinical or medical side is waiting too much for the laboratory. I appreciate the work the laboratory is doing, but if physicians will study and heed the symptoms of patients and keep the chest and the back of the arms well covered, remembering the relation of the brachial plexus to the thoracic and other nerves of the chest, many a time the giving of an opiate to check the cough will be unnecessary. A chill should never be allowed to stike the chest. I have the advantage of having a warm climate but, even in Florida, after the air cools off it is necessary to warm it. In my practice, I put a sweater over the nightgown and I apply a hot kaolin poultice. For elimination, in my practice I give castor oil and turpentine every day to an adult until resolution sets in. If he needs any liver medicine, he gets sodium bicarbonate. Atropin is the sheet anchor in pneumonia. I start its use in pneumonia before the crisis comes, so that the patient has a blood pressure that will hold him through an ordinarily difficult situation.

DR. ALEXANDER LAMBERT, New York: My ward belonged to the control group of which Dr. Cecil spoke. The feelings of the patient and the result obtained produced an impression even more favorable than the figures show. There was, however, a peculiar variation in the different wards. Among the controls the percentage varied, and the death rate varied from 14 to 64 per cent.; but the general totals were exactly as Dr. Cecil gave them. There has been a great change in the pneumonias in New York City. When we had all the alcohol that was desired in life, in Bellevue Hospital one third of the 40,000 patients were in the alcoholic wards with or without delirium tremens. That made a strong alcoholic group among pneumonia patients, and the death rate was 66 per cent. for the alcoholic group and 23 per cent. for the nonalcoholic group. The type has changed. One does not see the thoroughly poisoned, chronically soaked alcoholic person in the hospital. The change in pneumonia has also been distinct. We had two wards of fifty patients each; in one group alcohol was given, and the death rate was 40 per cent.; in the other group alcohol was not given, and the death rate was 14 per cent. Oddly enough, the April pneumonias in New York usually have a higher death rate than do the pneumonias in the winter.

DR. RUSSELL L. CECIL, New York: I tried subcutaneous inoculation on some very ill patients to whom I was afraid to give antibody intravenously. The results were not striking, but I will try it more extensively, and I expect also to try subcutaneous treatment on monkeys. In monkeys with experimental pneumonia, our results with antibody treatment were best in pneumococcus Type I cases, next best in Type II, and worst in Type III. As to the fatal reactions: If a patient with pneumonia dies within a certain number of hours after an injection of antibody, the question naturally arises whether antibody killed the patient. In my series there were three deaths probably directly due to the antibody. In one case the cause of death was hyperpyrexia. In the other two cases, the cause was failing circulation. As a result of these unfortunate reactions, I have become cautious about giving antibody to older persons or to pneumonia patients late in the disease, when they are worn out. I have figures based on my series of cases which indicate that the results are much better when the treatment is started early in the disease. These patients feel better after the injection of antibody. If they have a pain in the side, it usually disappears, and they have a general sense of well-being which is quite noticeable. The change in the pneumonia death rate of which Dr. Lambert spoke is a striking thing. In Bellevue Hospital, the death rate before prohibition was from 40 to 55 per cent.; but the present death rate is only 28 per cent. With regard to the leukocyte reactions following antibody injections, I have curves which show a decided leukocytosis, which, however, is seen shortly after giving the antibody solution, and is only temporary.

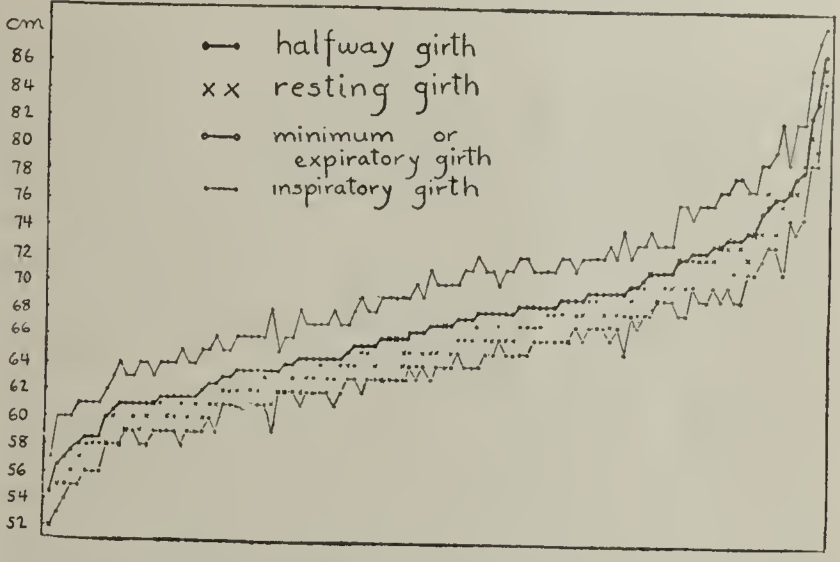
AGAINST MEASURING THE CHEST GIRTH AT REST *

HORACE GRAY, M.D.
BOSTON

Recent biometric evidence that body weight is more closely correlated with chest-girth than with stature [1] brings up anew the ancient questions as to technic.

The three levels cannot be entered on here save to state that the axillary has been generally discarded, the mammillary has been used by me in accordance with most medical men, and the xiphoid is very appealing for further study with reference to avoidance of the considerable pectoral muscle and gland tissue in men and women.

The moment of the respiratory cycle is the question aroused by the favor accorded by Dreyer [2] to the variously called resting, relaxed, talking, normally breathing, and not expanded chest circumference. The brief evidence so far presented [3] to indicate the inferiority of the resting girth to the halfway girth (arithmetical mean between the inspiratory and expiratory girths) has seemed to need amplification.



Chest-girth, nipple level, net, of 114 private school boys, arranged according to size of "halfway girth" (heavy line); note irregular position of "resting girth" (indicated by crosses) with relation to "minimum or expiratory girth" (circles); inspiratory girth, light line above.

The subjects studied composed two normal series, one of forty men, the other of 114 private school boys. The resting girth was greater than the halfway girth in 18 per cent. of the first series of men, equal in 17 per cent., and less in 65 per cent.; while in the boys' group the respective percentages were 2, 8 and 90. These figures signify that in men generally and in children nearly always the resting girth diverges from the mean girth in the direction of the girth deflated, as shown in the accompanying chart.

More important is the degree of divergence of the resting girth from the midway girth. In the men the average was 0.7 cm., or less than 1 per cent. of the mid-

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* Read before the Philadelphia Pediatric Society, May 9, 1922.

[1] Gray, Horace: The Relation of Weight to Chest-Girth, Stature, and Stem-Length, Judged by the Biometric Coefficient of Correlation, Am. J. Physical Anthrop., to be published.

[2] Dreyer, Georges, and Hanson, G. F.: The Assessment of Physical Fitness, London, 1920, reprinted by Paul B. Hoeber, New York, 1921.

[3] Gray, Horace, and Root, H. F.: Weight Prediction by the Formulae of Bornhardt, of von Pirquet, and of Dreyer, Boston M. & S. J. **185**: 28 (July 7) 1921.

way girth; while in the children the error was considerable, 1.3 cm., or about 2 per cent., and reaching 3.5 cm., or 4.2 per cent. of the mean girth.

Furthermore, the actual measurement of the resting girth appears to be associated with a somewhat larger error. The facts are that in ten children, each twice remeasured with fresh application of the tape, the first measurement (i. e., the only measurement ordinarily taken) differed from the average of the three successive measurements by 5.7 per cent. for the resting girth, versus 4.9 per cent. for the mean.

The conclusion is that the chest girth should not be measured at rest, except as a necessity in children who do not breathe freely, as occurs not infrequently under 6 years of age. Measurements are better taken at both full inspiration and complete expiration, and the average used as the midway girth.

32 The Fenway.

THE TREATMENT OF TUBERCULOUS CERVICAL ADENITIS *

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BOSTON

From the time when Aristotle first mentioned lymphatic vessels, down through the ages to the time when Eustachius discovered the thoracic duct,[1] and when, in the time of Edward the Confessor, the power to heal scrofula, or the "king's evil," was ascribed to kings and to the seventh son in a family, through the researches of Sappey in the middle of the nineteenth century—through all these times to the present day—diseases and swellings of the lymphatic system have aroused the keenest interest. Our knowledge is more accurate than it was in the times when scrofula was thought to be due to a faulty mixture of body fluids with an acid substance, called "acrimonia scrophulosa" floating in the blood, or when it was thought by the best authorities to be due to retained semen, and curable by marriage;[2] nevertheless, to this day tuberculosis of the lymph glands is a subject to which every additional bit of knowledge may be of some value.

It is well here to review briefly the anatomy of the lymphatic glands of the neck, and in this I am making use of the valuable work of Wood.[3] These glands form two main groups, the superficial and the deep. The superficial may be divided into the suboccipital, the mastoid or retro-auricular, the parotid, the submaxillary, the facial, the submental, and the retropharyngeal glands. The deep or substernomastoid, from fifteen to thirty in number, extend from below the ear downward, under the muscle, usually to about where the omohyoid crosses. There is a subgroup, under the posterior border of the sternocleidomastoid, called the external. These may extend down as far as the supraclavicular glands. In addition, there are a few superficial glands along the external jugular vein, and two or three inconstant ones on the anterior jugular vein. Lastly is the supraclavicular group, usually considered an auxiliary of the deep glandular chain; but Wood believes that in most cases these do not anastomose with the other cervical glands, and they empty independently into the jugular trunk. This is important in that, if it is true, the supraclavicular glands do not form a line of communication between the mouth and the pharynx and the apex of the lung, and do not, therefore, account for the occurrence of apical tuberculosis by direct extension from above. The above mentioned superficial glands, save the supraclavicular, all drain into the deep glands, and the latter into the jugular trunk, which empties into the vein on the right and the thoracic duct on the left. The drainage of the faucial tonsil is important; and, according to Wood,[4] the lymph therefrom passes to one of the uppermost of the deep glands, beneath the anterior border of the sternocleidomastoid just where it is crossed by the posterior belly of the digastric muscle. The pharyngeal tonsil, on the other hand, drains through the retropharyngeal glands directly to the upper of the posterior or external group of the deep cervical chain.

The evidence to support the belief that the tonsil is the main portal of entry for the tubercle bacillus is too voluminous to review in any detail. As a general proposition, it may be stated that about 5 per cent. of all tonsils will show, on microscopic examination, areas of tuberculosis.[5] Weller[6] puts the figure a little lower —2.35 per cent.—and Sir Harold Stiles as high as 9 per cent. Mitchell found tuberculosis of the tonsil in 38 per cent. of 106 adenitis cases without tonsillar symptoms, and Davis[7] notes that he has never seen tuberculous adenitis develop in patients after tonsillectomy had been performed. The pharyngeal tonsil shows tuberculosis even more than the faucial, the figures in 1,671 necropsies being 5 per cent. for the faucial and 10 per cent. for the pharyngeal.[8] Of equal interest is the fact that most cases of advanced phthisis show secondary involvement of the tonsil, Wood's figure being ninety-four cases out of 136, or 69 per cent.

Whether the infection is with the human or bovine bacillus is not of great importance as regards therapy, though it is probably true that in children it is more commonly bovine. Sir Harold Stiles in a large number of cases in children found the bovine type in 90 per cent., and Griffith,[9] in 102 glands examined by inoculation, found that 72.1 per cent. of children under 10 had the bovine type.

The relation between cervical adenitis and pulmonary tuberculosis is interesting. It has been shown that all these cervical lymphatics drain into the jugular trunk, and thence to the right heart and lungs. Should tubercle bacilli break into the circulation in this manner we should expect a miliary tuberculosis, a sequel which, however, is clinically rare. Van Zwaluwenburg and Grabfield, from a large series of roentgen-ray examinations, describe a shadow which they believe to be a thickening of the pleura over the apex, and which is seen in 10 per cent. of all cases; whereas, in those show-

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* Read before the Section on Surgery, General and Abdominal, at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Edmunds: Glandular Enlargement and Other Diseases of the Lymphatic System, London, Oxford University Press, 1908.

[2] Cornet, G.: Scrofulosis, translated from second German edition by J. E. Bullock, New York, William Wood & Co.

[3] Wood, G. B.: Operative Surgery of the Nose, Throat, and Ear, St. Louis, 1914.

[4] Wood, G. B.: Lymphatic Drainage of the Faucial Tonsils, Am. J. M. Sc. **130**: 216, 1905.

[5] Wood, G. B.: The Nose and Throat in Cervical Adenitis, New York State J. Med. **18**: 95 (March) 1918.

[6] Weller: The Incidence and Histopathology of Tuberculosis of the Tonsils Based on Eight Thousand Six Hundred Tonsillectomies, Arch. Int. Med. **27**: 631 (June 15) 1921.

[7] Davis: A Survey of One Thousand and Sixty-Four Operations for the Complete Removal of Tonsils and Adenoids, Brit. M. J. **1**: 114 (Jan. 26) 1918.

[8] Wood, G. B.: The Significance of Tuberculous Deposits in the Tonsils, J. A. M. A. **44**: 1425 (May 6) 1905.

[9] Griffith: Types of Tubercle Bacilli in Cervical and Axillary Gland Tuberculosis, Lancet **1**: 216 (Feb. 10) 1917.

ing tuberculous deposits in the faucial tonsils it is seen in 93 per cent., and in cases with cervical adenitis it occurs in 59 per cent. They [10] conclude that tubercle bacilli in the tonsil reach the apex of the lung by a direct line of communication through the cervical glands. I do not believe this to be so, and clinical evidence does not, in my opinion, bear it out. Wallgren [11] in a careful examination of 516 cases of pulmonary involvement found that this had been preceded by lumps in the neck in only 17 per cent. of the cases. He was able to follow up 251 cases of tuberculous cervical adenitis and found that the great majority of these patients never developed pulmonary tuberculosis, or if they did, it was mild; furthermore, of twenty-nine patients that had lung involvement with adenitis, twelve were later cured.[11] Williams [12] found that in families with an inherited predisposition to tuberculosis, those members who had suppurative tuberculous adenitis did not contract pulmonary tuberculosis, while those who did contract the latter did not have cervical glands.

Regarding the treatment, I shall, before considering our own cases, review briefly the most favored and most frequently employed methods. The first and most natural therapeutic agent is the sun. Heliotherapy has been used in all types of tuberculosis, especially in Europe, where it has been so extensively worked out by Rollier. Collected statistics of a large number of cases from the French sanatoriums report 74 per cent. of gland tuberculosis cured by sunlight.[13] Mayer [14] recommends it highly, and Hyde and Grasso [15] report, as follows, the results in 200 cases of gland tuberculosis treated by sunlight: 78 per cent., apparent cure; 11 per cent., arrested; 8.5 per cent., improved; 2 per cent., unimproved, and 0.5 per cent., dead.

To be considered at the same time are the various methods of applying artificial sunlight, given under different names, according to differences in the lamps—mercury vapor quartz lamp, carbon arc lamp, etc. The carbon arc lamp, as used by Reyn and Ernst in the Finsen Institut at Copenhagen, and the use of which is reviewed in brief by Sauer,[16] furnishes an easy method of applying intensive light, and is apparently to be preferred to the mercury vapor quartz lamp.

The use of the roentgen ray has so many supporters that its value may be accepted without argument, though the important question is to decide when to use it and when not, and whether it should always be employed. Opinions as to the extent of its value vary a little, some of its advocates asserting that it helps only in some cases while others believe that it is the one therapeutic agent *par excellence*. Pfahler [17] believes that is will cure all early cases, and should be used after surgical operation, Berry [18] and Trostler [19] believe that it is the best form of treatment, and Boggs [20] believes that roentgen ray and radium will cure more than 90 per cent. of all cases. He believes also that radical operation is primarily contraindicated, and in this I gladly concur.

Tuberculin, which must be considered briefly, is a solution of certain extracts of the tubercle bacillus, and there are many different kinds, depending on the way in which the extract is made. All these different kinds result from attempts of various investigators to procure the substance which will best stimulate the body mechanism to produce a specific antibody. By its administration we hope to set up the formation of a defense, which will result in focal stimulation, and the overcoming of the infectious process.[21] There are many opponents to this therapy; but if there is any value in it at all, we should not discard it. Of recent authors, Schmidt,[22] Deycke,[23] Crowley,[24] Macrae,[25] Elliott and Sheard,[26] and Abbott [27] believe that tuberculin has an important place in therapy, and the last named says, "Above all other remedies in true tuberculous infections, aside from those in which surgical interference is definitely indicated, I give first place to tuberculin." Other observers report no success with tuberculin, and it is my belief, from reading the literature, that in bone and joint tuberculosis, at least, it has not in most cases proved of value. There is no doubt that tuberculin has been the means of saving many eyes with tuberculous infection,[28] and I have seen several such good results in our own clinic. Opponents of tuberculin are many, but its supporters are likewise too numerous to warrant one's saying that there is never any justification for its use. If its action is so beneficial in certain eye lesions, in which it is impossible to use light, radiation and surgery, so much the more should we be willing to consider its value in other conditions. In our clinic we have also seen many distressing cases of genito-urinary tuberculosis held in check by tuberculin.

As we run through the literature we find the advocates of radical surgery decreasing in number, though no one will say that it has not its place. Edmunds,[1] Dowd,[29] and Ladd [30] are among the foremost believers in radical operation, the last two named referring especially to children. Dowd reports 726 patients operated on by himself or his associates with 91 per cent. of cures, and Ladd, reporting 159 cases, advises early radical operation, with removal of the primary focus. Abbott [27] admits that surgery is clearly indicated in some cases, but contraindicated if there are palpable glands beyond the reach of the operator, if there is evidence of mediastinal glands, and if there are axillary glands. These conditions prevail more often than not, in our experience, and fortunate, indeed, is he who gets almost all of his patients at a stage when they are limited to a group which can be easily and quickly dissected out! The difficulties and worries of extensive

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10. Van Zwaluwenburg and Grabfield: The Tonsillar Route of Infection in Pulmonary Tuberculosis, Am. Rev. Tuberc. **5**: 57 (March) 1921.
11. Wallgren: Tuberculous Glandular Disease in Relation to Pulmonary Tuberculosis, Upsala Läkaref. Förh. **23** (July 29) 1918.
12. Williams: Glandular and Pulmonary Tuberculosis, Brit. M. J. **1**: 158 (Jan. 29) 1921; abst. Am. Rev. Tuberc., June, 1921.
13. Dinnan, J. B.: Heliotherapy in Tuberculosis, M. Rec. **97**: 62 (Jan. 10) 1920.
14. Mayer: Sunlight and Artificial Light Therapy, Am. Rev. Tuberc. **5**: 75 (April) 1921.
15. Hyde, C. L., and Grasso, H.: Heliotherapy in Surgical Tuberculosis, Am. Rev. Tuberc. **5**: 159 (April) 1921.
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20. Boggs: The Treatment of Tuberculous Cervical Adenitis by Roentgen Rays and Radium, Am. J. M. Sc. **162**: 90 (July) 1921.
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radical treatment are well illustrated in a report of Lahey and Chute,[31] reviewing forty-eight cases of the above mentioned procedure. Only 43.4 per cent. did they class as excellent results; in 26.08 per cent. there was paralysis of the spinal accessory, in five cases paralysis of the depressor anguli oris, and in eight cases recurrent glands. These patients were operated on by several excellent surgeons, and represent, to our minds, a fair estimate of the results of surgical treatment of unselected difficult cases as they come into a large general hospital. The advocates of early operation will say to this that, had they been operated on early, the results would have been better; but in this paper we are concerned with the unselected cases of all types, and more often than not these patients do not come early, and if they do they may not consent to operation, or there may be other contraindications.

TREATMENT AT NONPULMONARY TUBERCULOSIS CLINIC

About twelve years ago, there was started at the Massachusetts General Hospital, through the interest and foresight of Dr. John B. Hawes, a nonpulmonary tuberculosis clinic, the one form of the disease which it was most desired to observe and treat being cervical adenitis, and in which the aim was to treat each patient as a human being, and not as a case. It was a class rather than a clinic. There have been about 600 cervical gland cases, 175 genito-urinary, thirty-five cases of tuberculous eyes, and the rest miscellaneous forms of surgical tuberculosis. The procedure is as follows: When a patient with cervical adenitis comes to the outpatient department, all routine examinations are made, including those of the lungs, with the roentgen ray if deemed advisable, the throat, scalp, ears and the blood, and in certain cases a biopsy is performed, though we do not believe in the routine removal of specimens for diagnosis. The patient then reports to our clinic, where he or she is seen by the internist and surgeon in consultation, and the line of treatment for that particular individual is discussed, and then the patient is referred to the social service department for investigation of home conditions. In the majority of cases, the tonsils and adenoids are removed. Then, in certain instances, consultation is had with the dermatologist and roentgenologist to consider light or radiotherapy. In practically no case, save the acute, red, tender abscess, is any surgical procedure advised at once, though there are exceptions to this rule, notably the chronic solitary cold abscesses, when a gland or group of glands has completely liquefied, and in which we have found that simple drainage is the best procedure, and is usually followed by complete healing in a short while. Attempts to dissect out the wall of such an abscess are difficult and not necessary. Occasionally there comes a patient with a hard, discrete, easily removable group of glands, in which operation seems, at the outset, advisable; but this is an unusual condition. We have, almost as a routine, started them on tuberculin, which, through the kindness of Dr. E. R. Baldwin, we have procured from the Saranac Lake laboratory for the study of tuberculosis. After trying this for a few weeks, observing the patient carefully, we then decide whether other therapy should be attempted. However, we still put off, for as long as possible, radical surgical interference.

To try to form an opinion on the results of our therapy, and to get a broad view of treatment, we took all the completed cases, including those patients that had stopped coming of their own accord, and tried to trace them. The number of patients totaled 498, of whom the largest number were between 20 and 30 years of age, the next group being from 10 to 20, and the third those under 10; but owing to the fact that they were mostly nomads by inheritance and in habits, we could get in touch with only 150, in regard to whom certain facts are of interest. Fifteen of them had pulmonary infection, of whom only four died after leaving us, though three died of unknown cause. Only one developed phthisis after leaving the clinic. Of the total number thirty-four had affected glands on both sides, the great majority being limited about equally to the right or left. Nine patients had submaxillary tuberculous adenitis, a rather uncommon occurrence. More than half had demonstrably infected tonsils and adenoids, which were removed, and with our present feeling many more, if not all, would have been operated on.

Half of the patients presented themselves with an acute abscess, requiring incision—this was a secondary infection superimposed on a primary tuberculous condition. This type does not well yield itself to radical operation, and here we believe tuberculin to be of benefit. With long-standing sinuses the mercury vapor quartz lamp has proved a most valuable adjunct to the other therapy. One of our patients with four sinuses on the right side of the neck, without any large glands, and who resisted tuberculin and roentgen ray, was cured after a very few weekly treatments with the Alpine lamp, and a stubborn condition of many months' duration disappeared in an astonishing manner.

Our experience with the roentgen ray is too limited to enable me to speak authoritatively on it, but our success has not been striking, in a fair number of cases. They were not early ones, but severe cases of long duration, and roentgenotherapy made no marked change for the better in the average patient. One striking case, a young woman with a very extensive mass of the whole substernocleidomastoid chain on the right, a tremendous unsightly tumor with subacute inflammation and two sinuses at the upper end, failed to improve in the least under hygiene, roentgen ray and tuberculin, and was sent into the ward for radical operation. The inflamed, adherent, discharging mass under the ear was dissected out—such a long tedious process that the operation was not completed, and she was sent out to return for a second operation. While waiting for the proper time we continued the tuberculin, and to our astonishment the rest of the glands began to subside so rapidly that from week to week we could observe their shrinkage, and now one can perceive merely a faint scar—this case is one of the most extensive, if not the most so, which we ever had.

Of the 150 patients whom we traced, fifteen still are having trouble with persistent glands—all of these were persons that did not follow up the treatment, we neither gave them tuberculin enough to satisfy ourselves, nor did we have a chance to carry out other effective measures. As noted above, seven died and one only developed phthisis after coming to us. Of the total 150 cases, 127 are classed as cured with excellent results, fifteen as failures due to ceasing treatment, eight as failures to respond to conscientiously applied therapy. In 109 of these cured patients the chief therapeutic agent besides hygiene, and in some incision of the secondary abscesses, was tuberculin; in twenty-nine of these we believe it to have been the chief element in the cure, and in eighty others we believe it to have been a very great help. Four cases of recurrence after radical operation yielded promptly to tuberculin, and another case which recurred after ceasing tuberculin subsided at once on renewal of the specific therapy. Three distressing tuberculous eye infections were cured with tuberculin. On the other hand there have been a certain number of patients on whom tuberculin exercised no beneficial effect whatever, and these were then treated by operation, by light or by roentgen ray, the desired result thus being achieved. The tuberculin employed by us is the tuberculin B. F., or bouillon filtrate, the initial dose being one ten-thousandth of a milligram. It is given once a week and the dose increased gradually, being reduced slightly in case of too much reaction. Some of the patients would receive as much as 100 milligrams, or more, a week. Each patient is carefully observed at each visit to the clinic.

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[31] Lahey and Chute: End-Results of the Surgical Treatment of Forty-Eight Cases of Tuberculous Cervical Adenitis, Boston M. & S. J. **186**: 280 (March 2) 1922.

When other methods have failed or when there seemed some special indication at the outset, we have resorted to radical operation. Our prejudice against surgery as a primary procedure is based on the following:

First, a majority of the patients can be cured without it, leaving little or no scar.

Secondly, the cases as they come to us, unselected, involve as a rule too many glands to promise any cure short of a very extensive dissection, with its accompanying dangers of nerve injury, postanesthetic complications, and unsightly scar.

The chief argument for operation, as against other methods, is that it is prompt, and if successful, does away with the necessity of weeks or months of treatment. In reply to this it is our contention that the average case as we see it is better in the long run without extensive neck dissection, that the dangers of nonoperative treatment are practically nil, and that we can send out patients happier, in the end just as well, and with little or no cicatricial deformity. Operation has its place, but that is not the first place in the average case. Our clinic is, as I said above, a sort of class—we get to know the patients and they us—we watch over their hygiene and mode of living, as well as treat them specifically.

To summarize briefly, a case reporting to us is studied thoroughly and when a diagnosis of tuberculous adenitis is made, we do approximately as indicated below.

1. Hygiene and mode of living are investigated, and corrected as indicated.
2. The tonsils and adenoids are removed, unless contraindicated.
3. Acute abscesses are drained.
4. Discrete cold abscesses without acute superimposed infection are opened through a small incision, and drained for a few days with a small rubber tube.
5. Patients with chronic discharging sinuses are treated with tuberculin plus the mercury vapor quartz lamp.
6. Discrete localized glands are at the outset either removed or treated with tuberculin.
7. Extensive disseminated glands, and those showing deep involvement, are treated with tuberculin. If this fails we then try roentgen ray, and lastly operation.

CONCLUSIONS

There is no certain therapeutic agent, no absolute specific, and no set rule for treating tuberculous cervical adenitis. To lay down a definite scheme, and treat every case thereby is, in my opinion, not productive of the best results. Each patient must be carefully studied and considered as an individual, and then, by the judicious application of our five chief methods, hygiene, light, radiation, surgery and tuberculin, either singly or in combination (for each has its place), we will find that we approach, as nearly as possible in this stubborn and difficult condition, our therapeutic goal.

402 Marlborough Street.

ABSTRACT OF DISCUSSION

DR. HARRY G. SLOAN, Cleveland: Dr. Miller has expressed exactly the general feeling in regard to the treatment of tuberculous glands of the neck. In the last ten years, this has shown remarkable change. The change in point of view has originated principally from the attitude of the roentgenologists. Tuberculosis of the glands of the neck must be managed according to the patient's hygienic surroundings. The treatment must be adapted to the resources of the patient. Under ideal conditions, it is most important first to eradicate the focus of local infection. In all cases of cervical adenitis, we advise routine removal of tonsils and adenoids. This is done under local anesthesia when feasible. In children, general anesthesia is necessary. The tuberculous person stands general anesthesia poorly, so we avoid it when possible. When the glands are deeply situated, we depend on the roentgen ray. We do not advise operation on the glands unless one of them breaks down. We then make a small incision parallel to the normal wrinkles of the neck in order to evacuate the contents. The general immunity of the patient is increased 20 per cent. by rest in bed. A man's immunity to any type of infection is probably 20 per cent. better in bed than when he is up and around. And the patient must be out in the open. Recent studies in metabolism during open air treatment showed that the general metabolism is increased from 50 to 60 and even higher. Overfeeding is important. I like to give cod liver oil. In the very resistant cases, when immunity is not readily established, we have advised one or two accessory measures, such as repeated transfusion of whole blood. The last hygienic measure we dispense is open air. Practically everybody can sleep outdoors, or can arrange his affairs so as to have an outdoor job.

DR. FRANK H. LAHEY, Boston: Every one who has been through the stage of radical surgery for tuberculous glands of the neck is very glad to see the treatment return to conservative measures. The statistics which Dr. Miller gave in his paper regarding spinal accessory paralysis are based on a series of twelve cases collected by my associate and me; and I wish to emphasize particularly the seriousness of this lesion to which, I believe, due weight has not been given. There is a teaching that if the spinal accessory nerve is cut its function will be taken up by the cervical plexus. This is based entirely on the assumption that junction of the third and fourth cervical nerves with the spinal accessory, which takes place beneath the border of the trapezius, occurs. It is called the subtrapezius plexus. As a matter of fact, this junction does not always occur, and absolute dependence cannot be placed on the foregoing statement. The trapezius muscle is an an all important unit of the shoulder girdle muscles. It is practically the only muscle which anchors the scapula and the muscles arising on it to the spine. It accomplishes the last 90 degrees of abduction, and, if its function is lost, produces serious crippling of shoulder joint motion. In this series of twelve cases of spinal accessory paralysis operations were performed by six surgeons, operations of all types, from complete block dissections to simple incision of tuberculous abscesses. If you have an opportunity to review your cases in which dissection for tuberculous glands of the neck were made, I believe you will be surprised at the number of cases of spinal accessory paralysis, and the definite crippling and loss of function resulting from it. This is, I believe, a serious argument against extensive dissections, except in urgent cases of failure to obtain benefit by the last radical measures. It has also been our experience that, even when the spinal accessory nerve has been carefully preserved throughout its course, paralysis may occur later. Hence, it must be borne in mind that this lesion is always possible in any case in which extensive dissections are undertaken.

Dr. Richard H. Miller, Boston: Quite a while ago I was given the assignment of tuberculous gland cases at our hospital with the idea that I would operate on all patients; but in examining them, I came to the conclusion that operation was by no means the first consideration. I found that ordinarily the adenoids and tonsils were not removed unless the nose and throat man could see something definite. I believe now that this is wrong, and that in every case, irrespective of what the tonsils and adenoids look like, they should be removed. One thing that has helped us in handling these people who live in crowded districts is that we have a social worker who keeps in touch with them. The question of using tuberculin is one about which there has been a great deal of argument, but surely it has helped us a great deal in many cases. If we attempt to treat all cases in this specific way, we shall be disappointed; but it has a very definite place, and we have used it now for nearly twelve years. We try it, and if we do not get results, we make a change; but there are some results that are perfectly astonishing. For example, a man came in with a tremendous tumor of the neck a few years ago. We treated it with tuberculin and it got no better, until one day the tuberculin created a tremendous reaction. The arm swelled to three or four times its normal size and the man was very sick, owing to the unexpected action of the tuberculin. However, the glands began to diminish in size in the most surprising manner. He was given a little more tuberculin, and within six months he was accepted for service in the Army. No note was made at that time of the glands, so they were at least not visible or palpable on casual examination. We must remember that it is a difficult problem, one which requires patience. If we treat our patients with the best means at our command and encourage them and supervise their home conditions, in the end we shall have much better results than we used to achieve with the old radical operation.

THE EFFECT OF QUINIDIN ON STRIPED MUSCLE *

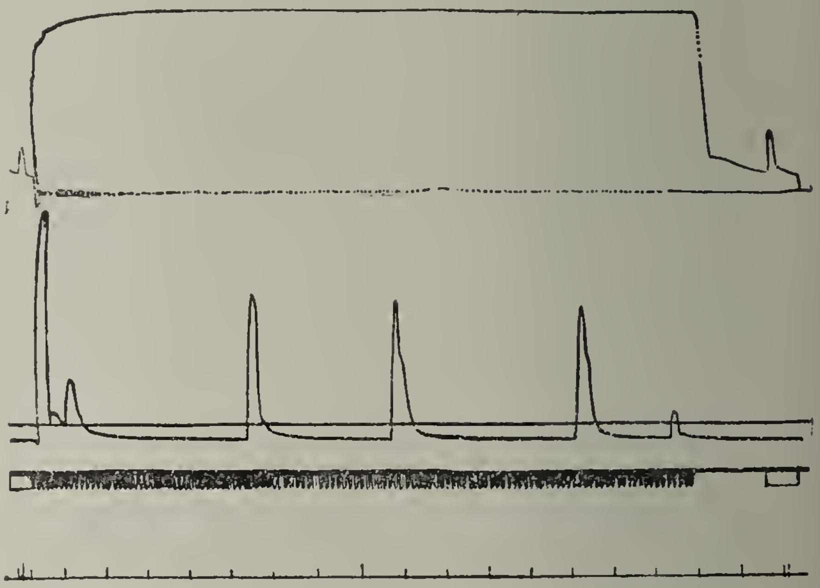
J. G. BRODY, M.D.
CLEVELAND

The puzzling effect of quinidin on auricular fibrillation renders it advisable to study its actions on the fundamental properties of muscle. This can be most conveniently and accurately approached in skeletal muscle. Experiments with frog's gastrocnemius or sartorius, immersed in dilute quinidin solutions, show the following variations from the corresponding normal muscle (immersed in unpoisoned Locke's solution):

1. The height of contraction is diminished.
2. With tetanizing currents, the peak of contraction is not so well sustained.
3. The muscle ceases to respond to any stimulus much sooner than the corresponding unpoisoned muscle.
4. Load fatigues it more easily.
5. About ten stimulations a second cause a completely fused tetanic contraction in normal muscle; but with the quinidin muscle, the fusion is usually incomplete, no matter how frequent the stimulation, and becomes less and less complete the more the muscle is fatigued or loaded.
6. The quinidin muscle therefore responds intermittently to a tetanizing current.

The contrast is shown in the accompanying illustration, in which the upper tracing represents the complete tetanus of the normal muscle; the second tracing the contractions of the quinidin muscle; the third tracing represents the stimuli, and the lowest tracing, the time, in seconds. The muscles were arranged so that the same induced current passed directly through the two muscles.

Whereas the normal (upper) muscle shows one contraction throughout the stimulation, the quinidin muscle contracts at an almost regular rate of about fifteen a minute, although the rate of stimulation was about eight a second.



Upper tracing, complete tetanus of normal muscle; second tracing, contractions of quinidin muscle; third tracing, stimuli; lowest tracing, time, in seconds.

These effects can be conceived as depression of the muscle; slow recovery of excitability, and consequent failure to respond to rapid stimulation, until the muscle has rested; therefore, intermittent response to frequent stimulations, the rhythm of the contractions depending not on the frequency of the stimulation, but on the rate of recovery of the muscle.

In consequence of the rest, the contractions are strengthened.

This seems to furnish a plausible explanation of the effect of quinidin on auricular fibrillation.

Further work will be needed definitely to establish whether this explanation covers the clinical phenomena, or whether other factors enter into them.

Quinidin probably depresses the cardiac muscle, so that it cannot respond to all the numerous stimuli that give rise to fibrillation; but only to a restricted number, thus giving opportunity for periods of rest.

The Colonial Exhibition at Marseilles.—The *Presse médicale* calls attention to the medical exhibits in the Colonial Exposition which is now open at Marseilles. As long ago as 1897 Colonel Lyautey wrote from Madagascar to the French government: "Give me four physicians and I can send back to you four regiments." The medical men have been the pioneers in the French colonies, and the extent of their work is now displayed in the exhibits of the public health service in the various colonies, the hospitals in charge of scientifically trained natives, the medical schools, the utilization of mineral waters, seat bathing, etc., and sanitation of towns. "As usual, however," our exchange remarks, "the prevention of disease in agriculture and stock raising makes by far the most imposing showing. Is this due to the indifference of the public powers to human health in comparison to the financial profits? It does not seem so. Is it due to the modesty and the timidity of physicians? Possibly."

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* From the Pharmacological Laboratory of the Western Reserve Medical School.

OBSERVATIONS ON THE IRIS IN HEALTH AND DISEASE AS SEEN WITH THE SLIT LAMP *

ARTHUR J. BEDELL, M.D.
ALBANY, N. Y.

This communication is based on the result of more than 250 examinations, including iridodialysis, iritis, uveitis, kerato-iritis, iridocyclitis, interstitial keratitis, glaucoma of all forms and cataract of many types. The usual routine has been followed with the slit lamp, using binocular 75 and ocular 33. Special studies have been made at greater magnification.

To present some new facts and emphasize the importance of this examination, it has seemed best to review part of our present knowledge regarding iris anatomy, and then to discuss embryologic remnants and pathologic changes.

An examination of the iris with oblique illumination will materially aid in understanding the usual contour and some of the common color arrangement. The microscopic section shows the zone about the pupil, which is usually a dense brown. There is a distinct bulge back of this margin which we call the spongy portion of the iris, and the most prominent part of this sponge the shelf. I suggest these names only because they are short and more easily remembered than the region of the greater or lesser vascular circle and because, furthermore, the iris under examination gives the impression in many cases of a sponge. Where this spongy portion of the iris overlaps there are many variations in the normal eye. Definite bands may stand out prominently with depressions between, as caves, hollows or lacunae, or the whole iris may seem like a fresh water-soaked sponge. The individual fibers are well defined in the light colored iris, whereas in the dark brown iris the folds are more often shallower and he hollows less marked.

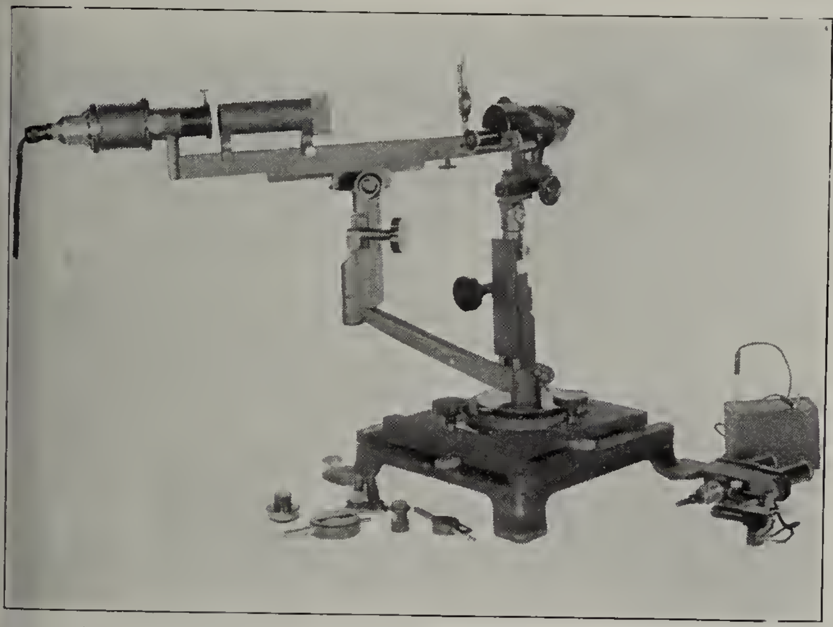

Fig. 1.—Slit lamp: movable base with lamp and microscope attached so that the two may be moved together, an arrangement that is of the greatest practical value.

The peripheral part of the iris is frequently arranged n concentric rings and, although they may be absent, we have been able to outline as many as six. The radiating folds which are grossly evident vary much in depth and number. So far, we have been unable to attach any pathologic significance to them.

The blood vessels of the iris are often visible, and in cases of atrophy it is frequently possible to follow them through most of their course. They may be markedly increased in number and size, especially in chronic simple glaucoma and in sympathetic ophthalmia. The iris nerves are at times easily outlined.

The pigment of the iris is of two types, and presents so many variations that, unless a specific plan is followed, there must surely creep into the literature and into the understanding of cases very wrong conclusions. The pigment surrounding the pupillary margin is retinal, and, as far as I have been able to see, always appears as a dark brown mass. This varies in intensity as well as in extent, and is often seen as a layer, notably in the iris atrophy of age or the congenital absence, albinism. The marginal band may be markedly increased so that in parts it extends over the iris stroma. It may be so great that it becomes adherent to the overlying iris; in one case about one fourth of the circumference of the pupil was occupied by a densely pigmented mass, and in another case it was adherent to the iris with four distinct grayish bands of adhesion. The same pigment may become pedunculated, or it may even be free on the iris. In contrast to the increase, we frequently see by transillumination irregular absorption at the pupillary margin; at other times there is almost complete blanching.

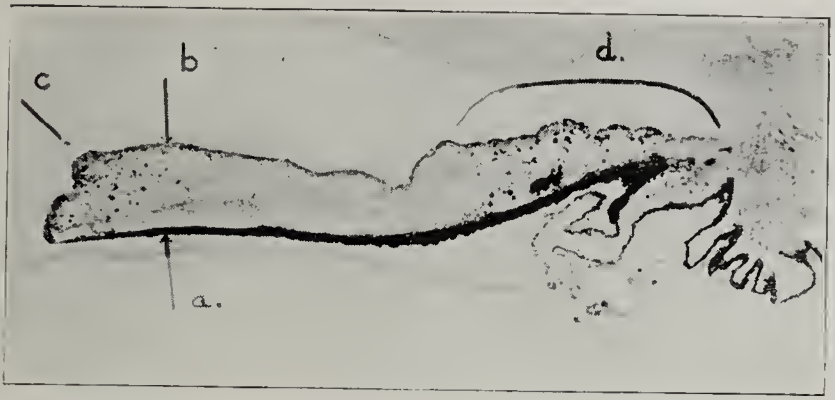

Fig. 2.—Microscopic section of iris: (*a*) retinal pigment; (*b*) sponge; (*c*) shelf; (*d*) concentric folds.

The other type of pigmentation, iritic, is that which makes the distinctive color of the eye and is necessarily of endless variety. This superficial pigment ranges in color from light yellow to an intense brown, and may be so irregular in distribution that care must be taken to determine whether a given spot is of iritic or retinal origin.

Pigment on or in the iris we consider under spots, dots, dashes, granules, specks, balls, thin filamentous veils and densely pigmented layers. It may be on the posterior surface of the cornea, in the aqueous or on the anterior capsule of the lens. The interpretation of pigmentation will lead to prolonged study. So far, we believe that the superficial spots ranging from light yellow to dense brown are normal; that pigment deposits on the capsule of the lens may be embryologic, although if the same pigment, particularly indefinite masses, are about the iris margin, they signify present or past inflammation of the iris; and, if the dense brown masses are vascularized, it is evidence of a severe chronic uveitis. If there be irregular granules or specks and dashes on the posterior layer of the cornea and in the aqueous, there is a definite pathologic process, most often glaucoma. The thin and dense veils are always indicative of pigment migration, which

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* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 922.

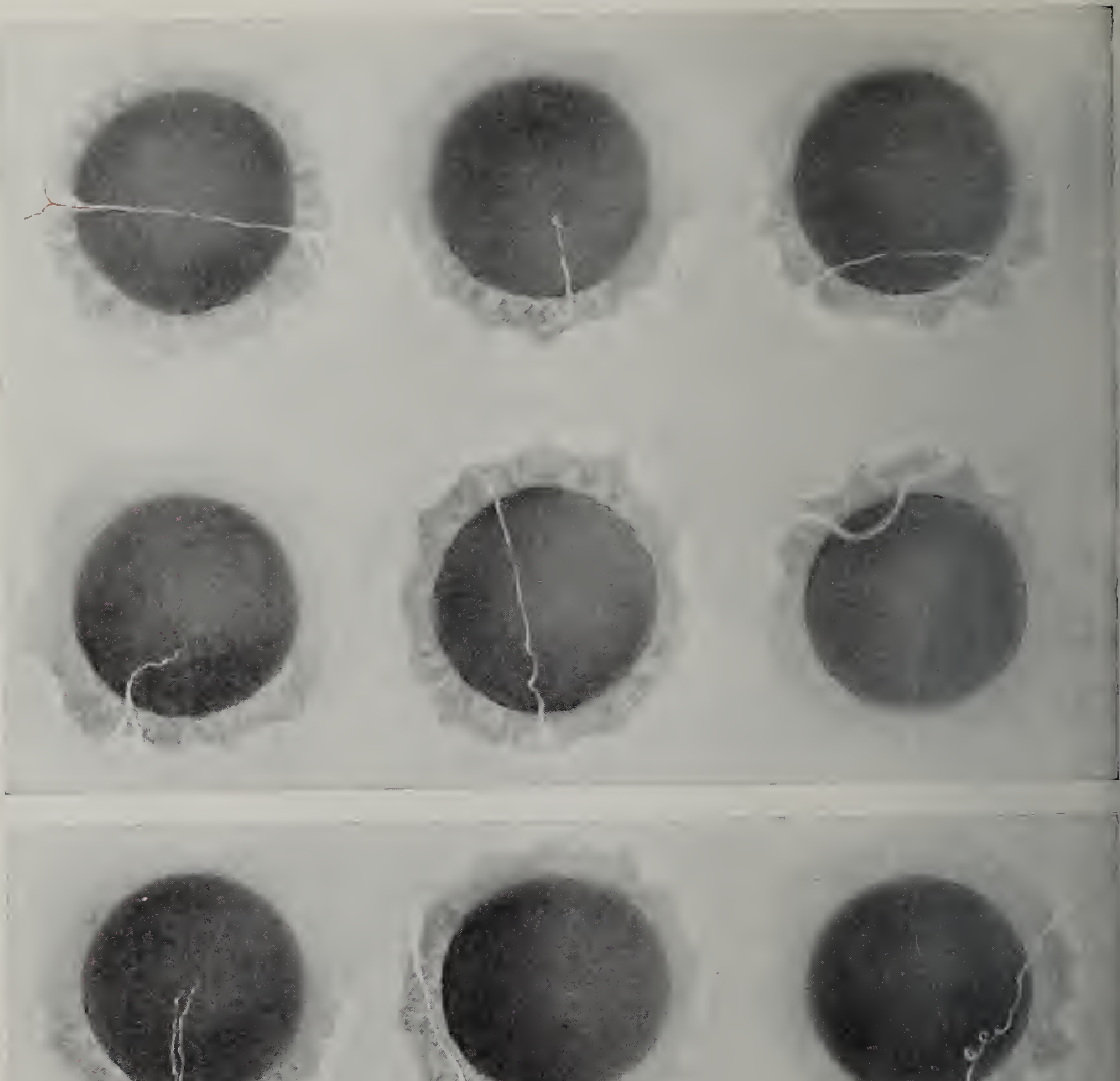


Fig. 3.—A few of the many embryologic changes: filaments from shelf of iris, pigment deposits on anterior lens capsule and retinal pigment mass adherent to iris stroma.

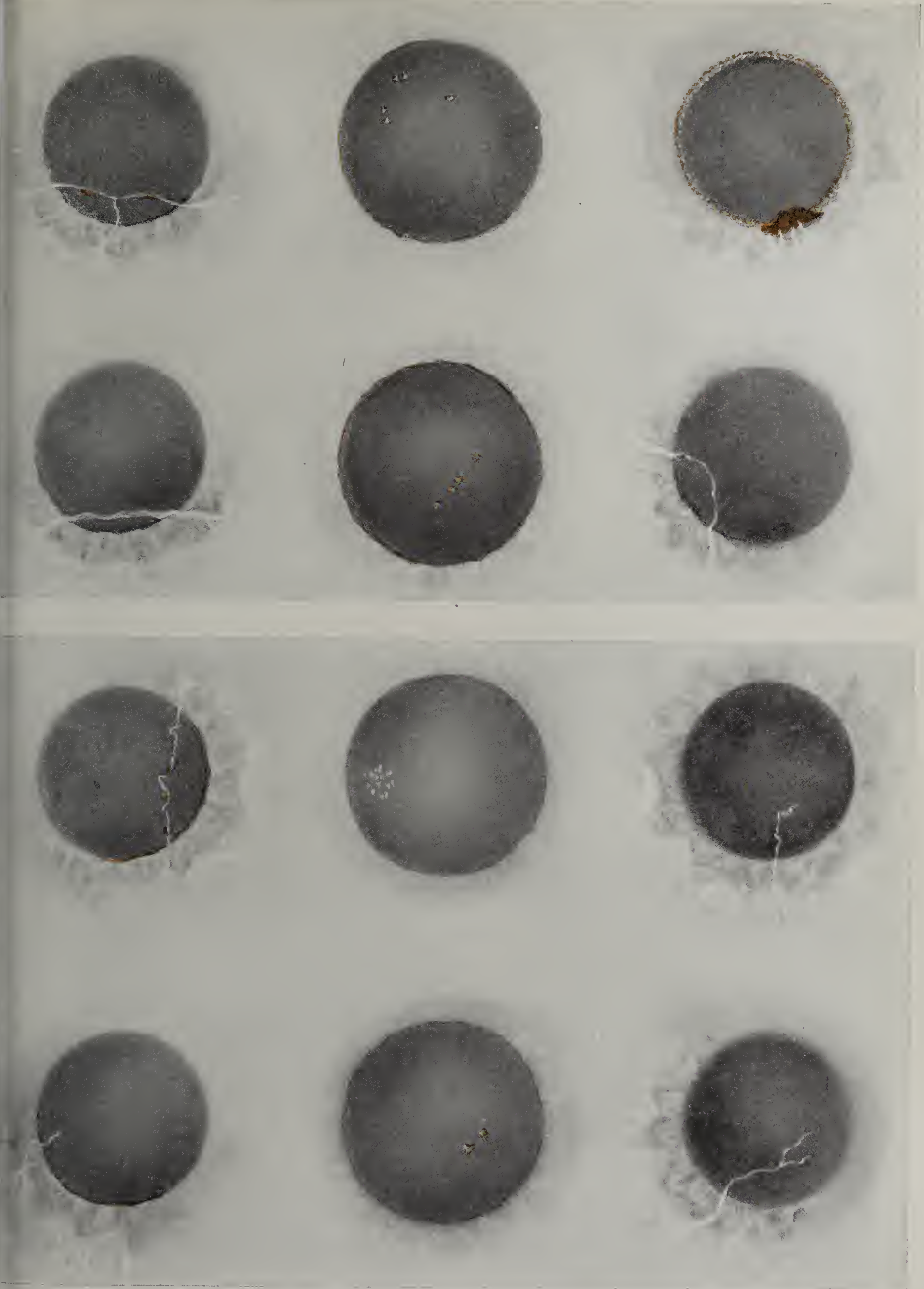


Fig. 4.—A few of the many embryologic changes: filaments from shelf of iris, pigment deposits on anterior lens capsule, and retinal pigment mass herent to iris stroma.

is probably never present except in disease. Balls, small definite, round, projecting masses which may cover the entire surface of the iris or even lie on the anterior lens capsule, have been seen in the dark brown iris only when the patient had glaucoma. The interpretation of pigment dots, particularly those near the pupillary margin, is open to discussion. They have been seen in seemingly normal eyes, in those with atrophic iris, and in some with cortical cataracts. They are usually superficial, tend to round shape, and most often are of the retinal pigment type. Dense granules, sometimes in the form of a thick veil, have with one exception never been seen except in glaucoma.

EMBRYOLOGIC REMNANTS

The origin of tissue must be considered, if anomalies are to be properly recognized. As the eye develops, the uveal tract forms a mass which becomes the posterior lens capsule. This projects forward and makes a sheath or a layer of vascular tissue. Ordinarily, this layer is absorbed; but at times it persists as a macroscopic body in the pupillary area. At other times, the remnant is so small that only careful study by focal illumination and the ophthalmoscope discloses it. There are, however, many other changes which have escaped clinical detection. In my first 250 examinations there were forty-three anomalies, a few of which may be studied by examination of the chart.

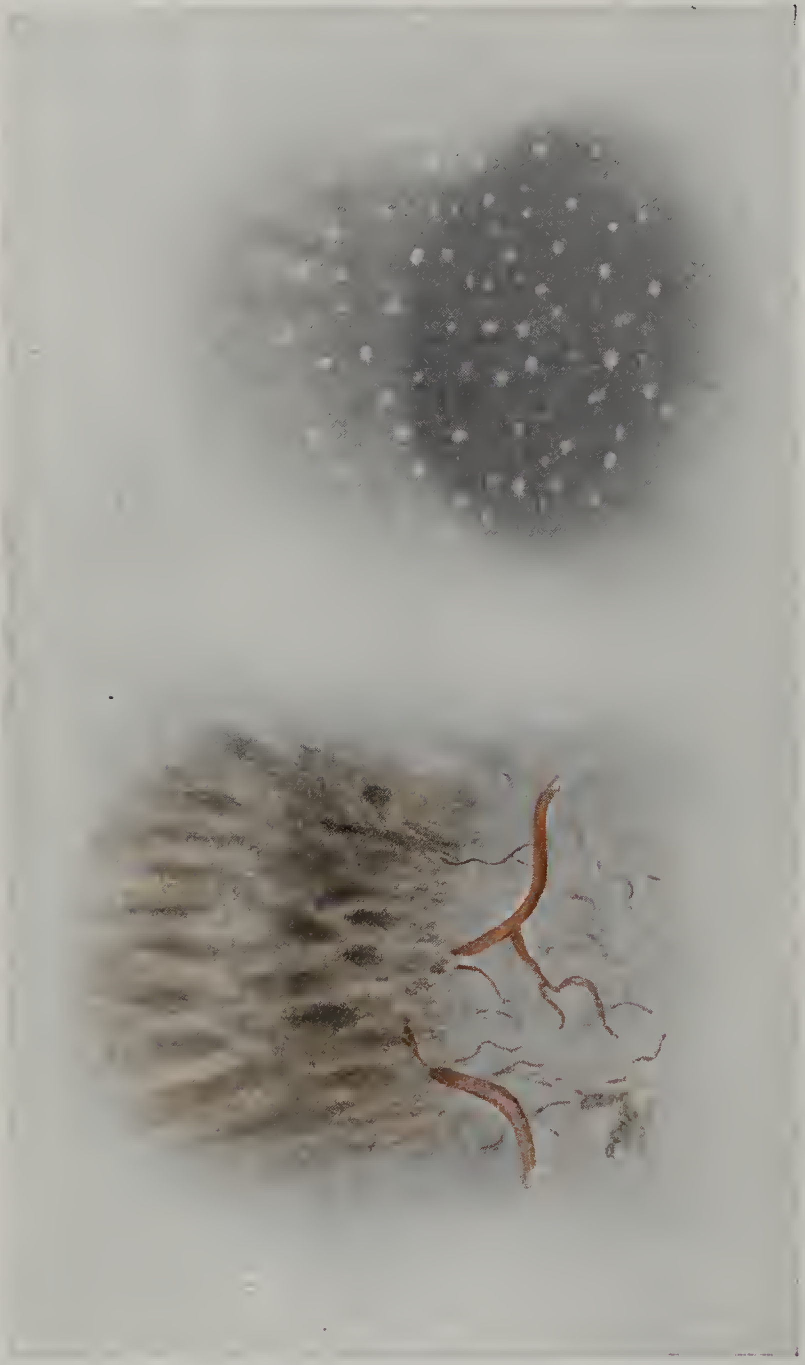
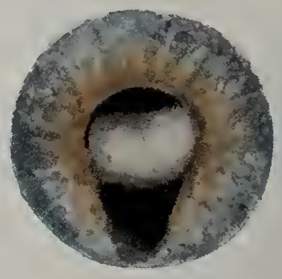


Fig. 5.—Sympathetic ophthalmia: Above, Descemet's deposits. Below, one of many new blood vessels in iris and on capsule. The iris shelf is adherent to the capsule, not the pupillary margin. This is seen only in chronic uveitis.



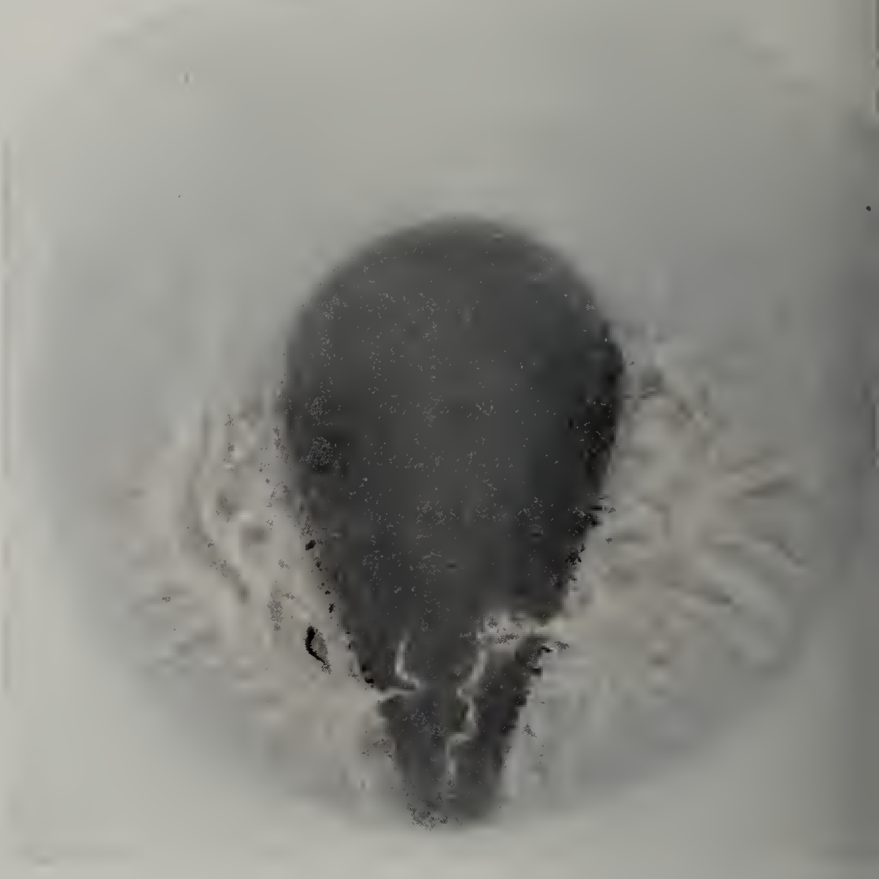


Fig. 6.—Congenital coloboma with pupillary margin tags. The retinal pigment is almost complete, only the most inferior margin being without it. Congenital cataract.

EMBRYOLOGIC CHANGES

There are two great classes of embryologic changes, those of iris structure and those of pigment on the anterior capsule of the lens.

Iris Structure.—First, folds that spring from the iris shelf and have the character of the definite iris stroma. These bands may be single, they may project into the pupillary area, or, as we have seen in two cases, extend to the capsule of the lens and remain adherent to it, or the fiber may simply extend forward and almost touch the cornea. Second, fine translucent gray filaments which may remain attached to the iris at one end and lie free in the aqueous at the other or extend from the iris to the anterior capsule of the lens or from iris to iris or go across the pupil from iris to iris. By examination, preferably dark field, many of these forms are easily seen, and it will be found that they all come from the iris shelf. A part of the iris may be absent, as in coloboma, or all of it, as in aniridia.

Pigment.—Congenital deposits of pigment are of three types: stars, masses and fine lines. The stars may be single or in groups. The indefinite dense brown pigment may be in rounded, elevated areas single or multiple. Fine lines may lie on the capsule and extend beneath the iris. In this study stars and lines have been seen only in otherwise normal eyes. On the other hand, splotches of pigment similar to these congenital ones have been seen in iritis and glaucoma.

PATHOLOGIC CHANGES

Iritis.—Acute: In acute iritis, the first clinical change is contraction of the pupil or sluggish light reaction, which is followed by injection and then exudation. Most of the synechiae are the result of exudate causing the adhesion of the retinal pigment layer to the anterior lens capsule. At first there are minute aggregations of cells which, if seen early, can be drawn apart under atropin and may leave no trace of the disease. More often, however, the adhesions are well formed, showing as a gray exudate surrounded by brown pigment. Atropin may succeed in stretching these, but there always remains some retinal pigment on the capsule, and not infrequently the iris is firmly bound down. Such posterior synechiae vary in size, number and shape. The gray exudate that partially or completely fills the pupillary area is well studied, and conclusions may easily be drawn. When a ring of the exudate completely closes the anterior chamber, the iris bulges forward, often causing glaucoma. Not infrequently the iris seems bound down throughout its entire margin, and yet glaucoma does not supervene. Examination in the latter case will show that there is at least one area in which the iris is free from the capsule.

Chronic: In chronic iritis there are two noteworthy observations: (1) the adhesions of which I have just spoken, and (2) the proliferation of the retinal pigment. This pigment may cover the entire anterior capsule, it may be present as a single small mass, or there may be any degree of pigmentation between these two.

Quiet: The type that escapes diagnosis and is, therefore, called "quiet iritis" is easily diagnosed with the lamp. The pigment proliferation and gray capsular exudate in an eye without pain and only slight redness make the diagnosis easy. In syphilitic iritis we may have the so-called gumma, which appears as an elevated brownish area with definite blood vessels running in and through it. Tuberculous iritis offers a field for interesting study and exact deductions.

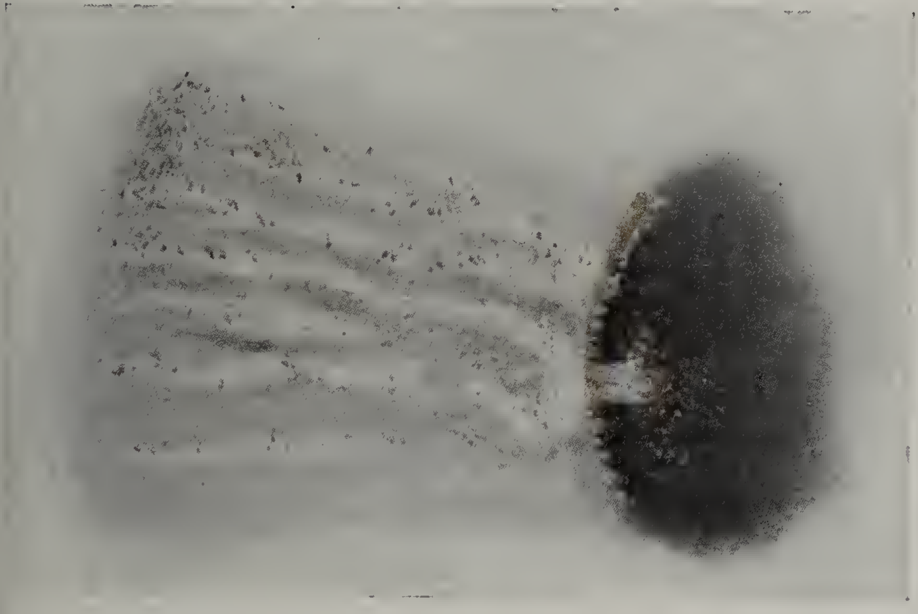


Fig. 7.—Chocolate colored deposits in and on the iris, with a capsular exudate and pigment proliferation. Chronic glaucoma.

Recurring: Recurring iritis has caused endless annoyance to patient and physician. A thorough study will show that in many of these cases there is complete occlusion, and that the flushing of the eye is often indicative of a glaucomatous change. This explains why an iridectomy has often cured an iritis of years' standing.

INTERSTITIAL KERATITIS

In interstitial keratitis, the iris usually presents the inflammatory picture with opacity and vascularization of all layers of the cornea, and areas of deposit on Descemet's membrane. As there has been some doubt as to the circulation of blood in interstitial keratitis, that doubt is permanently removed after examination with the slit lamp; for, in all fresh cases, the definite blood stream is demonstrable, and only in permanent, small, central opacities is blood absent. Descemet's deposits vary much in size and number, frequently covering almost the entire membrane. Often grouped to one side of a deposit are rounded dots suggesting a granular nucleus in appearance. So far, I have not been able to make a definite diagnostic deduction regarding these deposits.

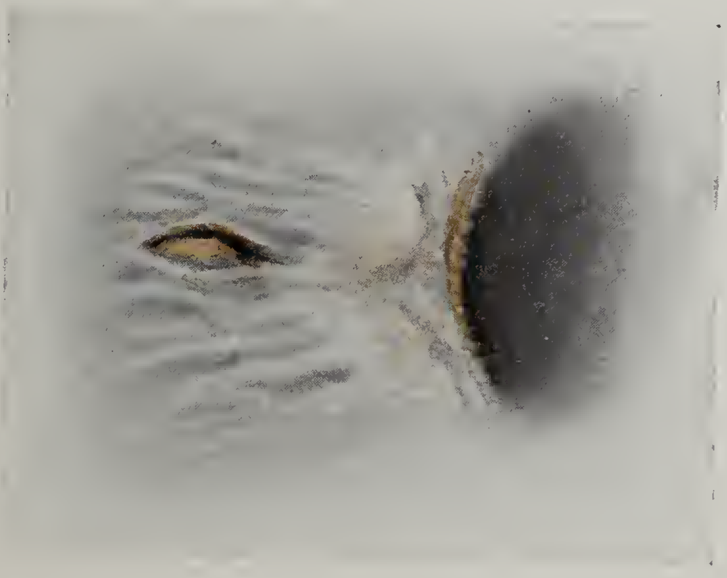


Fig. 8.—Penetrating iris injury caused by a flying piece of steel. Retinal pigment layer in the wound; no pupillary marginal pigment change.

A case of proved tuberculous keratitis with temporal limbus infiltration of many months' duration showed a clear iris, with no evidence of infiltration or increased iris vascularization.

UVEITIS

A patient with secondary uveitis, of unproved syphilitic origin, of years' duration, presenting many vascular corneal opacities, had a mature cortical cataract three years ago. The lens was removed, pupillary occlusion became marked and the patient came to me for a second operation. The slit lamp proved that she had innumerable gray patches of deposit on Descemet's membrane, and that many new blood vessels were present in the iris. The other eye showed the same deposits and corneal vessels. These Descemet's deposits were so minute that, unless a most exhausting loupe examination had been made, they surely would have escaped notice. It is hardly necessary to say that I refused to operate.

SYMPATHETIC OPHTHALMIA

The appearance of the iris in sympathetic ophthalmia is suggestive. In one case, Descemet's membrane was studded with deposits, the iris was thickened and lost its markings, and there was adhesion between the shelf and capsule, with a frayed margin and many large blood vessels. This iris picture was almost the same in an eye that had been severely injured by being struck with a large foreign body, producing dislocation of the lens up and out with iris inversion. The iris was brownish, showing fine and large blood vessels with triangular attachments of the iris shelf to the capsule.

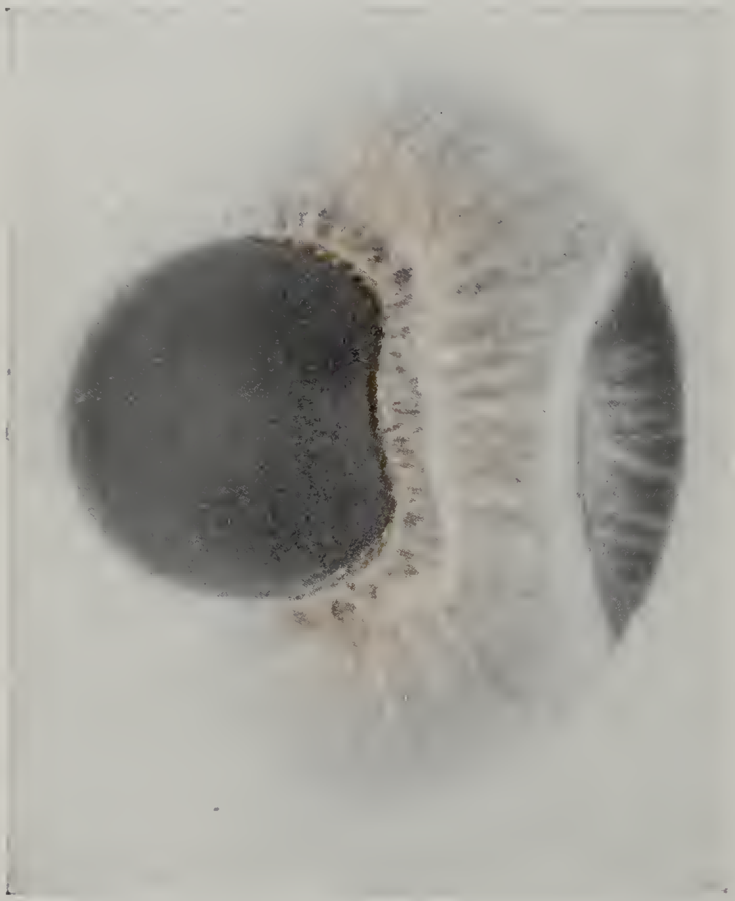


Fig. 9.—Traumatic iridodialysis: intact pupil margin; no pigmentation; zonule and lens.

INJURY

Figure 9 shows the separation of iris, the result of a blow. It will be noted that the peripheral margin of iris is smooth, and that there has been no increased pigmentation.

In a clean-cut perforating wound there was a distinct layer of retinal pigment where the overlying iris had been destroyed with no other evidence of iris involvement. A clean prolapse of iris which became incarcerated in the cornea showed a stretching and thinning of all iris structure without pigment massing.

GLAUCOMA

The observations made on glaucoma are classified as acute, chronic and simple.

Acute.—The opportunity of studying the acute cases with the slit lamp has not been often. As may be readily understood, the excited patient stands such an examination poorly, the eye being so sensitive to light.

In a recent case the cornea was steamy, showing innumerable superficial epithelial elevations and true edema; the pupil was widely dilated with injection of the iris but no change in the pigmentation.

Chronic.—The chronic inflammatory glaucomas are more often examined, and usually show migration of pigment. Some, however, do not, so that it does not seem that pigment migration is either a symptom of the disease or of prognostic import, although it may prove to be of the greatest diagnostic value.

Simple.—Simple glaucoma has been observed many times, some showing absorption of almost all of the iris pigment, the iris giving the appearance of being moth-eaten because of its uneven margin and transmitting the light through the atrophic tissue to the retinal layer.

On careful focusing it can be found that a blue iris is made up of a very few strands near the pupillary margin, and the tissue making up the shelf is so thin that the pigment layer is detailed. In other simple glaucomas, the iris margin has remained unchanged, and in still others the pupillary pigment layer seems to project over the iris, giving an appearance of prolapse. Not infrequently the iris blood vessels are very numerous, although gross examination may not demonstrate it. This is one reason why expulsive hemorrhage follows operation, such as an iridectomy.

Another reason for failure to relieve tension is the immediate adhesion of the iris to the lens capsule. I strongly urge the use of atropin at and following operation.

CATARACT

Following cataract extraction, not uncommonly the whole surface of the iris seems obscured in a thin veil in which there are innumerable pigment spots not only about the pupillary margin but as far back as examination can be made. In some other cases the iris about the coloboma is atrophic, showing as a gray line with irregular margin and, by dark illumination, loss of iris

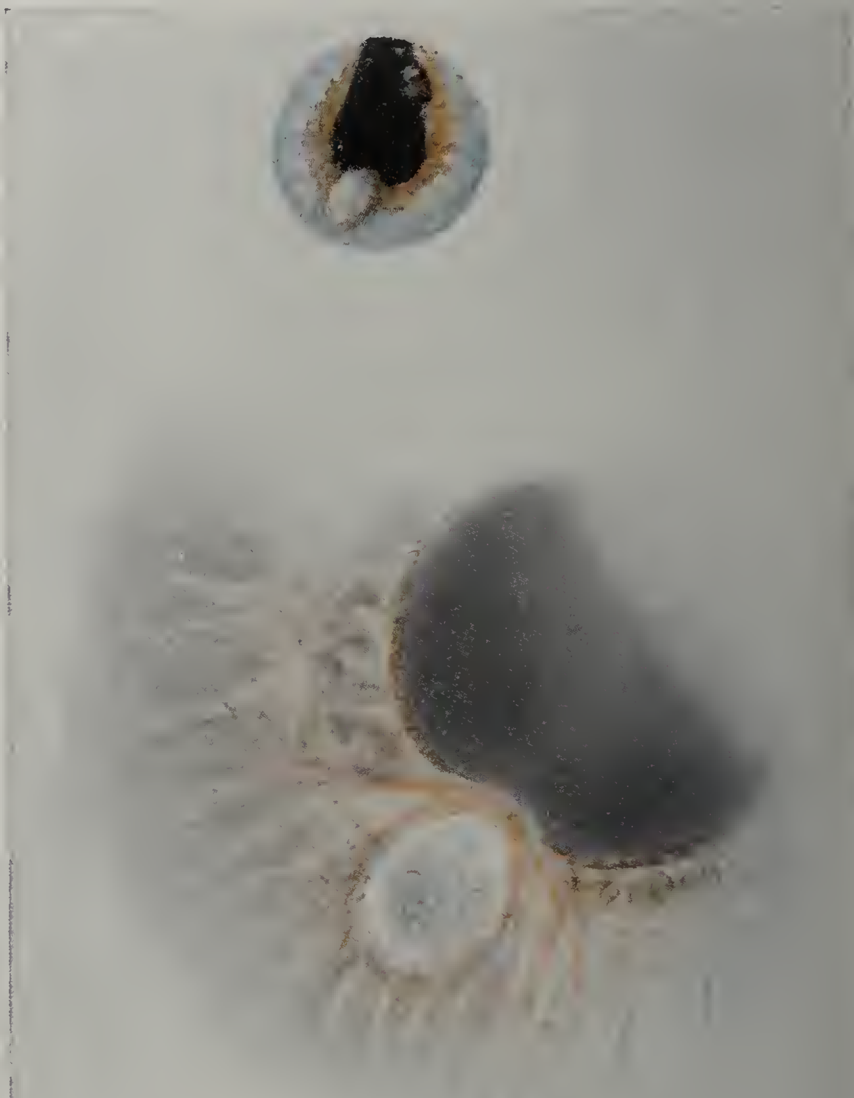


Fig. 10.—An adherent leukoma; secondary glaucoma; a broad iridectomy; vision 20/30, Type 1. The iris, incarcerated in the ulcer, is evident as a thin, atrophic layer. The margins about the iridectomy and pupil show a few narrow synechiae, and the superior temporal side a large, irregular triangle of unaltered retinal pigment. Fine pigment over and in stroma.

fiber detail. In other cases, particularly in brown iris, the margin seems thickened and rounded, and gives the effect of considerable pigment proliferation.

SUMMARY

Anatomic and embryologic changes heretofore only partly studied and very infrequently seen clinically are now a matter of daily observation.

Iritis can be diagnosed earlier, and prompt, efficient treatment materially lessens the severity of the attack.

After the attack, correct measures may be instituted for the prevention of recurrence, such as iridectomy in occlusion.

Although the iris, retina and choroid are directly continuous, the surprise has been the absence of any iris change in retinochoroiditis, neuroretinitis, simple detachment of the retina, choked disk or retinitis proliferans.

Glaucoma may be diagnosed earlier by the slit lamp, but it seems to me that if the methods we now have of careful tonometry and field observation have not helped an individual observer, then the more difficult of interpretation pigment migration is not likely to clear the diagnosis; for such migration has been seen in high myopias, compound hypermetropic astigmatism, hyperopia, primary optic atrophy with arteriosclerosis, and in cataracts of the cortical, capsular, lamellar, traumatic and secondary types.

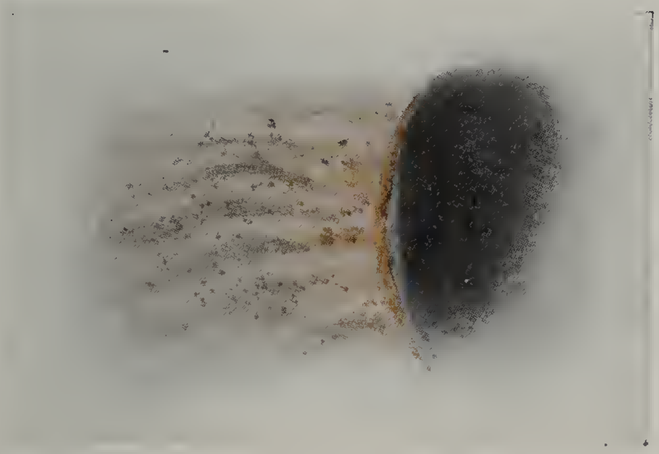


Fig. 11.—Chocolate colored deposits in and on the fibers of the iris in a boy, aged 11 years, whose only lesion was a low degree of hyperopic astigmatism.

In some penetrating wounds of the iris there is no change except at the direct site of injury, in contrast to the retinal pigment massing in any iris inflammation.

CONCLUSIONS

Variations from our previously considered normal are many. Marked gross iris changes are better understood after study with the lamp.

The inflammations of the iris may be promptly recognized.

Glaucoma can sometimes be confirmed by examination with this instrument.

The pigmentation of the iris demands the most painstaking study by many competent observers for some time.

Favorable and unfavorable cases for operation may be selected by its use.

Finally, the slit lamp is an addition to our diagnostic armamentarium only second to the ophthalmoscope; and, just as the older instrument yields results only after training, so the newer can be of its greatest service only after long study.

344 State Street.

ABSTRACT OF DISCUSSION

DR. HARRY S. GRADLE, Chicago: A question that is essentially of physiologic but eventually of pathologic interest is that of the approximation of the sphincter margin of the iris to the anterior capsule of the lens. Many authors, led by Hamburger, believe that this approximation results in a water-tight closure between the anterior and the posterior chambers, while those of the Leber school are convinced of the free communication between the chambers. A conclusive decision on this point would be of vast importance, with especial reference to the mechanical features of glaucoma. In a case with a localized, sharply defined area of atrophy in the iris stroma, the entire iris tissue of the area was replaced by a thin, flexible membrane, essentially a tambour of the iris. The membrane bulged forward until it protruded markedly before the anterior plane of the iris. Then suddenly it collapsed and resumed the former position in the plane of the retinal pigment epithelium of the iris. This phenomenon was interpreted as the result of a water-tight closure between the anterior and posterior chamber until the pressure of the aqueous in the posterior chamber was sufficient to overcome the approximation of the iris to the lens capsule, when the fluid spurted through the pupil, relieving the pressure on the posterior surface of the flexible membrane in the iris. I have observed a somewhat similar phenomenon in a young girl with congenital cataract. One lens had been needled twice, with the result that the anterior capsule was wide open and well retracted behind the iris. There were still a few floccules of cortex in the bed of the

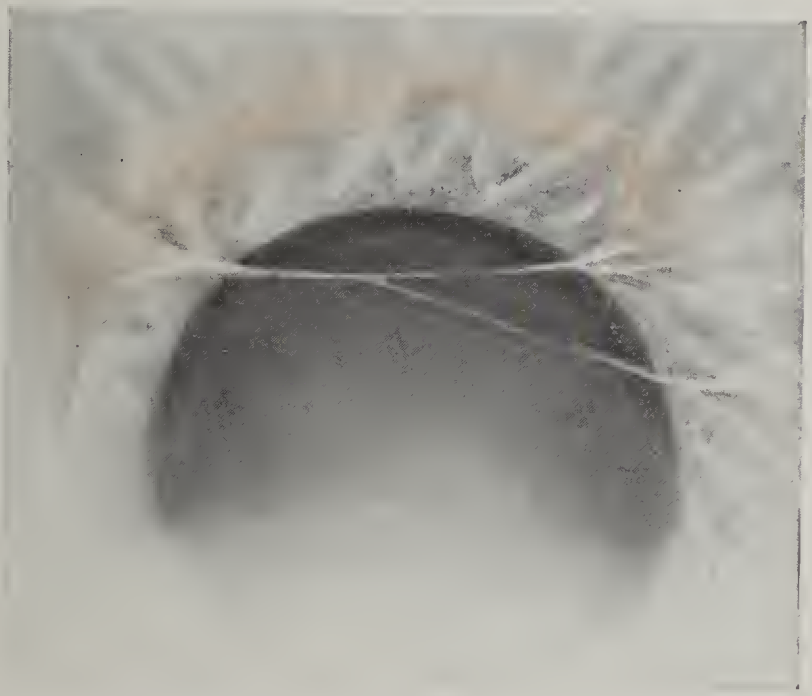


Fig. 12.—Retained pupillary membrane showing many fibrous attachments to the iris shelf.

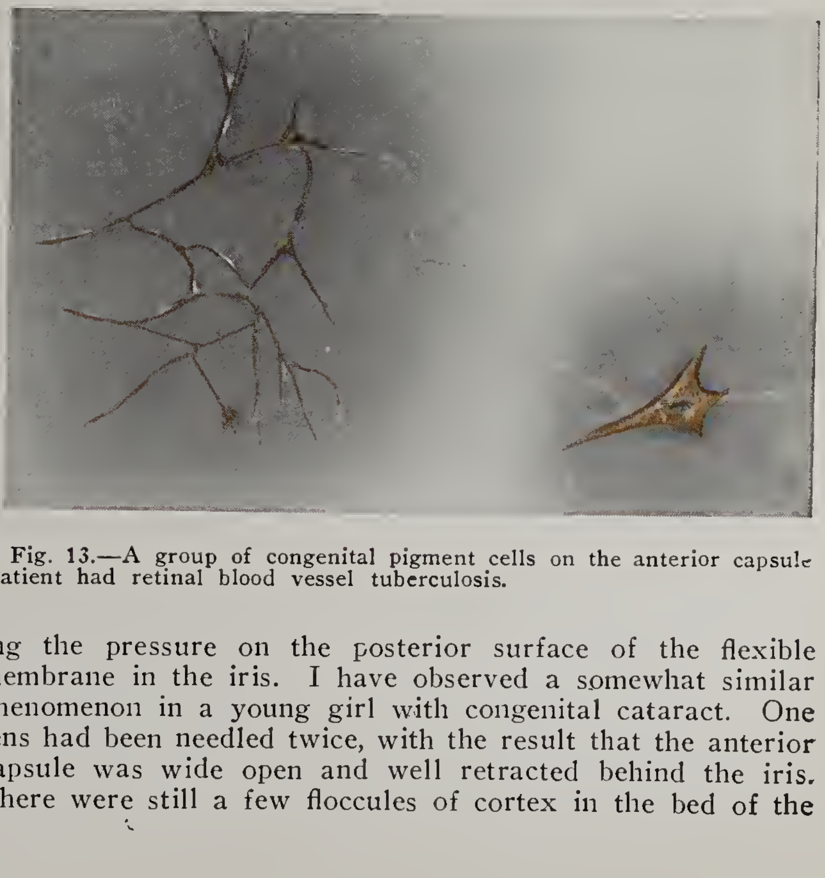


Fig. 13.—A group of congenital pigment cells on the anterior capsule Patient had retinal blood vessel tuberculosis.

lens, and the posterior capsule was fairly opaque. In the exact center of the posterior capsule was a round aperture, approximately 2 mm. in diameter, through which she obtained normal vision with the proper correction. With the slit lamp, this aperture was found to be covered with a membrane so delicate that it could not be seen with the usual Coddington loupe. The membrane resembled a spiderweb in formation, minus the geometric regularity, and it could not be determined whether it was new formed tissue, hyaloid membrane, or thickened anterior vitreous. Irrespective of the source, it was extremely delicate and flexible. The membrane bulged forward fully 0.5 mm. and then receded to the primary position in the plane of the posterior capsule. The bulging occurred in the form of a tidal motion synchonous with the respiration, and continued throughout the period of observation. In all probability the pressure of the blood in the retina and choriocapillaries is increased during some phase of respiration, as is the pressure of the blood in the anterior portion of the eyeball. But the volume of blood behind the posterior capsule is much greater than that of the anterior portion and consequently an equal increase in blood pressure throughout would result in slightly greater pressure in the vitreous chamber than in the aqueous chambers. Such a slight change in pressure is insufficient to cause a manifest difference in an eyeball with normal relations; but the delicate membrane in the posterior cupsule, acting as a tambour head, allowed the observation of slight pressure variation between the vitreous and aqueous chambers.

Dr. Marcus Feingold, New Orleans: I would like to relate the purpose for which I use the slit lamp and corneal microscope on the iris in certain instances. A young man complained of a dilated pupil in his left eye. He had had no discomfort. He had been strong and well and was not aware of any disease. I found an extremely dilated pupil, weakened accommodation, and a pupil which did not react at all to light. The physical examination was entirely negative; the Wassermann was negative. There was weakness of the extrinsic muscle in the other eye. My suspicion was that we were dealing with a case of lethargic encephalitis, one of those cryptic cases in which there had been no other manifestations of disease. Nothing was found by his family physician. Less than a year later, he appeared again, with the same condition. I examined him with the corneal microscope and slit lamp, for the purpose of establishing whether any pupillary reaction existed. With a binocular loupe and focal illumination and an electric ophthalmoscope, I could detect no movement whatever of the sphincter. With the corneal microscope and slit lamp I found that on the temporal side the sphincter reacted; on the nasal side it did not react. Of course, this did not lead me any farther in diagnosis, but it is an interesting observation, and the future will tell what the case is.

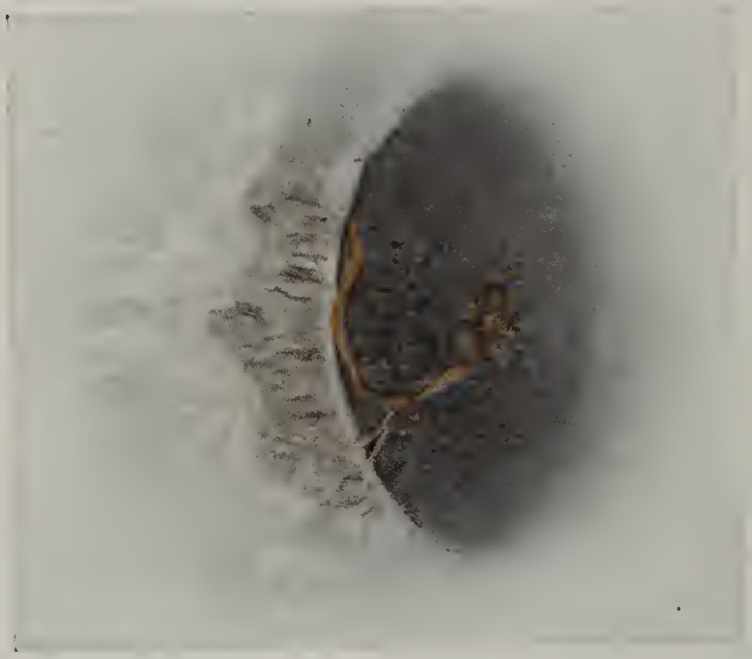


Fig. 14.—Acute iritis: masses of retinal pigment layer on capsule; iris stroma freed.

Dr. Martin Cohen, New York: Might it be wise to examine the iris tissue in regard to pigmentary changes in cases of suspected systemic disease; for instance, diabetes? Would we be able by the slit lamp and corneal microscope to recognize incipient pigmentary changes in the iris stroma?

Dr. Arthur J. Bedell, Albany, N. Y.: I have not seen any marked pigmentary changes in the conditions of which Dr. Cohen speaks. I particularly mentioned in the paper that in diseases in which we would expect to find some pigmentary changes, we have been surprised to find they were not present. Dr. Feingold spoke about pupillary reaction. You all know how difficult it is at times to decide whether or not a pupil reacts. I think the most accurate method is to have the patient before the slit lamp with the iris well focused and then turn the light on and off. In this way, even the slightest reaction is easily determined.

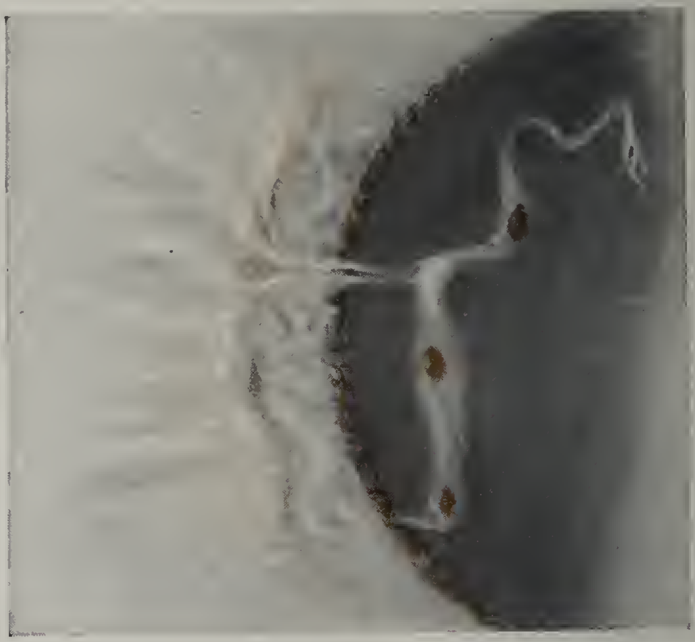


Fig. 15.—A congenital film veil coming from the iris shelf with a frayed end projecting forward. Three pigment masses, round, smooth, and without demonstrable structure. The inferior end lies behind the iris.

SOME COMPARATIVE RESULTS IN CITIES AND IN COUNTIES AS HEALTH UNITS *

A. J. WARREN, M.D.
Director of County Health Work, Kansas State Board of Health
TOPEKA, KAN.

The incorporated city as a unit of civil organization for the protection of the public health has so thoroughly justified its existence, efforts and expenditures that the question of the propriety of such an organization is no longer debatable. The evidence is all on the affirmative side.

Unfortunately, the county as a unit of organized civil efforts for the protection of the health of the people living in the rural communities and small towns is not so universally accepted. That the county as a unit has been neglected in the past is illustrated by the fact that the first position of full-time county health officer in this country was not established until 1911.[1] That the problem is still being treated with indifference is evidenced by the fact that of the 3,065 counties or equivalent divisions of the continental United States, only 161, or 5.2 per cent., were on Jan. 1, 1921, provided with a whole-time local health service. In other words, only 8.21 per cent. of the rural population of this country was on Jan. 1, 1921, provided with local health protection.[1]

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* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Pub. Health Rep., Nov. 18, 1921, p. 2832-2836.

"The country is the weakest link in the sanitary chain"[2] because the country has been neglected on account of the prevailing opinions that "rural health work, on account of distance to be covered and other obvious factors, is relatively more expensive"[3] and difficult than urban health work. Such opinions have apparently been accepted as sufficient justification for indifference in applying the remedy, without the necessary evidence to demonstrate either the truth or the fallacy of the accepted hypothesis. The result of this accepted situation regarding cities and counties as health units has been a severe distortion of the once established facts. The urban death rates have declined as the result of the application by well organized municipal health departments of known sanitary and hygienic principles. The rural death rates have remained undisturbed as a result of the lack of application of the same principles, until controversy is rife in regard to whether the city or the county has the highest death rate.

The fundamental principles involved in the prevention of typhoid fever are the same for the country as for the city, and they are the same the country over. The same is true of smallpox, diphtheria, infant mortality and other diseases concerning which we have fairly accurate knowledge. The only difference is in the practical application of the fundamentals involved to the given area. And even here differences are apparent only in the execution of the details, and are not general. Natural factors also favor the country dweller, and the present conditions are a reproach to our lack of efforts and intelligence.

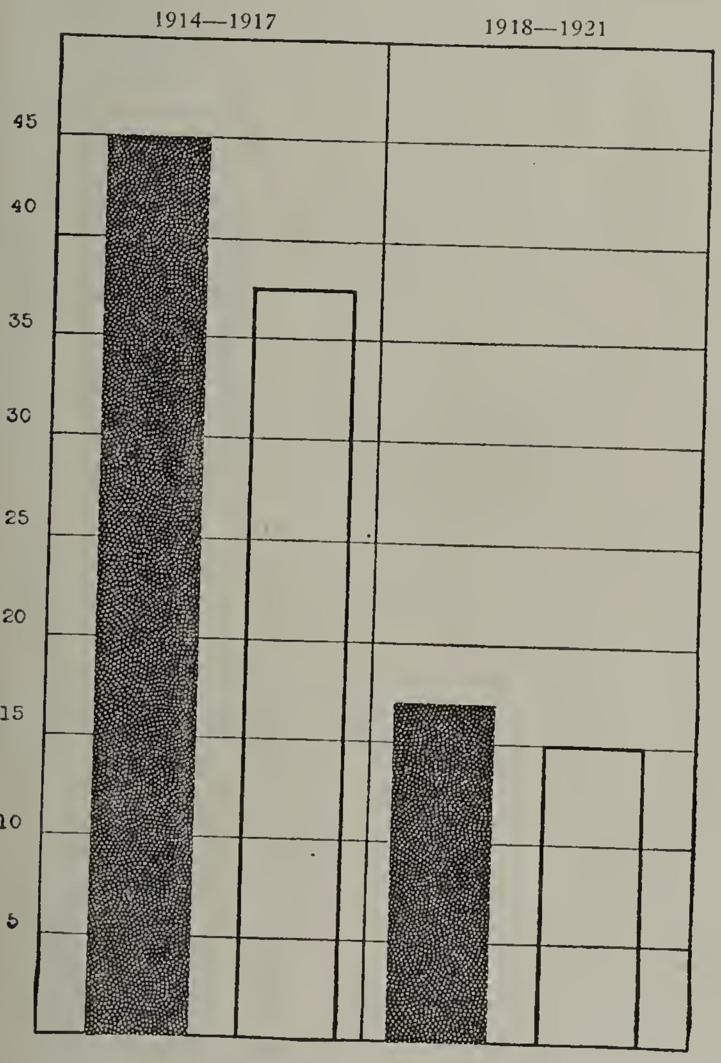

Chart 1.—Comparative typhoid death rates before and after the establishment of health departments: shaded area, cities; white area, counties.

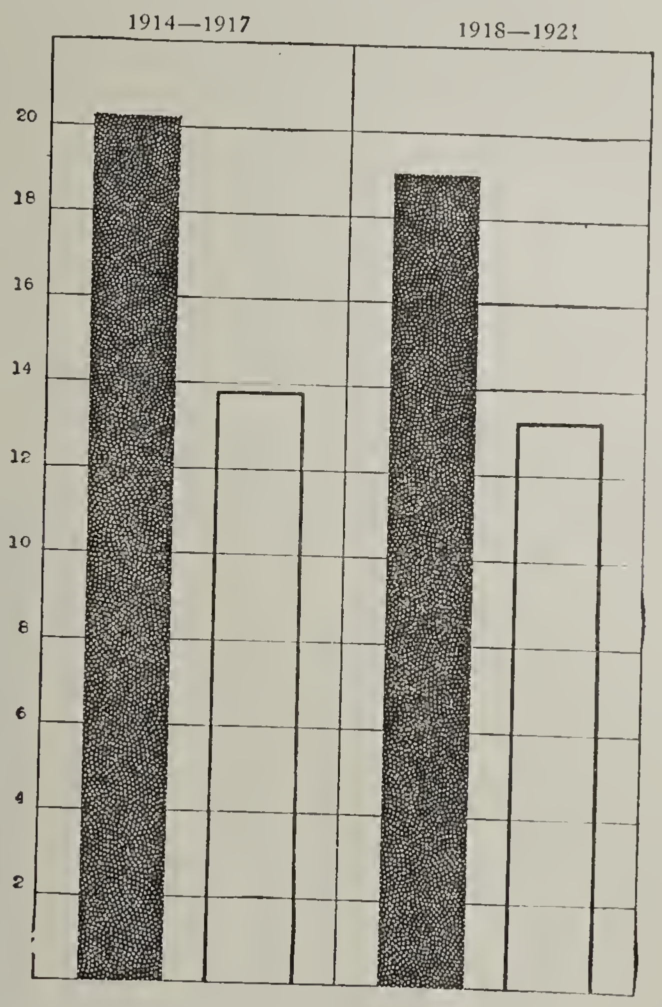

Chart 2.—Comparative gross death rates before and after establishment of health departments: shaded area, cities; white area, counties.

In order that some evidence might be made available to disturb the present equilibrium toward which we are approaching, an effort was made to determine the relative cost of, and effectiveness of, public health work in urban and in rural communities. A survey covering three cities and nine counties, all having well organized health departments, was undertaken.[4] The survey covered a period of eight years and involved a total average annual population of 461,244. Of this number, 108,534 lived in the three cities, and the remaining 352,710 lived in the nine counties. The cities ranged in population from 27,076 to 50,992 in 1921, with an average annual population for the four year period 1918 to 1921, inclusive, of 36,178. The counties ranged in population from 23,141 to 54,954, with an average annual population of 39,190 each for the four year period 1918 to 1921, inclusive. The cities and counties surveyed were all located in the central two thirds of the state of North Carolina, for the reason that in no other locality were the imperative factors of age of units and extensiveness of activities so favorable, and because of the fact that it was essential that the counties and cities involved should have some definite relations to one another. The counties and cities surveyed were all organized on a full-time basis on dates that were separated only by a few months. This wholesale organization took place between Jan. 1, 1917, and Jan. 1, 1918.[5]

The relative nearness of the dates of organization makes possible a division of the eight year period into two halves, one from Jan. 1, 1914, to Dec. 31, 1917, a four year period prior to the influences of organized health protection: the other from Jan. 1, 1918, to

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[2] Rosenau: Preventive Medicine and Hygiene, p. 475.
[3] Lumsden, L. L.: Pub. Health Rep. **36**: 2472 (Oct. 7) 1921.

[4] Cities of Charlotte, Raleigh and Winston-Salem; Davidson, Edgecomb, Forsyth, Lenoir, Northampton, Pitt, Robeson, Rowan and Wilson counties (North Carolina).
[5] Wilson County, Sept. 1, 1916; city of Raleigh, Oct. 10, 1918.

Dec. 31, 1921, a four year period during which the effects of organized public health efforts exert a positive influence on the respective communities. The nine county organizations were identical in personnel, plan of work and budget. The cities, while not so nearly identical as the counties, were similar in personnel, activities and budgets. In two instances the city health departments were organized and conducted for a short period by a personnel representing the United States Public Health Service. The three major problems of public health work—(1) the reduction of the filth-borne diseases of which typhoid fever may be regarded as the criterion, by means of sanitation, education and immunization; (2) the control of contagious and communicable diseases by quarantine, education and immunization, and (3) the reduction of infant mortality—were the activities that were first undertaken by the city and county health departments. It is possible, therefore, to compare with some degree of satisfaction the results after four years of organized effort, as expressed in the specific mortality rates, the gross death rates and the per capita expenditures.

TYPHOID FEVER

While there is no one perfect index by which to gage the results of the effectiveness of public health work, the one specific disease that approximates most closely this condition is typhoid fever. "The cause, mode of transmission, and prevention are well understood in theory and readily attainable in practice. Sanitation here finds its first fruitful field; hygiene, its useful lessons, and immunology its special application." [6] The degree of the effectiveness of the application of these principles will be very definitely expressed in the reduction of the specific mortality rate to a greater or lesser degree. And the application of these principles is the only known process that will abruptly alter the specific mortality rate in a community in which typhoid has been consistently prevalent over a period of years.

For the three cities, the typhoid death rate for the period 1918 to 1921, inclusive, shows a reduction of 62.13 per cent., as compared with the four year period 1914 to 1917, inclusive. For the same period of time the nine counties showed a reduction of 60 per cent. in the typhoid death rate.

The state as a whole (exclusive of the three cities and nine counties) for the same period of time showed a reduction of 49.55 per cent., which gives the cities a reduction in excess of the whole state of 20.24 per cent., and the counties a similar reduction of 17.41 per cent.

It is to be noted that while the cities show a slightly greater reduction in the typhoid death rate, the county rate is 11.7 per cent. lower than the city rate, and 3.8 per cent. lower than the rate for the state as a whole.

TABLE 1.—TYPHOID DEATH RATES *

	Cities	Counties	State
1914-1917	44.9	37.3	31.38
1918-1921	17.0	14.9	15.83
Percentage of reduction	62.13	60.0	49.55

* The statistics were supplied by the Bureau of Vital Statistics, North Carolina State Board of Health.

GROSS DEATH RATES

The composition of the population living in the rural area and the small towns, and in the cities as regards age, sex and nationality are of sufficient similarity to make a comparison of the gross death rates between the urban and country areas of considerable value.

TABLE 2.—GROSS DEATH RATES *

	Cities	Counties	State
1914-1917	20.3	13.8	13.10
1918-1921	19.0	13.3	13.33
Percentage of reduction or increase	— 6.4	— 3.6	+ 1.7

* The statistics were supplied by the Bureau of Vital Statistics, North Carolina State Board of Health.

For the three cities, the gross death rate for the four year period from 1918 to 1921, inclusive, decreased 6.4 per cent., as compared with the four year period 1914-1917, inclusive. For the same period the nine counties showed a reduction of 3.6 per cent. A very significant factor to be noted here is that while the cities show a much greater reduction in the gross death rates, the excessive gross death rates of the cities make the reduction relatively easier, and make a greater reduction possible in the cities. While the cities have shown a greater percentage of reduction of the gross death rates, the city death rates are still 30 per cent. in excess of the county death rates.

For the same period of time the gross death rate for the state as a whole (exclusive of nine counties and three cities) showed an increase of 1.7 per cent. All of this increase was for the year 1918, when the mortality from influenza reached its crest in the state. This fact makes the reduction in the three cities and nine counties the more significant.

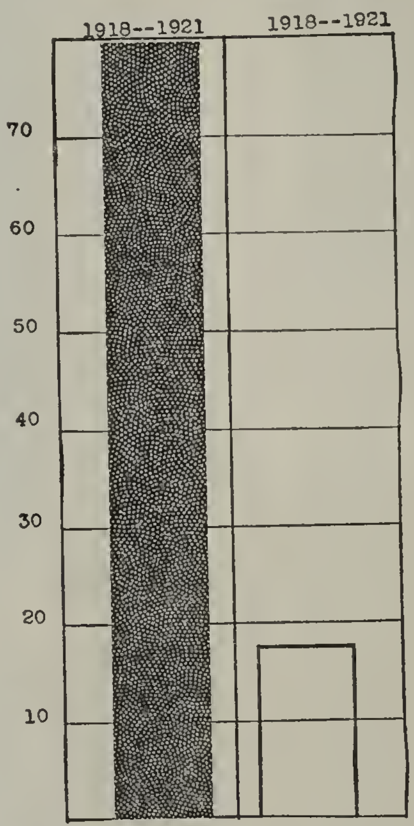

Chart 3.—Per capita expenditures in three cities and nine counties for health departments: shaded area, cities; white area, counties.

PER CAPITA COST

All money expended for public health purposes should have a twofold objective: (1) the reduction of morbidity and (2) the reduction of mortality. As yet we have no universally accepted standard for determining the reduction of the morbidity. Probably the mortality rate is as accurate an index of morbidity as any of the methods that have been advocated. At the present time the mortality rates must serve as the twofold index for estimating the degree to which the money that is expended has accomplished its original objectives.

In reducing the mortality rates 6.4 per cent., the three cities expended the sum of 79.9 cents per capita. The

TABLE 3.—POPULATION AND EXPENDITURES

	Annual Population	Annual Expenditures	Annual Per Capita Cost
Counties *	39,190	$ 6,835.60	$0.174
Cities †	36,178	28,911.92	0.799

* Data furnished by Bureau County Health Work, North Carolina State Board of Health.
† Data furnished by city health officers of Charlotte, Raleigh and Winston-Salem.

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[6] Rosenau: Preventive Medicine and Hygiene, p. 105.

nine counties spent 17.4 cents per capita in effecting a reduction of 3.6 per cent. in the gross death rates.

CONCLUSIONS

The conditions in North Carolina are not representative of the conditions in Kansas or in Maine. The cities and counties of North Carolina do, however, have a definite relation to one another. The cities and counties of any other state have a similar relation.

The parallel that has been drawn is not exact. No similar comparison can be exact.

The evidence submitted proves, conclusively, nothing. It does, however, suggest that the charge that rural health work is more expensive and difficult than urban health work needs modification, if not a complete withdrawal.

ABSTRACT OF DISCUSSION

Dr. W. S. Rankin, Raleigh, N. C.: As to the importance of developing full-time county health departments, and the comparative ease with which such work is done, I think that all state health officers who have concerned themselves with this problem have been encouraged with their success in inducing the counties to see the importance of making arrangements for taking care of the health and lives of their people. The full-time county health officer problem is, in a sense, a psycho-epidemic affair. Get a few counties started and produce results. Establish a fairly practical satisfactory plan to work and it is easy to carry the idea into the adjoining counties. When one considers the opportunity in this particular field as compared to the opportunity of developing urban health work, and when one thinks of the 3,065 counties in the United States with only 6.5 per cent. having full-time health departments, one can see what a vast field of opportunity exists. In the South it has been much easier in recent years to develop rural than urban health work. The main restriction in rural health work is not the willingness of the people to put in a health department but the difficulty of obtaining health officers who can put through the idea that the people have endorsed. In going into a county, the usual procedure is to see first an influential group of men. In my opinion the influential group which should be consulted first is the professional group. We have neglected too much the matter of conferring with the local profession. It does not make any difference what we are going to have done in that county, it has to be done through the local profession. The recognition and prevention of disease and clinical diagnosis are things for which one has to depend on the local profession. The doctors ought to be seen first if for no other reason than as a matter of proper respect. The profession, because it has not been consulted as it should have been, has not understood what was going on, and the lack of cordial relations has resulted in a certain indifference. Ordinarily it is easy to get the approval of the county medical society to put in a county health department if one presents a reasonable proposition. When health officers fail to get the approval of the county medical society for a full-time health department, it means that either the profession of that county is unreasonable or that the man who is selling the proposition is not a good salesman. I want to add my full endorsement to the conclusions drawn by Dr. Warren.

Dr. J. A. Hayne, Columbia, S. C.: I have neither respect for nor confidence in any statistics, but Dr. Warren's statistics are extremely interesting. He showed that with a per capita tax of 15 cents a considerable reduction could be made in the death rate of the rural population. Coming from a state that has 85 per cent. rural population, this is a matter of some interest. The full-time health officer was stressed for a long time. I never believed much in whole-time county health officers. I do believe in whole-time county health departments. County health officers cannot do well without sufficient support. They must have the same support as a city department of health. Some years ago we had the idea that in a county thirty miles long and twenty miles wide one county health officer could accomplish results by simply being there. We found that this did not do any good except to provide a rather comfortable place for the man who had the position. At present we believe in having county health departments with trained county health officers at the head, a nurse or two, sanitary inspectors and a clerk-stenographer, and, if necessary, a sanitary engineer and all the necessary equipment for doing proper health work. Most counties have more than 30,000 population. Would a city of 30,000 population think it was doing justice to the people if it did not have a health officer? Why does a county of 30,000 population think it is doing its duty to the citizens by having health officers who occasionally appear during epidemics and usually make themselves very disagreeable to the physicians? In South Carolina the medical profession of the state is the department of health of the state. That is the proper way. That is the board of health that is going to succeed. When you leave out the physicians and try to put in health officers you are going to fail.

Dr. W. L. Holt, Knoxville, Tenn.: I had some experience in county health work in Los Angeles County, California. All the rural health work in the county of 4,000 square miles was managed from the central office in Los Angeles. We had two or three deputy health officers and about six nurses and two inspectors, and did a great deal of work. The splendid roads everywhere enabled us to travel fast by automobile, and I often traveled a hundred miles a day in visiting only a half dozen cases. The cost of administration for each case is much greater than it would be with about six cooperative health departments, each covering both the urban and rural territory in its district. Of the total population of about a million in the county, about 800,000 were inside the thirty-three cities and towns in the area and cared for by municipal health departments. The remaining 150,000 were scattered all over the great county and were cared for by the county health department in an efficient but uneconomical way.

AN EXPERIMENT IN GRADUATE TRAINING IN OTOLARYNGOLOGY *

GEORGE E. SHAMBAUGH, M.D.
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Facilities for providing training in otolaryngology have not kept pace with the public need for specialists or with the demands of those desiring to take up this work.

A survey of the situation reveals the fact that substantial training in otolaryngology is being provided in a few special hospitals, but, of course, only for the limited number of men which the needs of these hospitals require as interns. For most of those who attempt to get special training, there remains only the opportunity of taking such work as is provided in postgraduate schools. Before the war, there had developed an increasing tendency for men to seek training by going abroad. This work, like that of postgraduate schools, was restricted largely to attendance at clinics and to the taking of short intensive courses, suited especially, as review work, for those already established in special practice, but not for providing the proper fundamental training necessary for preparing men to be specialists in any field. Even the training acquired by serving as intern in special hospitals has been more or less one-sided, for these men necessarily see an overemphasis on operative work, and have relatively little opportunity for the more difficult and much more important training in making careful examinations of patients and in diagnosis. The lack of facilities for acquiring a proper preparation for special practice, the faulty training acquired in our existing institutions, where operative technic is chiefly emphasized, with a neglect of proper attention to the more important and more difficult problem of acquiring training in making examinations and in diagnosing conditions, has resulted in the tendency for indiscriminate, unnecessary operating, which has, in recent years, brought a distinct opprobrium on the specialty of otolaryngology. In recent years, I have seen many more patients in whom there had been uncalled for operation on the nose and throat than patients in whom operative treatment seemed indicated.

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The question of what constitutes the proper minimum standard of preparation for the practice of otolaryngology was discussed by the Council on Medical Education of the American Medical Association at its meeting a year ago.[1] The committee on otolaryngology, in its report, insisted that the work should be as much in the fundamental sciences as in the clinical study of cases, and that the work must be on the basis of genuine graduate instruction, in which the student is led to do his work independently under proper supervision, but not by the method of forced training; that is, by taking didactic courses and clinics. This committee further recommended that a proper minimum training for special practice should consist of one year's full-time work, one half of each day being spent in the laboratories of a university studying the fundamental sciences, the other half day in a properly equipped and properly organized outpatient department of a Class A medical school, where the student occupies the position of clinical assistant.\ On the completion of this first year's fundamental training, the committee recommended that a second year be spent in serving as intern in a special hospital, or as resident in otolaryngology in a general hospital. When such positions are not available, it was recommended that an additional six months be spent pursuing special work in other centers, such as selected courses in postgraduate schools, or by serving as assistant in the office of a specialist.

I desire at this time to point out some conclusions regarding graduate training in otolargyngology which we have reached, after more than two years' experience, in an effort to carry out the principles laid down in the report mentioned above.

The first conclusion of primary importance is that facilities for providing the proper sort of graduate training in our specialty in any institution exist only for a limited number of students. This is a fact which every institution must learn before it can hope to carry out successfully the proper sort of graduate training, as outlined above. The number of graduate students in any school is determined by the number of clinical assistants required to care properly for the work in the outpatient department. The principle is exactly the same as that which applies to the work of interns serving their fifth or hospital year, now required before receiving the degree of doctor of medicine. The number of interns in a hospital is determined by the number of men required to take proper care of the hospital work. It would be just as logical for a hospital to adopt the plan of taking on a superfluous number of interns and then attempting to substitute for actual intern work some sort of didactic instruction, attendance on clinics, etc., as it is to insist on these methods of instruction for large classes of graduate students in otolaryngology. The first principle in properly conducted graduate instruction is to lead the student to do his work independently, not by relying on methods of forced instruction, listening to didactic lectures or watching other men do their work.

In our outpatient department at Rush Medical College, we have, at present, facilities for only eight clinical assistants. Our class of graduate students in otolaryngology, therefore, is limited to eight men, who remain with us for one full year, working every afternoon in the outpatient department. This may seem a small number of graduate students for an institution with the clinical facilities of Rush Medical College. As a matter of fact, it is all that we are at present able to take care of properly, with our facilities. We feel satisfied that we are doing our full share by providing proper training for eight men each year. If only twelve of our best equipped Class A medical schools would arrange their work to provide proper clinical facilities for a similar number, the estimated needs in this country for specialists in otolaryngology would be amply provided for. The problem, therefore, of providing this first year of fundamental training is not a formidable one, but is easily attainable in our existing institutions.

I wish to outline briefly the way we have worked out the organization of the outpatient department, so that the work of these clinical assistants is properly supervised and directed, while they are, as far as possible, permitted to do the actual work of the clinic.

Two clinical assistants are taken on each quarter, January, April, July and October. During the first quarter, they are put to work examining the simpler types of nose and throat cases, learning how to make accurate records of their findings. For their direction in this work, we have provided an elaborate outline of the things to look for in making these examinations. The second quarter is spent in a similar manner in the ear room, learning how to make the various tests and the compilation of proper records. During the third quarter, they are at work again in the nose and throat room, where they are entrusted with the care of the more complicated cases and are permitted for the first time to carry out such treatments as require special technical skill; as, for example, the irrigation of sinuses. The fourth quarter is spent in the operating room, where they are taught the technic of operations and, eventually, are entrusted with most of the routine operating.

In this way, we are able to see to it that the student learns how to make examinations and to recognize the proper indications for surgical treatment before he is taught the technic of operating. A neglect of this fundamental principle has been responsible for the widespread ill-advised indiscriminate operating on the nose and throat with which this country has in recent years been flooded. The chief menace from this source has come from the practice introduced in many of our general hospitals of teaching interns in general medicine such operations as the enucleation of the tonsil, the removal of turbinated bodies and the resection of anatomic variations of the nasal septum. These men have had no opportunity to acquire an appreciation of the proper indications for these operations, and it becomes clear as day that men with such training cannot avoid the risk of doing unnecessary operations. It is a relatively simple matter to teach a student the technic of operating; whereas, it requires many months of careful painstaking work to instil an adequate appreciation of the proper indications for these operations.

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[1] Graduate Instruction in Oto-Laryngology, Report of Committee at Annual Congress on Medical Education and Licensure, A. M. A. Bull. **15**: 40 (Jan. 15) 1921.

The direction and supervision of the work of these graduate students serving as clinical assistants is entrusted to a staff of regular appointees in the department. The staff is arranged in three groups, each group being in attendance but two afternoons of the week. Our aim is to have three men in each group. These men act as chiefs of clinic, directing and supervising the work of the clinical assistants, deciding questions of diagnosis, and what treatment is to be carried out. The introduction of graduate students as clinical assistants has made the work of the regular staff more interesting and profitable, since they are relieved in a large measure of much of the routine work. The patients are receiving better care than we were ever able to provide when we relied on physicians from the city to come out to help us with the work. The graduate students are enthusiastic over their work, for they appreciate that they are getting a sort of training which no amount of didactic course-taking or attendance on clinic could give them.

We find, after a trail of more than two years, that our experiment is a complete success; and we believe that we have solved, for a small group of graduate students, the problem of acquiring proper training for undertaking special practice.

I have discussed here only the half day devoted to the clinical study of cases. Our plan contemplates spending the other half day doing the same sort of independent work in the laboratories at the University of Chicago, this time being largely spent in acquiring a first-hand knowledge of the complicated anatomy of the ear, nose and throat. While pursuing this anatomic work independently, the students are encouraged to take advantage of lectures at the university covering such subjects as the physiology of the special senses, the anatomy of the central nervous system, the anatomy of the special sense organs and the physics of sound. Attendance on the lectures, two or three hours each week, of one of these courses each quarter does not interfere seriously with their major work in anatomy. We believe that, by attending such lecture courses, the students receive an introduction to those subjects which prepares the way for their pursuing such studies independently as facilities and inclination permit. Those who desire may substitute, for part of their independent work in anatomy, similar work in the department of pathology.

We aim to encourage these men, on the completion of the year's work with us, to secure, if possible, a place as intern in a special hospital, or as resident in otolaryngology in a general hospital, where they will have an opportunity of seeing more of the unusual surgical procedures. We feel that, eventually, when several of our Class A medical schools arrange their work to provide similar training each for a suitable group of clinical assistants, special hospitals throughout the country will choose to select their interns from men who have completed this first year's training. We look forward also to the further development in various medical centers of short intensive courses covering the different phases of our special work, to which will be admitted these students who have completed the year's work as clinical assistants, as well as others who are already established in special practice. We confidently hope that the time is not far off when such courses will not be offered as a substitute for the real graduate training as outlined for the Council on Medical Education in the report already cited.

We wish to emphasize that the program here outlined as proper training for those preparing for special practice does not mean the giving up of instruction to large classes of graduate students, either in postgraduate schools or through similar courses undertaken by university medical schools. But we do insist that this type of work can never form the basis of proper preparation for special practice, even when pursued over a period of months or years. The foundation work of a proper preparation must consist in the student's receiving that training which can be obtained only by his serving an apprenticeship in actual work, such as the facilities of a properly conducted outpatient department can provide. We repeat that special courses, clinics, etc., such as are provided in postgraduate schools and in some of our university medical schools, are suitable as advanced work for those who have had the first year of fundamental training, or as review courses for those already established in special practice. They should not be offered as a substitute for the training we are advocating in this report. Facilities for this kind of work exist in any institution only for the limited number of students necessary to aid in the proper care of patients in the outpatient department.

The granting of a certificate suitable for display in the physician's office, setting forth that the holder has had adequate preparation for taking up special practice, would aid the public materially in distinguishing the bona fide specialist from the impostor, the pseudospecialist, recruited largely from the ranks of derelict general practitioners, whose sole preparation consists of a few weeks' or months' attendance on courses in postgraduate institutions, where they have acquired a smattering of knowledge relating chiefly to the technic of a few operations, but have acquired no proper appreciation of their indications; and who lack entirely the training necessary to prepare men for special practice. Such certificates should properly be issued by the institution in which the first year's work has been taken, the certificate being granted only on the completion of such additional work as meets the approval of this institution.

There has been much discussion of the question of requiring some sort of examination before granting a certificate setting forth that the holder has had the proper training preparatory for special practice. The ophthalmologists have a special board for giving these examinations. Our feeling is that an examination is not called for, and that a certificate stating that the student has completed certain work, including a year such as we have here outlined, is in itself a better assurance than any examination could possibly be that the holder has had proper training.

As regards the granting of higher degrees, we can expect the universities to stand as ready to grant such degrees to students in otolaryngology as in any field, whenever the work pursued meets the established requirements for the granting of these degrees. Those who are ambitious to hold important positions in the departments of otolaryngology in the university medical schools should be encouraged to pursue the studies leading to the degree of Ph.D. in otolaryngology, exactly as the men preparing for positions in the departments of anatomy and physiology intend to gain the degree of Ph.D. in anatomy or physiology before beginning their careers in these departments.

CONCLUSIONS

1. The practice of otolaryngology has degenerated perhaps more than has the work in any other field of medicine. This is the result of a widespread tendency for men to restrict their practice to this field with no preparation except a little training in the technic of a few operations. The extent to which the work in this field has degenerated is indicated by the practice, common in some sections of our country, of visiting nurses selecting children for tonsil and adenoid operations, sending them to hospitals, where, often without examination, some so-called specialist proceeds to do the operation. I should prefer to see the nurse trained to do the operation, provided a properly trained specialist made a discriminating examination and selected those cases in which surgical treatment was really indicated. This indiscriminate operating on the tonsils and adenoids is a fair index of the general laxity regarding practice in our specialty.

2. The bettering of existing conditions must be brought about largely by pressure from the rank and file of the general medical profession. It should be our task to aid, by a propaganda of education, in crystallizing, in the minds of the general practitioner, ideas regarding the proper preparation for special practice. Two popular fallacies must be dispelled: the belief that limiting practice to a particular field makes of one a specialist in that field, and the idea that in taking up the practice of a specialty one is undertaking something easier than the practice of general medicine. The medical curriculum aims to prepare its graduates for the practice of general medicine. To be a specialist in any particular field should mean to make an exhaustive study of that field.

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ABSTRACT OF DISCUSSION

Dr. Joseph C. Beck, Chicago: I agree with everything Dr. Shambaugh said. We have, perhaps, enough places where men can get this training, but they are not very well known. So far as I know, Dr. Shambaugh's place is the only one to which we can refer men for this one year of systematic work. I have seen the men afterward, and they certainly are well prepared. Especially is this true in regard to their surgical experience. One very important point is that the men who know how to teach are not, as a rule, giving the time to teaching. That is the trouble in this country so far as teaching and training men is concerned. That is the reason so many men go abroad. Dr. Shambaugh touched on the point of training the individual man. Put one or two men in your office. That is the best preparatory training they can get. I have been training men for fifteen years. I do not take any man for less than two years, because I cannot give them a sufficient number of surgical cases in one year.

Dr. Charles G. Stivers, Los Angeles: Dr. Shambaugh's excellent paper is devoted almost exclusively to the physical features of the otorhinolaryngologic side, and he deplores the lack of training in almost exclusively the surgical features of these organs. We are given organs to use, and the function of the organs of throat, mouth and nose is to be servants of the special senses. Nothing has been said about the restoration of function after putting all these organs in proper condition. I deplore the fact that thousands of men are doing ill advised and hasty operations on the nose and throat, as I do the fact that they know nothing whatever about the restoration of function of these organs after operations have been done, and I feel that any group instruction which fails to recognize that the function of these organs must be preserved and restored, after destructive surgery has been done, will fall short of its mission.

Dr. Wendell C. Phillips, New York: In his recent address before the Congress of American Physicians and Surgeons in Washington, Dr. Frank Billings expressed the opinion that overspecialization in medicine was becoming a grievous sin in America, and there probably is more or less basis for such a criticism. My own response to that statement is that there is overspecialization in America so far as pseudospecialists are concerned, but underspecialization so far as real specialists are concerned. I have had considerable experience in graduate teaching. I have thought seriously on this subject, and this experience in teaching, together with a careful study of the whole problem of preparation of specialists in this country, has given me rather deep convictions on the subject. Up to a few years ago the training that was considered the best for a young man to receive in order that he might know the field of specialism in diseases of the nose and throat was to secure an internship in one of the great special hospitals of the country, and in the Manhattan Eye, Ear and Throat Hospital, there has been a great demand for these positions. We have eleven house staff positions, and often fifty or sixty men apply. The reason men seek these positions is that they furnish such unusual opportunity for acquiring the surgical technic of nose, throat and ear operations. It is very evident that in a hospital where nearly 1,000 patients come each day as outpatients, where from thirty to sixty-five ether operations are performed daily, when a young man is inducted into that special work, surgery occupies his entire time and thought. One can see how he becomes imbued with the surgical side of it during his early years. He serves his term in an institution of this kind, and becomes an expert in surgical procedure, but when he goes out into practice it takes him some years to acquire a knowledge of the basic principles of the subject, and he begins to feel the seriousness of the position in which he finds himself placed. Dr. Shambaugh has struck the keynote of the whole problem, and I wish that this section could go on record that any man who proposes to enter our specialty must first go through this basic training in the fundamentals of the work, learning the physiology, anatomy and other branches as Dr. Shambaugh teaches them, and then after he has gone through that experience, secure a position in a special hospital and learn the surgical part of it.

Dr. Charles W. Richardson, Washington, D. C.: I have been associated for a number of years with this work of trying to find the best method for the education of specialists in otolaryngology. Dr. Shambaugh is the first one on that committee to be able to carry this work into practical trial, and I do not know of any method that is better than that which he has adopted. We have previously taught men backward. We have been conducting them into the field of surgery and neglecting their proper clinical instruction by failing to give them the advantage of dispensary work. In the special hospital of which I am a staff member, we insist that the interns work in the dispensary. They can do a tonsillectomy, they can operate on the septum or on the sinuses; but take them to the dispensary and they do not know how to depress a tongue properly; they cannot pass a catheter—they cannot do the ordinary, routine things necessary for diagnosis, to say nothing of practical, ordinary treatment. When we see this we cannot praise Dr. Shambaugh too much for his work in this line. Another phase of the subject that is equally important is undergraduate teaching. There is too much teaching of the young man in specialism. In the universities the idea is that we are to teach medicine to the young men in the medical course; we are to make them general practitioners, not specialists. Any man who goes from the benches to specialism is a failure.

Dr. M. A. Goldstein, St. Louis: The old men are essentially clinicians and diagnostic experts. I subscribe to everything Dr. Shambaugh said. He is an altruist, and so am I. I believe that his whole problem is ideal, but in greater part it can be carried out practically. I can count on my fingers the men of the "Old Guard" who are grounded in otolaryngology and in micropathology. Everything in the discussion so far has tended to a consideration of the clinician, the diagnostician and the technical expert; but we must not lose sight of micropathology. That is the fundamental basis on which we should build. Dr. Pierce, who has charge of the Casselberry prize fund, will tell you that there has not been an applicant for that honor. A number of valuable prizes are offered by the three national organizations, but I think that on only one occasion has any prize been given for research work. If we want to compete with the work done abroad, we must ground not only our young men, but also our old men, in the fundamentals, and the fundamentals consist not only of clinical knowledge and diagnosis, but also of micropathology.

DR. NORVAL H. PIERCE, Chicago: I would not have you think that Dr. Shambaugh's training of specialists is a makeshift affair. I assure you that it is very much alive and practical. He is doing very good work with somewhat limited facilities. The whole proposition is founded on the fundamentals. The advances in otolaryngology and the improvement of the practitioners of otolaryngology must come from their fundamental knowledge of the histology, the anatomy and physiology, normal and pathologic, of these organs. I think it is a mistake to divide the two—one-half fundamentals and the other half clinical. I think it would be better to force a man to spend a given length of time on the fundamentals alone, before he takes up the clinical training. The little details of office practice soon wear away the fervor of the otolaryngologist. Unless one has intelligent training back of one, unless one has the dreams of the laboratory to sustain one, one is bound to degenerate. That sustaining imagination starts in the fundamentals, not in the taking out of tonsils and operating on septums. If we are going to gain a place in medicine, it must be through research and investigation. We have funds available, but no one makes any effort to win the prizes. It is deplorable. I do not believe I am wrong when I say that there has not been in this country a single case of otospongiosa or otosclerosis diagnosed during life that has been examined histologically. We are fed from foreign sources. We have become supine because of our lack of courage and training; and, unless this is changed, I do not believe that we can maintain this quasiequilibrium that we have been maintaining for a few years past.

DR. JACQUES HOLINGER, Chicago: The question of the education of specialists and advance of the science of anatomy, physiology and diseases of the ear, nose and throat is a question of money, and of much money. In order to make any real advance and do original work, especially laboratory work, to amount to anything, three things are necessary: a very large clinic with from 10,000 to 12,000 patients a year; a very large, first class laboratory, and good connection with abundant postmortem material which can be had absolutely fresh. Unless one can get these things together, there is no possibility of starting on the fundamental training of specialists. The one year course of Dr. Shambaugh is very nice. However, it will be admitted that instead of one year you could make it three or four years to go through all the phases of anatomy, physiology, embryology, clinic and laboratory work and the operating room. You would come nearer to having specialists who are masters of their branch.

DR. WILLIAM B. CHAMBERLAIN, Cleveland: I want to add my word of commendation to what Dr. Shambaugh has said. Two things confront one in the establishment of such a plant; first, the proper care of the postgraduate student; and, second, the proper care and attention to the undergraduate student at the same time. That is one point which Dr. Shambaugh did not mention and which he has very well cared for. In Class A schools, while we are taking care of the postgraduate students, we must not forget that we are also obligated to undergraduates, and the two cannot be confused. I was glad to see that Dr. Shambaugh laid such stress on the fact that the men were there six months before they were allowed in the operating room. As many of the speakers have said, we have overstressed the technical part, the purely operative training. I have maintained with my students for many years that the technical part of our specialty is the least. We can take any good mechanic, any good machinist, any good carpenter, and make just as good an operating specialist as any of ourselves; but the development of the man in medicine and surgery with medical and surgical judgment is something far more difficult to obtain. For years we have had a universal panacea for stupidity in Cleveland. A visiting nurse examines a stupid child, and sends the child to the nose and throat clinic; his tonsils and adenoids are removed, and he is supposed to return to school one of the most brilliant pupils in his class. Unfortunately, this does not hold true. The diagnosis is made by the visiting nurse, and the operation is done by the specialist under her direction. It would be far wiser if the diagnosis could be made by the specialist, and the operation performed by the visiting nurse. Any Class A medical school can establish such a plant if it has the men with inspiration to do it. The most difficult thing in our postgraduate schools is to provide suitable instructors. Not that we do not have these men; but the men who have the knowledge and the ability are not willing, or cannot afford, to spend the time; whereas, in foreign clinics a large part of the annual stipend comes from association with students.

DR. GILBERT E. SEEMAN, Milwaukee: I have been for some years interested in the medical school of the University of Wisconsin. We now have the problem before us of completing our medical course, and it is a gigantic problem, particularly in the matter of the adjustment of compensation. It is our experience in the university that in the field of medicine, outside the operative field, we have no very great problem in the matter of getting teachers, of obtaining adequately trained men to head departments, at the ordinary professorial salary. But in those fields involving operative work it is our experience, first, that we have difficulty in getting young men adequately trained to take subordinate positions; and secondly, that we cannot get experienced men who are willing to take the professorial salary and head the departments. I think the reason largely lies in the trend in medicine, and particularly in the field of otolaryngology. It seems to me that in recent years it has developed into a matter of tonsil operations in most sections of this country. Young men measure their success, and the success of all men, by the number of tonsils they remove, the number of submucous operations they do, and not at all by the knowledge they have of anatomy and physiology. I am very glad, indeed, to hear an expression of sentiment deploring the condition which exists. The men in this specialty have developed into tonsil operators, and unless the trend is stayed by these older men in the specialty who have the authority to speak, I believe that the specialty of otolaryngology will come on days that will be sad for those men who have tried to prepare themselves adequately in medicine and adequately as specialists in this field.

DR. GEORGE E. SHAMBAUGH, Chicago: It is necessary, first of all, that we arrive at a definite conclusion as to what we should strive for in the matter of preparing men for special practice. What we are advocating for a proper basis for training is the plan that has been accepted as a proper basis for training abroad for many years. The courses which were provided American students abroad were not the courses which their own men took in getting their preparation. They followed the method which I am advocating, namely, serving a period as clinical assistant in a properly conducted department where each man worked out his own salvation. This cannot be accomplished by sitting on benches and listening to some one tell how he did the work. No better illustration of the necessity in this country for more training in diagnoses before men are taught operative technic, can be found than the statistics given in the paper just read by Dr. New, wherein patients had been subjected to operations repeatedly under circumstances in which any properly trained specialist could tell them at once that such operations were entirely useless. I emphasize that too many men limit their preparations to acquiring some operative skill without any proper knowledge of the proper indications for operation. The desirability of stimulating research work has been emphasized by several speakers. This is a very important matter. I am inclined to think that this result will best be accomplished by the establishment of fellowships which will make it possible for younger men who have completed one or two years of this special training to continue advanced work there a year or more. With the long period of medical training now required, unless some special assistance is provided in this way most men are forced to devote their entire time to the problem of making a living.

TUBERCULOSIS AMONG THE EX-SERVICE MEN

WITH A SPECIAL REFERENCE TO ITS BEARING ON PUBLIC HEALTH *

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A general impression apparently prevails among the laity that the incidence of tuberculosis was greatly increased in the United States by the World War. It is not surprising that this idea is current. Care of the disabled has naturally been a matter of general solicitude. Difficulties encountered in providing sanatorium treatment were given wide publicity and sometimes exaggerated. Moreover, the appalling increase in tuberculosis which occurred during the war in most countries of Europe, and which still prevails in Austria and Russia, has become common knowledge. Among all those nations, including some nonbelligerents, whose food supplies were seriously affected and which felt keenly the stress of war and its results, tuberculosis increased, indeed, to an alarming extent. It is natural, therefore, although this country was fortunately spared the pinch of famine, the desolation of invasion and many of the fears, griefs, deprivations and other forms of stress which try the spirit, waste the body and therefore predispose to tuberculosis, that our citizenry should anticipate an increase of tuberculosis here and, in the same pride with which they demanded a place in the fighting line, count their casualties in kind.

It may be recalled that in 1919, when making a forecast of hospital needs, it was estimated by the Public Health Service that approximately 12,000 beds would be required within two years for tuberculous veterans. It is also a fact that by the end of April, 1922, there were 11,346 tuberculous veterans hospitalized at government expense in the United States, as well as considerable numbers receiving compensation for that disability who declined hospital care. The incidence of tuberculosis was, however, only slightly increased in the United States during the war, either among males of military age or any other class of population. The forecast of hospital needs referred to above, which has proved to be approximately correct, was made merely in accordance with the known incidence of tuberculosis among the general population in the age groups concerned. A glance at the curve (Fig. 1) shows how sensitive the tuberculosis mortality is to collateral influences. The slight but perceptible rise in 1916 and 1917 is presumably due to the increase in living costs or perhaps, more exactly, the degree to which this increase exceeded that in wages or other rewards for production. To these causes must be added in 1918 that of the epidemic of influenza. There seems little doubt that these increases were not related to actual participation in the war.

The curve (Fig. 2) comparing the mortality rates of 1915 and 1920, shows a marked postwar decline in tuberculosis mortality which is even more marked among males, including those of military age, than among females. It is, I think, generally accepted that the incidence of tuberculosis in any country, in both sexes and at every age except infancy and childhood alone, reflects with great precision the living and industrial conditions prevailing. It is therefore not strange that tuberculosis was not increased among our troops, who were generally well fed, well housed, and well clothed, or, except to a very slight degree, among the population as a whole.

The War Risk Insurance Act of Oct. 6, 1917, promised hospital care to disabled veterans, but made no provisions for the construction or operation of hospitals, nor did it name the agency whereby the proposed care was to be provided. It was, of course, impossible to reckon at that time with the desire which manifested itself, as soon as the armistice was signed, for discharge from military and naval service. This prevented extensive use of military and naval hospitals for discharged men, who usually evidenced a distaste for all things connected with military life. It was a perfectly natural reaction, considering the psychology of the situation, and one which in no way reflects upon the excellent treatment provided by the Navy and Army hospitals.

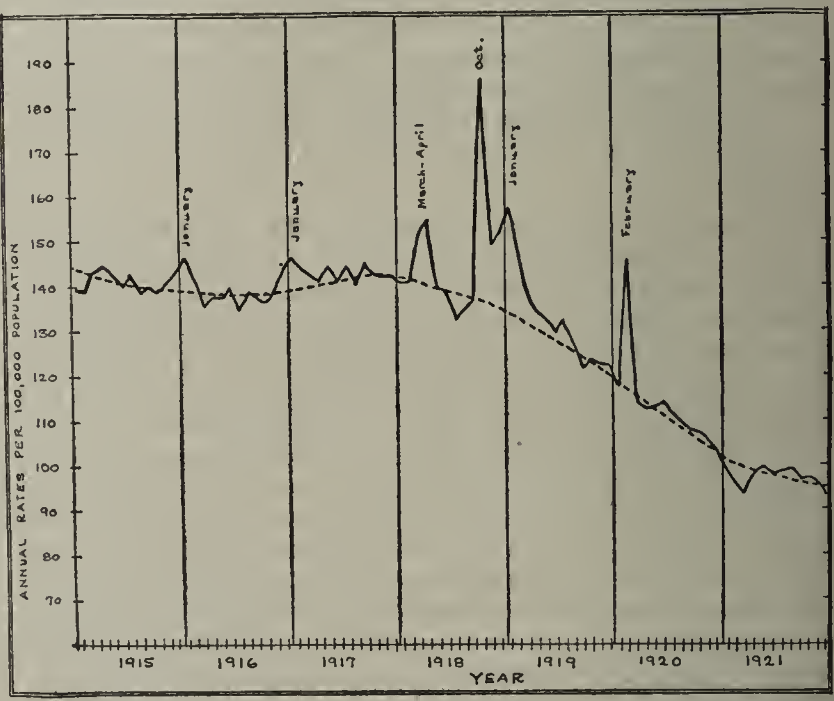

Fig. 1.—Recent decline in mortality from all forms of tuberculosis; monthly rates from 1915 to 1921 in twenty-four states (in 1921, provisional data for only fifteen states were available), normal seasonal variation having been eliminated.

It was not, therefore, until March 3, 1919, that by act of Congress the Public Health Service was named as the principal agency whereby hospital and medical care was to be provided. The emergency was serious. To place a properly trained physician in each city or large town in all parts of the United States, to find hospital beds for the widely scattered disabled veterans who applied for examination and treatment in all parts of the United States, and to equip, man and operate

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such institutions in various parts of the country as could be converted to hospital use—these were some of the urgent problems that arose. The tuberculosis patients caused considerable concern, and it was early apparent that the emergency hospital provision was at once necessary. Congress, in failing to act favorably on the recommendations contained in House Document 481, which was transmitted by the Secretary of the Treasury, Dec. 8, 1919, reflected the idea, not wholly extinct among medical men, that permanent hospitals are not necessary for the treatment of tuberculosis. The estimates made in House Document 481 provided for the construction, among other institutions, of nineteen hospitals for tuberculosis, with an aggregate capacity of 9,330 beds, at an approximate cost of $32,500,000. This was for tuberculosis hospitals alone. The plan contemplated the construction of permanent institutions located near the centers of population to be served. It visioned ample grounds, with lawns and trees, and restful environments in salubrious but not isolated places. Unfortunately, however, the treatment of tuberculosis became associated in its early history with the tent, the shack, the lean-to, with life in the open under primitive conditions. The early advice, "Go West, and rough it," was recalled. It was necessary to explain again and again that a tuberculous patient needs highly specialized care, calling for modern hospital facilities. It was necessary for this conviction to find place gradually, and for public sentiment to lead the way to the necessary appropriations.

TABLE 1.—MORTALITY FROM TUBERCULOSIS IN THE UNITED STATES. 1915 AND 1920 *

Age Period (Years)	Death Rate per 100,000 Males		Death Rate per 100,000 Females		Per Cent. Decrease in Mortality in 1920 Over 1915	
	1915	1920	1915	1920	Males	Females
All forms:						
All ages......	156.1	117.2	124.4	107.8	24.9	13.3
Under 5......	84.5	62.5	77.2	53.9	26.2	30.2
5- 9.........	22.6	18.6	22.9	18.7	17.7	18.3
10-19.........	49.6	39.3	76.1	68.9	20.8	9.5
20-29.........	186.3	134.5	184.3	172.2	27.8	6.6
30-39.........	240.7	173.0	183.1	153.2	28.1	16.3
40-49.........	263.9	189.0	152.4	125.6	28.4	17.6
50-59.........	252.9	198.2	134.1	119.3	21.6	11.0
60-69.........	248.4	216.6	158.7	138.7	12.8	12.6
70 and over..	220.2	193.5	193.4	162.8	12.1	15.8
Pulmonary tuberculosis:						
All ages......	136.0	102.9	107.5	94.1	24.3	12.5
Under 5......	25.8	21.2	25.7	18.2	17.8	29.2
5- 9.........	7.9	7.0	9.9	8.9	11.4	10.1
10-19.........	40.3	31.6	66.8	60.2	21.6	9.9
20-29.........	171.2	124.6	171.8	160.8	27.2	6.4
30-39.........	225.1	162.6	169.9	143.2	27.8	15.7
40-49.........	245.1	177.1	140.2	113.9	27.7	18.7
50-59.........	234.1	184.1	120.4	106.9	21.4	11.2
60-69.........	226.1	199.5	141.7	125.3	11.8	11.6
70 and over..	196.3	177.8	173.9	141.5	9.4	18.6

* Specific death rates per hundred thousand for males and females compared for 1915 and 1920 in twenty-four registration states, with percentages of decrease; on revised intercensal population estimates for July 1, 1915, and July 1, 1920, but using the 1915 sex and age distribution. The twenty-four states are those constituting the death registration area in 1915. Acknowledgments are made to Dr. W. H. Davis, Chief Statistician for Vital Statistics, Bureau of the Census, for the use of mortality data from original tabulation sheets.

As an evidence of the difficulties encountered at one critical period, it may be mentioned that on Dec. 24, 1919, the President approved the amendment to the War Risk Insurance Act, which increased the allowance for total temporary disability from $30 to $80 a month. On the same day, in anticipation of an increased number of claimants, the Public Health Service solicited the assistance of the American Legion to find additional hospital accommodations for tuberculous patients, believing that the criticism which the government was at that time facing might be in part ameliorated or its cause mitigated by concerted effort of the comrades of those needing treatment, to find hospitals suitable for their care. The Legion, in response, sent out requests from its headquarters to posts in all parts of the United States, and its members cooperated with our field officers to the desired end. A glance at the chart will show the extent to which contract hospitals were utilized in this very trying period. We are all familiar with the criticisms which arose concerning their use. I have no apologies to make. The institutions were representative of the medical care prevailing in the respective communities at that time. Some of the institutions were excellent. Others were unsuitable, and these were abandoned as rapidly as their unsatisfactory condition was determined by the district inspectors detailed for the duty. Whether it would have been better for the federal government to arrange with state sanatoriums and those operated by other political units for the care of all tuberculous patients in this manner is open to question. The plan had many advocates among members of the National Tuberculosis Association. A plan whereby such hospitals might have been enlarged by federal funds for tuberculous veterans was foredoomed to failure because of the distaste evidenced on every

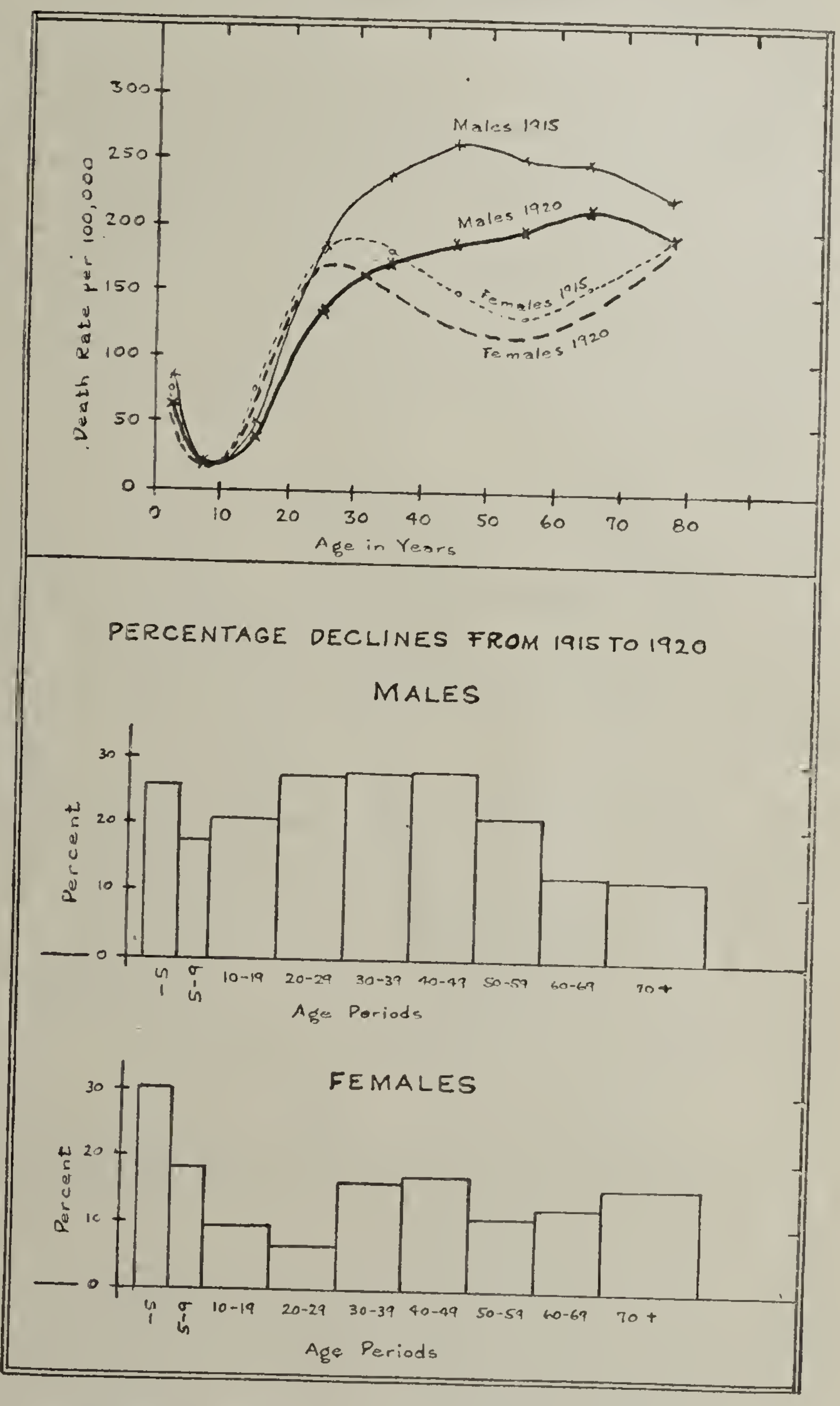


Fig. 2.—Specific death rates for all forms of tuberculosis in twenty-four registration states compared for 1915 and 1920.

hand to the admission of veterans to any hospital which cared for free patients, or, according to the vernacular, "charity patients." Objections were made to the use of state sanatoriums, county sanatoriums, and such excellent institutions as Oak Forest in Chicago, Seaview Hospital in New York City, and the Branch Hospital in Cincinnati. There appeared, therefore, no choice but to proceed with the development of temporary hospitals for which some funds were provided but which, according to the law, could not be used for permanent construction.

The character of the temporary army hospitals of the cantonment type is too well known to merit a description. The widely separated, one story wards, the connecting corridors with numerous inclines, the numerous heating units, the fire risks, the difficulty of supplying hot food, are well known. The sagging foundations, warped floors and leaky roofs of these temporary buildings were eloquent allies at a time when it was necessary to plead for new hospitals. Some of the attacks made upon the government, notably in the case of the Fox Hills Hospital, were, possibly, not wholly devoid of a well-meant but ill-advised effort to force the appropriation of necessary funds to build permanent institutions.

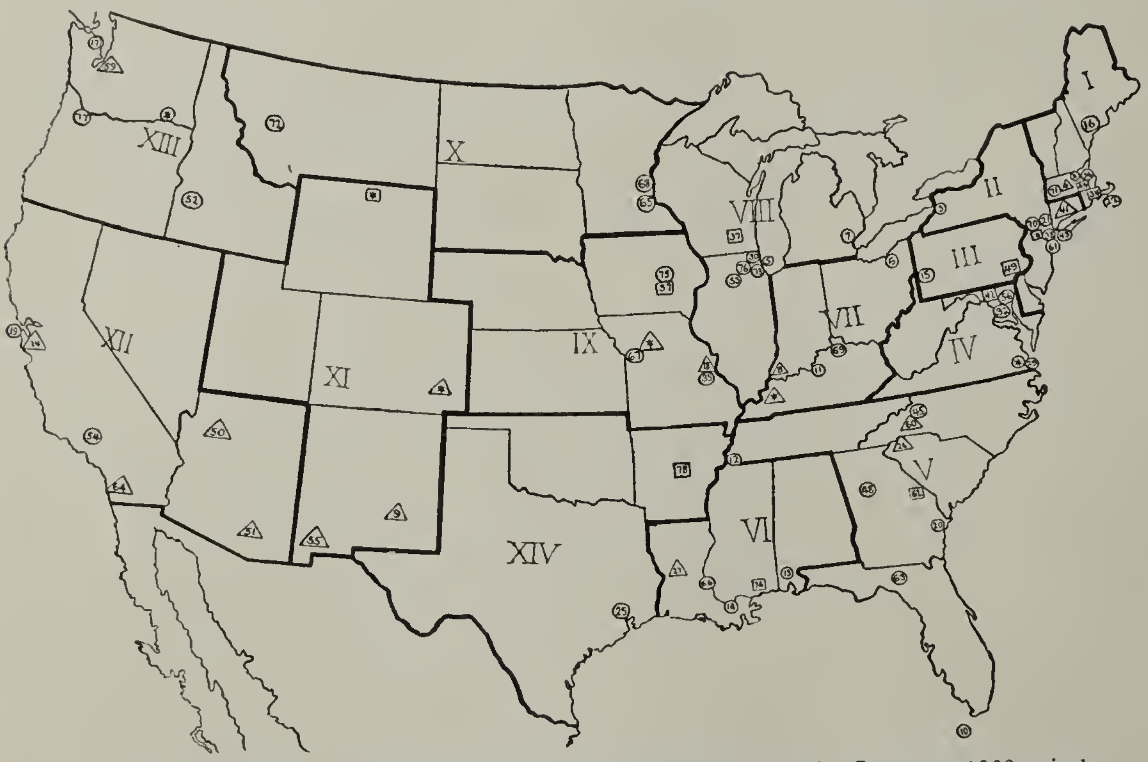


Fig. 3.—Location of United States Public Health Service Hospitals, January, 1922: circles indicate general hospitals; triangles, tuberculosis hospitals; squares, neuropsychiatric hospitals, the numbers being definitely located in Table 3.

The tuberculosis hospitals taken over from the Army, in addition to those at Markleton, Pa., and Deming, N. M., which were abandoned as unsatisfactory as soon as more suitable hospitals had been obtained, were:

No. 24, Palo Alto, Calif., 650 beds.
No. 26, Greenville, S. C., 700 beds.
No. 27, Alexandria, La., 600 beds.
No. 41, New Haven, Conn., 500 beds.
No. 50, Prescott, Ariz., 765 beds.
No. 55, Fort Bayard, N. M., 1,120 beds.
No. 60, Oteen, N. C., 1,100 beds.
No. 64, Camp Kearney, Calif., 550 beds.

To supplement these, a temporary hospital of 290 beds, intended chiefly for winter use, was established at Tucson, Ariz., at Pastime Park, cottages built from salvaged lumber supplementing the existing buildings. The abandoned Indian School at Tacoma, Wash., was also converted into a temporary hospital of 278 beds. One of the difficulties in operating hospitals of this group was the lack of quarters for personnel. The Public Health Service has a corps of commissioned officers, but lacks an enlisted personnel. Its employees are all civilians who may leave at will and whose contentment is often conditioned on the presence of their families, of schools, social advantages, and other refinements of living not demanded or expected under military conditions. From the patients' point of view it must also be admitted that the gloomy outlook afforded by the war time buildings, now four years old, is depressing.

From the beginning of the work by the Public Health Service, the hospitalization and the transfer of patients was, so far as possible, decentralized. A disabled soldier coming under observation at any point in the field and found to be in need of hospital care was immediately offered it, if not in one operated by the government, then in the best contract hospital available. According to a custom which has prevailed in the Public Health Service for more than a hundred years, tuberculous patients are routinely admitted as a temporary measure to any of its general medical and surgical hospitals. The tuberculosis wards in our hospitals in Boston, New York, Baltimore, Chicago and other large cities, which were important clearing stations, often contained several hundred patients each. The tuberculous patients at Fox Hills, indeed, sometimes outnumbered all others. The resolution which the American Medical Association adopted at the Boston session last year, advocating this practice for civil hospitals, has served to disarm unjust criticism and to strengthen the government in a useful practice. Your action, therefore, wisely taken in the general interests of public health everywhere, has served the government in a trying administrative problem.

The demand for climatic change was another heritage from an earlier generation. Tuberculous patients and their friends demanded a transfer to special climates from northern, southern, eastern, western and central portions of the United States. The spirit of restlessness engendered by the war was manifest. As a further evidence of this, a popular report is current that 25,000 tuberculous ex-soldiers are found to have migrated to Colorado alone, only 2 per cent. of the hospital patients coming under observation in that state being natives of Colorado. It was necessary to refuse many unwise requests for the removal of tuberculous patients, unsuited by reasons of physical condition, from hospitals where they were under treatment to other hospitals in the arid Southwest. So far as I am aware, however, there are no instances in which a sick man in any part of the United States was not provided with or at least offered hospital care, of the standard prevailing in that community, without more than a few days' delay. The most insistent demands were made for the transfer of terminal cases. "Give this dying man a chance" was a frequent expression typical of the character of requests daily received. It was exceedingly difficult and sometimes futile to attempt to explain that the importance thus attributed to climatic influence is out of harmony with modern scientific thought, nor was the problem rendered easier by the fact that large numbers of reputable physicians throughout the country appeared to entertain views long since believed obsolete.

The hospitals devoted to the care of veterans were manned almost exclusively by personnel from the military and naval forces. Medical officers, nurses, reconstruction aides, dietitians and laboratory technicians were almost without exception with military experience, many of them having served overseas. All, therefore, were well prepared to sympathize fully with the needs of their patients. The American Legion is well represented in membership among both patients and personnel, and at some of the hospitals the local post constitutes the largest in the community, and sometimes the largest in the state.

It need cause no surprise that special training in tuberculosis for officers was necessary. The lack of adequate instruction in this specialty in most medical schools is well known, while the exclusion of tuberculous patients from general hospitals, a still all too common custom, and the practice of sending tuberculous patients "away" have combined to alienate the average physician from a knowledge of tuberculosis. The excellent Army schools in tuberculosis which were conducted under the auspices of Col. George E. Bushnell, Retired, had trained a considerable number of Army medical officers, some of whom continued on duty with the Public Health Service. With these and a few other skilled men as a nucleus, the training of a sufficient number of medical officers was undertaken to provide proper care for patients in hospitals. A summer school was conducted at Oteen, and numerous short courses in diagnosis held at various places, every tuberculosis hospital being required to give its medical personnel a prescribed course in training which, during the last three years, has naturally been applied to a considerable number of medical officers stationed therein or assigned for the purpose. Dr. Palmer, who, together with Dr. Boswell, has consented to discuss my subject, is one of the five experts who were engaged to visit our tuberculosis hospitals to assist in establishing a suitable standard of treatment and to strengthen weak points. Since he visited more hospitals and visited them oftener than the others, he is perhaps better qualified than any other person to tell impartially, just as he told me in his official reports, the facts about the hospitals as he found them.

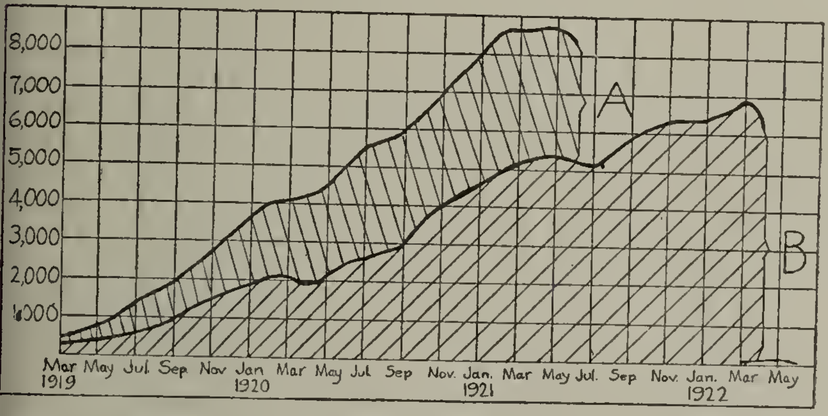


Fig. 4.—Hospital care of tuberculous veterans of the World War, U. S. Public Health Service, March, 1919, to June, 1922; patients in army, navy and soldiers' home hospitals not included. *A*, contract and other institutions; responsibility and control transferred to the U. S. Veterans' Bureau, June, 1921. *B*, Public Health Service hospitals; administration of veterans' hospitals transferred to U. S. Veterans' Bureau by executive order, April 29, 1922.

It is not possible to tabulate the tuberculosis patients with respect to the stage of disease in which they were admitted, these figures not being available at the present time. Many were admitted with doubtful diagnosis, claiming compensation for and giving a history of symptoms which indicated tuberculosis. Some of these had been exposed to war gases or were convalescent from epidemic pneumonia. In all, approximately 65,000 veterans were admitted to hospitals, including both government and civil institutions, up to May 1 of this year. It early become necessary to differentiate between patients having tuberculosis for which they required treatment and those with healed or quiescent tuberculosis which did not require hospital care. Numbers of patients were discharged within a few weeks after admission, a board of properly qualified medical officers having determined that they were nontuberculous, in a clinical sense.

TABLE 2.—HOSPITAL ACTIVITIES OF PUBLIC HEALTH SERVICE

Veterans admitted to hospital	264,000
Hospital relief days	14,397,500
Outpatient (dispensary) treatments	2,042,200
Physical examinations	1,459,200
Note—The normal hospital operations of the Public Health Service, in providing relief for merchant seamen and its other beneficiaries in the twenty-five marine hospitals still remaining, amounted last year (one year only) to the following:	
Old line patients admitted to hospital	44,756
Hospital relief days	1,121,171
Physical examination	79,759

While final statistics have not been published, the general impression prevails that war gases were not an important cause of clinical tuberculosis. In this connection, the following observation made by the Surgeon General of the Army in a recent report is pertinent: "In the year 1918 there were one and one-half times as many cases of tuberculosis per thousand among all troops in France as there were among those gassed, and in 1919 there were more than one and three-fourths times as many tuberculosis cases per thou-

TABLE 3.—LOCATION OF UNITED STATES PUBLIC HEALTH SERVICE HOSPITALS

No.	Location	No.	Location
2	Boston	49	Philadelphia
3	Buffalo	50	Prescott, Ariz.
5	Chicago	51	Tucson, Ariz.
6	Cleveland	52	Boise, Idaho
7	Detroit	53	Dwight, Ill.
8	Evansville, Ind.	54	Arrowhead Springs, Calif
9	Fort Stanton, N. M.	55	Fort Bayard, N. M.
10	Key West, Fla.	56	Baltimore
11	Louisville, Ky.	57	Knoxville, Iowa
12	Memphis, Tenn.	59	Tacoma, Wash.
13	Mobile, Ala.	60	Oteen, N. C.
14	New Orleans	61	Staten Island, N. Y.
15	Pittsburgh	62	Augusta, Ga.
16	Portland, Me.	63	Lake City, Fla.
17	Port Townsend, Wash.	64	Camp Kearney, Calif.
18	St. Louis	65	St. Paul
19	San Francisco	66	Carville, La.
20	Savannah, Ga.	67	Kansas City, Mo.
21	Stapleton, N. Y.	68	Minneapolis
22	Vineyard Haven, Mass.	69	Fort Thomas, Ky
24	Palo Alto, Calif.	70	New York
25	Houston, Texas	71	Sterling Junction, Mass.
26	Greenville, S. C.	72	Helena, Mont.
27	Alexandria, La.	73	Chicago
29	Norfolk, Va.	74	Gulfport, Miss.
30	Chicago	75	Colfax, Iowa
32	Washington, D. C.	76	Maywood, Ill.
34	East Norfolk, Mass.	77	Portland, Ore.
35	St. Louis	78	North Little Rock, Ark.
36	Boston	*	Sheridan, Wyo.
37	Waukesha, Wis.	*	Dawson Springs, Ky.
38	New York	*	Walla Walla, Wash.
41	New Haven, Conn.	*	Excelsior Springs, Mo.
42	Perryville, Md.	*	Las Animas, Colo.
43	Ellis Island, N. Y.	*	(Bronx) New York
44	West Roxbury, Mass.	*	Norfolk, Va.
45	Biltmore, N. C.	*	Rutland, Mass.
48	Atlanta, Ga.		

* The asterisks and the numbers are reproduced on the map (Fig. 3).

sand among all troops as there were among the gassed troops."

The mental attitude of patients is indicated in some measure by the fact that out of 9,200 patients discharged from service hospitals between July 1, 1921, and May 1, 1922, 3,132, or more than one third, left against advice and without permission, treatment not having been completed. Those discharged for disciplinary reasons during the same period numbered 189. Many of these patients, presumably, sought readmission to other hospitals in accordance with the spirit of unrest which still prevails, although to a less degree than formerly, among ex-service men. The frequency of departures from the hospital against medical advice has been ascribed in part by experienced hospital executives to the custom whereby the Veterans' Bureau provides transportataion home for those so departing for the first time. Homesick men, at some distance from their friends, and finding sanatorium regimen irksome, are tempted to take advantage of this opportunity to return to their families. Men also who have at their own expense unwisely sought climatic treatment at distant places may enter the nearest government hospital, even for the express purpose of claiming transportation home. It is somewhat significant that the small temporary hospital at Tucson, Ariz., with a capacity of less than 300 beds, discharged 488 against advice between March 15, 1920, and April 23, 1922, which is more than half of its total discharges during that period. This hospital is one to which, with few exceptions, no transfers are made by the government, as it is merely an emergency hospital for ex-service men found in Tucson in need of medical care.

Special treatments, including induced pneumothorax, heliotherapy, both natural and artificial, occupational therapy, including physiotherapy, and vocational training as applied therapeutic exercise, were encouraged in all the tuberculosis hospitals. Some of the best results in tuberculous laryngitis were obtained at hospitals in the arid Southwest with sunlight and silence. Some research work related to the presence of small pneumothorax as a common but hitherto unrecognized accompaniment of active pulmonary tuberculosis was carried out at New Haven by Surgeons Barlow and Thompson, the results of which will shortly be published as a bulletin of the Hygienic Laboratory. The number of cases of bone and joint tuberculosis coming under observation has been rather surprising, approximately 3 per cent. of tuberculous patients admitted to hospital having nonpulmonary disease. Of these, approximately two thirds had involvement of the bones and joints.

Remembering that approximately one third of all veteran hospital patients are the tuberculous, an idea of the operations relating to this class may be obtained from the summary of the total hospital activities of the Public Health Service during the three years since the work was undertaken, given in Table 2.

The medical work which the Public Health Service was called on to perform for the Bureau of War Risk Insurance and its successor, the U. S. Veterans' Bureau, is now history. The field organization, including the fourteen district supervisors' offices and their subagencies reaching practically into every county of the United States, was turned over in June, 1921. The control of contract hospitals was relinquished also at that time. The Veterans' Bureau, having further perfected its organization, finally felt itself ready to assume the administration of the veterans' hospitals, which were accordingly turned over to Director Forbes by executive order, May 29, 1922. This transfer consisted of fifty-seven hospitals, with 17,500 beds, 13,057 patients (of whom 5,271 were tuberculous), and a personnel of 11,347, including 925 physicians and dentists, 1,425 nurses, 425 reconstruction aides, and 110 dietitians. I take this occasion to pay public tribute, before a body which has ever honored fidelity, to the professional men and women who, having been identified with the organization and operation of these hospitals for many months during very trying periods, were transferred from the Public Health Service to the Veterans' Bureau for continued duty of the same character. Their loyalty has been instant and unvarying, their patience untiring, their zeal unflagging, and their devotion unfailing in the cause of the disabled veteran and the government, whose obligations they strive to fulfil.

ABSTRACT OF DISCUSSION

Dr. Henry Boswell, Sanatorium, Miss: There are a number of tuberculous soldiers in this country, for the ex-soldiers are breaking down very rapidly. I should like to emphasize that in the state of Mississippi, where we examine all soldiers and civilians, we are not having any more ex-soldiers with tuberculosis than we find in the civilians, of like age group. With reference to the isolation of these men and their care, we should try in every possible way to establish scientific institutions for the treatment of tuberculosis and to get out of the minds of the civilian population the idea that tuberculosis can be successfully handled in tents and shacks. One certainly does not get results in tents and shacks. About three years ago I made a survey of the institutions of North America in order to arrive at some solution of the problem. I found that like institutions well built with scientific equipment got like results no matter where located, except in the state of Maine. There, perhaps, the difference was due to the long period of cold weather. The only other thing I should like to mention is the constant demand by the people on the medical profession to change soldiers from one place to another. I remember one case which Dr. Cumming's paper brought to mind, in which we had considerable trouble in getting the patient's relatives to leave him with us. He had an acute miliary tuberculosis. His people succeeded in getting him transferred, and he died on the train somewhere in Colorado before he reached Fort Bayard.

Dr. H. A. Pattison, New York: Through the courtesy of Dr. Cumming and the heads of other executive departments of the government, it has been the great opportunity and privilege of the National Tuberculosis Association to cooperate with the government in developing facilities for the care and treatment of tuberculous ex-service men. As supervisor of the medical service of the national association, it has been my lot to do a considerable part of the work. I had the opportunity to look into every corner of many of the Public Health Service sanatoriums, and of seeing how the Public Health Service found itself when, without adequate equipment, this great problem was forced on it. Without adequate legislation, physical equipment or sufficient appropriations, thousands of sick men were thrown on it suddenly. I should like to pay sincere tribute to the executive departments in Washington and to our medical and nursing friends in the hospitals for their devoted work in carrying on under great difficulties. Before the congressional committee, headed by Senator Walsh, I answered the question as to the reasons for these serious difficulties by saying that I considered them due to definitive and restrictive legislation. The committee agreed with me, and the country was assured that very shortly Congress would dispose of that by legislation, making it possible to meet the situation. As an example of the difficulty in the cantonment hospitals, take Palo Alto, Calif. The California laws do not permit of the barring or screening of any windows even in one-story frame buildings. It is therefore impossible to control the neuropsychiatric patients, who have ready access to narcotic and liquor pedlers when their compensation checks arrive. On the other hand, at Boise, Idaho, where there is better supervision, we have one of the best equipped and managed hospitals of this country in charge of the Public Health Service. At Greenville, with an old broken-down cantonment base hospital and the buildings painted in every conceivable color, there was splendid morale and splendid work being done under the most adverse conditions. The President recently transferred from the Public Health Service to the Veterans' Bureau about thirty-nine hospitals. The Veterans' Bureau has not had the hospital experience of the Public Health Service. Only time will tell whether the Veterans' Bureau will go on with the splendid work the Public Health Service has been conducting, or whether we shall have just domiciliary care rather than real treatment.

Dr. J. J. Singer, St. Louis: Dr. Cumming brought out some very important points in relation to tuberculosis surveys of the general public. In one of his charts he states that the adjusting of conditions is reflected in the mortality of tuberculosis. This was very evident during the war period, at which time the death rate seemed to have diminished, though in the last few years it has somewhat increased. The Public Health Service has brought out, to my mind at least, and answers the question of whether tuberculosis is a medical disease or whether it is a public condition, a medical problem or a social problem. I have seen a large number of cases diagnosed as tuberculosis and the patients given a pension of from $30 to $80 a month. Those are the patients who have been doing well. Those are the patients who have not gone out to work, but have stayed at home or gone to private hospitals or physicians. The strain of providing for themselves has been removed. If the Public Health Service has done nothing else but this, its work is worth while. The second point that the Public Health Service has brought out is the training of physicians in tuberculosis diagnosis. To those working in tuberculosis it is generally recognized that early recognition must be done by the general practitioner. The Public Health Service has turned out innumerable men all over the country who are trained in a tuberculosis clinic, and in that way they serve the cause.

Dr. H. S. Cumming, Washington, D. C.: We have been trying to educate the average physician to the work in tuberculosis by establishing a school at Oteen, N. C. I hope that the physicians will continue to be interested in one of the greatest public health measures.

THE ANESTHETIC PROPERTIES OF PURE ETHER *

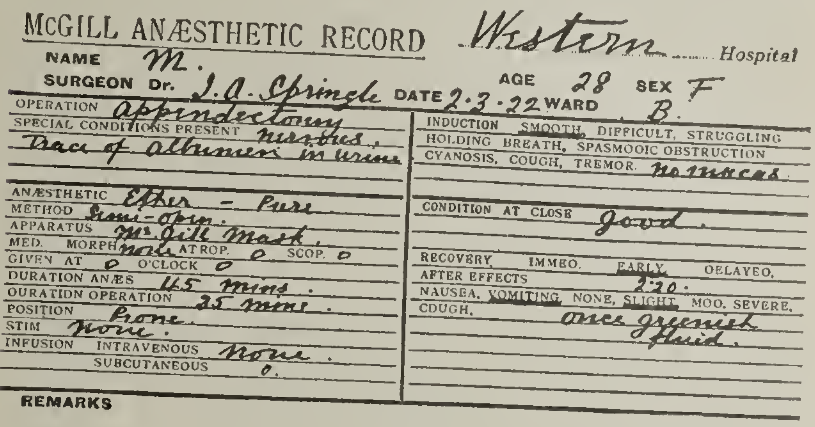
RAYMOND L. STEHLE, M.A., Ph.D.
AND
WESLEY BOURNE, M.D., C.M.
MONTREAL

At least twice within the last few years it has been reported that pure ethyl ether is not an anesthetic, and that the physiologic action ordinarily attributed to this compound is due to impurities contained in the commercial material. According to Cotton,[1] carbon dioxid may be the active agent in some ethers; but this investigator reported that he had obtained the best results by the use of ether containing ethylene and possibly another gas of unrecognized nature. According to Wallis and Hewer,[2] ketones are the most important impurities, though they state that the anesthetic action of ether is enhanced by treating it with carbon dioxid and ethylene. The lack of chemical details in the papers of Cotton and of Wallis and Hewer is unsatisfactory.

The foregoing statements appeared to warrant further investigation. All commercial ether today is manufactured by the Williamson sulphuric acid-alcohol process. The reaction is such that side reactions may occur, the products of which may contaminate the main product and therefore lend some degree of plausibility to the claims mentioned. A different method of preparing ether, therefore, was adopted. Instead of the sulphuric acid process, a general reaction well known to organic chemists was employed. It consisted in bringing sodium ethylate and ethyl iodid together in alcoholic solution, whereupon the following reaction occurs:

$$C_2H_5ONa + C_2H_5I = C_2H_5OC_2H_5 + NaI$$

The sodium iodid precipitates and the ether is separated from the alcohol by fractional distillation. The possibility of side reactions occurring is not obvious, and the product may be assumed to be quite pure. *A priori,* the possibility of contamination with aldehyds and ketones is practically eliminated because, in preparing the sodium ethylate, the hydrogen generated when the metal was dissolved in the alcohol would have reduced any aldehyds and ketones present to alcohols. In order to serve as a check, however, the ether obtained was analyzed quantitatively for ethylene, while qualitative tests for aldehyds and ketones were performed.



McGILL ANÆSTHETIC RECORD Western Hospital
NAME M.
SURGEON Dr. J. A. Springle DATE 2·3·22 AGE 28 SEX F WARD B.
OPERATION Appendectomy
SPECIAL CONDITIONS PRESENT nervous. Trace of albumen in urine
ANÆSTHETIC Ether - Pure
METHOD Semi-open.
APPARATUS McGill Mask.
MED. MORPH. none ATROP. 0 SCOP. 0
GIVEN AT 0 O'CLOCK 0
DURATION ANÆS 45 mins.
DURATION OPERATION 25 mins.
POSITION Prone.
STIM None.
INFUSION INTRAVENOUS None.
SUBCUTANEOUS 0.
REMARKS
INDUCTION SMOOTH, DIFFICULT, STRUGGLING
HOLDING BREATH, SPASMODIC OBSTRUCTION
CYANOSIS, COUGH, TREMOR. no mucus
CONDITION AT CLOSE Good.
RECOVERY, IMMED. EARLY, DELAYED.
AFTER EFFECTS 2:20.
NAUSEA, VOMITING, NONE, SLIGHT, MOD. SEVERE.
COUGH. once greenish fluid.

Fig. 1.—Details of Case 2.

W. Bourne
ANÆSTHETIST

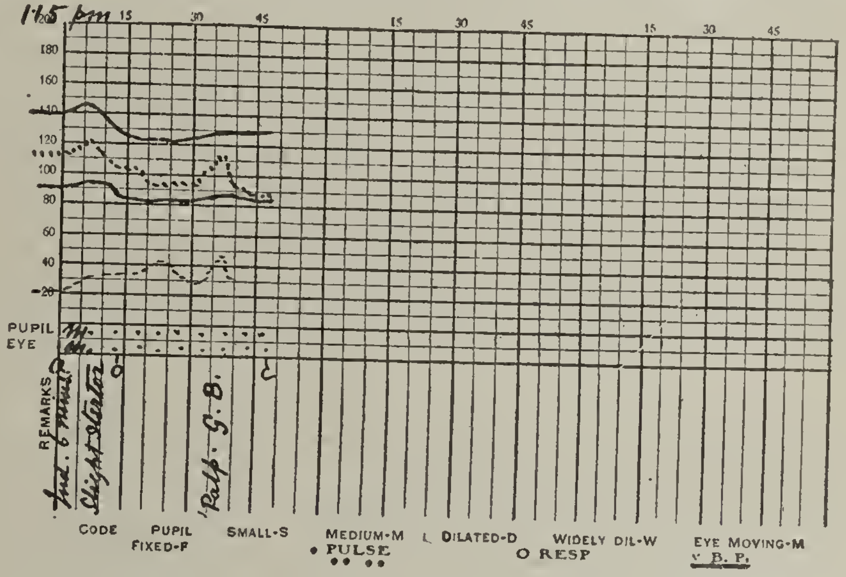


Fig. 2 (back of card illustrated in Figure 1).—Curves of blood pressure, heart rate and rate of respiration.

For the ethylene test, 2 c.c. of the ether in question was dissolved in tetrachlormethane, and 10 c.c. of an approximately third-normal bromin solution was added. The mixture, in a stoppered bottle, was placed in the dark for eighteen hours to give opportunity for any ethylene present to absorb bromin. At the end of

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*From the Laboratory of Pharmacology, McGill University.
*The expenses of this investigation were borne in part by the James Cooper Endowment.

[1] Cotton, J. H.: Canadian M. A. J. 7: 769 (Sept.) 1917.

[2] Wallis, R. L. M., and Hewer, C. L.: Lancet 1: 1173 (June 4) 1921.

the reaction, the residual bromin was determined by titrating the mixture with a standard thiosulphate solution. Assuming that all of the bromin not recovered was taken up by ethylene, the maximum amount which could have been present in the ether was 0.04 per cent. It is likely that the amount was smaller than this, since some or all of the bromin may not have been taken up by ethylene, but may have substituted for hydrogen in the ether. Schiff's test for aldehyds (restoration of red color to a fuchsin solution decolorized with sulphur dioxid) was negative, as was the nitroprussid test for acetone and for methyl ketones in general. Other ketones than the methyl ketones do not give the nitroprussid reaction, but all of them are excluded because of their high boiling points (the simplest, diethyl ketone, boils at 103 C). They would have been eliminated in the fractionation process.

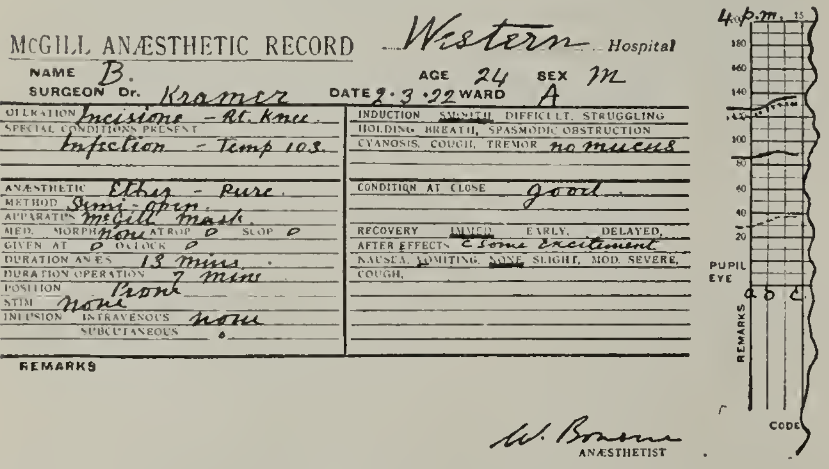
MCGILL ANÆSTHETIC RECORD Western Hospital
NAME B. AGE 24 SEX M
SURGEON Dr. Kramer DATE 2·3·22 WARD A
OPERATION Incisione – Rt. Knee.
SPECIAL CONDITIONS PRESENT Infection – Temp 103.
ANÆSTHETIC Ether – Pure.
METHOD Semi-open.
APPARATUS McGill Mask.
MED. MORPH none ATROP 0 SCOP 0
GIVEN AT 0 O'CLOCK 0
DURATION ANÆS 13 mins.
DURATION OPERATION 7 mins
POSITION Prone
STIM none
INFUSION INTRAVENOUS none
SUBCUTANEOUS
INDUCTION [✓ SMOOTH], DIFFICULT, STRUGGLING
HOLDING BREATH, SPASMODIC OBSTRUCTION
CYANOSIS, COUGH, TREMOR no mucus
CONDITION AT CLOSE good.
RECOVERY [✓ IMMED.] EARLY, DELAYED,
AFTER EFFECTS c̄ some Excitement
NAUSEA, VOMITING, [✓ NONE], SLIGHT, MOD. SEVERE,
COUGH,
REMARKS
W. Bourne
ANÆSTHETIST

Fig. 3.—Findings in Case 3.

A small amount of ethyl iodid was present in the ether. This was evident after exposing the product to bright sunlight for a few days, which caused it to take on a light amber color because of the liberation of iodin.

Being satisfied that the ether prepared was suitable to decide the question at issue, we subjected its anesthetic properties to experiment. An albino rat was the first object on which its action was tried. When placed in a jar together with 1 c.c. of the ether, the animal became anesthetized almost immediately, and on removal from the jar recovered quite as fast as it had succumbed. The remainder of the small quantity which was obtained in the preliminary trying out of the method of preparation was administered to a female patient weighing 245 pounds (111 kg.) and being operated on for a large ventral hernia. Induction took place in four minutes, that is, anesthesia was brought to the first stratum of the third stage. This depth was maintained there ten minutes when, as we had no more of the material, a change was made to one of the commercial ethers.

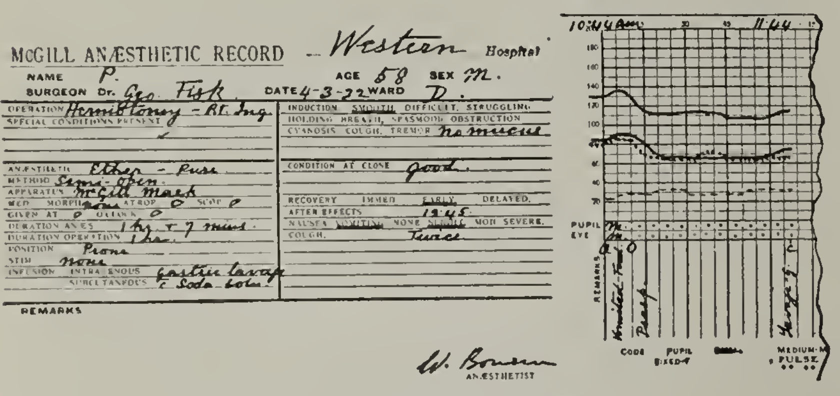
MCGILL ANÆSTHETIC RECORD Western Hospital
NAME P. AGE 58 SEX M.
SURGEON Dr. Geo. Fisk. DATE 4-3-22 WARD D.
OPERATION Herniotomy – Rt. Ing.
SPECIAL CONDITIONS PRESENT
ANÆSTHETIC Ether – Pure
METHOD Semi-open.
APPARATUS McGill Mask
MED. MORPH none ATROP 0 SCOP 0
GIVEN AT 0 O'CLOCK 0
DURATION ANÆS 1 hr. + 7 mins.
DURATION OPERATION 1 hr.
POSITION Prone
STIM none
INFUSION INTRAVENOUS gastric lavage
SUBCUTANEOUS c̄ Soda Sol.
INDUCTION [✓ SMOOTH], DIFFICULT, STRUGGLING
HOLDING BREATH, SPASMODIC OBSTRUCTION
CYANOSIS, COUGH, TREMOR no mucus
CONDITION AT CLOSE good.
RECOVERY IMMED. [✓ EARLY.] DELAYED.
AFTER EFFECTS 12·45.
NAUSEA, [✓ VOMITING], NONE, [✓ SLIGHT], MOD. SEVERE.
COUGH, Twice
REMARKS
W. Bourne
ANÆSTHETIST

Fig. 4.—Details of Case 4.

A larger quantity of the ether was then prepared (about 1½ pounds), and this was used in five additional cases which were chosen miscellaneously. In none of them was there any preliminary alkaloidal medication, such as the administration of morphin and atropin. The McGill modification of the Ferguson mask was used. All five patients expressed comfort during the induction period, which lasted from four to six minutes, and which was marked (except for a quite negligible amount of vomiting of food in Case 4 just before the start of the operation) by the absence of any signs of irritation, such as lacrimation, salivation, mucous formation, holding of the breath, coughing or struggling. The whole period of anesthesia was uneventful in each instance and entirely satisfactory to the surgeon conducting the operation. Recovery was immediate or early, and nausea and vomiting were minimal, even though gastric lavage was done only in the case of Patient 4. Worthy of mention is Case 6, in which good analgesia was obtained intermittently for each pain over a period of forty minutes of normal labor.

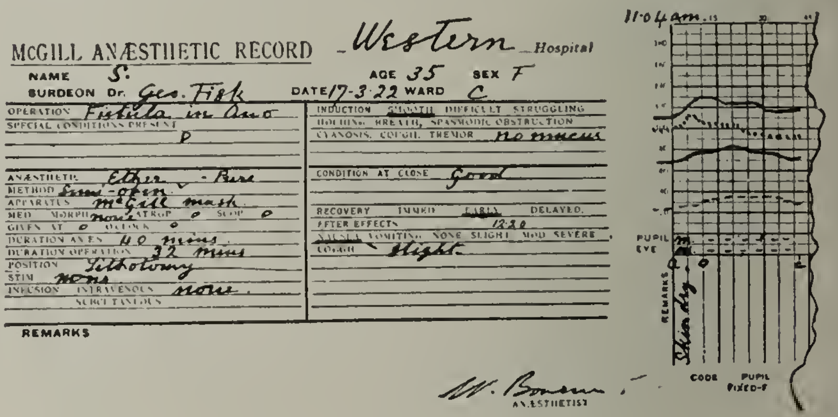
MCGILL ANÆSTHETIC RECORD Western Hospital
NAME S. AGE 35 SEX F
SURGEON Dr. Geo. Fisk DATE 17-3-22 WARD C
OPERATION Fistula in Ano
SPECIAL CONDITIONS PRESENT 0
ANÆSTHETIC Ether – Pure
METHOD Semi-open
APPARATUS McGill mask
MED. MORPH none ATROP 0 SCOP 0
GIVEN AT 0 O'CLOCK 0
DURATION ANÆS 40 mins.
DURATION OPERATION 32 mins
POSITION Lithotomy
STIM none
INFUSION INTRAVENOUS none.
SUBCUTANEOUS
INDUCTION [✓ SMOOTH] DIFFICULT STRUGGLING
HOLDING BREATH, SPASMODIC OBSTRUCTION
CYANOSIS, COUGH, TREMOR no mucus
CONDITION AT CLOSE Good
RECOVERY IMMED. [✓ EARLY] DELAYED.
AFTER EFFECTS 12·20
NAUSEA, VOMITING, NONE, SLIGHT, MOD. SEVERE,
COUGH Slight
REMARKS
W. Bourne
ANÆSTHETIST

Fig. 5.—Details of Case 5.

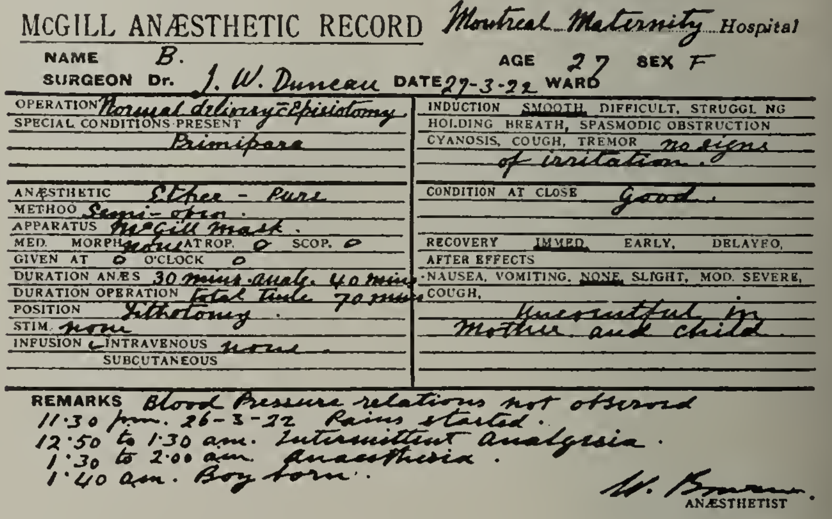
MCGILL ANÆSTHETIC RECORD Montreal Maternity Hospital
NAME B. AGE 27 SEX F
SURGEON Dr. J. W. Duncan DATE 27-3-22 WARD
OPERATION Normal delivery c̄ Episiotomy
SPECIAL CONDITIONS PRESENT Primipara
ANÆSTHETIC Ether – Pure
METHOD Semi-open.
APPARATUS McGill Mask.
MED. MORPH none ATROP. 0 SCOP. 0
GIVEN AT 0 O'CLOCK 0
DURATION ANÆS 30 mins analg. 40 mins
DURATION OPERATION total time 70 mins
POSITION Lithotomy.
STIM. none
INFUSION INTRAVENOUS none.
SUBCUTANEOUS
INDUCTION [✓ SMOOTH], DIFFICULT, STRUGGL NG
HOLDING BREATH, SPASMODIC OBSTRUCTION
CYANOSIS, COUGH, TREMOR no signs of irritation.
CONDITION AT CLOSE Good.
RECOVERY [✓ IMMED.] EARLY, DELAYED,
AFTER EFFECTS
NAUSEA, VOMITING, [✓ NONE], SLIGHT, MOD. SEVERE,
COUGH,
Uneventful in Mother and child.
REMARKS Blood Pressure relations not observed
11·30 p.m. 26-3-22 Pains started.
12·50 to 1·30 a.m. Intermittent analgesia.
1·30 to 2·00 a.m. Anaesthesia.
1·40 a.m. Boy born.
W. Bourne.
ANÆSTHETIST

Fig. 6.—Details of Case 6. The blood pressure relations were not observed.

CONCLUSIONS

Pure ether, made by a clean-cut chemical reaction which excludes almost completely any contamination with substances which have been claimed to be the real anesthetic agents of ordinary ether, possesses to the highest degree the anesthetic properties which have usually been attributed to it.

Recent Literature on Cancer of the Eye.—M. Manheimer reviews the literature of the last ten years on malignant tumors of the eye in the *Zeitschrift für Krebsforschung* **18**:1, 1921, a total of 586 bibliographic references with titles. The tumors are classified under twenty-one headings according to the location. The list contains several congenital orbital sarcomas, one bilateral.

MASTOIDITIS HYPERPLASTICA SEROSA *

J. W. JERVEY, M.D.
GREENVILLE, S. C.

There exists a certain pathologic condition of the mastoid which, up to this time, has not been recognized. The mastoiditis of the textbooks and of current medical literature of the world, for thirty years past at least, is an infective process, always accompanied by pus formation and, inferentially, of some specific bacillary origin. I believe that there is another and quite distinct type of mastoid disease.

It is well known that there exists a "serous labyrinthitis"; why not a "serous mastoiditis?" The existence, not rare, of a "hyperplastic sinusitis" is an accepted fact; why not a "hyperplastic mastoiditis?"

Not to go into a prolonged discussion of the latter type, for instance, hyperplastic ethmoiditis, it is enough to say that more might be known of its etiology and pathology. It may exist in association with an interstitial and intracellular serous exudate, or it may not. In the mastoid structure, the two types can and do exist simultaneously.

It has been shown that in hyperplastic sinusitis there is a definite osteoporosis (Skillern). In the type of mastoiditis that I am reporting, this condition is macroscopically evident. The pain and congestion present in either case are doubtless due both to the bone cell spread and the pressure of the serous exudate. The functional disturbances may be attributed to the same cause.

Briefly, we may be confronted with the following syndrome, in whole or in part: impairment of hearing, gradual or recent; vague pains in and about the ear; parietal headache; mild nervous unbalance, and a sense of "bubbling" deep in the ear at intervals, which is quite different from the "popping" and "crackling," so often complained of when mucus is present in the eustachian tubes.

On examination, we find some or all of the following manifestations: mastoid tenderness on deep pressure; lack of temperature changes; a varying degree of redness and thickening of a crescentic area of the posterosuperior margin of the membrana tympani, perhaps accompanied by more or less sagging of the contiguous canal wall; excessive tenderness in the roof of the external canal; occasionally, drops of serous exudate seen in the middle ear through the transparent membrana tympani; lack of evidence of previous middle ear disease; a markedly reduced sense of hearing; a negative Rinné reaction; a normal blood count; lack of evidence of existing infection, and patent eustachian tubes. The discomfort and the loss of hearing (say to the point of hearing a watch on contact) demand relief. The patient's vocation (such as stenography or teaching) may be seriously interfered with. What is to be done?

In such cases, I believe roentgenology is our safest diagnostic guide. The roentgenogram will show marked thickening and blurring, but unbroken continuity, of the mastoid cell walls, and the bony wall of the lateral sinus, with slight haziness of the whole affected area. This picture can with a little difficulty be distinguished from the cloudiness and the broken down cell walls of a purulent infection, as well as from the picture of a partially sclerotic process. Curiously enough, Law's masterwork on roentgenology of the mastoids fails to note this type of pathology.

On operation, the findings are characteristic and unmistakable. The mastoid cells are filled with clear yellowish serum; the cell walls are noticeably thickened and evidence extensive osteoporosis; the antrum may be filled with the same serous exudate; smears and cultures of this exudate are microscopically negative.

It has been suggested to me that if the mastoid cells and antrum were filled with fluid, the middle ear also will necessarily be filled. This, of course, is not true. It is a simple physical fact that the mastoid and antrum, constituting a cavity closed except at its tympanic opening, would not discharge any liquid contents into the lower lying cavity until supersecretion forced the contents out, drop by drop. Hence, the phenomena observed and reported above. The drops which are forced out cause the "bubbling" hearing sensations, and these drops may be either absorbed in the middle ear as fast as deposited there, or milked out through the eustachian tube in the course of its physiologic functioning.

There is little or no reaction from operation; the wound may safely be closed; recovery is uneventful, and hearing is restored in whole or in part.

Macroscopically, the pathologic condition appears to be of a hyperplastic, serous nature; hence the title of this article. I regret that microscopic examination of the exenterated material cannot be reported. I have observed three or four cases of this character (and have one under observation, not operated on at this writing), but not until the last operation did I realize that the condition was one hitherto unrecognized, or at least undescribed in recent literature.

As to the etiology, at this time we may conveniently take refuge behind a word that may cover much territory and a multitude of sins—and say that it is cryptogenic. But we may properly theorize, briefly. I have said that the disease presents no evidence of infection. But this fact does not preclude the possibility of the deposition of long previous infection, with an exhibition of ultimate effects—the infection and its ultimata being worn to a state of unrecognizable attenuation by time and the old fashioned *vis resistentiae naturae.* I have heard earnest students of pathology make the statement that they could not conceive of hyperplastic tissue degeneration without the existence of previous infection, whether exogenous or hematogenous, as related to the affected part. I must admit, too, that I have more than once seen the two types (serous hyperplastic and infective) existent at the same time in one mastoid, viz: the subcortical cells showing the serous type, and the cells immediately adjoining the antrum, and the antrum itself, filled with pus. Of course, many of you must have observed these things, but they seem to have hitherto escaped publication.

In discussing the mastoid changes following chronic middle ear infection, so great an observer and authority as Politzer [1] speaks of proliferation of cell lining membrane, eburnation of process, granular osteitis and caries, cholesteatoma, hyperostosis and osteosclerosis; but makes no mention of serous exudate, tissue hyperplasia and osteoporosis such as we have here under consideration. This fact necessarily lends weight to the tentative hypothesis that the latter conditions are not the sequelae of chronic infection, while evidently, and of course, they are certainly not manifestations of an acute sepsis.

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* Read before the Section on Laryngology, Otology and Rhinology t the Seventy-Third Annual Session of the American Medical Associa-on, St. Louis, May, 1922.

[1] Politzer: Textbook of Diseases of the Ear, translated by Ballin and Heller, 1902.

While one cannot deny the indubitable possibility of previous infection in these hyperplastic cases, I like to think of them as something new, something different, and I should like to suggest that, for the present at least, and until more is learned about them, they be classed etiologically as of the so-called "deficiency diseases," meaning that general class of morbid metabolistic variations produced by dietary insufficiency, perhaps by some lack of vitamin ingestion, such as has been suggested by Kauffman[2] as the possible causation of hyperplastic ethmoiditis and otosclerosis.

The prognosis seems to be good. The simple mastoid operation, thoroughly done, has resulted, and theoretically should result, in clearing up or at least greatly ameliorating the symptoms. And, in this day and time, one would hardly say that a simple mastoid exenteration, in reasonably skilful hands, could be regarded as a very formidable procedure.

Following is a brief abstract of the salient points of a case illustrating the foregoing observations.

REPORT OF CASE

Miss L. H., white, aged 49, stenographer, first seen Jan. 9, 1922, one week before consulting me had had severe pain in the left ear and the left side of the head. This had been more or less continuous. There were occasional "bubbling" sounds in the ear.

Disregarding some slight abnormalities in nose and throat, the left membrana tympani was mildly congested, with special reference to the long handle of the malleus and Shrapnell's membrane. The posterosuperior wall of the canal and the contiguous portion of the membrana were noticeably sagging. There was no visible perforation. There was marked tenderness on deep pressure toward the mastoid tip. On the right, the patient could hear a watch at from 4 to 5 inches (10 to 12.5 cm.) and Rinné's reaction was positive. On the left, the watch was heard on contact, and Rinné's reaction negative. The temperature was 97.8 F., the pulse, 88. Urinalysis revealed a trace of albumin.

January 10: The blood count showed white cells, 7,600; polymorphonuclears, 64 per cent. Roentgenograms revealed the right mastoid sclerotic throughout the large portion, with a large tip cell; the left mastoid showed cells external to the antrum and those in the anterior half of the tip cloudy, with thickening but no breaking down of cell walls. To a less extent, the same conditions were noted over the sinus area, and the bony sinus wall was very much thickened throughout its mastoid course, while its appearance before entering the mastoid process was thin, well marked and distinct.

January 11: The pain continued in the left ear and left side of the head. The sagging of the posterosuperior canal wall was marked. The temperature remained normal. There seemed to be little doubt that there was an inflammatory process going on in the mastoid, but it seemed doubtful that there was any pus present. The hearing was badly affected and this distressed the patient.

Virtually the same observations continued for the ensuing week. January 18, the mastoid was opened and the following observations were recorded: Cortex of average thickness; cells filled with clear, serous, somewhat sticky fluid; cell walls noticeably thickened and showing a marked macroscopic picture of osteoporosis. The antrum was filled with the same clear viscid secretion, with no evidence of disease in the antral lining or walls, and no evidence of pus in the entire field. The smears and culture from the secretion were microscopically negative for bacteria. The wound was entirely closed and healed by first intention.

January 21: The patient was able to hear the watch through the bandage.

January 23: The healing was complete, and dressings were discontinued. The congestion in the deep canal was noticeably less, and the patient was able to hear a watch at 4 inches (10 cm.). She was dismissed and sent home.

January 25: A card, dated January 24, was received from the patient, saying: "I can hear the clock in my room ticking! Gratefully yours."

February 11: The patient felt well, said that hearing was "ever so much better"; and she was back at work. She can now hear a watch at 8 inches (20 cm.). The membrane and canal appeared normal.

COMMENT

This case was so striking that my hitherto hebetudinous mentality began, however weakly, to function, and, in looking over my records, I found at least four other mastoids which had come to operation presenting much the same characteristics. Belated inquiry then, with the assistance of the American Institute of Medicine, led me to the at least tentative finding that this was a type of mastoid disease hitherto unrecognized, or rather unreported in the literature, although evidently of considerable pathologic, and I may say economic importance.

Jervey-Jordan Building.

ABSTRACT OF DISCUSSION

Dr. J. A. Stucky, Lexington, Ky.: A young woman, aged 19, had all the symptoms described by Dr. Jervey. I had seen her a number of times when she was suffering this intense pain. I sent her to Dr. C. R. Holmes with a note stating that I thought this was a hysterical case. He sent her back with the statement that he did not think it was hysterical, that I had better operate. I did not do so for several weeks afterward. In the meantime, the patient suffered severe pain. There was nothing to indicate the real pathologic condition, but she had all of the symptoms described by the essayist. When I opened the mastoid, I found a normal condition with the exception of serum in the bottom of the lower cells. I closed the wound with blood clot and the woman was entirely relieved. She made a rapid and uneventful recovery. But the strangest thing about this case is what happened six months afterward. She demanded an operation on the other ear. I had never had a patient come to me for a second mastoid operation. I had looked for every focus of infection. I had eliminated toxemia and acidosis. When I opened this mastoid I found the same condition of affairs as in the ear operated on previously. I took a culture from the cells in which I found this exudate, and the pathologist reported it negative. I have seen one other such case. I do not know how to classify them, but I have labeled them "freak mastoids." I regard them as hysterical cases.

Dr. Arnold B. Kauffman, Chicago: I was very much interested in the suggestion Dr. Jervey made as to the possible etiology of the condition he describes. During the past year, in the clinic of Drs. Beck and Pollock, we studied the possible relationship of dietary deficiencies to various nasal and aural conditions (otosclerosis, hyperplastic ethmoiditis) which were particularly of more or less unknown etiology, and which pathologically showed changes not of an inflammatory nature nor directly due to bacterial invasion. We called attention to the bony changes in the temporal bone in rickets. The presence of osteoid tissue is well marked; the newly formed bony tissue is uncalcified and covered with osteoblasts. We believe, then, that we can assume as a working hypothesis that a similar deficiency acting throughout a different period of life may not produce such a clear cut disorder as in infantile rickets, but certainly may produce bony changes elsewhere.

Dr. Norval H. Pierce, Chicago: I am inclined to think that Dr. Jervey's case and Dr. Stucky's are explained best by a peculiarity of the mucous membrane lining the cells of the mastoid, rather than by any infectious micro-

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2. Kauffman, A. B.: Laryngoscope **32**: 50-55 (Jan.) 1922.

organism, or by deficiency disease, or any other thing that might be suggested. These cases do occur—I have seen them myself—in which there is arrested pneumatization. When we speak of arrested pneumatization, attention is focused on the bone, when, as a matter of fact, the most important factor is the mucous membrane. In all of these cases of arrested pneumatization, which always dates back to the second or third year of life, there is a mucous membrane which is thicker than normal and which is covered by an abnormal kind of epithelium. The thickness of the mucous membrane is due to presence of the myxomatous embryologic tissue which entirely fills up the cavum and antrum during the latter months of fetal life. This arrested pneumatization may be complete or incomplete. There is a dark area within a whitish area which shows the internal auditory canal in the petrous portion of the temporal base, and a rather dark line which indicates the anterior part of the sinus, and between these are cells more or less complete and more or less normally arranged. Normally, the peripheral cells are larger than the central cells. There may be more cells than this; they may run to the tip, but I think you will invariably find in these cases that there is not a completely pneumatized mastoid. When we see this in the roentgenogram, we may rest assured that there is a peculiarity of the mucous membrane, and that peculiarity is that it is thicker, owing to the presence of the embryologic tissue. This type of mucosa has a low degree of resistance and a peculiar reaction to bacterial infection, which produces just such cases as Dr. Jervey has outlined, sometimes with very great pain and yet with no destruction of bone and no expression of pus but of serous exudate. They rarely require operation.

Dr. George E. Shambaugh, Chicago: I am trying to get clearly in mind just what Dr. Jervey considered were indications for operative interference. It apparently was not the fear of a defect in the hearing developing as the result of a persisting discharge through the middle ear, because there has been no evidence of secretion in the middle ear. Was it the revelation of the roentgenogram? A shadow over the mastoid gives no indication that there is the sort of process going on here that requires surgical intervention. Was it discomfort in the region of the mastoid that led him to operate? It is a very common thing, if we take the pains in all cases to look for it, to find distinct evidence of mastoiditis in cases of acute otitis media. It is, however, the unusual case of acute mastoiditis that really calls for operative intervention. A shadow simply means that the pneumatic spaces of the mastoid are filled with a pathologic secretion. This much we can determine by other tests, for example, transillumination, or the presence of tenderness over the process itself may reveal the condition. This is no indication for operative intervention. It is only when there is a persisting discharge for a number of weeks, or when, after several weeks' discharge, the roentgen ray reveals a distinct area of softening that a surgical opening of the mastoid is indicated, except, of course, in those cases in which, because of some complication, sinus thrombosis, unusual high temperature or persisting severe pain, one may be called to operate.

Dr. Louis K. Guggenheim, St. Louis: I agree with Dr. Shambaugh's argument against a mastoid operation unless there is an absolute indication. In St. Louis, when we read of the number of mastoid operations performed east of the Mississippi, we feel that we are either ultraconservative or behind the times, for we perform but few mastoid operations.

Dr. J. W. Jervey, Greenville, S. C.: Dr. Shambaugh says he does not quite understand what I consider indications for operation. I thought I had quite sufficient indications inasmuch as the patient had a very marked, troublesome and partly incapacitating impairment of hearing. If there was any chance for improvement of hearing, she was certainly entitled to the chance. However, that alone would not have been sufficient indication for operating, but she had a marked deep tenderness in the mastoid area, particularly above the tip; she also had a constant and severe pain, which had been present for at least two weeks. Something had to be done to relieve that. In addition, we had the roentgenograms of the mastoid, which in her case we thought quite distinctive. It certainly showed a condition we had not seen before, the characteristics being thickening of the cell walls and of the lateral sinus wall, which turned out to be an osteoporosis. A leukocyte count was made and a Wassermann test, and smears and a culture were taken, all with negative results, as stated in the paper.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.
W. A. Puckner, Secretary.

ALBUMIN MILK-HOOS.—Dry Protein Milk.—A modified milk preparation having a relatively high protein content and a relatively low carbohydrate content. Each 100 Gm. contains, approximately, protein, 30 Gm.; butter fat, 25 Gm.; milk sugar, 15 Gm.; ash, 4 Gm., and small amounts of free lactic acid.

Actions and Uses.—When suitably mixed with water, albumin milk-Hoos is said to be useful for correcting intestinal disorders of infants and children.

Dosage.—For the majority of conditions, albumin milk-Hoos should be administered in small quantities according to age and condition of the patient, after a period of starvation of from twelve to forty-eight hours. Suitable carbohydrates may gradually be added to the preparation as indicated by the clinical conditions.

For use, the contents of one small package of albumin milk-Hoos (3 ounces) are sprinkled on the surface of 1 quart of warm, previously boiled water, and the mixture is beaten with an egg beater or wire whip. After mixing, the product is poured twice through a fine strainer, the curds being rubbed through with a spoon. Greater dilutions are sometimes prescribed. Carbohydrates, if prescribed, are dissolved in a little warm water and added to the mixture. The finished product contains approximately 3.16 per cent. of protein, 2.41 per cent. of fat, 1.83 per cent. of lactose and 0.41 per cent. of ash.

Louis Hoos, Chicago, distributor. No U. S. patent. U. S. trademark 89033.

Neocinchophen-Abbott (See New and Nonofficial Remedies, 1922, p. 88).

The following dosage form has been accepted:

Neocinchophen-Abbott Tablets, 5 grains.

BENZYL BENZOATE (See New and Nonofficial Remedies, 1922, p. 64).

Benzyl Benzoate-M. C. W.—A brand of benzyl benzoate-N. N. R.

The Mallinckrodt Chemical Works, St. Louis, distributor. No U. S. patent or trademark.

Workmen's Compensation for Inoculation with Plague.—The *Medicina Contemporanea* quotes in full the decision rendered recently, by the Lisbon court that deals with workmen's compensation cases, in the case of an attendant at a hospital morgue. His duties included assisting at necropsies, and he died eight days after having been scratched in the finger during the necropsy of a plague victim. The lesions and bacilli of plague were found in him after death, and the court decreed that a compensation based on the salary the man had been getting should be paid to the widow and two children. The Portuguese government granted a pension to the family of Professor Pestana under similar conditions, his death following contracting of plague from a cadaver. Our exchange queries, "And what about the physicians and nurses who have lost their lives from professionally acquired plague, typhus or pneumonia, during these last two years since the law on workmen's compensation has been in effect?"

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SATURDAY, JULY 29, 1922

SPIROCHETURIA

The path of invasion which micro-organisms follow in the body seems to be understood better at present than are the courses by which they are disseminated and the places of exit which they sometimes find. An organism may grow locally and produce few if any other than local manifestations; again, although confined to a limited focus, it may produce a toxin that is distributed readily through the circulation so as to initiate serious remote effects. In still other cases the micro-organisms invade the lymphatics or the blood stream and thus become widespread. Bacteremia arises in this way. Many factors are known to act against the entrance of bacteria into the body; and it appears that organisms often find it equally difficult to emerge from their hiding places. The elimination of some species with the stools has long been recognized, as in the case of dysentery and cholera. In other instances, such as typhoid and tuberculosis, the responsible bacilli frequently are found in the urine.

The fate of the spirochetes in this respect has only lately come into especial prominence. Since the discovery, in 1915, that Weil's disease is caused by a specific micro-organism, *Spirochaeta icterohaemorrhagiae,* the excretion of the spirochetes by the kidneys has been shown by successful transmission of the disease through inoculations of urine from infected animals and patients. In fact, the micro-organism has since been discovered to occur in many organs and tissues during icterogenic spirochetosis. Warthin[1] of the University of Michigan has demonstrated that the elimination of the organism of syphilis, *Spirochaeta pallida,* may take place under the same conditions and apparently with the same mechanism as described for the spirocheturia of infectious jaundice. There is a more or less generalized spirochetosis in the body, with spirochetemia. In the kidney there occurs a massing of the spirochetes about the convoluted tubules and a passage of the organisms from the vessels and interstitial tissues into the tubules, where they undergo disintegration for the greater part. This destruction of the organisms in the kidneys is more marked in the case of syphilis than in infectious jaundice.

According to Warthin, the elimination of spirochetes through the kidneys, with the production of associated renal lesions, appears to constitute a family characteristic for the entire group of spirochetal infections, so far as the known types of the organisms have been studied carefully. In infectious jaundice, the spirocheturia is a factor of considerable diagnostic value. The Michigan observations are not the first to be made in regard to the spirocheturia of syphilis, but they are probably the most convincing demonstrations of the excretion of *Spirochaeta pallida* through the kidneys in man. Warthin has pointed out that syphilitic spirocheturia occurs in the stage of septicemic syphilis, in both the congenital and the acquired infections. *Spirochaeta pallida,* as is *Spirochaeta icterohaemorrhagiae,* may be excreted in enormous numbers through the convoluted tubules. During such excretion through the kidneys, Warthin concludes, the spirochete of syphilis suffers greater destruction than does the icterogenic parasite, so that fewer spirochetes may reach the urine in syphilis than in infectious jaundice. The demonstration of the occurrence of syphilitic spirocheturia, therefore, is not likely to possess such diagnostic value as that of icterogenic spirocheturia.

THE IMMUNIZATION OF NURSES TO DIPHTHERIA

In the case of diphtheria, the efficacy of modern medicine has been put on trial, so to speak, to a degree perhaps not emphasized equally with respect to any other disease regarding which great advances in our knowledge have been recorded. The bacteria and other elements in the causation of diphtheria have become familiar to both physician and layman. The recognition of the nature of the immunity conferred by an attack from the malady remains among the great discoveries of scientific investigation. The production of immune serums and their gradual refinement are triumphs of the laboratory that have not only challenged admiration but also conferred untold benefits on mankind by curing diphtheria beyond the hopes of an earlier generation. Then came the unexpected finding of the menace of the widely distributed carriers, themselves immune, yet omnipresent dangers to the environment in which they tarry. Finally—for the moment—we may record the application of the Schick or analogous tests to determine the existence of susceptibility or immunity in the individual, coupled with the attempts at immunization by the use of diphtheria toxin-antitoxin mixtures.

To those who have lived through this history of the investigation of the cause and management of diphtheria, it seems like a long story in which discouragement has always been succeeded by discoveries of great promise. Despite the lowered mortality due directly to the administration of antitoxin, there is still a large incidence of diphtheria to which the intolerant and the pessimist continue to point with ill concealed satisfaction in their challenge of the advantages of modern science. In the larger cities, diphtheria remains endemic, and each year there still is a large morbidity. It has become obvious to students of preventive medicine, therefore, that the next step forward must be in the direction of securing a greater immunity among our population. Since the percentage of positive Schick tests usually given for adults is considerably lower than that found in children, attention has been focused primarily on the latter.

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[1] Warthin, A. S.: The Excretion of Spirochaeta Pallida Through the Kidneys, J. Infect. Dis. 30: 569 (June) 1922.

The results of attempts at immunization of children, conducted on a sufficiently large scale to afford convincing statistics and controlled by repeated tests of the degree of success secured, have been decidedly encouraging.[1] Among those persons most intimately exposed to diphtheritic infection are physicians and nurses. It is gratifying to learn that for them, too, there is promise of successful active immunization following the practice of systematic administration of toxin-antitoxin mixtures to those who react to the Schick test. Cooke [2] has reported the outcome of such a program for the susceptible training school nurses on duty in the Contagious Pavilion of the St. Louis Children's Hospital, a group of young women showing an unusually high incidence of susceptibility. There were 58 per cent. of nonimmunes. More than 80 per cent. were immunized by the injections, the Schick test remaining persistently positive after two series of toxin-antitoxin injections in only a small number of the women.

During the three years preceding the immunization, twenty nurses, or 28 per cent. of those on duty in this contagious pavilion, developed diphtheria. In the four years' period after the immunization was instituted, there was a decrease in the incidence of clinical diphtheria among these nurses of at least 90 per cent. This is a triumph of preventive medicine. If it is thus easy to protect an entire nursing staff from contracting diphtheria, by the use of the Schick test and toxin-antitoxin injections, one must agree with Cooke that this procedure should be carried out in all institutions caring for children.

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[1] Carey, B. W.: Diphtheria Control, J. A. M. A. **77:** 688 (Aug. 27) 1921. Mulsow, F. W.: Schick Test and Active Immunization with Diphtheria Toxin-Antitoxin, ibid. **77:** 1254 (Oct. 15) 1921. Fleischner, E. C., and Shaw, E. B.: The Management of a Diphtheria Outbreak in a Private School, ibid. **77:** 1714 (Nov. 26) 1921. Bashore, H. B.: Fighting Diphtheria in the Country, ibid. **78:** 188 (Jan. 21) 1922. Cumming, J. G.: Is the Control of Diphtheria Leading to Eradication? ibid. **78:** 630 (March 4) 1922. Meyer, Jacob: Active Immunization with Diphtheria Toxin-Antitoxin, ibid. **78:** 716 (March 11) 1922. Zingher, Abraham: Results of Active Immunization with Diphtheria Toxin-Antitoxin in the Public Schools of New York City, ibid. **78:** 1945 (June 24) 1922; Diphtheria Preventive Work in the Schools of New York City, Arch. Pediat. **38:** 336 (June) 1921.

[2] Cooke, J. V.: Active Immunization of Nurses Against Diphtheria in a Children's Hospital, Am. J. Dis. Child. **23:** 496 (June) 1922.

VITAMIN THEORIES

The essential experimental facts about the functions of the best known vitamins have become sufficiently familiar to justify the belief that these newly recognized food factors furnish something of importance in a human diet. Holt [1] recently summarized the service which the newer knowledge has rendered by pointing out how it has helped to place the whole subject of nutrition on a better scientific basis. The experimental has been substituted for the empiric method in determining the value of the different foods. Formerly we might know that certain foods were desirable and necessary; now we are often able to say why such is the case and to determine their precise value in nutrition.

The study of vitamins has helped to make clearer why a variety of foods is so essential to well being, and how danger may follow when diet becomes restricted from either necessity or caprice. Decrying the indiscriminate use of alleged vitamin-bearing preparations as popular therapeutic agents, Holt further utters the warning that until they have been confirmed by adequate clinical experience there is some danger in relying too much on the results of laboratory observations on animals of a different species whose physiologic needs may be different from those of human beings. In a somewhat similar strain, Mitchell [2] has asserted that in the total lack of quantitative data on the vitamin requirement of man, and in the general absence of malnutrition or disease among people in this country which can with any degree of probability be diagnosed as involving vitamin deficiencies, it seems premature to formulate recommendations for the balancing of diets with respect to vitamins. It is pointed out that the classic experiments are conducted in each instance on species peculiarly susceptible to the particular deficiency under investigation. However, this sort of criticism is a conventional one in medicine. While admitting the background of truth in it, we must recall that the clues furnished by animal experimentation have led to so many helpful avenues of information that it would be scientific folly to fail to heed them, even in our as yet inadequate understanding of the possible bearing of vitamins on human welfare. There is no necessary conflict between an open mind and conservatism in scientific judgment. Hence we are glad to reiterate the warning of Mitchell, when he writes:

> At a time when popular periodicals are widely publishing irresponsible articles on vitamins, ignorantly or deliberately creating an entirely distorted popular conception of them, and when commercial concerns are widely advertising purely hypothetical advantages of vitamin preparations, it is particularly important that investigators in nutrition exert great care in the wording of statements as to the practical significance of vitamins in every day life. Otherwise they may become unwilling accomplices in the perpetration of a gigantic fraud upon the American public.

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[1] Holt, L. E.: The Practical Application of the Results of Vitamin Studies, J. A. M. A. **79:** 129 (July 8) 1922.

[2] Mitchell, H. H.: The Necessity of Balancing Dietaries with Respect to Vitamines, Science **56:** 34 (July 14) 1922.

It is in harmony with such conservatism of statement, we believe, that the recent report of the Council on Pharmacy and Chemistry of the American Medical Association on yeast preparations has been formulated.[3]

With so much uncertainty still admitted, it might seem futile to discuss at this time the theories of the mode of action of vitamins. However, the history of science attests that its development has more often been promoted rather than retarded by the leavening influence of hypotheses. Most investigators of the vitamins have looked on them as functioning somewhat as hormones are supposed to act in the organism, namely, as stimulants to certain physiologic mechanisms. Others have imagined the newly discovered factors to be essential components of some, at least, of the living tissues; thus they would be quite as indispensable as are other structural units of the body, such as certain amino-acid groups, calcium, phosphorus or iron. A further group of students has assumed the vitamins to be primarily catalytic in function, thus behaving like the well known enzymes. Hess[4] of Zurich has lately offered somewhat indirect evidence that the antineuritic vitamin, which relieves the symptoms of polyneuritis in animals fed on diets devoid of vitamin B, contributes in some way to the production of oxidative enzymes in the body. Studies in vitro on the tissues of polyneuritic pigeons indicated to him a decrease in the oxidative enzymes usually found in well nourished animals. On this hypothesis the avitaminosis is an expression of poverty of the cells in the factors that facilitate tissue respiration. This is one of the many guesses which the future will need to evaluate in the physiology of vitamins.

THE FUNCTION OF BILE

The secretion and function of bile have long been a disturbing puzzle alike to physiologists and to clinicians; and in spite of many recent additions to our knowledge, there are still many unsolved problems. A critical review by Whipple[5] serves to indicate what has been determined and what is still to be learned concerning this important subject. Perhaps the most striking conclusion is that the entrance of at least a certain amount of bile into the intestine is necessary to life. We see patients survive so long with completely occluded bile tracts that the vital necessity of the bile has often been doubted, and physiologists have supported this doubt by observing that experimental animals seem to do very well when the bile is prevented from entering the bowel. Diet seems to be an important factor in this. For example, a fistula dog will usually die within two months with acute intestinal disturbance if kept on an ordinary diet of kitchen scraps. A diet of milk, cooked potatoes, rice and bread will prolong life considerably, and such dogs may live in good condition for from four to ten months and die with advanced bony abnormalities, osteoporosis resulting from the protracted loss of inorganic salts through the fistula. Abnormal pigment disturbances and true purpura with fatal hemorrhage may develop in such dogs. Addition of cooked liver to the foregoing diet will usually improve the condition and prolong the period of health in these fistula dogs, but they are likely to suffer at times from some of the conditions noted above. Bile fistula dogs with tiny fistulous tracts connecting with the duodenum may live for long periods in perfect health and function. The amount of bile gaining entrance to the duodenum is very small, and can scarcely exceed 10 or 20 per cent. of the total flow which escapes through the external fistula. This shows how little bile may serve to change the entire clinical picture from abnormal to normal. The same amount of bile by mouth will not have any similar effect. Therefore it seems safe to conclude that secretion of bile into the intestine is necessary for normal health and even for actual continuation of life beyond a few months' period.

The use of cholagogues in medicine receives little support from experimental studies, for as far as can be learned the chief if not the only real cholagogue is whole bile or its active principle—that is, the bile acid fraction. The mere fact that drugs are claimed to be cholagogues by some and denied by others will indicate to the student of bile physiology that the cholagogue action is at least insignificant if not absent. Bile salts by mouth or intravenously will cause a distinct rise in the volume of bile secreted by a temporary or permanent fistula. Likewise, a meat diet favors an abundant flow of bile in a bile fistula dog; but a diet rich in carbohydrates, especially sugar, will decrease the bile flow under similar conditions. This shows the importance of diet as influencing the bile flow. None of the so-called cholagogues can be shown to produce the uniform and definite increase in bile flow that is given by bile feeding, and if they have any influence it is less than that produced by a meat diet.

We recently discussed the interesting studies of Rous and McMaster,[6] which demonstrated the remarkable power the gallbladder has to concentrate bile, reducing its volume as much as 90 per cent. in twenty-four hours. This supports the old idea that the gallbladder serves as a reservoir of concentrated bile, to be poured out when needed, and clinical procedures have been devised on the theory that certain stimuli cause the gallbladder to contract and expel its contents into the duodenum, where it may be collected for analysis. But it is difficult to accept this view in the face of experiments which show that dyes introduced into the gallbladder remain there as long as three days, and that the bile that enters the stimulated duodenum does not come from the gallbladder.

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[3] Yeast Preparations, New and Nonofficial Remedies, J. A. M. A. **79**: 135 (July 8) 1922.

[4] Hess, W. R.: Die Rolle der Vitamine im Zellchemismus, Ztschr. f. physiol. Chem. **107**: 284 (Dec. 21) 1921.

[5] Whipple, G. H.: Origin and Significance of Constituents of Bile, Physiol. Rev. **2**: 440 (July) 1922.

[6] The Purpose of the Gallbladder, editorial, J. A. M. A. **78**: 584 (Feb. 25) 1922.

Until recently it was generally believed that the bile pigments are all formed in the liver, and only in the liver; hence the dictum of "no jaundice without liver involvement." We now know that there do exist forms of hemolytic icterus with which the liver is not concerned, and apparently the power to change hemoglobin into bile pigment is widely exhibited throughout the body. Probably this is a general property of vascular and serosa endothelium, and Whipple suggests that perhaps the particular activity of the liver in this process depends on its abundant supply of active endothelial tissue in the form of the Kupffer cells. Certainly the liver is ordinarily the chief place in which bile pigments are formed, for injury to the liver depresses bile pigment excretion. There is, in any event, no evidence that the bile pigments serve any useful purpose, and hence they may be regarded entirely as excreted waste products. Nor has any value been ascribed to the cholesterol excreted in the bile, unless we look on the formation of gallstones as a useful function.

Current Comment

ARTIFICIAL PNEUMOTHORAX TWO THOUSAND YEARS AGO

A knowledge of medical history is a most distressing thing, for it discloses persistently that this or the other new discovery is only a rediscovery. We must take our consolation in the fact that generally the first steps were but halting ones, not being backed by sufficient force of actual knowledge to permit them to reach their goal, and hence our newer progress on a more substantial basis is, after all, the only worth while advance. Krause[1] calls attention to the fact that Hippocrates described beyond a doubt the treatment of pulmonary disease, probably empyema, by the production of artificial pneumothorax, in these words: "If this affection results from a wound or, as sometimes happens, from an incision for empyema, one should attach a pipe to a bladder, fill the bladder with air, and send the air into the interior of the chest. And one should insert a solid pewter sound and push it forward. It is by this method that you will get the very best results." While we are accustomed to date the inception of the idea of artificial pneumothorax from Forlanini's first work of forty years ago, it seems that it was well recognized more than a hundred years ago by that English medical genius, Thomas Young, whose book on consumptive diseases, published in 1815, set Krause on the track of the original statement of Hippocrates. Young himself, however, seems not to have considered the idea one of much practical importance, for he says that "however extraordinary the practice appears, it is not impossible that it might be beneficial where the adhesion was not such as to prevent the collapse of the lungs, allowing the wounded parts to reunite more readily than in the natural process of respiration, since they would be more intimately in contact with each other, though not more at rest." By the last phrase of this statement Young indicates that he did not grasp the real underlying principle of the effect of pneumothorax. The words of Hippocrates fail to indicate whether or not the ancient physicians had any understanding as to why pneumothorax was beneficial; but apparently they did recognize it as a useful procedure in some conditions.

THE FATE OF UNCOOKED STARCHES IN THE ALIMENTARY TRACT

Much of the food fuel of man consists of starch, the chief component of the cereals. In its natural state the carbohydrate starch occurs in the form of "grains"—unique microscopic packages including more or less cellulose-like material. The presence of the indigestible cellulose is commonly charged with interfering with the ready digestion of the starch itself by the alimentary secretions possessing amylolytic enzymes. Hence current teaching has supplemented far-reaching empiric experience in dictating such manipulation of starchy foods prior to their being eaten as will decrease the interference of the adherent constituents with ready digestion of the starch. Comminution and cooking are the customary processes employed. The harder and tougher foods, such as wheat, corn and oats, are first ground fine or milled, while others, such as roots and tubers, are heated with water to "rupture" the starch grains. Suitably cooked starchy foods are among the most readily digested components of the human dietary. It came as a surprise to physiologists, however, to learn a few months ago from government laboratories[1] that raw wheat-starch and corn-starch, eaten in quantity by man, can be completely assimilated without any physiologic disturbance and without the detection of unutilized starch grains in the feces. An extension of these studies of Langworthy and Deuel[2] in the U. S. Department of Agriculture has now further demonstrated on healthy men that certain raw starches, including corn, wheat, cassava, rice and taro root, were completely digested when eaten in amounts sometimes as large as 250 gm. a day. Raw tree-fern and true arrowroot (*Maranta arundinacea*) starches were nearly completely digested, but some starch was present in the feces. Raw commercial arrowroot (*Zamia floridana*) and potato starches showed considerably less complete digestion, large quantities being present in the feces. Raw canna starch was even less digestible, its coefficient being only about 50 per cent. In these experiments there seems to be a direct relationship between the size of the starch granule and its digestibility. Whether or not this relationship is accidental has not been determined. One might readily suppose, the government investigators add, that the larger starch granule contained a thicker cellulose covering, and consequently one more impervious to the digestive ferments than the smaller granule. The factor of surface area might also come into consideration, since, the larger the granule, the proportionately smaller surface area for being attacked. Clinical experience bears out the relatively poor digestion of uncooked or poorly cooked potatoes. The experimental findings regarding the utilization of raw starch from the alimentary tract of man need not be construed as advice to avoid cooking, but rather should be interpreted as evidence of one of the many factors of safety possessed by the human organism.

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[1] Krause, A. K.: Am. Rev. Tuberc. **6**: 327 (June) 1922.

[1] Langworthy, C. F., and Deuel, H. J., Jr.: Digestibility of Raw Corn, Potato and Wheat Starches, J. Biol. Chem. **42**: 27 (May) 1920.

[2] Langworthy, C. F., and Deuel, H. J., Jr.: Digestibility of Raw Rice, Arrowroot, Canna, Cassava, Taro, Tree-Fern and Potato Starches, J. Biol. Chem. **52**: 251 (May) 1922.

BASAL METABOLISM IN DISEASE

The expressions "basal metabolism" and "metabolic rate" have come into considerable prominence in medicine within the last few years, during which clinical calorimetry has risen to a position of undeniable dignity. The symposium on the subject that was reported in The Journal about a year ago indicated not only the importance of the newer knowledge in this field but also the limitations of its exploitation, the difficulties of technic, and the dangers of improper experimentation. Many factors may alter the metabolism of man. Food and muscular activity are, perhaps, foremost in increasing the exchange of materials and the output of heat; but the basal metabolism refers to the behavior of the organism in its energy transformation without food and at rest. Fever increases the basal metabolism, the rise in temperature being accompanied by an increased heat production corresponding in amount to the degree of fever.[1] Such cases are usually attended with a so-called toxic destruction of protein in the body. Diseases such as arthritis, though generally regarded as infectious in origin, are believed by some clinicians to be due to disturbed metabolism. Observations by Cecil, Barr and Du Bois[2] in cases of arthritis deformans give no support to the latter view. The metabolic rate has been found to be normal; and, if arthritis is infectious in origin, the infection cannot be accompanied by increase in basal metabolism or by toxic destruction of body protein. The classic instance of the helpful demonstrations of variations in basal metabolism concern disturbances in thyroid function, the high and low rates in hyperthyroidism and hypothyroidism, respectively, being well appreciated.[3] With respect to the other glands of internal secretion, however, it must still be said that the variations in basal metabolic rate for which they are responsible cannot yet be foretold. It is important at this time to realize and transmit this conclusion, which is clearly indicated in a recent review of the subject by Aub and Taylor.[4] The pertinent literature is enormous; but for those who are not sufficiently expert to sift fact from fiction and truth from pseudoscience, the best rule is to maintain an attitude of intelligent skepticism when small variations of basal metabolism are heralded as indicative of large clinical values.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Hospital Closed.—The Red Mountain Sanatorium, Birmingham, established by the Antituberculosis Association of Jefferson County twelve years ago, was closed in July. The work will be partly carried on by county appropriation, while the association directs its activities to instruction and preventive work among schoolchildren. The sanatorium has cost the association about $18,000 a year, and it is expected that a suitable structure will be erected at the county farm for tuberculosis patients, for which the county would have to appropriate no more than it has already for the antituberculosis association.

CALIFORNIA

New Associate Secretary.—Following out the policies endorsed by the Council of the Medical Society of the State of California, the publicity bureau has appointed Dr. Howard H. Johnson, full-time associate secretary of the state society.

Hospital Convention.—The second annual convention of the hospitals of California will be held under the auspices of the League for the Conservation of Public Health, September 5-8, in Pasadena. The council of the state medical society will hold two meetings. September 9, the council will meet with the presidents and secretaries of all the county medical societies. Dr. Charles Lockwood, 295 Markham Place, Pasadena, is chairman of the committee of arrangements.

Fake Healer Found Guilty.—It is reported that "Dr." W. H. Jones was found guilty on a charge of practicing medicine without a license in Oakland, July 7. He was placed on probation for six months with the provision that he pay $110 to Mrs. Burbank, the plaintiff. Johns guaranteed to cure an injured knee for $200, of which $100 had been paid by Mrs. Burbank. He also discovered that her little boy was the victim of some disease which he agreed to cure for $100. Ten dollars was paid him on account.

CANAL ZONE

The Gorgas Memorial.—Dr. R. P. Strong, who has just returned from his fourth trip to Panama, has announced that it has been decided to establish first divisions of bacteriology, pathology protozoology, helminthology, biochemistry, entomology, plant pathology and animal diseases, in the new Gorgas Memorial Institute of Tropical and Preventive Medicine, at Panama. These departments will be organized with laboratories for research work, particularly in connection with the study of the mode of spread of the most important infectious diseases of man and animals. There will be close cooperation between the institute and the Ancon Hospital and Leprosarium. In addition to the foregoing subjects, tropical botany and the biologic effect of sunlight will also receive attention. Provision will be made for the instruction of a limited number of students, the courses of instruction to be designed especially for those who have had laboratory training before. A limited number of research workers will also be received. Dr. Strong states that, since the president of a small South American republic, already overtaxed, had donated a memorial to an American, it was the duty of all American citizens, not only American physicians, to provide a suitable endowment fund with which to carry on the work of the institute.

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[1] Barr, D. P.; Cecil, R. L., and Du Bois, E. F.: Clinical Calorimetry, XXXII, Temperature Regulation After the Intravenous Injection of Proteose and Typhoid Vaccine, Arch. Int. Med. **29**: 608 (May) 1922.

[2] Cecil, R. L.; Barr, D. P., and Du Bois, E. F.: Clinical Calorimetry, XXXI, Observations on the Metabolism of Arthritis, Arch. Int. Med. **29**: 583 (May) 1922.

[3] Boothby, W. M.: The Basal Metabolic Rate in Hyperthyroidism, J. A. M. A. **77**: 252 (July 23) 1921. Janney, N. W., and Henderson, H. E.: Concerning the Diagnosis and Treatment of Hypothyroidism, Arch. Int. Med. **26**: 297 (Sept.) 1920. Janney, N. W.: Diagnosis of Hypothyroidism, California State J. Med. **19**: 313, 1921.

[4] Aub, J. C., and Taylor, Martha: The Effect of Body Tissues Other Than the Thyroid upon the Basal Metabolic Rate, Endocrinology **6**: 255 (March) 1922.

COLORADO

Personal.—Dr. Richard W. Corwin has returned to Pueblo after completing a tour around the world, which he undertook in September, 1921. Dr. Corwin's trip embraced Italy, Egypt, India, China, Japan, Korea, Australia and Honolulu. ——Dr. Philip Work, neurologist at the Woodcroft Hospital, Pueblo, has resigned from that position and will limit his practice to nervous and mental diseases.

New Medical Society.—The organization meeting of the Arkansas Valley Medical Society was held in La Junta, July 11. The following officers were elected for the ensuing year: president, Dr. Ralph Johnson, La Junta; vice president, Dr. M. Holmes, Cannon City, and secretary-treasurer, Dr. Harold T. Low, Pueblo. The association will hold a week-end meeting about September 1, in the mountains.

DISTRICT OF COLUMBIA

Medical Faculty of Georgetown University.—Changes in the medical faculty of the Georgetown University, Washington, have been announced by President John B. Creedon. Major Joseph P. Madigan, who has resigned from the Army, is to take the chair of anatomy. Dr. Thomas E. Neill and Dr. Murray Russell have been appointed associate clinical professors of surgery, and Dr. Harry A. Ong has been named as associate clinical professor of medicine.

FLORIDA

State Medical Meeting.—At the forty-ninth annual meeting of the Florida Medical Association held in Havana, Cuba, June 27-28, under the presidency of Dr. S. R. M. Kennedy, Pensacola, the following officers were elected for the ensuing year: president, Dr. Leonidas M. Anderson, Lake City; vice presidents, Drs. Herman Marshall Taylor, Jacksonville, Joseph L. Kirby-Smith, Jacksonville, and Leland F. Carleton, Tampa, and secretary, Dr. Graham E. Henson, Jacksonville.

Health Conference.—A conference was held in Orlando, July 5-6, of state, health and sanitary authorities for the purpose of standardizing and rendering uniform state laws governing health and sanitation throughout the state. Dr. Raymond C. Turck, Jacksonville, state health officer; Dr. Jesse R. Harris, Tampa, head of the department of health; Dr. Arms, Jacksonville, city physician; W. E. A. Wyman, St. Petersburg, pure food inspector, and Dr. Alvin J. Wood, city physician of St. Petersburg, were among the many that attended the conference.

GEORGIA

Prison Sentence for Physician.—It is reported that Judge Grubb recently sentenced Dr. H. E. Pontius, Atlanta, to eighteen months in the federal pentitentiary at Atlanta, for violation of the Harrison Narcotic Law.

ILLINOIS

Personal.—Prof. William C. Rose, Ph.D., who has held the chair of biochemistry in the University of Texas Department of Medicine, Galveston, since 1913, has resigned to become head of the department of chemistry of the University of Illinois, Urbana.

Illegal Practitioner Fined.—It is reported that Theodore Dilinsky, aged 71, of Houston Avenue, South Chicago, was fined $50 and costs by Judge Joseph W. Schulman recently, for practicing medicine without a license. Dilinsky attended a 3-year-old child who had been overcome by gas. The child died.

Physicians Fined.—It is reported that Drs. William R. Wesenberg and J. F. Hargan, both of Mound City, recently paid $10 each and costs for failure to report births. The complaints against the physicians were filed by the local state's attorney at the request of a special agent from the state department of public health.

New Bulletin on Medical Service in Schools.—The state department of public health announces the completion of a new bulletin setting forth detailed instructions in reference to the medical inspection of schoolchildren. The function of the school physician, the place and work of the school nurse and the part that should be played by the teacher, as viewed by the department, are all described. It is felt that the bulletin will be especially helpful to public health officers, school nurses and teachers. Copies may be had after August 15 by persons or organizations in Illinois without cost.

Pasteurization Campaigns.—The state department of public health has recently put in motion a campaign in favor of milk pasteurization. A model ordinance has been drawn up and the twenty-odd district health superintendents have been instructed to take advantage of every opportunity and to use every effort at their disposal in securing the adoption of the ordinance by the various communities in their several districts. Two recent and rather serious outbreaks of typhoid fever which were traced to the use of raw milk have added impetus to the campaign in certain sections. Nearly a score of the larger cities have the proposition of adopting the ordinance now up for consideration, while half a dozen have already adopted and are now enforcing it.

Hospital News.—The Sisters of St. Francis of Peoria have recently purchased the Holmes Hospital, Macomb, for $65,000. The institution will be consolidated with the present St. Francis Hospital.——The contract has been awarded for an addition to St. John's Hospital, Springfield, at a cost of $15,000.——Bids will be taken to August 15, on the $300,000 tuberculosis hospital building to be erected at Edwardsville by the county commissioners.——The new $75,000 addition to St. Francis Hospital, Litchfield, has just been completed, and another building will be erected for a power plant and employees' quarters at a cost of $35,000.——The John Marshall Browning Hospital, recently completed at DuQuoin, was dedicated, July 20. Dr. Clarence W. East, chief of the division of child hygiene and public health nursing of the state department of public health, delivered the principal address.

Chicago

Personal.—Dr. William A. Evans, medical editor of the Chicago *Tribune*, delivered an address before the Canadian and Ontario dental associations at the University of Toronto, Canada, recently.——The king of Denmark has conferred a knighthood on Dr. Peter Clemensen, Chicago, former member of the board of education.

Czechoslovak Hospital.—At a recent meeting of American citizens of Czechoslovak descent in Chicago, plans were made for the erection of a Czechoslovak Hospital. For this purpose, $30,000 has already been subscribed and a considerably larger sum pledged. The purpose of this institution is to provide physicians and nurses who speak their own language for the Czechoslovakians resident in and around Chicago.

INDIANA

Health Board Secretary Resigns.—Dr. John N. Hurty, Indianapolis, for more than twenty-six years secretary of the state board of health, presented his resignation, July 19, to take effect September 30. Dr. Hurty is Republican nominee in Marion County for the legislature. His successor has not yet been named.

IOWA

Personal.—Dr. Marcus P. Neal, assistant professor of pathology and bacteriology at the State University of Iowa College of Medicine, Iowa City, has accepted a position as professor of pathology and bacteriology at the University of Missouri School of Medicine, Columbia.——Dr. Edgar M. Medlar, head of the department of pathology at the University of Iowa, has left for Mount McGregor, N. Y., where he will do research work.——Dr. John Shuman, Sioux City, has accepted a position as professor of internal medicine at the American University, Beirut, Assyria, to succeed Dr. Harry Graham, recently deceased. Dr. Shuman will leave for his post abroad about the end of August.——Dr. John H. Stalford, Sac City, was recently reelected president of the Wall Lake District Medical Society.

KENTUCKY

Summer School.—A health conference, with the slogan "Live a little longer" was the feature of the summer school sessions at the University of Kentucky, Lexington, July 10-15. Dr. Percy K. Holmes, head of the department of hygiene and public health of the university, presided. Among the speakers were: Dr. Edith Hale Swift of the American Hygiene Association, New York; Dr. Annie Welch, director of the Bureau of Child Hygiene, Louisville, and Dr. John McMullen, U. S. Public Health Service.

LOUISIANA

Public Health News.—It has been officially announced by the U. S. Public Health Service that plague eradication work will be discontinued in New Orleans. For nearly a year not one single trace of rat infection has been discovered by the federal health workers under the direction of Dr. Marion S.

Lombard, and New Orleans has been given a clean bill of health as far as plague is concerned.

Campaign Against Ants.—The New Orleans Board of Health has given official approval to an extensive campaign against ants in the city, following individual requests from hundreds of residents. Surveys of the result of the campaign against the ant last year show that the extermination work was 95 per cent. effective. The cost of ridding the entire city of ants would be approximately $40,000, making an average of $12 for each block. The U. S. government entomologist will have charge of the campaign. Organization must be perfected and the funds which make extermination work possible must be in hand by August 15.

Hospital News.—The Eye, Ear, Nose and Throat Hospital, New Orleans, will move into a new building at Tulane Avenue. When the new four-story fireproof building is completed, the accommodations will represent an outlay of $500,000. Bequests and gifts from various people have made this possible, $100,000 being donated by Isaac Delgado, $20,000 by A. C. Hutchinson, $6,000 by Thomy Lafon, the negro philanthropist, and $50,000 by Mrs. John Dibert. Dr. Henry Dickson Burns is surgeon-in-chief. He succeeded the late Dr. DeRoaldes, founder of the institution.——A site has recently been purchased in New Orleans by Mrs. Thomas of New York for a home for worthy old people and convalescent mothers. This institution will be known as the Holmes-Thomas Home and Mrs. Thomas has set aside a trust fund of about $800,000 for the erection and endowment of the home. The donor requests that not more than one third of the principal be expended for the construction of the institution. Dr. Rudolph Matas and Dr. A. B. Dinwiddie, president of Tulane University, have been requested to act on the board of directors of the home fund corporation.——A twin building joined by another structure to the first quarters of the St. Rita Surgical Infirmary, New Orleans, is being erected to double the capacity of the institution. Two operating rooms, more than fifty beds and many other improvements will ultimately be incorporated in the hospital.

MARYLAND

Personal.—Dr. George W. Corner, associate professor of anatomy at Johns Hopkins University Medical School, Baltimore, has been appointed head of the department of anatomy in the new school of medicine and dentistry now being organized at the University of Rochester, N. Y.

Hospital News.—Work has been started on the $200,000 hospital building and kitchen of the Maryland State Sanatorium, Henrytown.——Working drawings for the municipal hospital for infectious diseases to be erected at Montebello, Baltimore, have been signed by Dr. C. Hampson Jones, commissioner of health, Baltimore.

Test of Birth Records in Maryland.—Birth registration of children born in Maryland is to be subjected to a complete test under a plan worked out by Dr. John S. Fulton, secretary of the state department of health, in cooperation with the Maryland League of Women Voters. Under the plan, 1,000 mothers, members of the league, will request from the state department of health certificates of the registration of the births of their children under 5 years of age. There is a law in the state requiring a report to the state department of health of the birth of every child, but it is believed the figures are far from being complete. All of the work is being done to prepare for the opening of the child hygiene bureau, of which Dr. J. H. Mason Knox has been recently appointed chief. When it is ascertained where the health department stands in this matter, steps will be taken to put the bureau in shape to compute the death rate of children in Maryland and to take immediate steps to lower it.

MASSACHUSETTS

Floating Hospital.—The Boston Floating Hospital started from the North Pier, June 28, on its twenty-ninth annual health voyage for children. The ship leaves daily, returning in the evening, and anchors for the night. It has accommodations for about 115 permanent patients, and from eighty to 100 day patients. The staff is composed of seventy nurses and sixteen physicians, under the direction of Dr. Henry I. Bowditch.

Public Health Lectures.—The Committee on Public Health of the Massachusetts Medical Society has been able, during the last three years, to arrange with well known specialists to give talks at meetings of the district medical societies in Massachusetts. A similar arrangement has been made this year and the following physicians will speak without charge before the societies, for thirty or forty minutes, on subjects relating to the promotion of public health: Drs. Jose Penteado Bill, Frank C. Dunbar, Walter E. Fernald, Timothy Leary, Edwin H. Place, C. Morton Smith, George Gilbert Smith, Lesley H. Spooner, William C. Woodward and Thomas F. Kenney. George H. Wright, D.M.D., lecturer on hygiene at Harvard Dental School, will give lectures on dental surgery.

MICHIGAN

Hospital News.—A new hospital will be constructed at Traverse City to take the place of the old General Hospital, as authorized by the state administrative board. Construction work will be started this month on the new modern building The institution will have a capacity of fifty beds and well equipped maternity, surgical and medical wards. It will be under the direction of Dr. J. D. Munson, who is now superintendent of the Traverse City State Hospital.——The Westerlin Hospital, Iron Mountain, has been purchased by the Franciscan Sisters of Charity, it was recently announced.——The new St. Lawrence Hospital, Lansing, will be erected in the near future at a cost of $350,000. The Sisters of Mercy will donate $150,000 toward the building.

MONTANA

State Medical Meeting.—At the annual meeting of the Medical Association of Montana, held at Great Falls, July 12-13, under the presidency of Dr. W. W. Andrus, Miles City, the following officers were elected for the ensuing year: president, Dr. Harmon T. Rhoads, Choteau; vice presidents, Drs. P. A. Dolan, Helena, James B. Reynolds, Great Falls, and Lawrence R. Packard, Whitehall, and secretary-treasurer, Elmer G. Balsam, Billings (reelected).

Personal.—Dr. Howard L. Botts, Billings, county health officer, has resigned to accept a position in Seattle. Dr. Eri M. Farr has been appointed successor to Dr. Botts.——Dr. Ernest D. Hitchcock, epidemiologist for the state board of health and director of the hygiene laboratory, Helena, has resigned to associate himself with a clinical group in Great Falls. Dr. Hitchcock will take over the diagnostic work of the clinic and for the Deaconess Hospital.

NEBRASKA

Personal.—Dr. Margaret W. Koenig, Lincoln, child welfare worker for the Lincoln board of education, has left for Washington, D. C., to take up rural child hygiene for the government, under the provisions of the Sheppard-Towner bill. Her first work will be in Tennessee.

Health Officer Urges Reports on Contagious Diseases.—Dr. I. H. Dillon, chief of the bureau of health of Nebraska, has recently called the attention of physicians of the state to their laxity in reporting contagious diseases. Evidence is cited to indicate that in some instances more deaths than cases are reported, making it impossible to secure adequate statistics. In concluding his statement, Dr. Dillon states that he is opposed to "state medicine"; but, he warns, "Unless the medical profession, both individually and collectively, are able to show a better record . . . the public will, in the near future, provide for some form of state medicine by legislative enactment, for its own protection."

Nutrition Institute.—At the summer school of education conducted by the Cleveland Public Schools, a nutrition institute was held recently at Lincoln. The Lincoln Institute was the first to be held by the department of medical inspection in the city. About 100 people were in attendance, including a number of physicians. Dr. Katharine H. R. Wolfe organized this department. Dr. William R. P. Emerson gave addresses at dinners and conferences of representatives of the leading child-helping organizations, including the Associated Charities and juvenile court, the educational executives of the University of Nebraska, and of the public schools, and members of the medical and dental associations. In September, an institute will be held in Hartford, under the direction of the nutrition clinics for delicate children, followed by others in Poughkeepsie, Battle Creek, Denver and Honolulu.

NEW JERSEY

Psychologic Test at University.—It has been recently announced that Princeton University will require every man entering the college to undergo a psychologic test in addition to the regular examination. A trial period of two years has been set for the test. If, however, a man fails to pass the test, but his written examinations are satisfactory, he will not be disqualified. At the end of the trial period if the report of the faculty committee which has charge of the test proves satisfactory, the psychologic test will be thereafter essential as a written examination.

NEW YORK

Columbia University Teaches Eye Conservation.—The first training course in eye conservation ever given for teachers under the auspices of an American university was opened recently at Columbia University, with a class of twenty-one. A feature of the course is an observation class composed of children from New York City schools whose defects of vision have placed them in the sight-saving classes. Dr. Robert R. Irwin, supervisor of the sight-saving department of the public school of Cleveland, is general director of the Columbia course. A committee, composed of representatives of city, state and national organizations, which is cooperating with Columbia in the arrangement of these courses is headed by Dr. Thomas J. Riley.

Hospital News.—A new Jewish Hospital will be erected at Buffalo at a cost of $1,000,000.——The cornerstone of the St. Francis Hospital, Poughkeepsie, was laid, July 4.——A three-story addition will be erected at the Buffalo General Hospital.——Construction work will soon be started on the new buildings for Moses Hospital, Ticonderoga, to be erected at a cost of $250,000.——Eleven tuberculosis hospitals in the state have adopted occupational therapy as part of their regular treatment.——A new addition will be made to the state laboratories at Albany at a cost of $90,000.——The Unity Hospital, Brooklyn, has acquired ground for the purpose of erecting a modern institution devoted to the treatment of diseases of the eye, ear, nose and throat and oral surgery. The building will be four stories high and will be equipped with modern facilities.——The Methodist Hospital, Brooklyn, will inaugurate a campaign for $1,000,000 to erect a new maternity pavilion.——Construction work has been started on the new hospital to be erected on the grounds of the state Odd Fellows' Home at Lockport, at a cost of, approximately, $40,000.——The Bronx Maternity Hospital will build a five-story annex to be used as a private pavilion. This building will contain about fifty beds and will enable the hospital, which was opened two years ago, to use its present quarters exclusively for charitable work.——A public health laboratory has been established in the Champlain Valley Hospital at Plattsburg, for Clinton County, by the action of the board of supervisors in appropriating $2,000 annually toward the maintenance of the laboratory. This laboratory was established through a gift from David Merke of Plattsburgh in memory of his parents, and is known as the Merke Memorial Laboratory.

New York City

Find Lost Radium Under Ton of Ashes.—A tube of radium valued at $1,000 was lost at the Methodist Episcopal Hospital, July 12. After a vain search, the radium was located by means of the electroscope beneath about a ton of ashes that had passed through an incinerating plant in the hospital yard. The radium, a 10 milligram tube, was uninjured by its passage through the furnace.

Associated Outpatient Clinics.—At a meeting of the section of ophthalmology, the many problems represented by outpatient work in eye clinics was brought to the attention of the society. Consideration was given to topics such as lack of professional standards, paucity of equipment, overcrowding in all clinics, especially for work on refraction, the abuse of the clinic by patients able to pay, failure of patients to secure glasses when prescribed, unsatisfactory financial arrangements with opticians, lack of uniformity of fees, charges for admission, drugs, laboratory examinations and glasses, lack of organization for research, incompleteness of records and inadequacy of filing systems. A committee was appointed for studying these topics, with Dr. Walter E. Lambert as chairman. Dr. Conrad Berens, Jr., made a study of professional methods, equipment, records, teaching and research in nine institutions. Studies of the admission procedure, fee systems and the provision of glasses in four special eye clinics and eight eye clinics in general dispensaries were made by Dr. Gertrude E. Sturges. In order to ascertain the need for systematic follow-up system in eye clinics, a study was made of 5,200 records from five representative clinics. A summary of the findings of the studies, together with the conclusions and recommendations arrived at by the committee will be presented in the report of the section, which will be available in the fall.

NORTH CAROLINA

Free Vaccine Dispensaries.—Free dispensaries for typhoid and diphtheria vaccine will be conducted in Wake County in July and August, under the direction of Dr. R. F. Long. Dr. Long is substituting for Dr. Bulla, who is very ill.

Medical Meeting.—At the Sixth Councilor District Medical Society of North Carolina held in Durham, recently, Dr. Harris H. Bass, Henderson, was elected president, and Dr. Eric A. Abernethy, Chapel Hill, vice president. Dr. Burton W. Fassett, Durham, was reelected secretary-treasurer.

OHIO

Personal.—Dr. Harry S. Noble, St. Marys, has been elected president of the Auglaise County Medical Society.——Dr. James H. Smith, Holgate, has been appointed county health officer of Henry County and will reside at Napoleon.——Dr. Arthur O. Peters, health commissioner of Dayton, has been elected president of the Montgomery County Medical Society to succeed Dr. C. N. Chrisman.

Public Health News.—The standard of health officers has been raised considerably since the change from a health officer for each township, village and city, to a health commissioner for each city and one for each county. Under the old plan, there were 2,150 health officers in the state. They were elected by health boards, and in the smaller places it was difficult to obtain men who were qualified for the work, many of them having no knowledge of medicine or health work. Of the 171 health commissioners who have replaced them, all but twelve are physicians, and two of the twelve are public health nurses. A correspondence school course provides them with a thorough knowledge of the work required, further augmented by a series of lectures by Dr. E. Shaffer, who has been placed in charge of the lecture bureau.

OREGON

Amalgamation of Medical Societies. — Preliminary plans have been made for the ultimate amalgamation of activities of the Portland City and County Medical Society, the Portland Academy of Medicine and the Oregon State Medical Association. Representatives of each organization were summoned by Dr. John Guy Strohm, president of the city and county medical society, July 4. City Health Officer George Parrish was appointed chairman of a committee of five to investigate the situation, with Dr. Alpha E. Rockey, Dr. William B. Holden, Dr. Clarence J. McCusker and State Health Officer Frederick D. Stricker. The three organizations now have an annual overhead of approximately $21,000. It is estimated that by combining, the expense will be materially reduced and funds saved for the construction of a central building, as headquarters for the combined societies.

PENNSYLVANIA

Personal. — Dr. Richard J. Behan, Pittsburgh, gave an address on "Pain" at a recent meeting of the Allegheny Garrett County Medical Society at Grantsville.——Dr. James G. Cumming, Oil City, has been appointed chief of the bureau of health by Health Director Furbush.——Dr. Lawrence Webster Fox, Philadelphia, recently sailed for Scotland, where he will read a paper before the annual convention of the British Medical Association at Glasgow.——Dr. Pascal Brooke Bland, Philadelphia, was the principal speaker at a meeting of the Cumberland County Medical Society at Vineland, July 11.——Dr. Harry B. Schaeffer, Shillington, has been appointed prison physician at Reading to succeed Dr. Henry P. Brunner, who resigned recently.——The degree of doctor of laws has been conferred by Lafayette College on Dr. Alfred Stengel, professor of medicine in the University of Pennsylvania.——Dr. F. T. Aschmann, Pittsburgh, chemist to the Pennsylvania Bureau of Foods, has been elected chairman of the board of chemists of the bureau, to succeed the late Prof. William Frear.

Philadelphia

Ayer Clinical Laboratory.—The bulletin of the Ayer Clinical Laboratory of Pennsylvania Hospital, which has been suspended for eleven years, is again being published. It is expected the series now under way will be permanent.

SOUTH CAROLINA

Health Officers' Meeting.—The annual meeting of the South Carolina Association of County Health Officials was held in Charleston, July 3-5. Dr. Luther A. Riser, Columbia, director of rural sanitation of the state board of health, and Dr. Leon Banov, health officer of Charleston County, were reelected as president and secretary, respectively.

Venereal Disease Clinics.—The directors of the venereal disease clinics in Spartanburg, Orangeburg, Greenville and Columbia held a meeting in Columbia, June 27, with Dr. James A. Hayne, state health officer, who represents the government in venereal disease work. The officers of these clinics discussed an educational campaign featuring the need of venereal disease clinics in each county in the state. The federal government has appropriated $3,583 for the venereal disease clinics in the state on condition that the clinics appropriate a like amount. The four clinics mentioned have met this condition, so that the clinics have $7,166 to carry on the work, with various contributions and subscriptions from other sources.

VIRGINIA

Mental Health Commission.—The governor has appointed Dr. S. C. Hatcher, Ashland, chairman of the commission on mental health, which was created by an act of the last General Assembly. Dr. Thomas S. Hening, Jefferson; Dr. William D. Prince, Stony Creek; Dr. William F. Drewry, Petersburg; Dr. Albert S. Priddy, Colony; Dr. Ennion G. Williams, Richmond, and Dr. Paul V. Anderson, Richmond, are other members of the commission.

Personal.—Dr. Charles Calhoun Hedges, Marietta, Ga., was appointed instructor in anatomy at the University of Virginia recently.——Dr. Frank Helvestine, Jr., Roanoke, has been appointed instructor in pathology at the University of Virginia, Charlottesville.——Dr. Percy Harris, who was recently appointed city physician for Lynchburg, has resigned the position and decided to remain at Scottsville.——Dr. Edward S. Lester, Witt, has been appointed examining physician by the Norfolk and Western Railway and has moved to Bluefield, W. Va.——Dr. Michael W. Minor, Comorn, has been elected president of the board of directors of the bank of King George.——Dr. Albert C. Lancaster has been elected a member of the city council of Martinsville.——Dr. Stuart McGuire, Richmond, is one of the five men appointed by the governor to complete the personnel of the new war memorial commission, created by terms of a resolution adopted during the last session of the General Assembly.——Dr. William L. Moss, former professor of medicine at the Medical School of Harvard University, Boston, has been appointed head of the school of medicine at the Medical College of Virginia, Richmond.

WEST VIRGINIA

Personal.—Dr. Aaron Arkin, professor of pathology and bacteriology at the West Virginia School of Medicine, Morgantown, has been granted a year's leave of absence for study and research abroad. He will spend the year in Vienna, Berlin, Paris and London doing work in pathology and medicine.

CANADA

Canadian Public Health Association.—The annual meeting of the association was held in St. John, N. B., June 6-7, under the presidency of Hon. W. R. Roberts, minister of health of New Brunswick. The following officers were elected for the ensuing year: president, Dr. William C. Laidlaw, Edmonton, Alta.; vice president, Dr. Joseph A. Baudouin, Montreal; secretary, Dr. John T. Phair, Toronto, and treasurer, Dr. Albert G. Fleming, Toronto.

Honor for Physician.—On the occasion of his retirement from the University of Toronto Faculty of Medicine, a dinner was given in honor of Prof. Irving H. Cameron, June 2, and a portrait of him was presented to the University by Prof. Clarence L. Starr, chairman of the subscribers committee. More than 100 of the subscribers to the portrait attended the banquet. The university was represented by the chancellor, the president and Sir Joseph Flavelle, of the board of governors, who joined in expressing their pleasure in accepting for the university so fitting and lasting a memorial.

Medical Council of Canada.—At the annual meeting of the council held in Ottawa, June 1, the following officers were elected: president, Dr. Louis P. Normand, Three Rivers, Que.; vice president, Dr. James M. MacCallum, Toronto, and registrar, Dr. Robert H. W. Powell, Ottawa. Dr. A. G. Brett, Edmonton, presided. There are thirty-two members of the council, which is an administrative body created under the Canada Medical Act, consisting of representatives from the provinces and the universities. Licentiate of the Medical Council of Canada (L. M. C. C.) is the qualification created by the Canada Medical Act and it is accepted in all provinces as sufficient for license. It was decided to offer an examination in English and French, at Montreal, Que., and Halifax, N. S., October 10.

Medical Association News.—The Canadian Society of Pediatrics was organized at a meeting in Toronto, recently. Dr. Alexander D. Blackader, Montreal, was elected the first president of the society. Dr. Alan G. Brown, Toronto, and Dr. Morgan, Toronto, were elected vice president, and secretary-treasurer, respectively. Drs. Henry P. Wright, Montreal, Alan W. Canfield, Toronto, and John G. A. Campbell, Ottawa, are the members of the executive committee.——The annual meeting of the British Columbia Medical Association will be held, August 21-26. The place of meeting has not yet been announced.——The Canadian Radiological Society applied at the recent meeting of the Canadian Medical Association in Winnipeg to be recognized as a separate department of medicine in affiliation with the Dominion organization. Its active membership consists exclusively of reputable medical men, members of the Dominion Association, who are actively engaged in this specialty and derive the major portion of their income from it. They have recently established a bureau of consultation, and are prepared to give advice to members of the profession on all matters pertaining to the use of roentgen ray and radium and also to assist and advise institutions and physicians who desire to purchase apparatus in the selection of their equipment.

PHILIPPINE ISLANDS

Child Welfare Clinic.—The Clinica Infantile has been established in the city of Iloilo for the treatment of babies, children, pregnant women and mothers desiring medical advice and treatment, by the Perfection Lodge, Lopez Jaena, No. 3, with the help of some lodges of higher degree. This clinic is operated by physicians who receive no salary for their services and is open for consultations and treatments for two hours daily, free of charge. There is also no charge for medicines. The present clinic is temporarily in the Gonzalez Building, but a new structure is being erected at a cost of, approximately, 3,000 pesos, which will be known as the Clinica Infantile Masonica, with three emergency beds. Additions will be made to the building yearly, with the object of using it eventually for a charity hospital. A campaign has already been inaugurated to raise funds for this purpose. Another clinic for the treatment of tuberculosis will be established in connection with the Clinica Infantile when enough money is available. All the attending physicians are Masons in good standing, but special credit is due to Drs. Zaldariaga, Gilchrist and Hinojales and Mr. E. Gonzalez, for their untiring efforts to make the clinic a success. A baby contest was held in June, in which more than fifty babies took part. Ten prizes were distributed to the mothers of the winning babies.

GENERAL

Warning!—An Old Trick Revived.—A Chicago physician writes that a young man called at his office representing himself to be the son of a down state physician and telling a tale of financial distress because of his having been robbed, etc. He requested a sum of money sufficient to take him to his own home and promised to return the loan by the next day. When the applicant secures the loan, the transaction is finished.

Pacific Coast Association of Anesthetists.—At the annual meeting of the association at Yosemite Valley, the following officers were elected for the ensuing year: president, Dr. George P. Waller, Los Angeles; vice president, Dr. Mary E. Botsford, San Francisco, and secretary-treasurer, Dr. Eleanor C. Seymour, Los Angeles. The next meeting of the association will be held in San Francisco, June 25-27, 1923, in joint session with the American Association of Anesthetists and in conjunction with the Annual Session of the American Medical Association.

National Health Conference.—"Making America healthier" was the object of the Conference of Health Education and the Preparation of Teachers at Lake Mohonk, N. Y., June 26-July 1. The Child Health Organization of America and the U. S. Bureau of Education is cooperating to teach teachers how to convey to children in easily understandable terms the idea of health habits. Charles E. A. Winslow, M.S., M.A., of Yale University School of Medicine, was chairman of the program committee and Dr. Thomas D. Wood of the Teachers' College, Columbia University, was chairman of the sessions for the week. Drs. John R. Finley, state commissioner of education; Mary Swartz Rose, Albert Aheils, Willard S. Small of the U. S. Bureau of Education, Ray L. Wilbur and William D. Wirt were other members of the committee. Dr. L. Emmett Holt, president of the board of trustees of the Child Health Organization of America, delivered the address of welcome.

LATIN AMERICA

Personal Tribute to Cuban Physician.—Spanish public health officials tendered a banquet to Dr. C. E. Kohly, the Cuban delegate to the Sanitary Organization Congress to be held in Madrid. Many of the most prominent Spanish physicians attended, and a speech was delivered by the Spanish secretary of education.

Second Mexican Infant Welfare Congress.—A call has already been issued for the Second Infant Welfare Congress, which will be held in Mexico, Jan. 2-9, 1923. The secretary-general is Dr. F. Castillo Nájera. The chairman of the several sections are: eugenics, Prof. I. Ochoterena; hygiene, Dr. R. Carrillo; medical pediatrics, Dr. J. Cosío; surgical pediatrics, Dr. Díaz Lombardo; education, Dr. A. Pruneda; propaganda, Luis Jaso.

New Argentine Monthly.—A new illustrated medical magazine, *Album Médico Argentino*, has begun publication in Argentine. It will make a feature of illustrations, and all papers published will be accompanied by the author's photograph and autograph. Aside from its scientific section, there will be departments of social, literary and artistic medicine. The first article, by Dr. Eliseo Canton, traces the establishment of the protophysician's office in 1778, which anteceded the foundation of the Argentine medical school in 1801. Before that time, medical matters were under the control of the Lima medical office. The subscription to the *Album* is 12 pesos ($4.38). The editors insist that theirs is not an advertising scheme although at first sight it may seem so. It is printed on good paper, large magazine size, and contains an average of twenty pages. The address is Venezuela 766, Buenos Aires.

Mexican Medical Congress.—Arrangements are being made for the celebration of the Seventh Mexican Medical Congress which will be held at Saltillo, Sept. 3-10, 1922. The following organizing committee is in charge: president, Dr. D. M. Vélez; first vice president, Dr. J. M. Rodríguez; second vice president, Dr. J. Valdez Sánchez; secretary-general, Dr. E. Landa; treasurer, Dr. G. M. Malda; reporter, Dr. T. G. Perrín; members, Drs. F. Bulman, R. Silva, F. Castillo Nájera, Mr. A. Aragón and Dr. E. F. Montaño. An appropriation has been asked of the national government. One of the novelties of the congress will be the sending by the National University of a group of students, who will represent the six different medical years. The organizing committee has begun the publication of a special bulletin to discuss matters related to the congress. Previous congresses were held in 1892, at Mexico City; in 1894, at San Luis Potosí; in 1897, at Guadalajara; in 1910, at Mexico City; in 1918, at Puebla, and in 1920, at Toluca. One of the plans is to have each of the Mexican states appoint a physician to study some local disease and report the results at the meeting.

FOREIGN

Gift to Paris Academy.—One million francs has been bequeathed to the Paris Academy of Medicine by the will of the late Prince Albert of Monaco.

Special Degree in Patologic Anatomy.—The *Liége Médical* of July 9 is devoted entirely to the inaugural thesis of Dr. Jean Firket, when the degree of *Docteur spécial en Sciences anatomo-pathologiques* was conferred on him by the medical faculty of the University of Liége. His subject was "Regeneration of the Blood Platelets After Saponin Poisoning and After Defibrination of the Blood." It was followed by a historical sketch of experimental cancer research to date.

New Heart Journal in Spain.—A journal entitled *Archivos de las Enfermedades del Corazón y de los Vasos* has begun publication in Spain. It will appear irregularly, whenever sufficient material accumulates. It is printed on good paper, with many illustrations. The editor is Dr. Durán Arrom, Paseo de Gracia, 99, Barcelona, who is apparently also the author of all the papers appearing in the first number. The price is 7 pesetas ($1.09).

Union Medical School.—Mission and educational bodies of East China have set in motion a project to build in Shanghai a union medical school at a cost of $500,000, thus reviving an undertaking originally planned by the Rockefeller Foundation, but later abandoned. St. John's University of Shanghai is one of the institutions actively supporting the project. This school has had a medical department for more than a quarter of a century. When the Peking Union Medical College was being erected by the Rockefeller Foundation a plan to expand St. John's Medical School into a Union College at Shanghai was proposed to the Foundation and approved, but the purpose was abandoned in 1920 and has only been revived again recently.

Annual Meeting of the Netherlands Medical Association.—The seventy-third annual meeting of the Nederlandsch Maatschappij tot Bevordering der Geneeskunst was held, July 3, at Maastricht, in the extreme south of the country. The president, Dr. H. Klinkert, opened his address with a quotation from a leading Swiss physician of the last century, Dr. Sonderegger, who wrote on his seventieth birthday, "When I get to Heaven, I will devote myself for the first five thousand years to the study of medicine. What bliss to study the old problems with supernatural insight and ways and means!" Klinkert's brilliant address was devoted to the question whether the increasing tendency to specialism is rendering the family physician superfluous. He reviewed his own fifty-two years of practice as he sought to carry on the sacred torch placed in his hands by the masters before him. "C'est une belle vocation mais un rude métier," but he is convinced that the position of family physician will grow more and more in prestige and importance. "The family physician will keep abreast of progress in the specialties. . . . The scientific and ethical level of the medical profession in a country is the gage of its rank in civilization."

Personal.—Dr. John Hill Abram has been appointed to the chair of medicine of the University of Liverpool, England, made vacant by the resignation of Prof. Thomas R. Glynn. ——Dr. John Thomson and Dr. Norman Walker have been equally awarded the Victoria Jubilee Cullen Prize by the Royal College of Physicians, Edinburgh, for the greatest benefit done to practical medicine.——Sir Thomas Lewis recently returned to England after four weeks' sojourn in America.——Lieut.-Col. B. H. Deare, professor of medicine at the Medical College of Calcutta, India, has been appointed surgeon-general with the government of Bengal.——The pupils and other friends of Prof. L. Bolk of the chair of anatomy at the University of Amsterdam recently presented him with his portrait in oil, with a number of complimentary addresses; over 570 persons contributed to the fund.——Prof. A. Moussous of the chair of children's diseases at the University of Bordeaux was presented in June with a souvenir plaque and other tributes on the occasion of his promotion in the Legion of Honor.——The Albrecht von Graefe medal is awarded every ten years by the German Ophthalmologic Society. The previous recipients have been Helmholtz, Leber and E. Hering, and this year it was awarded to Hess of Munich. Professor von Hess was the guest of the American Medical Association at the Atlantic City meeting in 1907. ——Professor Grober of Jena has returned from a lecture trip to Argentina.——Dr. Valle Aldabalde and Dr. Vicente Gimeno were elected to the two vacant seats in the Academía Nacional de Medicina at Madrid.——Dr. A. Ferrannini, editor in chief of the *Riforma Medica*, has been decorated by the king of Italy as commander of the Corona d'Italia.——A farewell banquet was tendered to Dr. U. Carpi at Lugano as he left to take charge of the large public hospital at Milan. ——Dr. Gómez Ulla of Madrid was recently tendered a banquet by 300 of his clients and other friends.——Dr. Victor Manuel Nogueras was presented with an engraved tribute signed by all the soldiers who had passed through his hands in the military hospitals at Melilla during the recent campaigns in northern Africa. The occasion was a banquet offered him when on leave in Madrid. The government, the army medical department, the Spanish Red Cross, army nurses, and others joined in the tribute. The *Medicina Ibera* gives details of the addresses.

Deaths in Other Countries

Dr. **L. Benini** of Modigliana, Italy, succumbed to postoperative pneumonia after an operation for hydatid cyst of the liver, aged 63.——Dr. **P. Gerosa**, noted for his campaign to popularize sanatorium treatment for the tuberculous. He bequeathed his property to the sanatorium at his home, Intra.

——Dr. **W. Richter**, chief of the dermatologic service of the Chemnitz public hospital.——Dr. **Ramon Salto** of Madrid. ——Dr. **F. Kratschmer-Forstburg** of Vienna, at one time surgeon-general of the Austrian army, aged 79.——Dr. **Emil Sioli**, formerly professor of psychiatry at Frankfort, aged 70.

Government Services

Maneuvers at Medical Training Camp

The Medical Department Reserve Officers' Training Corps camp, which has been in operation at Carlisle Barracks, Pa., since June 22, was temporarily removed to the Gettysburg battlefield, July 1, for the maneuvers of the U. S. Marines. Two days previously, an exhibit of experimental models of proposed new field devices, as developed by the Medical Department Equipment Laboratory at Carlisle, was set up in the camp of the Marines at Gettysburg, for the purpose of demonstrating this equipment to the officers of the Marines and the attached naval medical personnel. The medical exhibit consisted of an experimental model of a new hospital ward tent for base and evacuation hospitals, together with a proposed new combat wagon, a veterinary leading apparatus, a veterinary ambulance, one standard ambulance spare parts trailer, one wheeled litter carrier, a new food cabinet, and an evacuation hospital electric lighting unit. The lighting unit was operated successfully and received much favorable comment. The exhibit was in charge of Major John P. Fletcher, Medical Corps, U. S. Army, the director of the Medical Department Equipment Laboratory at Carlisle. July 4, there was reenacted the mimic battle of Gettysburg, which was executed with reference to all the practices and inventions with arms of modern production. At the conclusion of the maneuvers, tents were struck and the R. O. T. C. students returned to their own camp at Carlisle Barracks, to resume their training.

Retiring Board for Army

The board of general officers has been appointed to supervise and make recommendations for the reduction of the number of officers in the regular Army, in accordance with a recent act of Congress. Major-Gen. Joseph T. Dickman, retired, will act as president. Other members of the board include Major-Gen. Merritt W. Ireland, Surgeon-General of the Army, Major-Gen. Henry P. McCain (retired), former adjutant-general, and Brig.-Gens. Andre W. Brewster and Ernest Hinds.

Promotions in the Navy

Three officers in the Medical Corps of the Navy have been recommended for promotion by the selective board of the Navy. They are Lieut.-Coms. Addison B. Clifford, Eugene A. Vickery and Richard A. Warner. All are to be advanced to the grade of commander.

Reduction of Army Medical Personnel

In an official report issued by the War Department and signed by General Pershing the number of officers in the Medical Department of the Army to be eliminated as a result of the recent appropriation act of Congress was announced. It follows:

Medical Administrative Corps	143
Dental Corps	76
Veterinary Corps	32
Medical Corps	66
Total	317

The procedure to be followed by the elimination board in selecting the officers to be retired or discharged from the service is also included in the report. An epitome of it reads:

First: All officers having less than ten years' service who are eliminated will be discharged and given a year's pay.

Second: Officers having more than ten years' service, but less than twenty, will be retired on a basis of 2½ per cent. of the pay for each year's service; thus a Captain or Major with twenty years' service will receive 50 per cent. of $2,400 or $3,000, as the case may be, in form of monthly payments as retired pay.

Third: Officers serving more than 25 years will be retired if physical disability exists, on the regular retirement status, that is, 75 per cent. of the rate of pay at the time of retirement. It has been pointed out that few Lieutenants will be affected in the retirement plan, as practically none of them has ten years' service to his credit.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 3, 1922.

The Imperial Bureau of Entomology

Sir Arthur Shipley, in the *Times* recently, contributed an interesting account of the Imperial Bureau of Entomology. The bureau arose from the Entomological Research Committee, which was instituted in 1909, and was established in 1913 to encourage and coordinate entomological work throughout the empire in relation to human, animal and plant diseases. The committee of the bureau is widely representative, and includes the chief entomologist in each of the dominions. Its director is Dr. G. A. K. Marshall. The extent of the work done is shown by the fact that during the last year some 53,000 insects have been submitted for identification by eighty-two correspondents scattered throughout the empire. This collection often contained, of course, more than one specimen of a single species. Identifications of 4,300 different species have been issued in the same period. Much of the material is returned to the collectors, but 13,000 specimens were presented to the British Museum, of which 171 were types or species new to science, and 428 were species not previously represented in the national collection. About 5,000 classified bloodsucking insects were distributed to various institutions throughout the empire for teaching purposes.

Apart from collecting, identifying and registering this vast mass of material, the bureau issues two periodicals of great value. One, a quarterly, the *Bulletin of Entomological Research,* contained in the latest number forty original papers and comprised nearly 500 pages. The other periodical, the *Review of Applied Entomology,* is brought out monthly in two series, one dealing with insects injurious to plants, the other with insects that disseminate human and animal diseases. It summarizes all the papers or books concerning insects of economic importance published in any part of the world in any language. It is interesting to note that, before the collapse of civilization in Russia, the abstracts of Russian articles were almost equal in number to those of the United States. More than 1,000 periodicals are examined by the staff of the bureau, and the last volume contained nearly 2,300 abstracts. The bureau has many other activities. It has gradually collected a library of the utmost value, which is card-catalogued. It has prepared an analysis of the laws of the various countries with respect to the importation of plants which may bring with them new and dangerous pests. By the aid of a donation from the late Mr. Carnegie, it has sent students to study the methods of dealing with insect pests in the United States. It has also sent investigators to tropical Africa who have, under trying circumstances, done good work in connection with various disease-carrying insects. Much of the work is too varied for detailed explanation, and every year it increases. At the present time, the committee has under consideration a new activity—the supply of beneficial parasites to keep down insect pests. The bureau is in effect a clearing house for entomological research. It is financed by grants provided by the imperial government and the governments of the dominions, India and the colonies—forty governments in all. During the year ending March 31, its receipts were $62,500 and its expenditure $55,000.

When Is a Consultant Not a Consultant?

A dispute as to fees which ended in the court is of considerable interest. A physician holding appointments at some minor hospitals sued for the recovery of $655, fees claimed for visits at $10, consultations at $15 and attendance at an operation on the defendant's son for appendicitis, for which he charged $75. The defense was that the fees were unreasonable, as the work done was not a consultant's. Sir Thomas Horder gave evidence that a consultant's work consisted in seeing patients in conjunction with their family physician or by communication with him. But, being a registered practitioner, the consultant had the right to do the work of a family physician if he had the time and inclination. It was also within the right and privilege of the general practitioner, who possessed the personality and experience, to do the work of a consultant. If a consultant did a general practitioner's work, it would not be fair to charge the same fees as if he were doing a consultant's work.

Sir Thomas thought that the plaintiff, in attending the defendant's son, was acting in the capacity of a family physician. He found it difficult to give an opinion on the fee, but he thought that a reasonable one in the part of London in which the defendant lived would have been $5 before the war. There had been a recommendation that there should be an increase of 50 per cent., to which effect had generally been given. But when several visits were made in one day, $5 would be reasonable, notwithstanding the 50 per cent. He did not consider that $75 for attending an operation was reasonable. In his opinion, $25 would be reasonable, and he would charge that himself. Mr. C. H. Fagge, who performed the operation for appendicitis, said that he thought that the plaintiff was present in the capacity of family physician. His fee for the operation was $787. The defendant gave evidence that, in 1918, the plaintiff attended him on various occasions for a fee of $5 and that he was called in the capacity of a general practitioner.

Mr. Justice McCardie, in giving judgment, said the case raised a question of considerable importance to the public; namely, what fees a physician was entitled to charge in various circumstances. The defendant was a rich man, but he fought the case as a matter of principle. His defense represented a protest by business wealth against the theory that a rich man should pay unusual fees. But the plaintiff contended (in substance) that a physician's fees should vary with the financial status of the patient. After the operation, the plaintiff paid forty-nine visits to the nursing home, sometimes several in the day. For these, he charged $10 each. For the single day of the operation, he had charged $75 for attendance at operation, and $40 for four visits. On other days, he charged for four or three or two visits, as the case might be, at the $10 rate. The justice did not consider the plaintiff a consulting physician in the strictest sense, which meant one who acted only in conjunction with the family physician. He frequently visited the houses of patients in much the same capacity as a general practitioner, charging the same rate of fees. The charge of $75 for attendance at the operation was excessive. Sir Thomas Horder, a physician of the greatest eminence, had said that he would not charge more than $25. The justice also thought that the charge of $40 for the four visits on the day of operation was excessive. He gave judgment for $465.

The Suspended Treatment of Venereal Diseases

In a valedictory presidential address, at the seventh annual meeting of the National Society for Combating Venereal Diseases, Lord Gorell called attention to a problem that has been troubling every one concerned in the suppression of these diseases—the securing of continued treatment until the patient is cured. Statistics from hospitals and clinics disclose a very unsatisfactory condition. In some, the proportion of those who abandon treatment before cure is as high as 70 per cent. In this country, there is neither notification nor compulsory treatment of venereal diseases, such as exists in the British dominions and in foreign countries. The undue regard for the liberty of the subject, with corresponding want of regard for the welfare of the community, which is such a national characteristic and is so patent in neglect of vaccination, is the obstacle. The ministry of health believes that the time has not yet arrived for any general system of compulsory notification.

Food Adulteration: The Use of Preservatives

An appeal to members of Parliament, urging them to protect food from adulteration and deterioration, has been sent by medical, scientific, health, temperance, labor and philanthropic associations. The signatories include Sir H. Maxwell, charmain of the departmental committee on the use of preservatives and coloring matter in foods, and vice president of the Bread and Food Reform League; Sir James Crichton-Browne, chairman, National Health Society; Professor Kenwood, chairman, Council of the Royal Sanitary Institute; Dr. Beckett Overy, chairman, Food Education Society; Dr. Alfred Cox, British Medical Association; Dr. Howart, president, Society of Medical Officers of Health, and Dr. Still, chairman, National League for Health, Maternity and Child Welfare. A manifesto in response to this appeal has been issued by members of Parliament of all parties. They will do all that they can to obtain for Great Britain the protection against food adulteration which has been secured by Canada, Australia and New Zealand, and will support legislation for a bread of high quality as to purity and nutrition. The dominions have already provided that the purchaser must be notified as to the amount of preservative in food which he buys. A considerable amount of illness may be due to this rarely suspected cause. There is evidence that boric acid, the most largely used preservative, has caused serious toxic symptoms in an appreciable proportion of children and adults. The list of foods containing boric acid is increasing, and they are frequently consumed by infants and invalids, on whom they may have an especially injurious effect.

The Profession and the Irregular Practitioner

The conferring of knighthood on Mr. Barker, the bone setter, in recognition of his work as a "manipulative surgeon," reported in a previous letter (THE JOURNAL, July 1, 1922, p. 52), has produced in the lay press a flood of denunciation of the prejudice, narrow mindedness and jealousy of the medical profession in refusing to cooperate with or recognize such a genius. In a letter to the *Times,* Lord Dawson, physician to the London Hospital, combats such an interpretation. He considers that the cooperation of the profession with the callings ancillary to medicine should be encouraged, and that we should never hesitate to seek the help of any worker-chemist, psychotherapist, masseur or healer, when such help seems to be beneficial to the patient. There are no professional rules against this. But cooperation is one thing, admission to the responsibilities and rights of the profession is another. It takes years of hard and organized study to produce a physician. Efficiency is based on knowledge, to reach which there is no short cut. Psychotherapists and healers, for example, have certain specialized aptitudes, and some have brilliant gifts, but they are not physicians. They can do excellent work in their own spheres and when cooperating with physicians. By all means, let us facilitate their doing so, and be open minded and generous in our bearing toward them. But sectional knowledge must be subordinate to the general knowledge of which it is part; those who have not the prescribed medical training should be under the guidance of those who have. A skilled masseur was asked for treatment by a young man suffering from abdominal pain. The treatment was given in good faith, but without medical guidance. The patient had appendicitis and nearly died. In the interest of the public, the responsibilities of physicians must not be assumed by those without the prescribed training and qualifications. The authorities cannot make exceptions. It is not a question of conserving the privileges of a professional class, but a question of the public safety. This country produces many men with the natural gifts of the sailor. Imagine a gifted amateur wanting to captain a liner. What would the board of trade say? "Very sorry, but you have not the necessary training and certificates, and we cannot give permission." Does not the same apply to the human ship in its voyage across the sea of life?

PARIS

(From Our Regular Correspondent)

June 30, 1922.

The United States and International Intellectual Cooperation

I mentioned in a previous letter (The Journal, June 10, 1922, p. 1828) that the council of the League of Nations had designated eleven members of the commission to study the question of promoting international intellectual cooperation. The twelfth and last seat was reserved for an American scientist. The general secretary of the league has just been informed that Mr. George Ellery Hale, director of Mount Wilson Observatory and professor of astrophysics at the University of Chicago, has accepted the invitation to take part in the proceedings of the commission as the representative of the United States.

Quinin Sickness of Occupational Origin

Drs. Blamoutier and Joannon, interns of the Paris hospitals, observed in Dr. Jeanselme's service a case of eczema that occurred in a workman employed in a quinin factory. Several clinical and etiologic features of the case inspired them to study the frequency, the importance and the conditions of appearance of this occupational dermatosis. The results of their research were published in the last number of the *Revue d'hygiène*.

Three operations are necessary for the manufacture of quinin: crushing of the cinchona bark to obtain cinchona dust; treating the powder with an oil and acid, and purification of the solutions of quinin salts, desiccation, pulverizing and packing. These three operations are made in different parts of the factory by special workmen. The first and second are made by men, and the third by women. The three operations are not equally dangerous. The dust from cinchona bark is liable to induce skin lesions, and these were quite frequent years ago when the crushing of the bark was made in the open. At one time it even gave rise to serious complaints from workmen, and the factories were obliged to employ others to do the work. Since the crushing machines have been covered, and the cinchona powder is piped through underground channels, these accidents are not so frequent. About a fifth of the workmen employed in the second phase of the manufacture of quinin suffer from skin manifestations. The third operation seems free of danger, as eczema has never been observed among the women employed in drying and packing quinin salts. This observation does not concur with reports from other writers who assert that workmen handling quinin sulphate are subject to skin eruptions. The first evidence of illness is an eruption of the fleeting erythematous type, accompanied by pruritus. It appears in the folds (elbow, axilla, groin) and in the suborbital region, the skin becoming puffy and red. It is in this last region that foremen look for evidence of the condition in new workmen, in order to detect sensitive subjects.

The lesions disappear in a few days, if work is stopped. The second stage presents the typical form, with acute eczema, edema, redness, vesiculation, oozing, secondary formation of scabs and intense pruritus. When work is stopped, the symptoms disappear in about three weeks; but recurrence is inevitable if the subject persists in working in the factory. Workmen are well aware of this phase of the disease; as a rule, when they have suffered from quinin eczema, they do not go back to the factory even to be paid off, but send their wives instead. If the wife of a workman who has been forced to stop work for this reason is employed in the factory, she is obliged to leave the factory lest, through her, there be a recurrence of the husband's dermatosis. The substances with which her clothes are saturated suffice to produce the condition, and long after the workman has left the factory, susceptibility persists in a latent state and flares up under a slight cause. The case is cited of a workman who had suffered from quinin eczema but had not been working at the factory for several years, when he took a small dose of quinin for a slight illness, and a cutaneous reaction occurred. The physician treating him was physician for the quinin factory, and he was unable to understand the case until he recalled the patient's history. Newly engaged workmen who have not shown any sign of eruption after fifteen days are definitely immune. Thus, it can be seen that there exists a sort of test which decides the workman's fate: If there is susceptibility to quinin during the first week, it is never overcome; if there is no susceptibility, it is never acquired later.

On the whole, the sickness is not an ordinary dermatosis due to an external cause, but is a real disease with skin manifestations. It seems that cinchona dust acts as an anaphylaxis-inducing substance. Is it possible to detect the predisposed? Blamoutier and Joannon recall the skin reaction mentioned by Boerner (The Journal, March 24, 1917, p. 907), and they question whether a similar test could not be applied to newly engaged workmen, to distinguish the sensitive subjects and discharge them before the appearance of the dermatosis. On the other hand, it might be interesting to ascertain whether desensitization of subjects suffering from quinin sickness is not possible. Blamoutier and Joannon are trying to accomplish this by the use of progressive small doses of quinin sulphate, but their experiences have not been decisive to date.

The French Red Cross in Russia

In accordance with the agreement between the soviet republic of Russia and the French Red Cross (The Journal, April 29, 1922, p. 1327) it has been decided that the French Red Cross mission will leave France for Russia about July 1. Nine thousand tons of various kinds of merchandise is being loaded in Dunkirk on the steamer *Californie* for Petrograd. The general director of the Red Cross, Monsieur Hannonet de la Grange, will be in Russia before the arrival of the relief ship.

Death of Imbert

Dr. Armand Imbert, former professor of physiotherapy of the faculty of medicine of Montpellier, died recently in Marseilles at the age of 71. He had been associate professor at Lyons and later professor at Montpellier, and was at the same time head of the service of electrotherapy and radiography of the Saint-Eloi Hospital. His scientific works deal mostly with biologic physics. In 1896, he introduced in the technic of radiography improvements which insured clearer pictures and admitted a considerable reduction of the length of exposure, which won him the Monthyon prize. He also undertook a series of researches on physiologic optics, the mechanism of muscular contraction, phonation, etc. He was the pioneer in France in the study of the physiology of industrial work, and had the satisfaction of witnessing before his death the creation of laboratories for research on the subject that he was first to consider of scientific and practical value. He was still devoting his time to these studies at the time of his death. Professor Imbert published the "Anomalies de la vision," a "Traité élémentaire de physique biologique" and a "Traité élementaire de physique générale," the last named with the collaboration of Dr. Bertin-Sans. He wrote also a volume on "Observations économiques de vies ouvrières." He has been national correspondent of the Academy of Medicine since 1899.

The Centenary of Pasteur

A legislative bill that recently passed the chamber of deputies provides for the granting of an appropriation of 3.620,000 francs to enable the state to participate in the commemoration at Strasbourg of the centenary of Pasteur. The committee delegated to inquire into the project has reported that the centenary of this great scientist should be celebrated not in Strasbourg alone but also in Paris and in various cities of Franche-Comté in which Pasteur lived—particularly, Dôle, Lons-le-Saunier, Arbois and Besançon. The committees on public instruction and public health, after hearing Monsieur Strauss, minister of public health, who spoke in the name of the government, reached the same conclusion and decided to request the government to modify the scope of the centenary by eliminating the two words "at Strasbourg." Acting on the suggestion of Monsieur Deville, in turn, the muncipal council of Paris has unanimously voted an appropriation of 50,000 francs for the celebration at Paris of the centenary of Pasteur.

A Medallion Cabinet at the Academy of Medicine

At the last meeting of the Academy of Medicine, Monsieur Hanriot announced that the academy proposed installing, in the hall of the immortals, a cabinet in which would be kept the medallions of members of this assembly.

MADRID

(From Our Regular Correspondent)

July 1, 1922.

Tribute to Cajal

Having reached the age limit, Prof. Santiago Ramón y Cajal has retired as incumbent of the chair of normal histology and pathology of the Madrid Medical School. The whole country has rendered tribute to the great scientist, bestowing on him every distinction and honor, the greatest, perhaps, being the award of the Echegaray medal. This was presented to him in the Royal Academy of Sciences by the king, who delivered a speech overflowing with respect and love for the illustrious Spaniard, who has brought so much prestige to his country. A number of cities have designated Ramón y Cajal as their adopted son; many others have named streets after him, and prizes have been established in his name. The government performed an act of greater importance in introducing a bill for the construction of a building for the Cajal Institute, which was organized, Feb. 20, 1920. The bill carries an appropriation of a million pesetas ($155,400), divided into four sums which will be spent annually from 1922 to 1925 on the building designated as Cajal's Biologic Institute. An appropriation of 50,000 pesetas ($7,770) a year is made for maintenance, including the 10,000 pesetas ($1,540) now provided for Cajal's laboratory. The work of the institute will be directed by a board of trustees presided over by Cajal.

Death of Dr. Azúa

Dr. Azúa, professor of dermatology of the Madrid Medical School and physician to the San Juan de Dios Hospital, is dead. Dr. Azúa was an outstanding personality, his authority as a dermatologist and scientist being acknowledged by all. He was a self-made man, unhampered by his environment, who began his career with a struggle against the dermatologic views prevailing at that time. The French doctrines of the dyscrasias held full sway in Spain, and as a protest, he leaned toward the pathologic and localizing theories of the Vienna school. With his enthusiasm for concrete facts, positive data and experimental control, he opened a common sense path which future generations may follow; and for this the younger physicians are grateful. No practicing physician had a reputation comparable to Azúa's, whose enormous practice brought him a fortune. He was trained by his experiences in the San Juan de Dios Hospital, one of the leading institutions devoted to venereal and skin diseases. His merit was so well known that, in spite of the jealousy always shown by the Madrid University toward hospital physicians, a special chair was created by the minister of education, and Azúa became the first Spanish professor of dermatology and syphilology. This creation of a professorship by a minister, while it turned out well in Azúa's case, was later abused; and it has been one of the causes of the decline of the medical school, as the only qualification enjoyed by several professors appointed in this way was the minister's friendship. Through Azúa's single-handed efforts and determination, the Spanish Dermatologic Society was founded. A few days before his death, he had submitted to the National Academy of Medicine the text of his reception speech; and not long ago a group of South American physicians presented him with a testimonial of their admiration.

Fiftieth Anniversary of Espina y Capó

Dr. Espina y Capó, a specialist in chest diseases, has celebrated his "golden wedding" with medicine. The medical profession showed its admiration and love for the old master by ordering a marble bust, which was unveiled with proper ceremonies in Ward 27, in the General Hospital of Madrid, where Dr. Espina practiced for many years. The provincial board, which has general supervision over the hospital, attended in a body. The medical profession, in spite of its quarrels and passionate disputes, is the one in Spain which knows best how to honor its prominent representatives. There are at present in Madrid not less than ten marble and bronze statues of physicians: Benavente, Federico Rubio, Eugenio Gutiérrez, San Martín, Pulido, Achucarro, Cortezo, Esquerdo, Espina y Capó and Ramón y Cajal. Dr. Espina y Capó has been a great popularizer of his selected field, a noted orator in the National Academy of Medicine and the Public Health Association, and in the senate, where he cooperated in the enactment of sanitary legislation. He is also one of the leaders in the antituberculosis campaign, and the highest authority on this disease in Spain.

BERLIN

(From Our Regular Correspondent)

July 7, 1922.

A Prussian Institute for the Study of Problems of Air Hygiene

In 1901, the Prussian government, having in mind the contamination that drinking water and water used for other purposes undergo, created in Berlin an experiment station for the study of water problems, including the best means of disposing of sewage waters. In 1913, an institute known as the Landesanstalt für Wasserhygiene, with headquarters of its own at Dahlem, near Berlin, was established. The function of this central station was to study from hygienic and economic standpoints the problems pertaining to the securing of adequate and satisfactory water supplies and the disposal of sewage and waste products in general. The institute was, in this connection, to conduct researches and to perform tests of general value and interest. It was to accept any commissions imposed by the various ministries, and minor researches were to be made for officials and private persons, for which a definite fee was chargeable. Furthermore, it was to furnish central authorities with information and issue certificates or testimonials in the interest of public welfare.

The present director of the institute, Geheimrat Beninde, member of the Prussian ministry of public welfare, has recently issued a statement in which he recommends that the activities of the institute be extended so as to include researches on problems pertaining to air hygiene. Not only the water supplies but also the air is being greatly contaminated by the enormous development of modern industry, and this contamination is exerting an effect on plant and animal life, and more particularly, on the hygienic conditions under which mankind lives. He points out that contamination of the air through industrial plants and the various mechanisms of modern life may be classified under two main heads; through (1) gas, and (2) dust. In the air are found more or less large quantities of carbon dioxid gas, which results from putrefaction and fermentation processes, and carbon monoxid from imperfect combustion of fuels, being found in considerable quantities mixed with the gases of blast furnaces and the smoke from chimneys. Chlorin is found in the air in the vicinity of certain factories; likewise hydrochloric acid, sulphurous acid, sulphuric acid, hydrogen sulphid, volatile fatty acids and other foul smelling gases develop under various fermentative processes. Various forms of air dust have also developed with the increase of industry and traffic. Most prominent are smoke and soot, the products of incomplete combustion of coal. The relation of air contamination to disturbances in the human organism is a well known chapter in pathology, more particularly the part played by air contamination in the causation of occupational diseases. In view of the facts, the Prussian government has already approved Director Beninde's plan and has taken the necessary action to put the Landesanstalt für Wasserhygiene in a position to undertake researches in the domain of air hygiene.

Excess of Male Births

In a previous letter I referred to the question of an excess of boy babies, and recently Dr. Hartmann brought up the subject again, citing statistics in proof of his opinions. In the period from 1915 to 1920, it appears from the records that the excess of boy births materially increased; for example, in Prussia, the excess of boy babies over girl babies was 7.2 per cent., as compared with an excess of 6.2 per cent. for the period 1910 to 1915. In 1919, the excess amounted to 8.6 per cent. In Saxony, the excess amounted in 1917 to 8.2 per cent., and in 1919 to 9.2 per cent. In Bavaria, the excess for 1918 was 8.8 per cent.; for 1919, 8.5 per cent., as compared with an excess of 6.2 per cent. for the period 1910 to 1917.

Statistics on Prostitution

The Munich physician Dr. Marcuse gave here recently a report on the nature and spread of clandestine prostitution in Munich. Of 832 clandestine prostitutes who were rounded up by the police in Munich, 438 were affected with venereal disease, 271 of them for the first time. Of these 832 girls, 333 had been brought up in the city, while 467 were from rural sections (which leaves thirty-two unaccounted for). Of the 832 delinquents, 607 declared that they had no regular means of livelihood; 130 belonged to the 25-30 age group, 260 to the 20-25 group, 256 to the 15-20 group, while five were under 15 years of age. Alcoholism in the family history was noted in 195 cases, insanity in fifty-one cases, and epilepsy in twenty cases. In the case of fifteen, the ancestors had suffered from nervous diseases, while, in sixty-one cases, both parents of the girls had been affected by some predisposing malady.

Marriages

JAMES ALEXANDER WADDELL, University, Va., to Miss Mary C. Graves of Somerset, Va., June 27.

ARTHUR C. KNIGHT, Philipsburg, Mont., to Miss Karen Hansen of Wilbur, Wash., June 29.

JOHN JULIAN CONNELLY, Rockville, Ind., to Miss Harriet Hubbard of Indianapolis, recently.

AUSTIN INGRAM DODSON, Richmond, Va., to Miss Louise Barham of Emporia, Va., June 6.

JOHN KIRK RICHARDSON to Miss Irene Trotter Geisinger, both of Richmond, Va., June 12.

CARLISLE CALAHAN COCHRAN, Huntersville, N. C., to Miss Adelia John Everette, June 6.

WALTER MCBETH, Royal Center, Ind., to Miss Julia Faye Frye of Adams, Ind., June 28.

PARKS M. KING, Charlotte, N. C., to Miss Anna Howerton of Lexington, Va., June 27.

ROBERT H. BELL to Miss Minnie E. Dilks, both of Carlinville, Ill., June 6.

Deaths

Frank Lester Morrow, Braddock, Pa.; University of Pittsburgh School of Medicine, Pittsburgh, 1913; member of the Medical Society of the State of Pennsylvania; aged 33; was instantly killed, July 5, when the automobile in which he was driving a patient to the hospital was struck by a Baltimore and Ohio express train.

Laughlin O'Neal Malsbury, Peru, Ind.; Kentucky School of Medicine, Louisville, 1891; member of the Indiana State Medical Association; formerly secretary of the Miami County Board of Health; at one time a member of the city council; died, July 5, in Chicago, aged 54, from toxicemia caused by ischiorectal abscess.

Charlotte Steckel Farrington, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1901; member of the Medical Society of the State of Pennsylvania and the Philadelphia Psychiatric Society; died, July 12, at the Presbyterian Hospital, aged 52, from heart disease.

Robert Rice, Haverhill, Mass.; Hahnemann Medical College and Hospital of Philadelphia, 1908; member of the Massachusetts Medical Society; on the staff of the General Stephen Henry Gale Hospital, where he died, July 9, aged 50, following a long illness.

Clayton W. Russell, Springfield, Ohio; Eclectic Medical Institute, Cincinnati, 1890; member of the Ohio State Medical Association; formerly president of the Ohio Eclectic Medical Association; died, July 13, aged 56, from heart disease.

James Eddy Blake ⊕ Whitestone, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1898; University of Bonn, Germany, 1902; also a member of the New Hampshire Medical Society; died, July 18, aged 49.

Lauriston M. Berry, Guernsey, Wyo.; University of Vermont College of Medicine, Burlington, Vt., 1869; member of the Wyoming State Medical Society and the Massachusetts Medical Society; died, July 6, aged 80.

George W. Metzger, Hughesville, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1866; member of the Medical Society of the State of Pennsylvania; Civil War veteran; died, July 7, aged 81.

Edward Ashby Waugh, Lynchburg, Va.; University of Virginia, Department of Medicine, Charlottesville, Va., 1883; member of the Medical Society of Virginia; died, July 9, aged 69, from angina pectoris.

Albert Henry King, West Palm Beach, Fla.; Cincinnati College of Medicine and Surgery, 1901; member of the Florida Medical Association; died, June 30, at Asheville, N. C., aged 45.

⊕ Indicates "Fellow" of the American Medical Association.

Francis W. Boyer, Pottsville, Pa.; University of Pennsylvania School of Medicine, 1868; formerly president of the Milliken Hospital board; died suddenly, July 11, in Germany, aged 73.

George M. Bell, Wakefield, N. C.; College of Physicians and Surgeons, Baltimore, 1880; member of the Medical Society of the State of North Carolina; died, May 18, aged 66.

James Marcus Everett, De Kalb, Ill.; Rush Medical College, Chicago, 1877; member of the Illinois State Medical Society; died, July 6, aged 69, from interstitial nephritis.

Arthur Reeves, Oberlin, Kan.; Ensworth Medical College, St. Joseph, Mo., 1910; member of the Kansas Medical Society; died, July 7, aged 38, from appendicitis.

Willis E. Kennemur, Sulphur Springs, Texas; Medical Department, University of Louisville, Louisville, Ky., 1894; died, July 3, aged 56, following a long illness.

Caroline Eliza Hastings, Sharon, Mass.; New England Female Medical College, Boston, 1868; died, July 10, aged 80, at the Massachusetts Homeopathic Hospital.

Daniel Albert McCarthy, Troy, N. Y.; Albany Medical College, Albany, N. Y., 1899; formerly city physician; died, June 16, aged 44, at the Troy City Hospital.

Francis Pierce Silva, Boston; Medical School of Harvard University, Boston, 1893; member of the Massachusetts Medical Society; died, July 13, aged 52.

Joseph Benedict Lyons, Boston; Medical School of Harvard University, Boston, 1894; member of the Massachusetts Medical Society; died, July 18, aged 50.

Charles William Buchanan, Jr., Toronto, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1865; died, May 20, aged 84.

John D. Jay, Pera, Ala. (licensed, Alabama, 1888); member of the Medical Association of the State of Alabama; died, July 14, aged 81, from senility.

Thomas F. Flaherty, Massey Station, Ont., Canada; Western University Faculty of Medicine, London, Ont., Canada, 1895; died, May 7, aged 53.

Clara A. Hovey ⊕ Chicago; College of Medicine and Surgery (physiomedical) Chicago, 1903; died, July 16, aged 66, from cerebral hemorrhage.

John J. Meigs, Stockton, Calif.; Medical School of Harvard University, Boston, 1860; died, July 6, aged 83, at St. Francis Hospital, San Francisco.

Oscar B. Stafford, La Salle, Ill. (licensed, Illinois, 1877); died, July 6, aged 82, at the People's Hospital, Peru, Ill., following a long illness.

Edward C. Wagner, Wilkes-Barre, Pa.; University of Pennsylvania School of Medicine, 1890; died, July 9, aged 66, from heart disease.

Joseph Roy Hawley ⊕ Chicago; Northwestern University Medical School, Chicago, 1893; died, July 20, aged 50, from chronic nephritis.

Henry Clay Rose, Dayton, Tenn.; University of Nashville Medical Department, 1874; died, July 4, aged 72, following a long illness.

Charles Williams, House Springs, Mo.; St. Louis Medical College, 1872; died, July 8, aged 75, from cerebral hemorrhage.

Christian Emil Stafrin ⊕ Portland, Ore.; University of Oregon Medical School, Portland, 1911; died suddenly, July 7, aged 46.

Emily Metcalf Thurber, Providence, R. I.; Boston University School of Medicine, Boston, 1878; died, June 30, aged 85.

Hiram S. Chapin, Holder, Ill.; Rush Medical College, Chicago, 1872; died, July 9, aged 73, from chronic arthritis.

Marion Holland, Cassopolis, Mich.; University of Michigan Medical School, Ann Arbor, 1875; died, July 3, aged 70.

George W. Barkman, Govans, Md.; College of Physicians and Surgeons, Baltimore, 1881; died, July 11, aged 71.

Joseph H. Lurie, New York; University of Berlin, Germany, 1875; died, July 9, aged 74, from heart disease.

John Ward Willson, Baltimore; Baltimore University School of Medicine, 1889; died, June 24, aged 77.

Albert Franklin Bonney, Buck Grove, Iowa (licensed, Iowa, 1889); died, June 30, aged 68, from uremia.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

THE AMERICAN MEDICAL LIBERTY LEAGUE

It was in 1910 that the speciously named "National League for Medical Freedom" began its intensive campaign against scientific medicine in general and the American Medical Association in particular. Engineered and inspired by nostrum exploiters and those opposed to pure food laws, aided and abetted by the followers of the various cults, the League for Medical Freedom blazed its rocket-like course across the medical firmament—and, in due time the stick came down! Doubtless there was good money in it for some one while it lasted. Tens, if not hundreds of thousands of dollars, were expended in newspaper advertising alone. But its effort was abortive because it was fundamentally wrong-headed and the good sense of the American people penetrated the motives that were behind it.

It is some time since we have heard of the "National League for Medical Freedom"; today there is another organization less heavily financed, but still, doubtless, producing a living for those who engineer it. It is the "American Medical Liberty League," with headquarters in Chicago. This concern does little, if any, newspaper advertising. It does, however, get out a set of leaflets and pamphlets and those who are, for one reason or another, opposed to scientific medicine, purchase these leaflets and distribute them.

SOME LIBERTY LEAGUE LITERATURE

As indicative of the type of "literature" thus issued, the following partial list is given:

"Medical Health Officers Syphilizing the Nation": This leaflet declares that all vaccine virus shows the reaction of congenital syphilis and "even the vaccine scars show its contamination." The leaflet quotes as its authority for this charge Albert Abrams, A.M., LL.D., M.D. (Heidelberg), F.R.M.S. Price, 45c a hundred.

"Toxin-Antitoxin—How It Kills and Cripples Children": Purports to be a "Detailed Story of the Horrible Results Following a Texas Serum Campaign." Price, $1.00 per hundred.

"The American Medical Liberty League": Professes to tell what the "League" is, "Why you need it" and, in large bold-faced capital letters, "HOW TO WORK IT!" Only 40c a hundred.

"The Going of Cumming": Said to be "Paragraphs on the Enlightenment on Calf Pus Cult"; in reality, a tirade against Surgeon-General Hugh S. Cumming. They come at 70c a hundred.

"Know the Facts About Vaccination": An alleged compilation of "statistics and expert testimony" brought together by Lora C. Little (of whom more later) and reprinted by permission from Dr. George Starr White's (of whom, also, more later) "Lecture Course to Physicians." Ten cents a copy.

These are but a few of the pieces of propaganda that are being sent out by the "American Medical Liberty League." At their headquarters they will also hand out to those interested, a reprint from the *Lindlahr Magazine* (the house organ of a so-called "nature cure institute") telling of the marvels of the "electronic diagnosis and treatment" of Albert Abrams! They hand out, too, the *Central States Osteopath*, the official organ of the Illinois and Wisconsin osteopaths.

SOME INQUIRIES

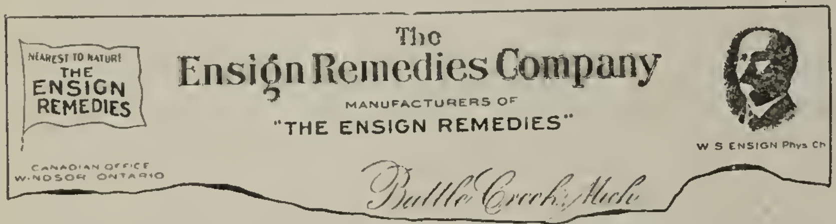
During the past two or three years inquiries have been received relative to the "League." A physician, health officer in a Virginia city, wrote:

> "I enclose a leaflet of the American Medical Liberty League, Chicago, Ill. This leaflet was submitted to a local paper as an advertisement to be charged to the account of a chiropractor of this city. The newspaper informed me that it has refused to publish it. I am interested, not only in the anti-vaccination propaganda of this leaflet, but also am pleased that the newspaper should have refused to publish it."

This from the state health officer of a southern state:

"Will you please advise me as to the cult Mrs. Little represents?"

These are representative of inquiries received. The American Medical Liberty League was brought into existence in the latter part of 1918. Lora C. Little seems to be the moving spirit of the organization and appears officially as its "secretary." In November, 1918, Mrs. Little sent out a mimeographed letter headed: "Strictly Personal and Confidential." It was to the effect that with the coming of peace there would "burst forth" what was described as "long-pent feeling over medical outrages, committed wholesale the past two years. . . ." Further, this bursting would give a grand opportunity to the believers in "medical freedom" to make a killing. "Two big things" would be necessary to "meet the situation": first, "a full exposure, backed by an array of authentic facts" which must be, "when the proper time has come, widely distributed"; second, "a definite program of action."



NEAREST TO NATURE
THE ENSIGN REMEDIES

The Ensign Remedies Company
MANUFACTURERS OF
"THE ENSIGN REMEDIES"

W S ENSIGN Phys Ch

CANADIAN OFFICE
WINDSOR ONTARIO

Battle Creek, Mich.

Reproduction (reduced) of the letterhead of the Ensign Remedies Company, a concern which sells cures for "Disappointment in Love," "Floating Kidney," "Laziness," "Locomotor Ataxia" and many other conditions.

Then came the nub. To accomplish these "two big things" funds were required; hence, the appeal for "membership" in the American Medical Liberty League, price $2.00 a year "which covers subscription to the *Truth-Teller*." According to Mrs. Little, ten individuals in any locality who join the "League" and pay their annual fees may organize a "Local League."

THE "TRUTH-TELLER"

Before dealing with the personnel of the founders of the League, which in itself is interesting, something should be said about the "League's" official organ, the *Truth-Teller*—ironical name! This somewhat lurid sheet is "published semimonthly by the Truth-Teller Publishing Company at 38 N. Division St., Battle Creek, Mich." The Battle Creek telephone directory does not show any company of this name, but it does show the "Ensign Printing Co." at 38 N. Division St. The editor of the *Truth-Teller* is W. S. Ensign—of whom more later—who puts after his name the mystic abbrevation "Phys. et Pat. Ch." Its "Associate Editor" is Wilhelm Heinrich Schwartz, M.D.; its "Managing Editor" is D. W. Ensign and its "Traveling Representative" is Thomas D. Ensign; in short, it seems to be largely an Ensign publication. The *Truth-Teller* keeps no subscription books but, if you receive a copy of it regularly, "you can rest assured that the subscription price of same has been paid." The *Truth-Teller* was previously *The Peril* ("America's Weekly Journal. Devoted to Homeopathy and Humanity") which, in turn, was originally known as *America's Homeopathic News*, edited by Wilhelm Heinrich Schwartz, M.D., "Vice-President of International Anti-Vivisection and Cruelty to Animals Congress," etc., etc.

But, to get back to the American Medical Liberty League: In the "Strictly Personal and Confidential" letter previously referred to, the officers of the "League" were given as follows:

President—Charles M. Higgins
Vice-President—Eli G. Jones
Secretary—Lora C. Little
Treasurer—D. W. Ensign
Director—J. H. Greer
Director—W. S. Ensign
Director—J. W. Griggs

Charles M. Higgins, Brooklyn, New York: This gentleman was, if he is not still, the treasurer of the "Anti-Vaccination League of America," and a somewhat active member of the "National League for Medical Freedom." He is, or was, a member of the "Vivisection Investigation League," and the "New York Anti-Vivisection Society." He published a sixty-four page pamphlet ("with exhaustive index, 10c, post paid") entitled "The Crime Against the School Child," which advised the public "how to legally defeat vaccination, the medical evil which now kills more children than smallpox." This was advertised in the *Truth-Teller*. In 1917 Higgins also issued a twenty-four page pamphlet entitled "Restore the Coroners, Check Dangerous Medical Domination, and Protect Public Life and Safety."

Eli G. Jones, Buffalo, New York: Dr. Jones was graduated fifty years ago (1872) by Dartmouth Medical School. He was for some time "President" of the egregious "American Association of Progressive Medicine." A few years ago he was sending out circular letters to physicians offering to teach—for a consideration—his method of curing cancer. Dr. Jones claimed to cure 80 per cent. of all cases of cancer that he treated. In his letters to Ohio physicians he gave the name of Dr. C. S. Carr of Columbus, Ohio, as a reference. Carr was Peruna's advertising expert and ran a little medical mail-order concern of his own as a side line. Carr also published a freakish publication known as the *Columbus Medical Journal*, in which periodical Eli G. Jones told about his "cures" for cancer, and numerous other things and in which the Ensign Remedies Company advertised and to which W. S. Ensign contributed. Of course Dr. Jones was a member of the "National League for Medical Freedom" when that institution was in existence. According to a character sketch published in the *Truth-Teller*, Dr. Jones "has at different times practiced Allopathic, Eclectic, Homeopathic, Physio-Medical and Biochemical medicine." We can easily believe it.

Lora C. Little: Mrs. Little, who seems to have had much to do with the organization of the "League," apparently hailed from the Pacific coast, where she was a traveling lecturer whose business it was to create sentiment against vaccination. Mrs. Little contributes prolifically to the "League's" house-organ, the *Truth-Teller*. In addition to being "Secretary" of the American Medical Liberty League, Mrs. Little was also "Secretary" and "Official Organizer" of the "Central Health Committee of the State of Illinois." There was the usual proportion of names of chiropractors and osteopaths on the letterheads of the official stationery of the "committee." This "committee," too, solicited funds—"for the purpose of securing medical liberty in the new Illinois constitution"—and made a special plea that the persons circularized should help secure, for a delegate to the Constitutional Convention, the nomination and election of Frederick A. Freeark, a Chicago lawyer who would "stand to the last ditch for our principle." Mr. Freeark's name appeared later as one of the "directors" of the "American Medical Liberty League." He was not elected.

> **DOCTOR:** I teach physicians (by mail) my method of treating cancer, tumors, malignant growths, both external and internal. This method of treatment has stood the test of nearly forty years' practice.
>
> I have a record of permanent cures of genuine cancer made fifteen to twenty-four years ago, and there has been no return of the disease. I want some good, reliable physicians who are willing to learn and are ambitious to "do things."
>
> The best of references to physicians and patients. Address for further particulars,
>
> ELI C. JONES, M.D.,
> 85 Bayard St., New Brunswick, N. J.

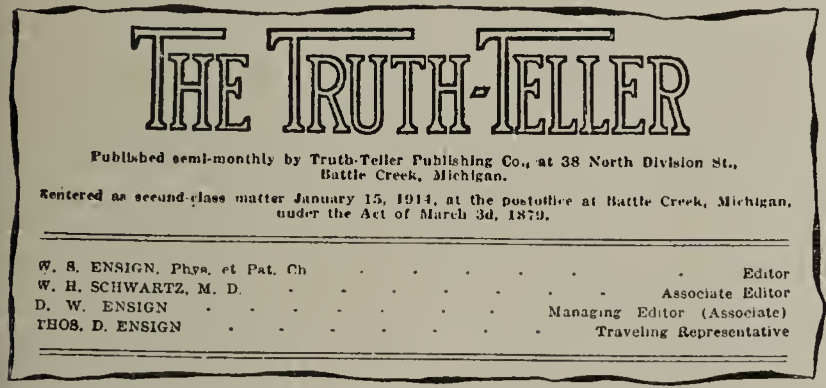
In this advertisement (nearly as large again in the original) published some years ago, Eli C. Jones described his mail-order course in curing cancer.

D. W. Ensign, Battle Creek, Mich.: Mr. Ensign was "Business Manager" and is now "Managing Editor" of the *Truth-Teller*. Enough said.

J. H. Greer, Chicago: Dr. Greer was graduated in 1875 by the Bennett Medical College, then an eclectic institution. For many years he conducted the "Harvard Medical Institute" in Chicago and specialized in genito-urinary work. In 1910 the United States immigration officials on the Canadian border wrote for information regarding J. H. Greer, stating that a number of aliens had received Greer's advertisements and sought entry into the United States for the purpose of treatment. Some of these aliens sent to the immigration service letters which they had received from Greer, together with some of Greer's advertising matter. Greer, it seemed, issued a booklet entitled "A Peep at the Mysteries of Nature" whereby he drummed up trade. Greer also urged some of his prospective mail-order patients to purchase his book "A Physician in the House." As Greer put it:

> "If you cannot come and see me, treat yourself. This you can do with the aid of my book 'A Physician in the House.' Get a copy of it, study it carefully, and apply it exactly and watch your pains and aches vanish like an ugly dream at dawn."

According to a prospectus of this book. "It opposes medical fads of all kinds, and makes uncompromising WAR ON VACCINATION, and the use of ANTITOXIN." Furthermore, it was said to contain "Valuable INFORMATION for the MARRIED." Greer claimed that he did not guarantee cures "except in surgical cases, such as variococele, hydrocele, hernia, fistula, hemorrhoids, and stricture, etc."



THE TRUTH-TELLER

Published semi-monthly by Truth-Teller Publishing Co., at 38 North Division St., Battle Creek, Michigan.

Entered as second-class matter January 15, 1914, at the postoffice at Battle Creek, Michigan, under the Act of March 3d, 1879.

W. S. ENSIGN, Phys. et Pat. Ch . . . . Editor
W. H. SCHWARTZ, M. D. . . . . Associate Editor
D. W. ENSIGN . . . . Managing Editor (Associate)
THOS. D. ENSIGN . . . . Traveling Representative

It will be noticed that the *Truth-Teller* seems to be a family institution.

ENSIGN'S CURE FOR BASHFULNESS, ETC.

W. S. Ensign, "Phys. et Pat. Ch." Battle Creek, Mich.: Mr. Ensign is Editor of the *Truth-Teller* and, with Mrs. Little, apparently an important factor in the American Medical Liberty League. Presidents, vice-presidents and treasurers seem to change, as do also some of the directors, but through all W. S. Ensign and Lora C. W. Little continue as "Editor" of the official organ and "Secretary" of the organization, respectively. W. S. Ensign for some years has been doing a mail-order business in Ensign Remedies. The Ensign Remedies, according to Ensign, are good for whatever ails you. Apparently, there are about one thousand of them and they are known by numbers. Ensign therapy is a comparatively simple study.

A booklet issued by the Ensign Remedies Company lists all "Diseases and Their Cure." These are arranged alphabetically from "Abdomen," "Abortion" and "Abscess" through "Ecchymosis," "Eclampsia," "Eczema" and "Iritis," "Irritability," "Itch" to "Worms," "Wrinkles" and "Writers' Cramp." It is all very easy. For Peritonitis, take "748A and B"; for Alcoholism, "Topers should use No. 17"; for Appendicitis, "Use No. 758A and B for the acute attack"; for Diphtheria, "No. 675A and B is our specific treatment. . . . Do not use anti-toxin." Should you have Atrophy of the Optic Nerve, take "No. 521A and B"; for Cataract, No 504A and B" are indicated. Yellow Fever calls for "No. 1066A and B," and Angina Pectoris for "342F." Bright's Disease is cured with "854A and B," but be sure you have the figures right as "No. 857A and B" is for Floating Kidney. For Lockjaw try "No. 34" and for Locomotor Ataxia, "No. 260A and B." "No. 1019A and B" are for Housemaid's Knee.

But the Ensign Remedies are good for more than physical ailments; "in the absolute cure of diseases of the mind, nothing equals the Ensign Remedies." Are you troubled with "Bashfulness," take "No. 186A and B"; do you see "Animals or Reptiles" (presumably of the pre-Volstead era) try "No. 187A and B." For "Dullness and Stupidity, "No. 189 A and B."; for "Disappointment in Love, No. 192A and B." For mere "Laziness, Lack of Ambition, No. 196A and B"; should you have a "Desire for Light and Company" take "No. 197A."

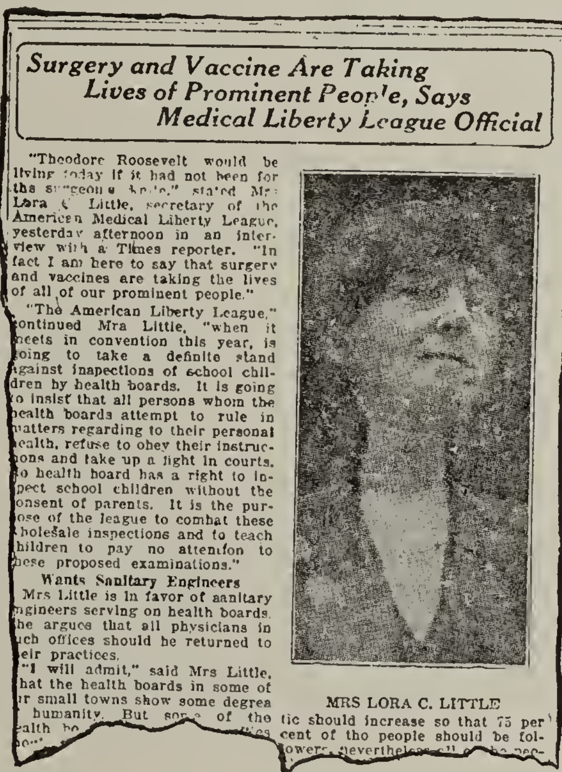
A few years ago the state officials of Michigan sent for some of Ensign's various cures and analyzed them and published the results in the official bulletin: "Fakes and Frauds." Ensign's "Appendicitis Cure" was reported to show on analysis sugar 100 per cent.; Ensign's "Pneumonia Cure" was another 100 per cent. sugar product, while Ensign's "Hay Fever Cure" had the same composition. The Michigan authorities unkindly called attention to the fact that while these remedies sold at $1.00 each, their estimated cost was less than 1/10 of a cent. It is only fair to state, however, that since these analyses were made the price of sugar has gone up.

J. W. Griggs, Minneapolis, Minn.: Mr. Griggs, was, if he is not still, vice-president of the "Anti-Vaccination League of America."

THE STATE VICE-PRESIDENTS

The "League" also has "State Vice-Presidents." In 1920 forty-five states were represented; in 1922 this list had dwindled to thirty-six. This doubtless is an index of the waning interest in the "League." It would consume too much space to take up the various individuals whose names appear as state vice-presidents and publish the details on file regarding these persons. However, it will not take much space to give a brief sketch as revealed by the Propaganda files of the State Vice-President of California, Dr. George Starr White.

George Starr White, M.D., F.S.Sc. (Lond.), Los Angeles, Calif.: White, who was the "Second Vice-President" of the Allied Medical Associations in 1918, was graduated in 1908 when he was forty-two years old, by the New York Homeopathic Medical College and Hospital. He seems to have been one of the proponents of Albert Abrams' "spondylotherapy" and of Fitzgerald's "zonetherapy," etc., and in 1915 it was announced that he would give one week courses to physicians in "Spondylotherapy" at Chicago, Kansas City and Denver, respectively. In May, 1915, White was arrested in Chicago and fined $100 and costs for practicing medicine without a license. Dr. White's specialty seems to be picturesquely known as "Bio-Dynamo-Chromatic-Diagnosis." This is described by one of its enthusiastic adherents as "Diagnosis by Sympathetic Vagal-Reflex." To obtain the "Sympathetic Vagal-Reflex" it seems the patient must face east or west and have his bare abdomen percussed until a dull area is located. The patient is then faced north or south and again percussed. Then, it seems, different colored lights are thrown on the patient, the location of the areas of dulness being determined meanwhile. A combination of ruby and blue light "will



Surgery and Vaccine Are Taking Lives of Prominent People, Says Medical Liberty League Official

"Theodore Roosevelt would be living today if it had not been for the surgeon's knife," stated Mrs Lora C. Little, secretary of the American Medical Liberty League, yesterday afternoon in an interview with a Times reporter. "In fact I am here to say that surgery and vaccines are taking the lives of all of our prominent people."

"The American Liberty League," ontinued Mra Little, "when it neets in convention this year, is oing to take a definite stand gainst inspections of school children by health boards. It is going o insist that all persons whom the ealth boards attempt to rule in atters regarding to their personal ealth, refuse to obey their instrucons and take up a fight in courts. o health board has a right to inpect school children without the onsent of parents. It is the purose of the league to combat these holesale inspections and to teach hildren to pay no attention to hese proposed examinations."

Wants Sanitary Engineers

Mrs Little is in favor of sanitary ngineers serving on health boards. he argues that all physicians in ich offices should be returned to eir practices.

"I will admit," said Mrs Little, hat the health boards in some of r small towns show some degree humanity. But some of the ealth bo

MRS LORA C. LITTLE

tic should increase so that 75 per cent of the people should be followers, neverthele

Reduced reproduction of part of a news story in a Davenport (Ia.) paper relative to Mrs. Little's appearance before the chiropractors. Mrs. Little was reported as stating that "practically all newspapers are under the control of . . . 'the medical trust.' "

cause a reflex in cases of gonorrhea," a "green light will cause a reflex in cases of liver or gallbladder trouble," while the color for carcinoma is orange red! During the height of the influenza epidemic White took a flier in nostrum exploitation, putting on the market "Valens Essential Oil Tablets," which were for "Gripping the Flu out of Influenza," and were also said greatly to benefit or cure incipient tuberculosis, hay-fever, asthma, and "catar" (White affects simplified spelling). The letters "F.S.Sc., Lond.," after Dr. White's name carry with them an air of erudition and mystery that is well worth what they cost. They mean "Fellow of the Incorported Society of Science, Letters and Arts of London, Ltd." The "Fellowship" is held by not a few "patent medicine" exploiters in the United States. It costs one guinea!

Here, then, we have brief sketches of those individuals who were mainly instrumental in bringing into existence the "American Medical Liberty League." The facts brought out are sufficient to permit the physician and the intelligent layman properly to evaluate the activities of this organization, which professes to have for its main object the protection of the public. The "American Medical Liberty League," like its prototype, the "National League for Medical Freedom," will flare, sputter—and go out!

Correspondence

THE CASE OF WILLETTA HUGGINS

To the Editor:—Now that Professor Jastrow has so ably disposed of the case of Willetta Huggins by stating that the medical profession has the "will to believe," there remain a few other questions to be disposed of.

How does it happen that her case was diagnosed by the psychologic department of Wisconsin as "almost a moron"? Do any of the physicians who saw her in Chicago or Evanston think her a moron?

How does it happen that the psychologic department of Northwestern University has no instrument fine enough to determine her threshold of feeling?

How does it happen that she distinguished blue, yellow and green in a mixture of blue and yellow that to a normal eye appeared green only?

How does it happen that she distinguished between the streaks of pink and green feldspar? Her vision would seem to be abnormally acute instead of being, as every one admits, much below par since early childhood, if Professor Jastrow's explanation is correct.

If she distinguishes light rays of different wave length by the sense of smell, how can she be expected to distinguish between light rays in the dark where there are no light rays?

Lastly, has not Professor Jastrow heard how the psychologic department of Cornell, and the rest of the faculty for that matter, were so taken in by an exposition of Freud and his theories, given by an agricultural student who had not heard of Freud a week before, that they kept him talking an hour and answering questions for a longer time, and were so enthusiastic over his exposition that they had him repeat the lecture? It really seems as if the medical profession had no monopoly of "the will to believe."

G. W. Boot, M.D., Evanston, Ill.

THE DEATH OF JOHN SHELL

To the Editor:—Fakes die hard, especially a fake which a veracious press is interested in keeping alive. I exposed the John Shell "the oldest man in the world" fake, in a magazine article, in the New York *Sun* two years ago. I showed then, through the census records, that Shell was less than 100. According to these records, which I obtained through the courtesy of Hon. S. L. Rogers, director of the census, Shell's age in 1860 was given as 37. In 1870 his age was 48. In 1880, 58; in 1890, 67. In 1900 his age was 78, his birthday being given as May, 1822. I visited him in November, 1919. At that time I tried to verify the age, and saw his oldest son, his great-grandson, his father-in-law, who was his nearest neighbor and knew him for more than fifty years, his lawyer of thirty years ago, an ex-judge who stopped at Shell's house in the early eighties, a physician who treated him the preceding winter, and the present circuit judge. All agreed that Shell was about 100. His son and great-grandson said he was less than 100. The details of the scheme by which the exploiters of the old man made several thousand dollars by exhibiting the senile dement as the oldest man in the world have no medical interest aside from the production of an obsession through suggestion.

I. L. Nascher, M.D., New York.

DO AMERICAN INDIANS HAVE CANCER?

To the Editor:—In The Journal, July 8, Dr. Joseph Rilus Eastman discusses interestingly the subject of malignant growths. I wish, however, to comment on his statement that our American Indians do not have cancer. Here in the Southwest I have known fairly well one tribe of Indians. They number about 500. During my residence of three years among them, three full-blood Indian men died of cancer, respectively, of the lips and mouth, of the throat and of the penis. For the last eighteen months at Tucson I have had charge of another group of about 500 Indians. During this time one of them, a woman of pure Indian extraction, died of cancer which destroyed the right orbit and adjacent tissues. It seems to be the custom not to perform necropsies on Indians, and I believe that few, if any, have been performed. If any considerable number of necropsies were performed, perhaps there would be disclosed occasionally a deep seated cancer.

C. G. Andrews, M.D., Tucson, Ariz.

LETTER ON THE DEATH OF KEATS

To the Editor:—The following extract from the letter of Joseph Severn, dated Rome, Jan. 11, 1821, written in the sick-room of John Keats (whom Severn was nursing in his last illness) may prove of interest as showing how the Italian medical authorities viewed tuberculosis a hundred years ago:

> News was brought me the other day that our gentle landlady had reported to the police that my friend was dying of consumption. Now their law is — that every individual thing, even to the paper on the walls in each room the patient has been in, shall, without reserve, be destroyed by fire, the loss to be made good by his friends. This startled me not a little, for in our sitting room where I wanted to bring him, there is property worth about £150, besides all our books, etc.—invaluable.

J. R. Clemens, M.D., St. Louis.

Mosquito Destruction by a Plant.—According to investigations carried out by Dr. Arturo Caballero, professor of botany in the University of Barcelona, in the summers of 1919-1920, *Stegomyia, Culex* and *Anopheles* larvae die in any water where the plant known as *Chara foetida* is found. The larvae die quicker if they are young and those fresh from the egg do not last over an hour. These laboratory experiments were later tried out in the field with the species *Chara foetida, Chara contraria* and *Chara hispida.* Caballero suggested at first that the larvae died because of the film formed on the surface of the water by the plant in question, but further experiments showed that they also died if the film was removed. He suggested, therefore, that the death of the larvae is produced by some toxic substance segregated by the *Chara* plants. The plant spreads rapidly in the water and seems to last indefinitely. Dr. Caballero has published several articles on this subject, one of them in the *Revista de Higiene y Tuberculosis.* One of his early papers was recently reprinted by the Mexican Health Department.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MECHANICAL BUST DEVELOPERS

To the Editor:—In catalogues of medical and surgical supplies one sees listed among standard cupping apparatus so-called "bust-developers," consisting of a glass portion designed to fit the organ, with a suction apparatus at the other end. I assume that the supposed function of this apparatus is to bring about, through hyperemia, a permanent enlargement of the female breast. For many years I have been investigating the general biology of secondary sexual characters of the organism, and I should like to know whether there is any valid published evidence that the pieces of apparatus mentioned above can or do bring about any such a result as that suggested. It seems to me on biologic grounds very doubtful. I shall be greatly obliged if you will give me references to any pertinent literature. If my assumption as to what these pieces of apparatus are made (and presumably sold) for is wrong, will you please tell me what their use and effect is? P.

Answer.—There is apparently no scientific evidence to indicate that the devices described actually induce growth of the organs concerned. Rhythmic irritations of the lactating breast, as from a breast pump, or by massage, will unquestionably stimulate the circulation of the breast with a possible increase of the flow of milk. There is, however, no procedure that will produce a localized development of fat, which is essential, if the procedure is to develop the breast, for plumpness of a breast lies in the fat contained therein. In view of the lack of evidence as to the value of such devices, their sale must be placed in the same category as the purveying of inert and useless remedies.

ULCERS DUE TO CHROMIC ACID

To the Editor:—I am called on to treat ulcers which originate in the men employed in producing dry colors in a nearby dye industry. The ulcers are caused by chromic acid or chromium and its salts. We shall be grateful if you can assist us.

Subscriber.

Answer.—Lesions of the skin due to chromium are well recognized industrial dermatoses. The following brief account of them is taken almost verbatim from Dr. Prosser White's work, Industrial Dermatoses:

All workers in free chromic acid and the chromates suffer after a time, unless the precautionary regulations are strictly enforced. The chronic chrome dermatoses are: (1) the subcuticular vesicle; (2) the sore, or hole; traumatic or follicular; (3) the granuloma, and (4) the scar. Chrome sores are usually situated at the roots of the nails, the creases of the knuckles, and the hairy parts of the backs of the hands and forearms. The skin between the fingers shows large numbers of skin-colored, painless, subepidermic, pinhead elevations. The web between the thumb and first finger is particularly susceptible to ulceration, if any crack is present. Previous laceration of the cuticle or the mouth of the follicles, however, always determines the site of the ulcer, which may be found on the wrist or arm, the penis or the groin.

A chrome hole always starts and takes its size and shape from the chip, crack or opening in the skin in which it begins. If the epidermis has been stripped, the sore retains the shape of the original wound (linear, oblong, etc.), but as the hole deepens, the edges and angles become thickened and rounded. If, on the other hand, it begins from a follicle or a broken papule, it will most likely remain circular. The sore gradually deepens, widens, and soon extends to the derma. Deep penetration, with great thickening of the edge and less surrounding inflammation, is characteristic. The chrome hole is indolent and conical. The size of the chrome hole ordinarily encountered varies from that of a hempseed to that of a bean. When neglected, they become complicated by severe pyogenic infection, and large sloughs have been recorded. Men can work in very weak solutions of chrome without showing any ill effects.

The duration of a chrome sore, if not very deep, is about three weeks, provided the sufferer abandons work and is no longer in contact with the material. If he should ignore the trouble and continue his duties, it will last indefinitely. Chrome holes are essentially a chronic condition, their onset being slow and insidious, and recovery equally tardy. They always leave scars, which are usually quite distinctive.

Another lesion observed in these "hands" is the septic granuloma. It is prevalent in many occupations. It results from a low and slow form of inflammation or irritation, usually the feeble but repeated activity of infecting organisms. In these cases there may be little skin destruction, or the wound closes prematurely and the inflammatory exudates are confined or only partially absorbed. Edema, small-celled infiltration, and débris remain to form a diffuse, nodular, half-pea sized and shaped projection.

The only method of handling these cases successfully is to prevent them, and prophylaxis by measures to prevent contact with chromic acid and its salts should be required in works where laborers may be exposed to these salts.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, Sept. 5. Sec., Dr. Harry C. DeVighne, Juneau.

Massachusetts: Boston, Sept. 12-14. Sec., Dr. Samuel H. Calderwood, State House, Boston.

New Hampshire: Concord, Sept. 7-8. Sec., Dr. Charles Duncan, Concord.

District of Columbia April Examination

Dr. Edgar P. Copeland, secretary, District of Columbia Board of Medical Supervisors, reports the oral and written examination held at Washington, April 8, 1922. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 11 candidates examined, 7 passed and 4 failed. Four candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
George Washington University	(1921) 80.5, (1922)	85.1
Howard University	(1920) 81.6, (1921)	77.8, 86.3, 88.7
University and Bellevue Hospital Medical College	(1921)	81.1
FAILED		
Howard University	(1919) 73, (1920)	68.1, 70
College of Physicians and Surgeons, Boston	(1921)	73.8

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Howard University	(1914)	New Jersey
Johns Hopkins University	(1917)	Maryland
Tufts College Medical School	(1914)	Virginia
University of Texas	(1916)	Missouri

Colorado January Examination

Dr. David A. Strickler, secretary, Colorado State Board of Medical Examiners, reports the written examination held at Denver, Jan. 3, 1922. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 8 candidates who took the physicians and surgeons' examination, 3 passed and 5, including 1 osteopath and 1 undergraduate, failed. Nineteen candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1917)*	76.3
Eclectic Medical Institute	(1908)	75
University of Berlin	(1919)†	88.1
FAILED		
St. Louis College of Physicians and Surgeons	(1918)	39.4
University of West Tennessee	(1918)	66.5
Jenner Medical College	(1903)	65.5
Undergraduate		68.4
Osteopath		72.6

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Bennett College of Eclectic Medicine and Surgery	(1906)	Illinois
Hahnemann Medical College and Hospital of Chicago	(1887)	Illinois
Rush Medical College	(1915)	Wisconsin
Kansas Medical College, Topeka	(1903)	Oklahoma
University of Kansas	(1920)	Kansas
Harvard University	(1888)	Mass.
Tufts College Medical School	(1912)	Mass.
University of Michigan Medical School	(1902)	Michigan
Minneapolis College of Physicians and Surgeons	(1900)	Minnesota

Washington University	(1907), (1911)	Missouri
Columbia University	(1896), (1911)	New York
Cornell University	(1916)	New York
Cincinnati College of Medicine and Surgery	(1886)	Kentucky
Eclectic Medical Institute	(1892)	Nebraska
Jefferson Medical College	(1891)	Missouri
University of Texas	(1917)	Texas
University of Toronto	(1892)	New York

* Information received does not show graduation from any medical college.

† Graduation not verified.

Book Notices

LA LITHIASE BILIAIRE. Par A. Chauffard. Second edition. Paper. Price, 20 francs net. Pp. 247, with illustrations. Paris: Masson et Cie, 1922.

In thirteen chapters, which are really in the form of lectures, Chauffard covers fairly well the subject of gallstones—their pathogenesis, symptoms, complications, diagnosis and treatment. He emphasizes the rôle of cholesterinemia in their production, laying less stress than many on infection. He analyzes minutely the various types of pain caused by the stones dwelling especially on the areas of cutaneous tenderness. He devotes an interesting chapter to the elimination of gallstones by way of the intestine. He gives detailed advice as to treatment, telling which cases he regards as suited for surgery, which for hydrotherapy and which for the more strictly medicinal management. The book is not a complete textbook that one would consult as an encyclopedia of information on all phases of the subject, but it touches on nearly all the essential clinical features of gallstones, is rich in illustrative clinical cases, and is written in a style so lucid as to make the book not only readable but also entertaining.

LES BASES ACTUELLES DU PROBLÈME DE LA TUBERCULOSE. Par Fernand Bezançon, Professeur à la Faculté de Médecine. Paper. Price, 7 francs. Pp. 200. Paris: Gauthier-Villars et Cie, 1922.

This is one of a series of popular science works published under the title, "Science et Civilisation." It successfully presents to the general public the subject of tuberculosis as viewed by the best minds of the medical world. Instruction in all phases of the tuberculosis problem is needed in France; in fact, the author, in the preface, gives as the raison d'être of the treatise the need of acquainting his public with the facts about tuberculosis, the modes of infection, means of transmission, prophylaxis and treatment. The book is addressed to physicians, nurses, social workers and laymen in general. Attention is called to the seriousness of the problem from a social standpoint, and its importance as a national menace is made clear.

INTERNAL SECRETION AND THE DUCTLESS GLANDS. By Swale Vincent, LL.D., D.Sc., M.D., Professor of Physiology in the University of London. Second edition. Cloth. Price, $8.50 net. Pp. 422, with 104 illustrations. New York: Longmans, Green & Co., 1922.

This book is a very helpful contribution to the difficult subject of endocrinology by an active and competent experimental worker in this field. In this edition the portions dealing with clinical phases of the subject have been increased considerably, thus making the little volume more useful to medical students and practitioners. Many of the illustrations are photographs of patients suffering from diseases of the organs of internal secretions.

The chapters on the gonads, the thyroid, the parathyroids, the suprarenals, the pancreas, the hypophysis, and the specific interrelationship of these glands are the most satisfactory. In the chapters on the gastric and intestinal mucosa the author seems unfamiliar with the recent American investigations showing that the "secretin" of Bayliss and Starling and the "gastrin" of Edkins are artefacts or drugs, and not physiologic substances or hormones. The author has deliberately left out all references to the original literature, a fact that diminishes the value of the book. In the handling of experimental and clinical facts and speculations, the author is usually critical and conservative. He says: "If I have not been so optimistic and expansive in the treatment of certain topics as other writers on the same subjects, it is because I am convinced that a surer road to sound knowledge lies in the direction of rigid criticism and a reasoned skepticism."

THE PHYSICAL GROWTH OF CHILDREN FROM BIRTH TO MATURITY. By Bird T. Baldwin, Director and Research Professor of Educational Psychology. Cloth. Price, $3.75. Pp. 411, with 24 illustrations. Iowa City: University of Iowa.

This is the first of the University of Iowa Studies in Child Welfare, and is issued from the Iowa Child Welfare Research Station. Nothing so complete or exhaustive on the subject has appeared in American literature, and it is doubtful whether any such complete report has appeared in a single volume in the literature of any other country. The methods of examination are given in detail, and the results are amply illustrated by tables and charts Every phase of physical growth is taken up, even to strength tests of the different portions of the body. An appendix gives a large bibliography.

A MANUAL OF PHARMACOLOGY. By Walter E. Dixon, M.A., M.D., B.Sc., Sometime Professor of Materia Medica and Pharmacology at King's College. Fifth edition. Cloth. Price, $6 net. Pp. 468, with 92 illustrations. New York: Longmans, Green & Co., 1921.

This book is adapted primarily to the student in England; it is not suitable for use in America, as the U. S. Pharmacopeia names and the activities of the Council on Pharmacy and Chemistry are ignored. As is common with many textbooks published in Great Britian, proprietary names are used frequently to the exclusion of scientific terminology. Hexamina (the British Pharmacopeia name for hexamethylenamine, U. S. P.) and the proprietary "Urotropin" are employed interchangeably. The unscientific name Antifebrin, long discredited in America, is used by Dixon for acetanilid. The revision of the book has been extensive, but at times carelessness is evident. One notices that credit is not given others for research or statements, nor are references furnished. It is the purpose of the author that the therapeutics in the manual shall serve only to illustrate the pharmacology; he has carefully refrained from creating a treatise on therapeutics or materia medica. The material is presented in the commendable form of group treatment. The work also includes the drugs brought out during the war, but is not as critical in their evaluations as it might be. Tracings, chemical formulas and diagrams abound. The subject-matter is presented in a direct, pleasing style, and the book work is excellent.

TUBERCULOSIS IN INFANCY AND CHILDHOOD. Lectures Delivered at the Children's Hospital, Philadelphia, under the Auspices of the Philadelphia Pediatric Society. By J. Claxton Gittings, M.D., Professor of Pediatrics in the Graduate School of Medicine, University of Pennsylvania; Frank Crozer Knowles, M.D., Professor of Dermatology in the Jefferson Medical College, and Astley P. C. Ashhurst, M.D., Associate Professor in Surgery, School of Medicine, University of Pennsylvania. Cloth. Price, $5. Pp. 273, with 22 illustrations. Philadelphia: J. B. Lippincott Company, 1922.

This work discusses the subject completely from all clinical standpoints, and contains much valuable practical information. One of the striking features is a complete chapter on skin manifestations of tuberculosis, a greatly desired and needed contribution, and one which comes rather as a surprise to the ordinary reader. One could wish that many more illustrations had been added to the medical and dermatologic sections. The detail of physical examination and findings in the discussion of the pulmonary involvements is especially exhaustive, as one would expect who has knowledge of the previous work of one of the authors.

"Try for Links."—H. Le Chatelier, the professor of chemistry at the Sorbonne, Paris, was recently presented with a gold medal on the completion of his fifty years of teaching and of service to France. In his words of acknowledgment he addressed the young chemists present saying, "Try for links, only links. Do not try to forge a whole cable at once. Discoveries are made as one can, not as one wants to make them. The fall of the Titans trying to scale Olympus is being constantly repeated, as witness the last years of Sir William Ramsay and Schutzemberg, for instance."

Medicolegal

Improper Evidence as to Agency of Nurse in Hospital

(Deming Ladies' Hospital Association v. Price (U. S.), 276 Fed. R. 668)

The United States Circuit Court of Appeals, Eighth Circuit, in reversing a judgment for damages obtained by the plaintiff, Mrs. Price, on account of her having been burned by metal hot water vessels while she was unconscious after an appendectomy, says that the case went to the jury on the issue of whether a nurse named Miss Schilling, alleged to have been negligent in the matter, was an agent or employee of the hospital. That agency was sought to be established by what Miss Schilling herself had said and done. The husband of the plaintiff was permitted to answer certain questions with reference to what Miss Schilling did in connection with the operation on his wife, and the facts that she was in attendance during the operation in the operating room and attended Mrs. Price in her own room after the operation. Mr. Price then testified that neither he nor Mrs. Price ever employed Miss Schilling as a nurse; and that he did not receive a bill from her for services. He said that he saw her working in the operating room, suggested to her that she seemed to be pretty busy, and received the reply: "Yes; I am on general, and it keeps me busy." He was then asked: "Did you learn afterward, from observation and experience, what 'on general' in a hospital meant? What does it mean?" The objections to this question should have been sustained. The agency of Miss Schilling was not apparent; and it not only was not admitted, but was also denied. Her statement was not shown to have been ratified. Moreover, the testimony introduced, even if it had been admissible, would not have been sufficient to warrant the inference on the part of the jury that Miss Schilling was an agent or employee of the hospital. The court thinks too that, in any view of the case, the jury should have been given the requested instruction that the agency of Miss Schilling could not be determined by her statements and her conduct. There was also error, the court holds, in a refusal to give a requested instruction that the hospital was not liable because it was a charitable institution.

Immaterial Irregularities in Procedure of Board Not Reviewable

(Minaker v. Adams et al. (Calif.), 203 Pac. R. 806)

The District Court of Appeals of California, First District, Division 2, says that this was an appeal from a judgment of the superior court dismissing a writ of review and affirming all the proceedings of the board of medical examiners in revoking the appellant's license to practice medicine and surgery in the state. The action of the board was taken after a hearing, duly and regularly had, on a complaint charging the appellant with having been guilty of unprofessional conduct in procuring a criminal abortion. The appellant's contention was that, at the hearing, the board received considerable hearsay testimony and other evidence not admissible. Reliance was placed on the case of *Thrasher* v. *Board of Medical Examiners*, 185 Pac. 1006, because of its holding that hearsay evidence is inadmissible in a proceeding such as this one. However, the only function of the writ of review in this case was to determine whether the board exceeded its jurisdiction, and the sole question reviewable by the superior court on the proceedings before it and by this court on this appeal was whether the board exceeded its jurisdiction in making the order complained of. Conceding the fullest possible force and effect to the language of the Thrasher decision, and the consequent inadmissibility of some of the evidence received by the board in the instant case on the question of the pregnancy of the alleged pregnant woman at the time of her treatment by the appellant, there was, nevertheless, abundant proper evidence in the record that this condition existed. This was to be found in the testimony in the coroner's office of the surgeon who performed the necropsy, and in the testimony of a physician who examined the woman when she was taken to a hospital. This testimony eliminated any question that might arise, were there an entire absence of legal evidence in the record, as in the Thrasher case, and it conclusively established the jurisdiction of the board to make the order complained of. Under such circumstances, any irregularity in the method of procedure in the matter of the admissibility of improper evidence will not be reviewed on a writ of review. Wherefore, the judgment appealed from is affirmed.

Burden on Plaintiff in Action for Malpractice

(Sweat v. Foster (Ga.), 111 S. E. R. 66)

The Court of Appeals of Georgia, Division 1, says that this was a renewal suit brought within six months of the dismissal of the original suit by the plaintiff's attorney. The petition as amended stated, among other things, that on Sunday evening the petitioner's wife was taken ill. The petitioner immediately called at the home of the defendant physician for the purpose of securing his services, but did not see the defendant until Monday morning, when the defendant visited the petitioner's wife, examined her, stated that she was in labor, and gave her treatment. After about an hour, the defendant left, promising to return at 1 p. m., but did not do so until about 5 p. m., after the petitioner had been to his house at about 4 p. m., and urged him to return to look after the patient. On that visit he remained about thirty minutes, continued the treatment, and stated that the child would be born in an hour. The defendant did not return again, and the petitioner charged that so leaving was an act of gross carelessness and neglect of the patient, who died the next day. The petitioner also alleged that his wife was not in labor at all at the time the defendant waited on and treated her, but that her illness was gastritis. What was designated as Paragraph 11 of the petition read: "Petitioner alleges and charges that the death of his wife was due to the unskilful diagnosis and treatment by defendant as a medical practitioner, and to the gross carelessness and neglect in his treatment and handling of said wife's illness." The defendant interposed a general demurrer to the petition, and a special demurrer to Paragraph 11, asking that said paragraph be stricken out because the allegations thereof were vague and indefinite and were conclusions of the pleader.

It is well settled, the court goes on to say, in affirming a judgment for the defendant, that, in a suit for damages alleged to have been caused by the malpractice of a physician, the burden is on the plaintiff to show a want of due care, skill or diligence, and also that the injury resulted from the want of such care, skill or diligence. Conceding, but not deciding, that the petition in the instant case established a want of due care, skill or diligence on the part of the defendant, it was not shown that this negligence was the cause of the death of the plaintiff's wife, Paragraph 11 of the petition having been properly stricken out on the special demurrer interposed. The trial court did not, therefore, err in dismissing the suit on general demurrer.

Award to Physician for Sprain Held Excessive

(Lebrecht v. United Railways Co. (Mo.), 237 S. W. R. 112)

The Supreme Court of Missouri, Division No. 2, in reversing a judgment for $12,500 damages that was rendered in favor of the plaintiff, a physician, for a sprain of the sacro-iliac joint, says that the sudden starting and the closing of the door of one of the defendant's cars, while he was in the act of boarding it, caused him to fall and suffer the injury in question. He was not confined to his bed immediately; but, the pain increasing, he went to a hospital, where he remained ten weeks. An extension splint and weights were used to pull his leg and take the pressure away from his hip. He used crutches for three months after he left the hospital. For a while, he was not able to resume the practice of medicine, with the exception of seeing a few patients at his house.

It was more than four months after the accident before he went to the office. Prior to the accident, he had earned $6,000 or $7,000 a year. He was unable to state what his earnings had been subsequent to his injury without referring to his books, but was permitted to approximate his earnings by stating that, until four or five months before the trial, which occurred about two years after his injury, his income had been about 50 per cent. of what it was prior to the accident. His physician's fee was $150, and his hospital bill a like amount. He was 61 years of age. The physician who attended him at the hospital said the condition caused intense pain; that one so affected is troubled a long time with it, but he could not state definitely that the injury was permanent. In practicing his profession, the plaintiff would not be able to make visits as easily as before. A physician who testified for the defendant stated that he made an examination of the plaintiff about nine months after the accident, and found nothing objectively wrong with him, but, on manipulation of the parts on the left side, in the region of the back and of the pelvis, he complained of pain. This instruction was given the jury:

> If the jury find for the plaintiff, they should assess his damages at such sum as they may believe from the evidence will be fair compensation to him: first, for any pain of body or mind which the jury may believe from the evidence he has suffered or will hereafter suffer by reason of his injuries and directly caused thereby, including permanent injury (if any); second, for any loss of earnings in his profession which the jury may believe from the evidence he has sustained or will hereafter sustain by reason of his injuries and directly caused thereby, and, third, for any expense necessarily incurred for medical attention, not exceeding the sum of $150 for hospital bills and $150 for medical care, which the jury may believe from the evidence the plaintiff has incurred by reason of his injuries and directly caused thereby. You will render a verdict, if you find for the plaintiff, in an aggregate sum.

This instruction, the court holds, was not subject to objection, if based on proof sustaining same; but in the instant case it was unauthorized in the absence of such proof, the testimony not being sufficient to sustain an instruction in regard to damages based on proof of permanent injury. As has been said, in effect, in numerous cases: consequences which are contingent, speculative, or merely possible are not to be considered. To justify a recovery for apprehended future consequences, there must be such a degree of probability of their occurring as amounts to a reasonable certainty that they will result from the original injury. To say of a thing that it is permanent means that it will continue regardless of a contingency or fortuitous circumstance. Furthermore, under the evidence, the assessment of damages was excessive, and, without additional evidence, it would authorize the reversal and remanding of this case. On this account, therefore, and because the trial court in the instruction on the measure of damages authorized the jury to take into consideration the permanency of the plaintiff's injury in the absence of evidence to sustain the same, the cause was reversed and remanded.

Power to Defer Judgment Revoking License

(Shoults v. Alderson et al. (Calif.), 203 Pac. R. 809)

The District Court of Appeal of California, First District, Division 2, says that the appellant, who had been licensed to practice as a "doctor of naturopathy," was, in May, 1918, served with complaint and citation under the provisions of the medical practice act. The complaint charged that he had been guilty of unprofessional conduct under said act in affixing to his name certain letters indicating that he was entitled to practice the system or mode of treating the sick or afflicted for which he was not licensed. The citation required him to appear before the board for a hearing, June 25. He filed an answer in which he admitted having used the abbreviations "M.D." after his name on his professional cards and stationery and on a sign in front of his office, but alleged that he did so because he had received the degree from a legally chartered medical college of the state of Illinois and he believed he had a right to use this degree after his name; that he had never practiced or held himself out as practicing any art of healing other than "naturopathy." At the hearing, he appeared by counsel and in person and admitted the use of the suffix complained of; whereupon he was found guilty of unprofessional conduct as charged in the complaint. His attorney stated that he was willing to discontinue the use of the suffix to his name and asked that the board consider that fact and dismiss the proceedings. The matter was then discussed and the suggestion was made that judgment be deferred, or that he be put on probation for thirteen months. The motion was that he be put on probation for thirteen months. When later it was brought to the attention of the board that he had violated his promise and was using the suffix "M.D." on his stationery, prescriptions, and labels for bottles, the secretary of the board wrote to him stating that further hearing in the matter of the revocation of his license would be placed on the calendar for June 24, 1919. . On that date, he appeared before the board in person and represented by an attorney, and he admitted that he had used stationery on which was printed his name with the suffix "M.D." Testimony was also given by another witness of further violations by the appellant, in this particular, of the medical practice act. On such a showing, the board voted unanimously to revoke his license. In inflicting this penalty, the board was merely pronouncing the deferred judgment which it was empowered to render at the first hearing; and this court finds no grounds for the reversal of the judgment of the lower court, which affirmed the proceedings of the respondents acting as the board of medical examiners. The board acquired jurisdiction of the appellant and of the subject-matter by the procedure prescribed in the medical practice act, and it had power to continue its hearing, and finally to inflict the penalty.

The appellant contended that, because the chairman, in stating the motion, did so inaccurately, his language was to be looked to for the sense of the motion carried by the board, and that the motion carried by the board was a judgment placing the appellant on probation for thirteen months, which would be a penalty unauthorized by the medical practice act. But the court thinks that the power of the board to inflict such a penalty on one found guilty of unprofessional conduct was not a question presented on this appeal; that the motion carried by the board was that judgment be deferred for thirteen months, which was the motion seconded, and heard by all members of the board who were present, it being plain from the entire discussion that such was the motion intended to be carried and that was carried. This motion was not a final order or judgment; it was merely an order deferring the final judgment for a specified time. Assuredly, under the general powers given to the board by the medical practice act, it would have implied power to continue its hearings from day to day or for any longer period which seemed to it convenient or desirable under the circumstances. Such power would be indispensable to the successful functioning of the board in the method provided in the act, and would, consequently, be implied, if not expressed therein. Furthermore, the appellant expressly consented to such continuance.

A hearing was denied by the Supreme Court of California.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Minneapolis, Sept. 19-23. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Sec'y.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Albany, N. Y., Sept. 19-21. Dr. James E. Davis, 111 Josephine Ave., Detroit, Secretary.

American Electro-Therapeutic Association, New York, Sept. 19-22. Dr. A. Bern Hirsh, 71 W. 94th St., New York, Secretary.

American Roentgen Ray Society, Los Angeles, Sept. 12-16. Dr. H. E. Potter, 122 S. Michigan Ave., Chicago, Secretary.

Missouri Valley, Medical Society of the, St. Joseph, Mo., Sept. 21-22. Dr. Charles W. Fassett, 115 E. 31st St., Kansas City, Mo., Secretary.

Utah State Medical Association, Salt Lake City, Aug. 31-Sept. 2. Dr. W. L. Rich, Boston Bldg., Salt Lake City, Secretary.

Washington State Medical Association, Tacoma, Sept. 5-6. Dr. C. H. Thomson, 508 Cobb Bldg., Seattle, Secretary.

Wisconsin, State Medical Society of, Green Lake, Sept. 6-8. Dr. Rock Sleyster, Wauwatosa, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

June, 1922, 3, No. 6

Physiology Basis of Future Gynecology. G. G. Ward, New York City. —p. 573.
*Ovarian Function. W. P. Graves, Boston.—p. 583.
*Application of Metabolism Studies of Fetal and Neonatal Periods of Life. H. Bailey, New York City.—p. 591.
*Teratoma of Ovary. M. F. Porter, Fort Wayne, Ind.—p. 600.
*Congenital Malformation of Female Genitalia. P. J. Reel, Columbus, Ohio.—p. 604.
*Method of Keeping Fallopian Tubes Open. W. T. Kennedy, New York City.—p. 607.
Is Conservative Obstetrics to Be Abandoned? W. C. Danforth, Evanston, Ill.—p. 609.
*Device for Aseptic Intrauterine Manipulations. F. C. Hendrickson, Cincinnati.—p. 617.
*Treatment of Cardiac Failure During Pregnancy. H. E. B. Pardee, New York City.—p. 620.
*New Hydrostatic Bag for Induction of Labor. G. H. Lee, Galveston, Texas.—p. 628.
*Unusual Case of Extrauterine Pregnancy. J. W. Riley, Oklahoma City. —p. 630.
Pelvic Hematocele from Causes Other Than Ectopic Pregnancy. J. W. Bovée, Washington.—p. 634.

Ovarian Function.—Graves sums up his paper by stating that ovarian therapy is valuable in treating the hot flushes of the artificial and natural menopause. It has an uncertain but nevertheless unequivocal effect on certain dysmenorrheas. The same may be said of its influence in cases of amenorrhea, delayed menses, clotting, menstrual headaches, etc. An increasing number of cases seem to prove that it may stimulate fertility. Even at its best the action of ovarian extract is uncertain and excepting in occasional brilliant instances rather feeble. Outside its specific relationship to the reproductive functions, the influence of ovarian substance on the rest of the bodily organism is slight.

Prevention of Premature Births.—In order to prevent premature births, Bailey says, the care of the prospective mother must include a reduction of her manual work during the last month of pregnancy and the insistence on a dietary regimen composed largely of carbohydrates. The high death rate in the neonatal period must be looked on as preventable to a certain extent and provision of the energy requirement of the new-born is the first step in that direction. Bailey suggests that in maternity hospitals the new-born be turned over to the pediatrician. Obstetricians have been carrying this appalling death rate in the neonatal period with little concerted effort toward its reduction, because it is relinquished to men better trained in pediatrics.

Teratoma of Ovary.—Several points of interest are stressed by Porter in his recital of a case: First, the enormous size of the ovarian cysts without the patient's knowledge or suspicion that anything serious was wrong with her. Second, complete functioning of the ovaries, including pregnancy, occurring in the presence of bilateral ovarian teratomas, child carried beyond term, born naturally but dead. Third, development of a paratyphoid infection during the puerperium.

Absence of Uterus and Vagina.—Reel's patient was a young woman presenting in every respect typical feminine characteristics in external physical development while the internal genital tract revealed an absence of one tube, the uterus and the vagina. That rudimentary structures found on the right side at times endeavored to undergo some menstrual change seems logical since she has been entirely free from attacks of periodic pain in this region since their removal by operation.

Keeping Fallopian Tubes Open.—Kennedy uses Cargile membrane hardened in alcohol for at least forty-eight hours, threading it through the fallopian tubes and the cavity of the uterus to keep these tubes open both into the uterine cavity and into the peritoneal cavity. The membrane is flexible and strong, nonirritating to the contact tissues and is slowly absorbed, giving all raw surfaces time to heal and allowing this part of the genital tract to remain patent. He urges greater use of this membrane.

Device for Aseptic Intra-Uterine Manipulations.—Hendrickson has developed an apparatus and a method which he believes makes possible an almost perfect asepsis in performing any of the ordinary obstetrical manipulations except the cutting operations. There need be no fear of infecting a parturient woman such as by a manual removal of adherent placenta, even though the woman should have a suppurating bartholinitis.

Treatment of Cardiac Failure During Pregnancy.—The important feature of a patient with heart disease during pregnancy, Pardee says, is the degree of cardiac failure. If this is slight the disease is of little importance. Even with a moderate degree of failure it will be possible for the child to be born if the mother is allowed to take a risk which is not so great as sometimes stated. The first attack of severe decompensation can usually be recovered from with proper treatment, unless the attack should occur during labor. With proper observation and prompt operation severe decompensation should not occur during labor. Abdominal section is the operation of choice in the emergency, provided a low forceps cannot be done. Ether anesthesia started by chloroform is a better anesthetic for these patients than gas-oxygen. Oxygen inhalations from a mask are helpful to clear up a persistent cyanosis. Without severe cardiac failure or after recovery from it, most patients can be carried through to term or to an induced labor during the eighth month. During labor, one should watch for a pulse over 95 or respiration of more than 25 per minute, precordial discomfort, dyspnea, cough, and not let these little signs become big before putting an end to the labor. In treating lesser grades of failure during pregnancy, the patient must rest enough to spare the heart from overstrain, but this may not necessitate rest in bed for more than a short time. Digitalis should be given in doses sufficient to insure an effect. With this treatment Pardee feels sure it will be possible to diminish the present mortality of about 25 per cent. for severe cases and 10 per cent. for all cases to a figure which is less disquieting.

New Hydrostatic Bag for Induction of Labor.—Lee claims that his bag combines the two desirable features of the Barnes and the Champetier de Ribes and Voorhees bags; i. e., dilating the cervical canal and supplying an efficient foreign body within the lower zone of the uterus to excite uterine contraction.

Retained Extra-Uterine Pregnancy.—Riley's patient had the usual signs of pregnancy and felt the fetal movements. These, without the usual evidence that accompanies tubal rupture, suddenly ceased between seven and one-half and eight months of the pregnancy. Outside of the presence of an abdominal tumor, she enjoyed good health, and one year subsequently, gave birth to a full term, living child. Her pregnancy and labor were normal in every way. She subsequently gave birth to four children, two of whom were born dead. There was no history of any abnormality during these pregnancies or labors. On admission to the hospital, she complained of frequent urination and the presence of an abdominal tumor, the size of a croquet ball, firmly attached to the left of the uterus, causing considerable pain on examination. It was fixed and immovable. It was rather irregular and hard like a myoma. No crepitus was elicited. Rectal examination was very painful and the mass felt irregular to the examining finger. At the operation the mass was found to be in the left broad ligament. On cutting into the mass it proved to be a cavity from which a very foul odor emanated. The sac contained the bones of the fetus and a large amount of foul smelling, milky colored fluid. The bones of the fetus were entirely clean of all tissue. It measured 17 inches in height, and apparently represents the size of a fetus at seven and one-half or eight months' pregnancy

American Journal of Physiology, Baltimore

June, 1922, **61**, No. 1

Amino-Acids in Nutrition. V. Nutritive Value of Edestin (Globulin from Hemp Seed). Cystin and Lysin as Growth-Limiting Factors in That Protein. B. Sure, Fayetteville, Ark.—p. 1.
*Studies on Visceral Sensory Nervous System. XIII. Innervation of Cardia and Lower End of Esophagus in Mammals. A. J. Carlson, T. E. Boyd and J. F. Pearcy, Chicago.—p. 14.
*Blood Anticoagulant Obtained from Body Tissues; Its Chemical Nature and Its Manner of Action. C. A. Mills, G. Mynchenberg, G. M. Guest and S. Dorst, Cincinnati.—p. 42.
Action of Ultraviolet Rays on Starfish Eggs. R. S. Lillie and M. L. Baskervill, Cleveland.—p. 57.
Action of Ultraviolet Light on Egg Albumin in Relation to Isoelectric Point. J. H. Clark, Baltimore.—p. 72.
Physiologic Rôle of Intestinal Mucosal Movements. C. E. King, L. Arnold and J. G. Church, Nashville, Tenn.—p. 80.
Pseudoparadoxic Pupil Dilatation Following Lesions of Afferent Paths. J. Byrne, New York.—p. 93.
Latent Periods in Reciprocal Action of Antagonistic Muscles. J. M. D. Olmsted and W. P. Warner, Toronto.—p. 106.
*Origin and Conduction of Cardiac Impulse. VIII. Permanent Rhythm Following Destruction of Sino-Auricular Node. J. A. E. Eyster and W. J. Meek, Madison, Wis.—p. 117.
*Id. IX. Sinoventricular Conduction. J. A. Eyster and W. J. Meek, Madison, Wis.—p. 130.
I. Determination of Plasma and Hemoglobin Values After Unit Hemorrhages Under Controlled Experimental Conditions. E. B. Carrier, F. W. Lee and G. H. Whipple, San Francisco.—p. 138.
II. Simultaneous Determinations of Plasma and Hemoglobin Volumes. Influence of Fluids by Mouth and Vigorous Exercise. F. W. Lee, E. B. Carrier and G. H. Whipple, San Francisco.—p. 149.
Mechanism of Regulation of Intra-abdominal Pressure. H. C. Coombs, New York.—p. 159.
Height of Center of Gravity in Man. M. I. Croskey, P. M. Dawson, A. C. Luessen, I. E. Marohn and H. E. Wright, Madison, Wis.—p. 171.
Effect of Plethora and Variations in Venous Pressure on Diastolic Size and Output of Heart. W. J. Meek and J. A. E. Eyster, Madison, Wis.—p. 186.

Innervation of Cardia.—A method is described by Carlson et al. permitting continuous recording of the tonus and contractions of the cardia in acute experiments and in animals provided with a permanent gastrostomy and esophageal fistula.

Blood Anticoagulant in Body Tissues.—Whereas normal lung tissue yields a globulin which is a very active blood coagulant, lung tissue dried at room temperature and thoroughly extracted with benzene at this same temperature yields a globulin possessing a very strong anticoagulant action. This anticoagulant globulin appears to contain no phosphorus in its protein molecule. The globulin fraction from various tissues was found by Mills et al. to be capable of yielding this anticoagulant protein, there being no apparent specificity even for widely divergent species. The strongest anticoagulant for any blood was obtained from turtle liver. The anticoagulant action of the globulin is readily destroyed and an active coagulant formed by the proper addition of sephalin. The conclusion is justified that this protein owes its anticoagulative action to its high cephalin combining power.

Origin of Cardiac Impulse.—The experiments reported by Eyster and Meek comprise a study of the changes in cardiac rhythm for periods of days or weeks following ligation or excision of the sino-auricular node in dogs. Disturbance of the normal rhythm, as manifested by a reduction in cardiac rate, a reduction in the As-Vs interval and frequently other changes, invariably results. The facts obtained tend to substantiate the paramount importance of the sino-auricular node as the seat of origin of the cardiac impulse in the normal animal. They further indicate the ability of this structure to function, even though subject to considerable injury and partial isolation, if sufficient time for recovery is allowed. A study of the cardiac acceleration preceded by muscular exercise and by vagus paralysis under atropin administration, before and after excision of the sino-auricular node, lends further evidence to the view that it is on this structure that the vagus produces normally its greatest chronotropic influence and through which the normal acceleration in muscular exercise is in large part brought about.

Sinoventricular Conduction.—New experimental evidence is presented by Eyster and Meek which they believe tends to substantiate the view previously stated, that conduction of the excitation from its origin in the sino-auricular node to the right atrium and auriculoventricular node respectively, occurs normally by separate paths. This evidence is the occurrence of auriculoventricular dissociation in dogs after partial isolation of the sino-auricular node.

American Journal of Roentgenology, New York

June, 1922, **9**, No. 6

Mode of Radiation on Carcinoma. J. Ewing, New York.—p. 331.
*Case of Epithelioma of Cornea. D. Y. Keith and J. P. Keith, Louisville, Ky.—p. 337.
A Simple Pass Box. C. B. Reed, New York.—p. 340.
Underlying Principles in Radiotherapy of Malignant Tumors. H. Holfelder, Frankfort-on-the-Main, Germany.—p. 341.
*Pyelitis of Pregnancy. F. M. Hodges, Richmond, Va.—p. 352.
*Failures After Gastro-Enterostomy Turned to Success by Knowledge Furnished by Roentgen-Ray Examination. A. H. Pirie, Montreal, Can.—p. 358.
Rickets: Review of Recent Literature. R. G. Giles, Boston.—p. 360.
High Tension Electric Shocks in Roentgenologic Practice. W. F. Hemler, Washington, D. C.—p. 365.
New Immobilizing Device. C. M. Ming, Okmulgee, Okla.—p. 370.
Standardization of Measurement of Tuber Potential. F. Rieber, San Francisco.—p. 371.
Method for Roentgen-Ray Demonstration of Nasolacrymal Passageways. D. M. Campbell, J. M. Carter and H. P. Doub, Detroit.—p. 381.

Epithelioma of Cornea.—The Keiths believe that the application of radium to tumors of the cornea or the bulbar conjunctiva far excels operative procedure. In their case they used 42 mg. hours to each half of the eye. There have been no ill effects.

Pathology of Pyelitis of Pregnancy.—The true pathology of the condition is graphically demonstrated by the pyelograms made by Hodges, and consists mainly of dilatation of the renal pelvis and dilatation and kinking of the ureter. The dilatation varies greatly. The lesser and medium grades will entirely recover, but the more severe grades with atony of the pelvic musculature only partially recover. The colon bacillus is usually the infecting organism, but others may occasionally be primary or engrafted on the colon infection. The early diagnosis and treatment of pyelitis of pregnancy may be the means of avoiding serious, if not irreparable, damage to the kidney. Pelvic drainage and lavage is of marked value, adding little, if any, risk when properly done.

Cause of Vomiting After Gastro-Enterostomy.—Vomiting continuing for weeks after a gastro-enterostomy, Pirie states, is usually due to retention of food in the stomach. The gastric delay is due to the stoma being placed too far from the pyloric end. Roentgen-ray examination not only may disclose the cause, but provide the remedy. The first case of vomiting after every meal for three months following gastro-enterostomy was cured by lying on left side after meals. Second similar case was cured by lying on left side and rolling over a pillow on stomach.

Annals of Surgery, Philadelphia

June, 1922, **75**, No. 6

Tumors of Breast. C. H. Peck and W. C. White, New York.—p. 641.
*Papillary Cystadenoma of Male Breast. V. C. David, Chicago.—p. 652.
*Improved Method of Skin Grafting. A. D. Parce.—p. 658.
Serum Treatment of Anthrax Septicemia. D. Symmers, New York.—p. 663.
*Peritonitis as Complication of Prostatectomy. H. J. Vanden Berg and W. J. Butler, Grand Rapids, Mich.—p. 668.
Sciatic Hernia. J. E. Summers, Omaha, Neb.—p. 672.
Spontaneous Lateral Ventral Hernia. J. K. Holloway, Philadelphia.—p. 677.
Low Transverse Incision in Operations on Thyroid. W. S. Schley, New York.—p. 686.
Extracranial Aneurysm of Internal Carotid. N. Winslow. Baltimore.—p. 688.
Case of Bullet Wound of Femoral Artery and Vein Successfully Treated by Ligation of Artery and Vein and Extirpation of Injured Segment. G. P. LaRoque, Richmond, Va.—p. 705.
Value of Dakin's Solution in Treatment of Acute and Chronic Osteomyelitis. A. O. Wilensky, New York.—p. 708.
Spiral Fracture of Tibia and Fibula. J. A. Caldwell, Cincinnati.—p. 717.
Volvulus of Sigmoid. G. L. Hays, Pittsburgh.—p. 724.
*Value of Blood Pressure in Acute Cerebral Compression. J. Y. Malone, St. Louis.—p. 732.

Papillary Cystadenoma of Male Breast.—David's patient was 82. The tumor in the breast was first noticed fifteen years previously. Twelve years ago the tumor and nipple were removed. One year later there was a recurrence. The general health of the patient was good. The microscopic diagnosis was recurrent papillary cystadenoma of the ducts of the breast. David urges that in such cases the entire breast be removed.

New Method of Skin Grafting.—The technic of the method employed by Parce consists in the usual preliminary preparation and the use of the same instruments that one would employ if he were doing a simple Thiersch graft plus the addition of sterile dental modeling composition. With two basins of sterile water—one hot and one cold—conveniently at hand, the dental composition is first softened in the hot water and then molded over the surface to which the graft is to be applied and finally placed in the cold water to harden. A full thickness autoplastic graft through the dermis into the subcutaneous plexus, but devoid of fatty tissue, is removed with a razor in the ordinary manner, turned inside out over the impressioned surface of the composition and held under tension against it by means of fine catgut sutures used to approximate the free edges of the graft across the blank surface of the composition. It may take several grafts before the surface of the mold is covered in the desired fashion. The skin edges about the area to which the graft is to be applied are slightly undercut so that the margins of the composition with the graft overlying them will slip under these edges. The graft is now placed in position and adjusted, this adjustment being made more accurate by applying a compress soaked in hot saline to the composition for a moment, slightly softening it, when firm pressure will permit such readjustment as is necessary in the composition after the skin has been applied over it. The skin margins surrounding the area made free by undercutting are now sutured with fine catgut to those portions of the graft in apposition to them, which step serves the double purpose of holding the graft in position and at the same time helps to maintain tension on it. A copious dressing with a firm bandage is then applied over the whole area and left undisturbed for a period of eight to ten days, when the sutures holding the graft to the mold are cut, the edges of the composition gently lifted so as not to disturb the graft, and finally the whole mold is removed, leaving the epidermized surface beneath.

Peritonitis Complicating Prostatectomy.—Vanden Berg and Butler report a case of prostatectomy complicated by a fatal peritonitis due probably to soiling of the peritoneum following its accidental opening in enlarging the suprapubic wound. They failed to find a similar case on record.

Blood Pressure in Cerebral Compression.—Clinically, blood pressure compensation following increased intracranial pressure Malone states is a valuable criterion of the degree of cerebral compression when the pupils react to light, but is of no service when they do not. A sluggish or absent reaction of the pupils to light indicates a grave prognosis and no time should be lost in relieving the cerebral compression. A good rule is not to decompress a patient if the blood pressure is falling or is below normal. This is evidence that the last stage of compression has been reached and that the medullary centers are exhausted and can no longer compensate.

Archives of Internal Medicine, Chicago

June, 1922, **29**, No. 6

Pigment Metabolism and Regeneration of Hemoglobin in Body. G. H. Whipple, Rochester, N. Y.—p. 711.
*Ochronosis; with Study of Additional Case. B. S. Oppenheimer and B. S. Kline, New York.—p. 732.
Aids to Basal Metabolic Rate Determinations. H. S. Newcomer, Philadelphia.—p. 748.
*Nature of So-Called "Capillary Pulse." E. P. Boas, New York.—p. 763.
*Etiology and Development of Glomerulonephritis. E. T. Bell and T. B. Hartzell, Minneapolis.—p. 768.
*Biochemical Studies in Fatal Case of Methyl Alcohol Poisoning. I. M. Rabinovitch, Montreal.—p. 821.
*Reversed Rhythm of Heart. M. H. Kahn, New York.—p. 828.
*Paroxysmal Rapid Heart Action with Special Reference to Roentgen-Ray Measurements of Heart In and Out of Attacks. S. A. Levine and R. Golden, Boston.—p. 836.
Study in Experimental Diabetes. H. E. Landes, L. E. Garrison and J. J. Moorhead, Chicago.—p. 853.

Ochronosis.—The diagnosis of ochronosis was made by Oppenheimer and Kline in their case (the forty-first on record) because of the bluish discoloration of the cartilages of the ears and skin of the axillae; the pigmentation of the sclerae and the excretion of a dark urine becoming black on standing. In addition the patient had a deforming arthritis of the spine and larger joints and a mitral endocarditis: complications frequently present in ochronosis. Examination of the urine was repeatedly negative for alkapton body. The pigment obtained from the urine, from a costal cartilage and that from the prostate of the case gave the reactions for melanin. The pigment from these three sources had similar characteristics. The chemical findings are in accord with the belief that ochronosis is dependent on a disordered metabolism of phenol derivatives. As in the cases previously reported, the cartilages (costal, tracheal, bronchial, auricular and xyphoid), and fibrocartilages (intervertebral disks) are deeply pigmented (bluish black). Large stony masses of bluish pigmentation are found in the prostate and prostatic urethra. The kidneys show extensive pigmentation. The endocardium, intima of the aorta and coronary arteries, skin and sclerae are less intensely pigmented. The pigment is not deposited in any quantity in intact intima and endocardium but in areas of degeneration in these structures, however, macroscopic deposits occur. Diffuse ochronotic pigment is present in albuminous masses (renal casts) and concretions (corpora amylacea of prostate). Fine pigment granules are present in the epithelium of proximal convoluted tubules, and coarser granules are present in the cells of the ascending loops of Henle, distal convoluted tubules and the collecting tubules. The pigment is predominatingly diffuse in the matrix of the cartilage and fibrocartilage and when associated with albuminous masses and concretions. It is predominatingly granular in perichondrium, periosteum, tendons, fascias, connective tissue and in certain renal cells. It is present in diffuse and granular forms in injured and degenerated areas. The histologic picture in the kidney sections suggests excretion of the pigment by the cells of the proximal convoluted tubules. The picture likewise suggests a partial reabsorption of the fine pigment by the cells of the loops of Henle, distal convoluted tubules and collecting tubules, and a transformation of the pigment into a more granular form.

Nature of Capillary Pulse.—Boas claims that the so-called "capillary pulse" is not a manifestation of a pulsation of the capillaries, but is due to an exaggerated pulsation of the arterioles and possibly of the venules of the subpapillary plexus of the skin. In view of this fact it would be well to discard the term "capillary pulsation" and to speak of the systolic flushing of the skin.

Studies of Glomerulonephritis.—Thirty-two cases of acute glomerulonephritis were studied by Bell and Hartzell. In many of these cases death was due to extrarenal causes and early glomerular lesions are available for study. Degenerative, exudative and proliferative types of inflammation occur in the glomeruli. Proliferative changes are chiefly responsible for permanent glomerular damage. Acute glomerulonephritis is nearly always due to some acute infectious process, usually a streptococcal infection. The bacteria gain access to the blood and it is probable that the injury is produced by the direct action of their bodies on the glomerular endothelium. An occasional case of acute glomerulonephritis passes into the chronic form; but the great majority of chronic cases do not begin as frankly acute nephritis. Acute glomerulonephritis is linked with the chronic form by numerous intermediate cases. Glomerular lesions in chronic kidneys correspond to healing or healed stages of acute glomerulitis. Old epithelial crescents are common, and disintegrating polymorphonuclear leukocytes are frequently found in the closed glomerular capillaries and in the partially atrophied tubules. In a few chronic cases acute and subacute glomerular lesions were found, indicating acute exacerbations. In chronic glomerulonephritis many glomeruli are obliterated completely and those persisting show permanent closure of a part of the capillary network. Function is carried on by damaged glomeruli, and is depressed not only because of reduction in the total number but also because of the reduced capillary network in those that persist. The progressive nature of chronic glomerulonephritis is apparently due, in part, to repeated acute exacerbations. All forms of glomerulonephritis are due directly to bacterial invasion of the glomeruli; and the various clinical and pathologic types depend on the degree and extent of the permanent glomerular injury.

Methyl Alcohol Poisoning.—In a fatal case of methyl (wood) alcohol poisoning studied by Rabinovitch changes had occurred in the renal and other functions as evidenced by variations from the normal chemical composition of the blood. These, in themselves, disregarding other well known factors, may account for the actual cause of death. Methemoglobin played no important part in the production of the cyanosis noted. Methyl alcohol could be detected in the tissues examined six days after the ingestion of the drug.

Reversed Rhythm of Heart.—Kahn emphasizes the distinction that should be made between the terms "reversed mechanism" and "reversed rhythm" of the heart. The "term "reversed mechanism" should be confined to express a reversal of the mechanism of impulse formation and conduction. The term "reversed rhythm," on the other hand, does not attempt to interpret the direction of stimulus conduction. It expresses only a time relationship between the ventricular and auricular contractions, i. e., the ventricular beat immediately precedes the auricular beat. This includes not only the cases of reversed mechanism, but also those cases in which the mechanism is normal, yet in which the ventricular contraction is delayed and, therefore, is grouped together with the following auricular contraction. In these cases, the auriculoventricular node discharges its impulse, in point of time, ahead of the sinus node, yet without reversal of the mechanism.

Roentgen-Ray and Blood Pressure Studies of Heart Action.—Roentgen-ray examinations and blood pressure studies were made by Levine and Golden on eleven patients with paroxysmal rapid heart action. Five had paroxysmal auricular tachycardia, three had paroxysmal ventricular tachycardia, one had paroxysmal auricular flutter and two had paroxysmal auricular fibrillation. Observations were made during the attacks and while the heart was beating normally. It was found that in eight cases no appreciable dilatation of the heart occurred, in two it was definite but slight and in one it was considerable. These results indicated that in ten out of eleven cases it would have been impossible to detect with any certainty by percussion and palpation a change in the size of the heart. In seven of the cases blood pressure readings showed that the systolic pressure was apt to fall and the diastolic pressure to rise, resulting in a low pulse pressure which in rare instances became very small, i. e., 8 mm. This low pulse pressure may explain some of the symptoms that occur during the severe attacks. It is suggested that the amount of dilatation and the decrease in pulse pressure are dependent on three factors; the duration of the attack, the rapidity of the ventricles during the attack and the state of health of the heart before the attack occurs. In several cases a leukocytosis, even as high as 20,000, and a temperature of 100 F. developed with the attacks and quickly subsided as the heart returned to normal.

Arkansas Medical Society Journal, Little Rock

June, 1922, **19**, No. 1

Value of Hot Springs Baths in Treatment of Chronic Malarial Infections. W. T. Wootton and G. E. Tarkington —p. 1.
Cesarean Delivery; Report of Cases. G. E. Cannon, Hope.—p. 2.
Chronic Patient. H. Thibault, Scott.—p. 4.
Disease. J. T. Clegg, Siloam Springs.—p. 6.

Georgia Medical Association Journal, Atlanta

May, 1922, **11**, No. 5

Kidney Study. J. P. Proctor, Athens.—p. 169.
Disorders of Stomach, Few Facts, Fallacies and Figures. C. W. Roberts, Atlanta.—p. 174.
Precaution in Goiter Surgery. T. C. Thompson, Vidalia.—p. 178.
How to Restore Muscle Power in Paralytic Conditions. T. Toepel, Atlanta.—p. 182.
Gallbladder Disease. W. H. Lewis, Rome.—p. 184.
Gastric and Duodenal Ulcer. J. C. Johnson, Atlanta.—p. 186.
Size, Shape and Position of Stomach in Diagnosis. C. D. Cleghorn, Macon.—p. 190.
Subphrenic Abscess. L. W. Grove, Atlanta.—p. 192.

Indiana State Medical Association Journal, Ft. Wayne

March, 1922, **15**, No. 3

Functional Diseases of Nervous System in Soldiers and Civilians. C. G. Beall, Fort Wayne.—p. 75.
Foreign Bodies Within Respiratory Tract. M. H. Krebs, Huntington.—p. 78.
Group Medicine Diagnosis. L. L. Solomon, Louisville, Ky.—p. 85.
Physician. Duty Toward Psychologic Development of Childhood and Youth in Home. F. B. Wynn, Indianapolis.—p. 90.
Dangers and Duties of Hour. H. A. Hare, Philadelphia.—p. 93.

April, 1922, **15**, No. 4

Biliary Infections. J. W. Sluss, Indianapolis.—p. 109.
Diagnostic Uses of Duodenal Tube. G. W. McCaskey, Fort Wayne.—p. 114.
State Medicine. C. S. Bosenbury, South Bend.—p. 117.
Old Indiana Book on Medicine. J. N. Hurty, Indianapolis.—p. 122.
Physician. How May He Grow Old Gracefully? F. B. Wynn, Indianapolis.—p. 124.

Johns Hopkins Hospital Bulletin, Baltimore

June, 1922, **33**, No. 376

*Evolution of Human Races in Light of Hormone Theory. A. Keith, London, Eng.—p. 195.
*Relation of Nutrition to Tooth Development and Tooth Preservation. E. V. McCollum, N. Simmonds and E. M. Kinney and C. J. Grieves, Baltimore.—p. 202.
*Experimental Rickets. XX. Effects of Strontium Administration on Histologic Structure of Growing Bones. P. G. Shipley, E. A. Park, E. V. McCollum, N. Simmonds and E. M. Kinney. Baltimore.—p. 216.
*Carcinoma of Cervix Uteri. K. H. Martzloff, Baltimore.—p. 221.
Capillaries of Bone Marrow of Adult Pigeon. C. A. Doan, Baltimore.—p. 222.
Effect of Slight Increase of Temperature on Bacteriostatic Power of Gentian Violet. J. W. Churchman, New York.—p. 227.
*Experimental Rickets. XXI. Experimental Demonstration of Existence of Vitamin Which Promotes Calcium Deposition. E. V. McCollum, N. Simmonds, J. E. Becker and P. G. Shipley, Baltimore.—p. 229.

Evolution in Light of Hormone Theory.—Keith states that a study of the growth disorders reveals the fact that the hormone systems, centered in the pituitary and suprarenals, are organized on a functional basis. Hormone systems represent automatic growth mechanism which, like all living qualities, are hereditary and variable. Hormones represent the elements of an automatic system for the control of growth. For this reason new characters do not appear at the end of a developmental stage but early in the growth of the fetus. New characters appear first in utero; later they become fixed as a new character in the adult stage.

Relation of Nutrition to Tooth Development.—A study of the gross maxillary and dental defects in 220 rats on defective and deficient diets was made by E. V. McCollum et al. It is shown that the internal structure of the skeleton of the rat can be changed at will by varying the ration which the animals received. Some of the faulty diets studied produced rickets often of an exaggerated type, others caused osteoporosis. Still others resulted in the development of the peculiar lesion, which has been called osteosclerosis. A study of the effects of these diets on the skeleton would indicate that the growth of the skeleton was dependent on at least three substances: (1) an organic substance present in certain fats which is not identical with the antixerophthalmic fat soluble A; (2) calcium and (3) phosphorus. The studies of diets which contain varying percentages of calcium and calcium phosphate show that the absolute amount of either ion in the diet is of relatively little importance as compared to the ratio which exists between the two. That is, normally calcified bone is produced without regard to the reduction or diminution of either calcium or phosphate in the food, provided the content of the other ion is proportionately augmented or depressed.

Effect of Strontium on Bone Growth.—When strontium replaces calcium in an otherwise satisfactory diet (2.2 per cent. strontium carbonate). Shipley et al. state it stimulates growth and causes the bones to develop the picture of "strontium" rickets. The anatomic lesions described by Lehnerdt as induced by the administration of strontium to dogs, were not due to the stronium alone, but to a diet very poor in calcium and high in phosphorus, and deficient in the factors fat soluble A or a second dietary essential which is associated with certain fats, notably cod liver oil. Cod liver oil does not enable the animal to compensate for a faulty diet containing strontium.

Carcinoma of Cervix Uteri Cured.—The case reported by Martzloff is one of very early carcinoma of the cervix, a discharge having been present only three months. Examination revealed nothing grossly abnormal. A panhysterectomy was performed in August, 1921, and today the patient feels perfectly well. The patient was 55 years of age. Her menopause occured five years ago.

Vitamin Promotes Calcium Deposition.—Oxidizing cod liver oil for from twelve to twenty hours at 100 C. by blowing air through it was just as effective in curing rickets in rats as untreated oil. The antirachitic effect of cod liver oil is not due, therefore, to its content of fat soluble A, but to some other factor which the oil contains. The existence of this substance which exerts its effects in so remarkable a manner on the growing bones, is now as firmly established as is the existence of any of the three hitherto recognized vitamins. From its mode of action, and the very small amounts of it which are required to exert its directive influence on metabolism, it must, E. V. McCollum et al. believe, be classed with this group of essential nutritive principles.

Journal of Biological Chemistry, Baltimore

June, 1922, **52**, No. 2

Colorimetric Method for Determination of Small Amounts of Magnesium. A. P. Briggs, St. Louis.—p. 349.
Digestibility of Proteins in Vitro: Chemical Nature of Nutritional Deficiencies of Arachin. D. B. Jones and H. C. Waterman, Washington, D. C.—p. 357.
*Determination of Globulins in Blood Serum. R. R. Henley, Washington, D. C.—p. 367.
Determination of Total Oxygen-Combining Power of Blood in Van Slyke Apparatus. C. Lundsgaard and E. Moller, Copenhagen, Denmark.—p. 377.
Nutritional Requirements of Baby Chicks: Further Study of Leg Weakness in Chickens. E. B. Hart, J. G. Halpin and H. Steenbock, Madison.—p. 379.
*Method for Direct Determination of Uric Acid in Urine. S. R. Benedict and E. Franke, New York City.—p. 387.
Threshold of Ketogenesis. R. M. Wilder and M. D. Winter, Rochester, Minn.—p. 393.
Rôle of Cystine in Dietary Properties of Proteins of Cow Pea, Vigna Sinensis, and of Field Pea, Pisum Sativum. A. J. Finks, D. Breese Jones, and C. O. Johns, Washington.—p. 403.
Determination of Magnesium in Blood, Plasma and Serum. W. Denis, New Orleans.—p. 411.
Relation Between Endogenous Catabolism and Nonprotein Constituents of Tissues. H. H. Mitchell, W. B. Nevens and F. E. Kendall, Urbana, Ill.—p. 417.
Volatile Oil of Mentha Aquatica Linné; Occurrence of Pulegone. R. E. Kremers, Madison, Wis.—p. 439.
*Hydrogen Ion Concentration of Human Feces. C. S. Robinson, Lansing, Mich.—p. 445.
Studies of Autolysis: VIII. The Nature of Autolytic Enzymes. H. C. Bradley, Madison, Wis.—p. 467.
Possible Asymmetry of Aliphatic Diazo Compounds. II. P. A. Levene and L. A. Mikeska, N. Y.—p. 485.
Studies of Acidosis: XIX. Colorimetric Determination of Hydrogen Ion Concentration of Blood Plasma. G. E. Cullen, N. Y.—p. 501.
Comparison of Colorimetric and Electrometric Determinations of Hydrogen Ion Concentrations in Solutions Containing Carbon Dioxid. G. E. Cullen and A. B. Hastings, N. Y.—p. 517.
Modification of Clark Hydrogen Electrode Vessel to Permit Accurate Temperature Control. G. E. Cullen, New York.—p. 521.
Measurement of Buffer Values and Relationship of Buffer Value to Dissociation Constant of Buffer and Concentration and Reaction of Buffer Solution. D. D. Van Slyke, New York.—p. 525.

Determination of Globulins in Blood Serum.—The two methods described by Henley give results in practical agreement with those obtained by the Cullen and Van Slyke method but are, in some respects at least, less involved than the Cullen and Van Slyke method. Method 1 estimates the globulins by determining the nitrogen of the filtrate and by making the necessary calculations to determine the globulins by difference. Method 2 determines globulins by direct weighing.

Determination of Uric Acid in Urine.—The reagent employed by Benedict and Franke is arsenic phosphoric tungstic acid reagent and is prepared as follows: 100 gm. of pure sodium tungstate are placed in a liter pyrex flask and dissolved in about 600 c.c. of water; 50 gm. of pure arsenic acid are now added, followed by 25 c.c. of 85 per cent. phosphoric acid and 20 c.c. of concentrated hydrochloric acid. The mixture is boiled for about twenty minutes, cooled, and diluted to 1 liter. The reagent appears to keep indefinitely. A 5 per cent. solution of sodium cyanid, which should be prepared fresh once in about two months, is also used, and a standard solution of uric acid, acidified with hydrochloric acid, containing 0.2 mg. of uric acid in 10 c.c.

Hydrogen Ion Concentration of Feces.—The normal fecal reaction of apparently healthy men on mixed diets, Robinson found, lies between p_H 7.0 and 7.5 though temporary variations beyond this range may occur without giving rise to any unusual sensations on the part of the subject. The effects of some common laxatives on the fecal reaction were studied. The usual result is the production of an acid stool. The administration of the alkali, magnesium oxid, does not differ from the others in this respect but the fecal material passed after the cessation of the laxative action is unusually alkaline. The physiologic factor is the predominant one in influencing fecal reaction, no result being noticeable from the introduction of acidophilic bacteria into the intestine. The intestine apparently exerts a regulatory influence which prevents the development of acidity by micro-organisms. There is evidence that alkalinity in feces is also due to physiologic rather than biologic causes.

Journal of General Physiology, Baltimore

May, 1922, **4**, No. 5

Does Kinetics of Trypsin Digestion Depend on Formation of Compound Between Enzyme and Substrate? J. N. Northrop, New York.—p. 487.
Influence of Roentgen Rays on Properties of Blood. R. G. Hussey, New York.—p. 511.
Kinetics of Bioluminescent Reaction in Cypridina. I. Introduction. W. R. Amberson, Cleveland.—p. 517.
Id. II. Experimental Results. W. R. Amberson, Cleveland.—p. 535.
*Action of Curare, Atropin and Nicotin on Invertebrate Heart. A. J. Carlson, Chicago.—p. 559.
Effect of Temperature on Phototropic Response of Necturus. W. H. Cole, Lake Forest, Ill.—p. 569.
Effect of Cocain on Growth of Lupinus Albus. D. I. Macht and M. B. Livingston, Baltimore.—p. 573.
Studies on Regulation of Osmotic Pressure. II. Effect of Increasing Concentrations of Albumin on Conductivity of Sodium Chlorid Solution. W. W. Palmer, D. W. Atchley and R. F. Loeb, New York.—p. 585.
Equilibrium Condition Between Blood Serum and Serous Cavity Fluids. R. F. Loeb, D. W. Atchley and W. W. Palmer, New York.—p. 591.
Colloidal Behavior of Edestin. D. I. Hitchcock, New York—p. 597.
Elimination of Discrepancies Between Observed and Calculated P.D. of Protein Solutions Near Isoelectric Point with Aid of Buffer Solutions. J. Loeb, New York.—p. 617.
Electrical Charges of Colloidal Particles and Anomalous Osmosis. II. Influence of Radius of Ion. J. Loeb, New York.—p. 621.

Action of Curare, Atropin and Nicotin on Heart.—According to Carlson, curare, atropin and nicotin in mollusca and arthropods stimulate and paralyze the central nervous system and peripheral (visceral) ganglions, but do not paralyze the motor nerve endings to skeletal or visceral muscle. They stimulate and paralyze the denervated heart. They paralyze or block the cardio-inhibitory nerves, but not the cardio-accelerator nerves. In the Limulus heart these drugs act primarily on the heart ganglion, not on the heart muscle or the intrinsic motor nerve fibers.

Journal of Laboratory and Clinical Medicine, St. Louis

June, 1922, **7**, No. 9

*Focal Embolic Glomerulonephritis. M. Warwick, St. Paul.—p. 507.
*Rôle of Hexamethylenamin in Production of Hematuria. W. A. Bloedorn and J. E. Houghton, Annapolis.—p. 514.
Chronic Urticaria of Five Years' Duration Probably Due to Chronic Acidosis. G. W. McCaskey, Fort Wayne, Ind.—p. 534.
Studies in Postmortem Bacteriology: Value and Importance of Cultures Made Postmortem. A. S. Giordano and A. R. Barnes, Rochester, Minn.—p. 538.
Widal Technic Using Sterilized Cultures. R. Gilbert and A. C. Moore, Albany, N. Y.—p. 547.
Suggestions for Determination of Uric Acid in Blood. L. Bauman and L. M. Keeler, New York City.—p. 551.
Use of Open Delivery Tubes in Distillations When Determining Urea and Nonprotein Nitrogen in Blood. G. E. Youngburg, Buffalo.—p. 552.
*Method of Counting Cells in Cerebrospinal Fluid. C. F. Carter, Dallas, Tex.—p. 555.
What Are Atmospheric Moisture Requirements of Bacteria. N. Kopeloff and S. Morse, New York City.—p. 555.
Adapted Mask for Basal Metabolism Apparatus. P. B. Newcomb, Los Angeles.—p. 560.
Plea for Standardization of Training for Laboratory Technicians. G. B. Grant and E. R. Wilson, Los Angeles.—p. 562.

Making Collodium Sacs. N. Muskin and L. Siegel, New York City.—p. 564.
Liver Function. W. T. Vaughan, Richmond.—p. 565.
Pathogenicity of Bacillus Botulinus. V. C. Vaughan, Washington.—p. 570.
Cod Liver Oil in Rickets. V. C. Vaughan, Washington.—p. 571.

Focal Embolic Glomerulonephritis.—Ten cases of focal embolic glomerulonephritis are analyzed by Warwick. In all ten cases the heart was enlarged from 365 gm. (in a small female) to 860 gm., with an average of 515 gm. The mitral valve was involved alone five times; the mitral and aortic valves together four times, while the aortic valve alone was involved but once. The lesion consisted of vegetations which were sometimes accompanied by ulcerations of the valve leaflets. In five cases vegetations and ulcerations occurred together, but in the other five cases vegetations occurred alone, thus disproving the older idea that the endocarditis associated with focal embolic glomerulonephritis was usually of the "ulcerative" type. The vegetations varied markedly in appearance and position on the endocardium. The majority were fresh and friable while some were more firm and showed beginning calcification in certain areas. In some instances the vegetations were very numerous and extended over the auricular wall. In other cases, the vegetations were small and discrete and situated on the edges of the leaflets. One heart showed only two small vegetations on the mitral value and one large one on the aortic valve. In another case, yellowish white vegetations, associated with calcareous nodules, were found on the mitral valve only. In five cases in which blood cultures were taken either just before or just after death, *Streptococcus viridans* was present four times and *Streptococcus pyogenes* once. In one case *Streptococcus hemolyticus* was obtained from the blood stream, showing that streptococci other than *Streptococcus viridans* may be responsible for focal embolic glomerulonephritis. In all the cases of this series in which a history was available, the urine showed albumin, hyaline and granular casts, occasional leukocytes and persistent red blood cells, but in no case was gross blood present—a point of differentiation from cases of acute hemorrhagic nephritis. In all ten cases, the spleen was enlarged.

Rôle of Hexamethylenamin in Production of Hematuria.—Bloedorn and Houghton report five cases of hematuria, which developed among approximately 400 patients with mild influenza who received from 30 to 60 grains of hexamethylenamin a day. The hematuria appeared in from one to seven days following the administration of the drug. In an attempt to demonstrate an idiosyncrasy to hexamethylenamin in these patients, the drug was applied in varying dilutions to the slightly abraded skin of the forearm, and in each case a reaction consisting of redness, induration and the production of a raised area, was noted.

Method for Counting Cells in Cerebrospinal Fluid.—Carter uses the Levy counting chamber with double Neubauer ruling, this being the one in almost universal use for blood counting and Levinson's diluting fluid (methyl violet, 0.2 gm.; glacial acetic acid, 5 c.c. and water to make 100 c.c.). With a pipet (1 c.c.) equal parts of cerebrospinal fluid and diluting fluid (0.5 c.c. of each) are mixed. The total number of cells counted multiplied by two gives the total cells per cubic millimeter.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

June, 1922, **19**, No. 5

*Hemolytic Properties of Arsphenamin and Fifteen Allied Compounds. G. P. Grabfield, Boston.—p. 343.
Feeding Experiments on Tadpoles: Prostate Gland and Other Substances. J. M. Rogoff and W. Rosenberg, Cleveland.—p. 353.
Animal Calorimetry. XXI. Influence of Morphin on Heat Production in Dog. A. Chanutin and G. Lusk, New York.—p. 359.
Chronic Intoxications on Albino Rats. VI. Lead Carbonate. T. Sollmann, Cleveland.—p. 375.
*Improved Method for Using Phenoltetrachlorphthalein as Liver Function Test. S. M. Rosenthal, Baltimore.—p. 385.

Hemolytic Properties of Arsphenamin.—By means of a method described by Grabfield, the hemolytic activity of various samples of arsphenamin was found to vary in a general way as did the toxicity, when the latter depended on variations in the conditions of reduction of the nitro group to the amino group in the preparation of the sample. On standing or after shaking in alkaline solution, the hemolytic properties of a given sample decrease, often disappearing altogether. "Arsenoxid" is nonhemolytic. The sodium salts of various substituted phenylarsonic acids related to arsphenamin are nonhemolytic. Warming a sample of disodium arsphenamin to 55 C. decreases its hemolytic power. Warming the hydrochlorid causes comparatively little diminution of hemolytic power when tested after being changed to the disodium salt. The hemolytic power of dihydroxyarsenobenzene (in 1 per cent. solution as sodium salt) is nil, but the introduction of amino groups causes the resulting compounds to acquire hemolytic properties in direct proportion to the number of amino groups introduced. The antihemolytic action of arsphenamin is similar to that described for sodium arsenate and arsenite when tested against chemical hemolytic agents; none of these substances exert an antihemolytic action against rabbit hemolysin. The presence of serum inhibits hemolysis by arsphenamin.

Liver Function Test.—Phenoltetrachlorphthalein has been injected intravenously by Rosenthal and its subsequent concentration in the blood has been studied. In normal dogs there is an immediate rise to approximately 10 per cent., rapidly falling to only a trace or to complete disappearance within fifteen minutes. When the liver is damaged the amount of dye in the blood reaches from 15 to 30 or more per cent., and remains elevated for a prolonged period, 11 per cent. having been recovered almost two hours after injection. There is evidence that the curves obtained have paralled the degree of impairment of liver function, and it is believed that the method can be applied clinically as a quantitative test for liver function.

Journal of Radiology, Omaha

June, 1922, **3**, No. 6

Cancer of Lip Treated by Radiation or Combined with Electrocoagulation and Surgical Procedures. G. E. Pfahler, Philadelphia.—p. 213.
Duodenal Bulb Deformity in Relation to Symptoms and Chemistry of Gastric Juice. A. W. Crane, Kalamazoo, Mich.—p. 218.
Study of Hilus Pneumonias by Serial Radiographic Examination. L. R. Sante, St. Louis.—p. 221.
Radium and Roentgen Ray Therapy in Malignancy: Indications, Contraindications, Limitations and Recent Developments. A. U. Desjardins, Rochester, Minn.—p. 226.
Roentgen Ray Anthropometry of Skull. A. J. Pacini, Washington, D. C.—p. 230.
Standardization of Dosage Factors. H. J. Ullmann, Santa Barbara, Calif.—p. 239.

Missouri State Medical Association Journal, St. Louis

June, 1922, **19**, No. 6

Reorganization and Consolidation of State Hospitals of Missouri. G. P. Ard, Jefferson City, Mo.—p. 251.
Two Stage Operation for Relief of Certain Infections of Biliary Passages. W. P. Glennon, St. Louis.—p. 256.
Epithelial Proliferation. Differential Pressure as Aid in Growth of Epithelium on Denuded Surface. E. D. Twyman, Kansas City, Mo.—p. 257.
Focal Infection Idea. R. Kinsella, St. Louis.—p. 258.
Digitalis, Excellent But Dangerous Therapeutic Agent. J. F. Chandler, Oregon, Mo.—p. 260.
*Megacolon: Report of Case. E. Fischel, St. Louis.—p. 261.
Immediate Cure of Chronic Catarrhal Deafness; Painless Cure of Chronic Ear Discharge, Including Ideal Mastoid Antrum Opening by Way of Auditory Canal. R. Barclay, St. Louis.—p. 264.
Importance of Blood Chemistry in Chronic Nephritis. C. M. Wilhelmj, St. Louis.—p. 268.
Scope and Purpose of International Health Board. J. A. Ferrell, New York.—p. 271.
Gastric Ulcer. T. G. Hall, St. Louis.—p. 274.

Case of Megacolon with Symptoms of Obstruction.—Fischel reports the case of a man, aged 48, who presented symptoms which led to the diagnosis of acute bowel obstruction due probably to a malignant tumor of the sigmoid. At the operation the suture colon from the cecum to the rectum was markedly hypertrophied. The condition was recognized as a true megacolon. A complete resection of the colon was done beginning at the proximal side of the ileocecal valve and terminating at the disal end of the sigmoid. The disal end of the severed sigmoid was inverted and an end to side anastomis of the ileum to the anterior wall of the rectum was performed. The postoperative course was stormy in the extreme. The patient was discharged seven weeks after the operation with the wound entirely healed. He was seen again three years later. He worked steadily; had two large, soft stools daily. There was considerable urgency, however.

Virginia Medical Monthly, Richmond

May, 1922, **49**, No. 2

Lung Abscess: with Report of Cases. J. T. Buxton, Newport News. —p. 53.
Remarks About Head and Other Pains Due to Nasal Irritation. J. A. White, Richmond.—p. 61.
Electrotherapeutic Misconception. Sinusoidal Current. C. A. Pfender, Washington, D. C.—p. 65.
Silent Stones. W. L. Peple, Richmond.—p. 70.
Gallbladder Disease. W. E. Clark and M. W. Perry, Washington, D. C.—p. 74.
Surgical Significance of Pain in Left Side of Abdomen. R. L. Pittman, Fayetteville, N. C.—p. 81.
Report of Case of Melanotic Sarcoma of Choroid. C. Edmond, Clifton Forge.—p. 84.
Plea for Greater Effort in Conservation of Hearing in Acute Diseases of Middle Ear and Mastoid. E. W. Perry, Lynchburg.—p. 85.
Relation of Modern Dentistry to Practice of Medicine. G. R. Harrison, Richmond.—p. 88.
Citizenship and Physician. E. L. Kendig, Victoria.—p. 91.
Home Treatment of Tuberculosis. R. L. Raiford, Sedley.—p. 93.
Chronic Endocervicitis. E. W. Titus, Washington, D. C.—p. 96.
Appendicular Liver and Kidney: Report of Cases. L. H. Swindell, Washington, D. C.—p. 98.

Wisconsin Medical Journal, Milwaukee

June, 1922, **21**, No. 1

Newer Conceptions as to Causes of Gastric Ulcer. K. W. Doege, Marshfield, Wis.—p. 1.
Doctrine of Prepared Soil: Neglected Factor in Surgical Infections. H. Cabot, Ann Arbor, Mich.—p. 6.
Cholecystectomy — Its Failure to Give Relief in Certain Cases of Cholelithiasis. P. P. M. Jorgensen, Kenosha, Wis.—p. 11.
Eye Injuries in Industries. G. I. Hogue, Milwaukee.—p. 12.
Hyperalgesia of Skin and Subcutaneous Tissues as Factor in Diagnosis of Lesions of Abdominal Viscera. G. F. Thompson, Chicago.—p. 14.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted elow. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 17, 1922, **1**, No. 3207

Sins and Sorrows of Colon. A. F. Hurst.—p. 941.
*Physiologic Explanation of Pain Due to Functional Disturbance of Muscle of Colon. T. S. Wilson.—p. 944.
*Two Hundred and Twenty-Five Cases of Pneumonia: An Analysis. A. W. Owen.—p. 946.
*Treatment of Chronic Synovitis of Knee Joint. G. G. Atkins.—p. 948.
Neurosyphilis with Severe Laryngeal Crisis: Tracheotomy. J. W. Leitch.—p. 949.
Treatment of Asylum Dysentery by Means of Antidysentery Serum. P. Lornie and D. E. Jones.—p. 949.
External Hydrocephalus. C. E. Reynolds.—p. 950.
Case of Addison's Disease, Rapidly Fatal. C. M. Fleming.—p. 951
Cobra Bite. V. St. J. Croley.—p. 951.

Functional Disturbance of Colon Causes Abdominal Pain. –Clinical study of cases has convinced Wilson that pain can e caused by the transference to the sensory tracts of the ord of afferent impulses which arise in the sympathetic and hich if retained in that system would cause disturbance of e brain of a reflex character and would not cause physical ain. It seems probable that when the muscular activity hich originates the nervous impulse is decidedly more owerful than impulses due to normal digestive activity, there considerable probability of this transference taking place, nd when, as in cases approaching the severity of ordinary olic, the afferent impulse is an extremely powerful one, the ansference of the nervous impulse from the sympathetic ystem to the sensory tracts of the cord almost invariably kes place and a sensation of pain is the result. With regard the localization of the pain it is not, as a rule, felt over e spot where it probably arose, but is usually "referred" or egmental" in character. The clinical study of a series of ses in which mental depression and neurasthenic symptoms sult from functional disturbance of the colon muscles, ows that there are some cases which cannot be explained the theory of inhibited cerebral vasodilatation. When the circulation alone is concerned, the defect can be removed by a more vigorous mental effort, just as is the case with physical lassitude which can be overcome by a more vigorous muscular effort. It is not at all unusual, however, to find cases of functional colon disturbance in which the mental depression is so severe as to be wholly beyond the patient's voluntary control, and constitutes an acute mental misery which is comparable in the mental sphere to a severe physical pain in the sphere of sensation. The occurrence of such cases compels recognition of the fact that nervous impulses arising in the colon and passing to the brain along sympathetic nerve paths have the power of directly disturbing that portion (or those functions) of the brain on which the sense of well being is dependent, and of giving rise to an acute mental misery which truly represents the physical pain which they would have felt if the afferent impulse causing it had been transferred from the sympathetic to the sensory tracts of the cord. The fact that these cases are really due to the functional disturbance in the colon is demonstrable clinically by the fact that they yield to treatment which lessens the amount of postural activity in the colon.

Treatment of Pneumonia.—The mortality in Owen's series of 225 cases was 14.2 per cent. The treatment consisted in the administration of milk, beef tea, albumin water, and plenty of cold water until after the crisis; ammonium carbonate, 5 grains every four hours for adults and 1 grain for an infant of 1 year, and proportionately according to age. Morphin for adults and brandy were the only other remedies used.

Treatment of Synovitis of Knee Joint.—Chronic effusion of the knee joint Atkins asserts is, in 75 per cent. of cases, not due to an injured cartilage, but to a strain of some structure around the joint. This can be dealt with effectively by reeducation of the vastus internus, plus the production of as large an increase as is possible in the blood supply around the joint. This latter is obtained by (1) contrast baths; (2) limited active exercise of all muscles around the joint, and (3) massage. If this treatment is instituted in every case of chronic effusion of the knee joint the number of operations for a so-called injured cartilage will diminish, and many men will be able to enjoy various forms of sport which they otherwise would not be able to take part in for fear of "putting out" a knee again.

Bristol Medico-Chirurgical Journal

March and June, 1922, **39**, No. 145

Medicine and Psychology. J. H. Parsons.—p. 2.
Renal Efficiency. C. Clarke.—p. 13.
Physiologic Conception of Prolonged Hysterical Conditions. H. H. Carleton.—p. 36.

Journal of Laryngology and Otology, Edinburgh

June, 1922, **37**, No. 6

So-Called Prolapse of Laryngeal Ventricle, and Eversion of Sacculus. I. Moore.—p. 265.
Modified Radical Mastoid Operation. D. Watson.—p. 275.
Case of Cavernous Sinus Thrombosis of Otitic Origin by Supposed Direct Infection of Petrosal Sinuses. J. A. M. Hemmeon.—p. 281.
Transnasal Laryngeal Medication in Laryngeal Phthisis. J. Dundas-Grant.—p. 285.
Malignant Disease of Nasal Accessory Sinuses. E. M. Woodman.—p. 287.
Basal Cell Carcinoma of Larynx. W. G. Howarth.—p. 295.

Journal of Obs. and Gyn. of British Empire, London

1922, **29**, No. 1

Manchester School: Charles White (1728-1813) and Arrest of Puerperal Fever. J. G. Adami.—p. 1.
*Chemical Observations on Toxemias of Pregnancy. O. L. V. de Wesselow.—p. 21.
*Extragenital Chorionepithelioma of Congenital Origin. J. Miller and F. J. Browne.—p. 48.
*After-Results of Removal of Uterine Appendages in Hysterectomy for Uterine Fibroids and Chronic Metritis. J. W. Bride.—p. 68.
*Case of Iniencephaly Without Spina Bifida. G. I. Strachan.—p. 87.
Salpingotomy Versus Salpingectomy in Treatment of Tubal Gestation. B. Whitehouse.—p. 93.
Treatment of Advanced Carcinoma of Cervix of Uterus by Radium. A. Burrows.—p. 97.
*Case Diagnosed as Fulminant Menstrual Peritonitis: Contribution to Study of Idiopathic Puerperal Fever (Self-Infective). J. G. Adami. —p. 104.

Infected Fibromyoma of Puerperal Uterus Associated with General Peritonitis and Removed by Hysterectomy. E. Holland.—p. 108.

Case of Rupture of Uterus Through Scar of Previous Cesarean Section. L. Graham.—p. 111.

Chemistry of Toxemia of Pregnancy.—A study of the literature has led de Wesselow to the conclusion that the data available for the chemical findings in normal pregnancy are scanty and contradictory. Apparently the organism is in a condition of low nitrogenous metabolism, and therefore from the standpoint of urinary nitrogen distribution is in unstable equilibrim. From the conditions present in pregnancy, it appears unlikely that an undue strain is being placed on the excretory organs, but rather that the demands made on the excretory functions of the kidney are, as far as concerns nitrogenous waste products, less than in the normal person. The corresponding chemical data for toxemic and eclamptic cases are given. In four cases of pyelitis complicating pregnancy, the blood urea values varied from 14 to 21 mg. Evidence of a renal defect was, however, present in all in the form of a definitely lowered response to the urea concentration test, the lowest figure noted being 1.3 per cent. It would seem that the indications furnished by the urea concentration test are, in these cases, of considerably greater value than determinations of the urea and nonprotein nitrogen of the blood. Further, the repetition of the test, when it has been possible, has usually given indications of the progress of the case. With few exceptions, defect of the urea excreting power of the kidney appears to be the rule in the toxemias of pregnancy, and since edema is almost invariably present, the nephritis would appear to be of the mixed type; the impairment of the ability to excrete waste nitrogenous products, though definite, as shown by the urea test, is not usually extreme. Marked accumulation of the urea and other nonprotein nitrogenous bodies in the blood is infrequent, but from a functional standpoint the lesion does not appear to differ in any way from the mixed type of nephritis, so frequently seen in nonpregnant women. No evidence could be obtained by the methods employed of a differentiation into groups, nor from a chemical standpoint were any definite differences detected between those cases complicated by convulsions and those in which no convulsions occurred. On the contrary, the cases studied appeared to present a continuous graduation from the mildest type of albuminuria of pregnancy to the most severe. No evidence could be obtained of the existence of an hepatic as distinct from a nephritic toxemia of pregnancy. De Wesselow believes that chemical examination should be of definite value in averting the risk of permanent damage to the mother, and in indicating the stage at which induction becomes necessary. A definitely raised urea content of the blood above 40 mg. per hundred c.c. is proof that the kidney is severely damaged, and is an indication for induction of labor. In default of a raised blood urea, the urea concentration test affords valuable evidence of the condition of the renal function, and, when the figure obtained is below 2 per cent., termination of the pregnancy should be considered. Repetition of both examinations, after an interval, is invaluable, since a rising blood urea with a falling concentration capacity constitutes an obvious indication of a progressive lesion. In cases in which a low diastatic content is present, chronic disease and a less complete recovery are suggested. In all cases blood pressure observations afford most valuable assistance in prognosis and treatment.

Extragenital Chorionepithelioma in Male.—In the case reported by Miller and Browne a testicular growth was excluded with certainty, and the primary tumor was situated behind the liver, arising there in all probability from an errant primitive germ cell. The patient was a male, aged 39. With the exception of slight colds he had been well all his life until about six weeks before admission. He then began to be troubled intermittently with a pain in the right side, just "at the foot of the ribs." At first slight, the pain had gradually become worse. It was only after admission to the infirmary that he noticed any swelling in his abdomen. The swelling became rapidly larger after admission. Patient stated that never at any time was he jaundiced and he had never suffered from piles or from swelling of the legs or feet. The liver rapidly enlarged and became more painful. A needle was put into the liver and blood stained fluid drawn off, the syringe being easily filled, and the fluid under a certain degree of pressure. Large cells resembling amebae were present. A second specimen was obtained in a similar way a few days later, and on this occasion no such cells were found. The pain now became so severe and continuous as to require the frequent administration of heroin. Slight jaundice made its appearance, the liver became excessively tender, the least touch causing agony. On the thirtieth day after admission the patient died, after having been delirious during the previous twenty-four hours. At the necropsy the abdominal cavity was found filled with fluid and clotted blood. The liver was enormously enlarged, and showed several tumor-like masses, visible through the capsule. On section very large tumor masses were seen; some of these consisted of large spaces filled with fluid blood. Immediately behind the liver was a large mass, apparently enclosed in a fibrous capsule, and containing material similar to that found in the liver tumors. In addition there were several large glands behind the peritoneum infiltrated with growth which had the same appearance. The testicles were carefully examined, but no abnormality was found, either to the naked eye or microscopically. The histologic examination, which is described in detail, disclosed the fact that this was a typical chorionepithelioma, which evidently originated in an abnormally situated primitive germ cell. The latter, without fertilization, had undergone development, producing a teratoma containing all three layers of the embryo plus trophoblast. The stimulus for division of the primitive germ cell (gamete) probably was found in the abnormal (not ovarian or testicular) tissue by which the gamete was surrounded. The authors suggest that the cause of the malignant transformation of the teratomatous formation may be found in the little understood disturbed balance of internal secretions, occurring in adult and especially in middle life.

After-Results of Removal of Tubes and Ovaries.—Of 231 patients who answered Bride's questionnaire, 186 had both their ovaries and tubes removed. Abdominal or vaginal total hysterectomy had been performed in 8 cases; subtotal or supravaginal hysterectomy had been performed in 178 cases; the remaining 45 patients had either one or both uterine appendages left. Vaginal hysterectomy with removal of one appendage had been performed in 2 cases. Supravaginal hysterectomy with removal of one appendage had been performed in 3 cases. Vaginal hysterectomy with both appendages left had been performed in 40 cases. These investigations seem to have established the following points in comparing the conservative and radical operations: (1) The general health of nearly all the patients after both operations is much better, but a larger percentage are better after the radical operation. (2) The temperament of the patients is adversely affected in only a small percentage after either operation, but after the conservative procedure this percentage is slightly larger. (3) Flushings occur in a large percentage of patients after either operation. The percentage is greater, though not much, after the radical operation. (4) A very small percentage of patients complain of nervous symptoms after operation, but the percentage is larger after the conservative operation. (5) A very small percentage of women after either operation complain of more pain, but after the conservative operation it is more than twice the percentage after the radical operation. (6) A larger percentage of women have disturbances of their sexual relations after the radical than after the conservative operation in the proportion of 39 to 26 per cent. (7) There is a greater tendency to adiposity when both ovaries are removed. In brief, then, so far as the majority of the manifestations of the artificial menopause are concerned, there is very little to choose between the two types of operation. The advantage lies with the radical operation in every way save two. The two exceptions are the occurrence of flushes and the sexual disability.

Iniencephaly Without Spina Bifida.—Besides the deformity indicated in the title there was in this case absence of the left cupola of the diaphragm in its dorsilateral part, the ventrilateral part being represented by a small muscular band attached to the costal margin in front and with a free posterior edge. The left hepatic lobe occupied the space to the left of the heart normally occupied by the left lung. The liver was of a doubled-up shape from side to side, the groove for the ductus venosus being converted into a canal by fusion of hepatic tissue underneath. Some small intestine (7.5 cm.) was firmly adherent to the cystic duct and had to be removed with the liver. The left kidney and suprarenal body were seen extending up the posterior wall of the thorax, the tip of the suprarenal body lying at the level of the seventh rib, while above this was the spleen. Between these structures and the heart was the left lung, a small fleshy structure 3 cm. in vertical measurement attached to the left side of the pericardium. The right lung was also small, firm and fleshy, but larger than the left, being 5.2 cm. long. The thymus was large and pale and hung down one third of the way in front of the pericardium, while the thyroid was normally situated and presented no naked eye abnormality. The stomach consisted of a vertical cul-de-sac, the wall of which was pale and showed some sacculation: the apertures of entry and exit were both at the upper end only about 1 cm. apart, while the sac measured vertically 6 cm. The organ lay partly behind the heart and partly behind the liver, and surrounded by a large and soft pancreas. The small intestine, 41.0 cm. in length, lay partly behind the pericardium and partly arranged in an irregular fashion in the abdomen, ending in the left iliac fossa where the appendix was seen: the ileocecal junction was represented by an ampulla-like swelling from which the large intestine extended in an irregularly double sigmoid fashion to turn down into the pelvis to join the rectum, which opened at the anus. The intestinal canal was everywhere patent, but there was no difference in caliber between the small and large intestine, the latter showing no attempt at arrangement into ascending, transverse and descending colon. The kidneys were both lobulated: the right one was normally placed. Apart from being prolonged, the labor, which lasted sixty-two hours, was normal, while the fetal heart, beating at 120 per minute, was heard in the early part of labor, although at birth the fetus was dead.

Fulminant Menstrual Peritonitis.—Adami reports his findings in a necropsy made on a young girl, aged 14, who died suddenly after an illness of very short duration the exact nature of which could not be determined. The only pathology present was found in the abdomen. The intestines were wetter than usual and diffusely injected, and there was a very definite accumulation of fluid in the pelvic cavity, where also the intestinal coils and the fallopian tubes were more intensely injected. The fluid was not purulent; it was translucent, though at the same time definitely turbid. The congestion and increased quantity of fluid indicated that here was a peritonitis of an acute type that had not gone on to suppuration. All other organs were normal. The girl was menstruating at the time of her death. The uterus was firm, of normal size, its mucosa reddened, and it contained blood stained fluid. There was, however, no appearance not compatible with simple menstruation. The fallopian tubes were injected, as already stated, and the fimbriae abnormally "angry" in appearance. The ovaries were normal. The symptoms had been abdominal. Examination of the abdominal fluid gave a pure culture of a streptococcus in long chains. The history was that the girl had been menstruating for three days before her death. About twelve hours after the completion of an athletic contest the girl woke with acute abdominal discomfort, which gave way to intense pain and the development of an intense toxic, comatose state. Death supervened just about twelve hours after the appearance of the first symptom. Adami gives this explanation of the case: Whereas between menstrual periods the uterus is sealed by the cervical plug of mucus, during menstruation the mouth of the uterus and so the way to the fallopian tubes and peritoneal cavity is open, and that by negative abdominal pressure the contents of the vagina may thus under favorable circumstances be sucked into the peritoneal cavity. A single brief period of negative pressure might at most draw the vaginal contents into the mouth of the uterus, but a succession of acts leading to alternative positive and negative pressures in the abdominal cavity, acts such as swinging from ring to ring round the gymnasium, or again acts of prolonged negative pressure, such as balancing inverted, with feet in the air, on the "horse" or parallel bars, would strongly favor the suction of vaginal contents along the whole length of the female genital canal.

Journal of State Medicine, London

June, 1922, **30**, No. 6

Alcohol in Relation to Industrial Hygiene and Efficiency. T. Oliver, —p. 231.

Institutional Management of Young Infants. E. Pritchard.—p. 249.

Anaerobic Infections. W. Cramer and W. E. Gye.—p. 254.

Chlorination of Municipal Water Supplies. J. Race.—p. 263.

Lancet, London

June 24, 1922, **1**, No. 5156

Clinical Symptoms of Cerebellar Disease and Their Interpretation. G. Holmes.—p. 1231.

*Bacillus Coli Infection of Urine. W. Hale-White.—p. 1237.

*Recognition of Congenital Syphilitic Inflammation of Long Bones. H. M. Turnbull.—p. 1239.

*Rheumatic Cardiac Affections: Plea for Notification and Institutional Treatment. M. O. Raven.—p. 1241.

Fish Liver Oils and Other Highly Potent Sources of Vitamin A. S. S. Zilva and J. C. Drummond.—p. 1243.

Case of Acute Primary Phlegmonous Enteritis. J. B. F. Wilson.—p. 1244.

Bacillus Coli Infection of Urine.—Hale-White states that sufferers from this condition must stay in bed; plenty of bland drink, such as barley water, should be given to wash out the bacilli; food should be light and suitable to the degree of the rise of temperature. In young children it is particularly important by every possible means to get them to take and absorb nourishment, for they waste rapidly in many instances. If pain or frequency of micturition lead to bad nights, hyoscyamus, and, if necessary, sleeping draughts, or even morphin, should be given. The patients so rarely die, and the disease is so frequently overlooked, that we must conclude that the natural tendency is for these patients to get well. Therefore, it is difficult to be sure whether any particular treatment is beneficial, but it seems reasonable to try to disinfect the urine. But if the disease is primarily a blood infection and the bacilli are excreted by the urine and then set up the urinary symptoms, this treatment will not affect such of the symptoms as are due to the blood infection. Usually an autogenous colon vaccine is used; it is difficult to prove that it does good, but to give it is reasonable. Those who have suffered from the disease once are especially liable to do so again; such either have a low resistance to the bacilli or in them they are especially virulent.

Congenital Syphilitic Osteitis.—Congenital syphilitic disease of bone, Turnbull asserts, is not a general systemic condition, but is due to the local presence of spirochetes. The older the child, the fewer are the portions of bone affected. In the fetus the infection tends to be widespread, but it is not necessarily universal. Further, when several bones are affected, the lesions are greater and more conspicuous in some bones than in others. It is advisable, therefore, in each case to examine as many bones as possible. The femur, tibia, humerus, and ribs are sites of election; the femur and ribs are easy of access, and should be examined in all cases.

Rheumatic Heart Disease.—Raven is convinced that if rheumatic heart disease could be made equally with tuberculosis a notifiable disease, many tragedies would be avoided; it would soon be generally recognized that every case in which there has been the slightest sign of damage to the heart requires long recumbency and longer observation; medical officers should be enabled to supervise the conditions under which patients receive their treatment, and institutions should be provided for their recovery if, as will be the case, as a general rule, treatment at home is not giving the heart its best chance; lastly, careful watch should be kept over all children with damaged hearts, until they reach an age when they may be expected to exercise the necessary self-restraint. The hearts which are much in evidence in the examination room, exhibiting various combinations of murmurs and thrills, are not those which should interest us most. The most interesting heart is the one which, known to have once been involved in an acute rheumatic infection, is nevertheless observed to be functionally efficient ten, twenty, forty and sixty years afterward.

Medical Journal of Australia, Sydney

May 20, 1922, **1**, No. 20

Dementia Praecox. J. T. Anderson.—p. 540.
Present Plague Outbreak in Sydney. W. G. Armstrong.—p. 546.
Plague Epidemic. E. W. Ferguson.—p. 552.

May 27, 1922, **1**, No. 21

Treatment of Malignant Disease by Radiation. H. C. Nott.—p. 567.
Criteria of Normality in Growth of Children. T. B. Robertson.—p. 570.
Treatment of Vascular Nevi. E. H. Molesworth.—p. 576.
Vaccine Treatment of Gonorrhea. A. Foster.—p. 578.
Case of Idiopathic Partial Rupture of Sigmoid Colon with Hemorrhage into Peritoneal Cavity. R. Southby.—p. 579.

Naval Medical Association Bulletin, Tokyo

May, 1922, No. 35

Experimental Study on Histologic Changes of Wound by Exposure to Direct Rays of Sun. I. Sugita.—p. 1.

Annales des Maladies Vénériennes, Paris

June, 1922, **17**, No. 6

*Failure of Preventive Treatment of Syphilis. J. Golay.—p. 401.
*Formaldehyd Test in Serodiagnosis of Syphilis. A. Bouttiau.—p. 407.
Latent Chronic Cowperitis. R. Leszczynski.—p. 416.
Syphilitic Aneurysms of Arch of Aorta. Decrop and Salle.—p. 438.
"Invisible" Chancre of the Vulva. G. Belgodere.—p. 442.
Lymphangitis of Arm Cured by Antigonococcus Vaccine. Matarasso.—p. 448.

Failure of Preventive Treatment of Syphilis.—The two men of 30 and 38 were given systematic preventive treatment, and this evidently warded off the primary lesion, but the secondary manifestations developed the same as if no treatment had been given, only five or seven weeks later than usual. The failure was probably due to the length of the interval before treatment was begun, sixteen days and twenty-eight days after infection.

Formaldehyd in Serodiagnosis.—Bouttiau concludes from 1,500 applications of the Gate and Papacosta test that the reaction is strictly specific for syphilis.

Journal de Chirurgie, Paris

June, 1922, **19**, No. 6

*Conservative Hysterectomy. P. Lecène and Gaudart-d'Allaines.—p. 561.
*Radium Treatment of Hemorrhagic Metritis. M. Letulle.—p. 579.
*Idem. H. Cesbron.—p. 594.

"Fundic Hysterectomy."—Lecène applies this term to wedge resection of the fundus of the uterus, with the adnexa, leaving only one ovary or part of one. His six illustrations show the various steps of the procedure. The seventeen patients recently reexamined, out of the total twenty-one thus treated, confirm the excellent outcome. Menstruation had continued regularly in 76 per cent. of the women although less profuse than before. In 18 per cent. there was a tendency to hot flashes or to obesity, so the results were only mediocre. One woman of 40 has pronounced symptoms of the artificial menopause; in this case, retention of the ovary failed to accomplish its purpose. The fold of peritoneum between bladder and uterus is drawn up and sutured to the peritoneal fold at the rear of the uterus. This pulls the bladder backward, but none of the patients seemed to feel any ill effects from this. The details of the twenty-one cases are given.

Radium Treatment of Hemorrhagic Hypertrophic Metritis.—Letulle reports a case of this kind in which the hemorrhages returned after radium treatment and again after a second application in seven weeks. The woman of 45 returned two months later bleeding even more profusely, until hysterectomy put an end to the hemorrhages. His photomicrograms show the fibrinoid aspect, etc., of the tissues, the vessels still permeable for blood, without a trace of coagulation.

Radium Treatment of Hemorrhagic Metritis.—Cesbron gives the bibliography on this subject since 1912, and discusses in particular the indications and technic for radium treatment of hemorrhagic metritis in virgins, in women during the reproductive period, and during the menopause, and the chronic cases. He advocates radium treatment of hemorrhagic metritis in virgins only as the last resource, after failure of all other measures, including organotherapy. The results have been constantly favorable in his experience with one to three applications, with intervals of a month. The menses are arrested for two or three months, and then they return, normal. Several girls thus treated have passed through normal pregnancies since. Siredey warns, however, that even a single mild radium exposure may entail permanent sterility. In chronic metritis and the metritis of the menopause, radium is incontestably the treatment of choice.

Paris Médical

June 10, 1922, **12**, No. 23

*Herpes Zoster and Facial Paralysis. G. Worms and V. de Lavergne.—p. 481.
*Serodiagnosis of Tuberculosis. G. Ichok.—p. 485.
*Ischemic Retraction of Finger Flexors. Soubeyran.—p. 490.

Herpes Zoster and Facial Paralysis.—Worms and de Lavergne are inclined to think that in many instances of facial paralysis for which herpes zoster is responsible, this factor is overlooked. The herpes zoster infection affecting the geniculate ganglion may induce a number of clinical pictures, from the complete geniculate syndrome to almost pure facial paralysis. The lumbar puncture fluid generally shows lymphocytosis and high albumin and sugar content in herpes zoster. This completed the differential diagnosis in one case.

Serodiagnosis of Tuberculosis.—Ichok writes from Besredka's laboratory to confirm the reliability of the complement fixation test for tuberculosis when Besredka's egg antigen is used. In 900 persons tested the reaction was constantly negative in the nontuberculous. In fifty-four children in an institution, a positive reaction was obtained in four, and in these four, tuberculous lesions were discovered later. Mozer and Fried applied the test in 1,005 cases of surgical tuberculosis, and report that it is as reliable in this class of cases as the Wassermann reaction with syphilitic disease of the bones. Other testimony is accumulating on the value of the test. The egg antigen is made by adding 1 liter of distilled water to the yolks of twenty eggs (350 c.c.). The water must have a neutral reaction. The emulsion is then clarified with a 1 per cent. solution of sodium hydroxid. The amount required varies with different eggs; the optimum is reached when the fluid looks transparent in a thin layer, as in a pipet, and opaque in a thick layer. The fluid is diluted to 7 liters. The yolks are then in a proportion of about 1:20 ($350:7{,}000 = 1:20$). This culture medium is then distributed in Roux boxes (50 to 150 c.c.) and is sterilized at 110 C. for twenty minutes. Four day cultures on this medium, sterilized and rendered homogeneous by agitation, form the antigen for the seroreaction. The mother emulsion retains its properties indefinitely.

Resection of Bones of Fore-Arm for Ischemic Retraction of Flexor Muscles.—Soubeyan corrected the crippling retraction of the fingers in the boy of 10 by shortening the long bones to correspond. He cut out a segment 2 cm. long, inside the periosteum, in both radius and ulna but at different levels. No attempt was made to suture the bone, the sutured periosteum cuff forming a support. The plaster splint held the elbow flexed, the fingers extended, in complete supination. It was discarded the twenty-fifth day, and the functional use of the fingers was regained and has been complete during the eight years to date. The arm is 1.5 cm. shorter than its mate.

Presse Médicale, Paris

June 7, 1922, **30**, No. 45

*Glycemia in Diabetics. M. and H. Labbé and F. Nepveux.—p. 485.
Sensory Disturbances with Facial Paralysis. J. R. Pierre.—p. 488.

Glycemia in Diabetics.—Labbé and Nepveu give the composite curve from seven healthy persons tested with 45 gm. of glucose in 200 c.c. of water, fasting, with an additional 150 c.c. of water at half hour intervals. The sugar content of the blood ran up at once; it reached its maximum in thirty minutes on an average, and returned to the preceding figure by the second or third hour. The increase ranged from 0.14 to 0.34 gm. In twelve diabetics the increase ranged from 0.5 to 2 gm.; the maximum was not reached until very much later, up to 180 minutes, and the reaction persisted much longer, up to four and a half to seven hours. The simple test reveals latent diabetes, and is a useful guide for treatment. It is the only means to determine whether the diabetic has been cured. The glycosuria does not necessarily parallel the glycemia. The derangement in regulation of the sugar metabolism may be more severe than the glycosuria would indicate. The diabetics in this group generally display more or less of a tendency to obesity and Bright's disease.

June 14, 1922, **30,** No. 47

Deep Roentgenotherapy for Uterine Cancers and Fibromas. C. Chambacher and P. Descoust.—p. 509.
*Typhus. H. Turcan.—p. 512.

Symptoms of Typhus.—Turcan ascribes differential importance to the total and rebellious insomnia, the brownish leathery coating of the tongue and the peculiar eruption, small roundish or lenticular discolored spots or papules, scattered irregularly but connected by an almost invisible mottling. The elements of the eruption cannot be obliterated by pressure. The delirium is also of a special type, calm and almost rational, although based on some delirious notion, generally professional.

Schweizerische medizinische Wochenschrift, Basel

May 25, 1922, **52,** No. 21, Siebenmann Number

Paraffin Injections in Treatment of Ozena. Baumgärtner.—p. 490.
Differential Diagnosis of Retropharyngeal Tumors. Buchmann.—p. 492.
*Psammoma of Ethmoid Sinus. C. v. Eicken.—p. 495.
Treatment of Atresia of the Nares. G. Elmiger.—p. 497.
*Congenital Stenosis of Esophagus. G. Frey.—p. 498.
Five Years of Surgery of Ear and Nose. H. Haag.—p. 498.
Bone Growth in Nose of Old Syphilitic. E. Hopmann.—p. 504.
*Diverticulum in Esophagus. T. Hug.—p. 505.
*Primary Cancer of the Middle Ear. A. Junod.—p. 510.
Action of Acids as Local Caustics. K. Mayer.—p. 514.
Bronchoscopy. E. Minder.—p. 515.
*Intranasal Encephalocele. F. R. Nager.—p. 516.
Foreign Bodies; Esophagoscopy; Forty-One Cases. Oppikofer.—p. 519.
Ear Complications of Influenza. E. Roch.—p. 528.
*Cancer of Thyroid. E. Ruppanner.—p. 533.
*Mastoiditis and Otitis Media. E. Schlittler.—p. 535.
Plastic Reconstruction of Larynx and Trachea. C. Schmidt.—p. 539.
Tamponing the Nose. C. Schmidt.—p. 540.
Fibroma in Nasopharynx. W. Studer.—p. 541.
Injury of Cranial Nerves with Fracture of Base of Skull. K. Ulrich.—p. 545.

Psammoma of Nasal Sinuses.—The tumor was successfully removed from the girl of 16 after its psammoma nature had been recognized as the sphenoid sinus was cleared out. The eyeball on that side had been protruding for a few months. The total mass of the tumor spread through the frontal, ethmoid and sphenoid sinuses; it was about as large as a hen's egg, and grated like sand under the knife. Two operations were required before the last trace of the tumor was removed, and with it a fragment of bone lined with the psammoma tissue. Several polyps had to be removed from the nose later, and suppuration in the frontal sinus called for thorough evacuation, but no evidence of return of the tumor has been observed during the five years since. It was impossible to determine where the tumor had originated. There is a possibility that it might have been connected with some intradural process.

Congenital Stenosis of the Esophagus.—The new-born infant vomited at once almost all it ingested. As it grew older the difficulty in swallowing was intermittent. The child was taken to different hospitals and treated with various courses of dieting, without avail. Esophagoscopy finally revealed a valvelike protrusion of normal mucosa 1 or 2 cm. above the cardia. Frey cut the free edge of this dilated portion, using a small foreign-body forceps. He followed this with systematic dilating procedures every two or three days, and in a month the boy was able to eat normally.

Diverticulum in Esophagus.—Hug reports three cases in men of 63 to 74 and a case in a woman of 43. The diverticulum was discovered in all in a comparatively early stage. The clue had been given by the air bubbles in the pyriform sinus. He pushed the diverticulum inside the esophagus, thus inverting and invaginating it, which rapidly entailed the shriveling and casting off of the invaginatum. No fistula was left in his cases, although in some the diverticulum was of moderate size. The patients could begin to eat at once. These pulsion diverticula are always above the mouth of the esophagus, and are thus in fact in the hypopharynx.

Primary Cancer of the Middle Ear.—Junod reports that only six cases of this kind have been encountered in over twenty-five years at the Basel ear clinic, among 45,000 ear patients.

Intranasal Encephalocele.—The encephalocele in the boy of 6 seemed to be merely a cyst, but on its recurrence a year later it was recognized as a transsphenoid encephalocele. He developed pneumococcus meningitis after a diagnostic excision. Although he recovered from this, he succumbed a year later to streptococcus meningitis. Nager was able to find only six analogous cases on record; the list includes one man of 60 and a babe of 3 days. In the one case of permanent recovery, the pedicle of the encephalocele was reached and ligated by resecting the upper jaw of the man of 29.

Cancer of the Thyroid.—In Ruppanner's case the cancer in the man of 50 developed in the esophagus after thyroidectomy. The goiter had been removed on account of disturbance in breathing. The esophagus carcinoma was safely removed in 1915. In January, 1922, he returned with a recurrence in the trachea, and this tumor was removed by the natural route. There has been no return since this merely palliative operation, and the patient is under close supervision.

Incipient Mastoiditis with Otitis Media.—Schlittler states that mastoiditis was found in all the fatal cases of intracranial complications of otitis media at the Basel ear clinic. An early mastoid operation almost invariably wards them off, and he describes how to recognize incipient involvement of the mastoid. The pains at night in the diseased ear, and the synchronous pulsation are instructive. By having the patient move his finger at each pulsation, we can see whether it corresponds to the pulse. Beside the tenderness back of the ear, bulging of the posterior wall of the meatus, and swelling and tenderness at the origin of the sternocleidomastoid muscle and in the zygoma region all point to involvement of the mastoid, as also a creamy purulent discharge, keeping up for five or six weeks, and lack of improvement in hearing after two to four weeks. But the synchronous pulsation, its arrest, its persistence, its returns, is the most instructive guide for estimation of mastoiditis. With secondary otitis media, in diabetes, etc., intracranial complications are less common, the tendency being rather to regressive necrotic changes.

June 1, 1922, **52,** No. 22

*The Nervous System in Disease of Organs. A. Oswald.—p. 553.
Refractometry and Viscosimetry of the Blood Serum. Rohrer.—p. 555.
Squill in Therapeutics. J. Markwalder.—p. 560.
Pharmacology of Squill. E. Jenny.—p. 562.

The Nervous System in Relation to Disease of Organs.—Oswald presents arguments to sustain the assumption that the nervous system affects the vital reactions more than we realize at present. The familiar experience that "the mouth waters" at sight and smell of appetizing food, suggests that something of the same stimulating nature may occur in one or more of the endocrine glands under certain experiences. They may "water" in response, or their normal "watering" may be stopped by emotional influences. A catarrhal gastric or intestinal affection of neurogenous origin, a conjunctivitis from mental overwork, a catarrhal endometritis may resist all treatment until the nervous system is rested and soothed, and then the cure is prompt and complete. When the autonomic nervous system is sensitized from any reason, it responds more readily to slight stimuli. Gastric and duodenal ulcer, colitis, chilblains and Raynaud's disease have already demonstrated the frequent preponderant share of the nervous system in their development. He is inclined to ascribe to the present mode of life an overstimulation of the nervous system. This entails an excessive functioning of the endocrine glands; they produce an excessive amount of hormones, and this brings excessive growth. He offers this as the explanation for the unusually large numbers of exceptionally tall young persons that are developing now, shooting up far beyond the average. This does not indicate an improvement but rather deterioration of the race.

June 8, 1922, **52**, No. 23

*The Blood Supply of Functioning Organs. A. Fleisch.—p. 581.
*Test for Urobilin. E. Herzfeld.—p. 585.
Subretinal Cysticercus. J. Strebel.—p. 586.
*Castration in Pulmonary Tuberculosis. W. Rochedieu.—p. 588.

The Blood Supply of Functioning Organs.—Fleisch has devised a method for estimating the blood supply to different organs at work and at rest. With this he has determined that the acid products generated by the work of the tissues possess a vessel-dilating action. The blood supply is thus increased proportional to the amount of metabolic waste products formed. "Every organ, every segment of tissue receives exactly the amount of blood it requires for the work it is doing at the moment." The intensity of the dilatation of the vessels is a direct function of the amount of hydrogen ions.

Test for Urobilin.—Herzfeld has applied the zinc acetate fluorescence technic as a test for urobilin, and has found it sensitive and reliable. In 400 specimens of blood serum examined, there were traces of urobilin only in seven. In the twenty-four hours' urine it averaged 50 mg. in the healthy and in scarlet fever; 80 in polyarthritis and nephritis; 90 in the pregnant, and 250 mg. with cirrhosis of the liver.

Outcome After Termination of Pregnancy on Account of Pulmonary Tuberculosis.—Rochedieu tabulates the condition before, afterward and several years later in 9 cases of pulmonary tuberculosis in which abortion was induced and ovarian functioning arrested by roentgenization, and in 18 cases by abdominal hysterotomy and tubal sterilization. The ultimate outcome was much better in the castration group. Only 2 of the 9 have died since, and all the others are materially improved, while only 5 have improved in the 18 in the other group, and 6 have died. The roentgen castration arresting ovulation seems to have a very favorable influence on the disease. Temporary or definite castration is therefore advisable to supplement the artificial termination of the pregnancy in pulmonary tuberculosis.

Archivio Italiano di Chirurgia, Bologna

April, 1922, **5**, No. 2

*Reaction of Tissues to Sponge and Rubber. C. Vaccari.—p. 117.
*The Ambard Ureosecretory Constant. M. Melanotte.—p. 150.
Fracture of the Skull. E. Magni.—p. 177.
*Delayed Healing of Fractures. G. Marsiglia.—p. 197.
*Operative Treatment of Femoral Thrombosis. M. Fasano.—p. 207.
*The Stomach Tube Before Operating for Perforation. R. Gandusio and G. Pototschnig.—p. 212.
*Treatment of Perforation of the Stomach. R. Gandusio.—p. 217.

Reaction of Tissues to Introduction of Rubber Sponge and Sheet Rubber.—Vaccari's research has confirmed that there is no special reaction to rubber introduced into the tissues. It behaves like any other aseptic foreign body except that there may be some chemical reaction in time from the substances released as the rubber gradually disintegrates. In twenty-two experiments on rabbits and other animals, rubber was used for various purposes including the suspension of the kidneys with a strip of rubber sponge or sheet rubber. The rubber became coated with new formed tissue in time. This encapsulation of the rubber renders it especially valuable for an isolating medium between tissues. In two clinical cases a piece of rubber sponge was used to fill up a cavity in a long bone after an osteomyelitic focus had been scraped out. In one of these cases the local tuberculous process flared up anew nearly a year later; it is possible that the presence of the foreign body may have contributed to this.

The Ambard Constant.—Melanotte warns that fever, diabetes, pregnancy, general anesthesia and nephritis with tendency to dropsy may each and all modify conditions so that the Ambard index may prove misleading. This is also possible from reflex action with catheterization of the ureters. He compares the findings of the Ambard index with the course in 53 cases of prostate enlargement, 13 of calculi or tumors in the bladder, and 142 cases of kidney disease. The index is a sentinel that warns when we are approaching the danger zone, but it does not take the place of the catheter for the ureters; these supplement each other, and enable the indications for nephrectomy to be materially extended.

Delayed Healing of Fractures.—Marsiglia reviews what has been published on the influence of endocrine glands on healing of fractures. The experimental research to date has been done almost exclusively on young, still growing animals. Thyroidectomy seemed to retard the healing of fractures, and thymectomy not only retarded but seemed to prevent healing. Ovariectomy, on the other hand, seemed to hasten the formation of callus. Marsiglia has repeated these experiments on adult dogs, and was unable to detect any retarding influence on the normal healing of fractures.

Operative Treatment for Femoral Thrombosis.—Fasano's patient was a man of 68 who had been having lancinating pains in the left foot for a month and there were signs of beginning gangrene. Pulsation was evident below the femoral arch although the pains involved the whole limb. The femoral artery was exposed and it was seen that the pulse wave stopped 3 cm. below Poupart's ligament. The artery was incised for 3 cm., 1 cm. below this point. This revealed an organized thrombus, compact and adherent to the vessel wall. It was forced out completely by manipulations, and the blood spurted at once. The artery was sutured. The pulse became perceptible in the foot, but this did not last more than a day or two, but the pains subsided and have not returned during the ten months since, and the gait is normal. The thrombosis evidently extended or reformed below the field of operation, but the removal of the accessible thrombus opened the passage into the deep collaterals. The circulation in these was enough to insure the nourishment of the tissues and check the tendency to gangrene.

The Stomach Tube Before Operating for Perforation of the Stomach.—Gandusio and Pototschnig protest against the ban on lavage of the stomach before operating on a perforated gastric ulcer. They advocate it as a direct advantage for both the patient and the surgeon. The possible theoretical objections to it are disproved by actual experience. They do not rinse out the stomach, but merely aspirate the contents.

Resection of the Stomach for Perforated Ulcer.—Gandusio's practical experience has demonstrated that when the operation can follow within two or three hours of the perforation, and the patients are young and in good condition, we need not hesitate to resect the stomach or duodenum and close the abdomen completely afterwards. Three cases are described and the prompt recovery is emphasized. The contents were aspirated as a preliminary measure. The symptoms of peritonitis subsided so promptly and completely that bowel functioning was resumed in two or three days, and the wound healed by primary intention. In two of the cases the perforation was the first sign of the stomach affection.

Chirurgia degli Organi di Movimento, Bologna

April, 1922, **6**, No. 2

Historic Frescoes in Rizzoli Institute. V. Putti.—p. 109.
*Traumatic Luxation of Hip-Joint in Children. G. Roello.—p. 119.
Static Relations Between Foot and Knee in Paralyzed Leg. V. Putti.—p. 125.
*Tardy Traumatic Ulnar Paralysis. G. Lusena.—p. 139.
*Growth Exostoses. F. Sanvenero.—p. 165.
*Loose Bodies in Joints. A. Pollidori.—p. 187.
*Hemophilic Arthritis. U. Montanari.—p. 212.
Hygroma of Subdeltoid Bursa. A. Avoni.—p. 233.
Congenital Curvature of the Tibia. L. La Ferla.—p. 243.
Congenital Malformation of Skull and Spine. M. Bertolotti and G. Mattirolo.—p. 253.
The Inventor of the Electric Thermophore. F. de Raffaele.—p. 262.

Traumatic Luxation of the Hip-Joint in Children.—Roello encountered only three cases of traumatic luxation of the hip-joint in children in a total of 1,463 cases of traumatic injury of bones or joints in ten years. Two of these cases are illustrated here, and the promptness of the cure is emphasized, after reduction. Both boys could use the limb normally five days after removal of the plaster bandage, about sixteen days after the reduction procedures.

Tardy Ulnar Paralysis After Fracture.—In Lusena's two cases, the ulnar paralysis developed in a young woman and a man of 45 nineteen and forty years after the head of the humerus had been fractured in childhood with resulting tendency to valgus deformity. In two similar cases on record, the interval was fifty and fifty-seven years before the paralysis developed. Electric treatment and resting the joint cured his first patient, as likewise in Panas' case. Neurolysis alone has seldom succeeded. In Lusena's second case, he resected the large pseudoneuroma on the nerve, and, before suturing, shifted the nerve to a position in front of the humerus where it could be sutured without traction, and was protected against further strain.

Growth Exostoses.—Sanvenero describes a family in which round bunches developed on the long bones during the period of active growth. In the father they were first noticed at the age of 12, and became large enough to show at 18, but did not develop further after 25. The exostoses cast a shadow like normal bones. The daughter, now 8, presents similar multiple bone growths. The tendency to symmetry, the large number, and the hereditary character distinguish these growth exostoses from those encountered in various diseases and after trauma. In one family the exostoses in a boy of 4 are the miniature reproduction of his father's. Marie has published two cases with several hundred exostoses of this kind. The limbs may be of uneven length. There are rarely any complications otherwise; in Sanvenero's adult case the use of one knee is hampered by the large exostosis in the popliteal space, but there is no nervous or vascular disturbance. No medical treatment is of any avail, and if the exostoses are resected during the period of active growth there may be recurrence. In Martel's case, the recurrence was in the form of a malignant tumor.

Loose Bodies in Joints.—Pollidori's review of the literature confirms that the origin of loose bodies in joints is still an unsettled question. The knee is usually the joint involved, and in a case described in detail the traumatic origin of the two loose bodies was sustained by the history and by the microscopic findings. The loose bodies became incarcerated at times, but aside from these periods the gait was not affected. There had been severe trauma of the knee at the age of 8 and again at 10, but the first symptoms developed a year later. At the age of 24 a separate incision was made to remove each of the two loose bodies and normal functioning of the joint was restored.

Hemophilic Arthritis.—Montanari has had 11 cases and knows of 3 more in which, without known cause, or insignificant trauma, the knee, shoulder, elbow or wrist filled with fluid, with ecchymoses in the vicinity. Slight fever followed, and the condition was chronic, the extravasated blood not being absorbed for months and then only incompletely. In some of the cases the absorption was rapid and complete in a few days, but a new hematoma soon developed. Atrophy of the limb above followed; in one case the middle third of the thigh measured 8 cm. less in circumference than its mate. The roentgenograms showed nothing pathognomonic. In 6 of the families the hereditary transmission of the hemophilia could be traced through generations, four in one family. This hemophilic arthritis represents an attenuated form of hemophilia, with a tendency to be outgrown in time. Inherited syphilis was known in 2 cases, and was suspected in a third. No attempt at operative treatment was made; extension was applied to combat contracture, and the joint was immobilized in plaster. The accumulation of blood can be tapped at need, followed by a compressing bandage and immobilization, and ovarian or thyroid treatment can be tried, or Weil's method of injecting blood serum every two months for years. If ankylosis requires operative measures, they should be postponed until the tendency to hemophilia has been outgrown to some extent. In 2 of the cases, several joints were affected, but in 3 both knees alone; in another case the right knee and right shoulder. The first disturbance was usually noted at the age of 5 or 6, and it kept to the same joint. In one case recurrence thirty times had been recorded.

Policlinico, Rome

May 1, 1922, **29.** Medical Section No. 5

*The Cocain Syndrome. F. Sabatucci.—p. 235.
*Diabetes Insipidus. P. Biffis.—p. 286.

Cocain Poisoning.—Sabatucci urges the necessity for recognizing the clinical picture induced when cocain is first taken. His study is based on an extensive experience, and he gives the details here of eighteen cases of acute and chronic types.

Diabetes Insipidus.—Biffis reports the exhaustive study of five cases of diabetes insipidus of years' standing. He was impressed with the contradictory findings in the different cases.

May 15, 1922, **29.** Surgical Section No. 5

*Ileus from Kinking of Small Intestine. O. Cignozzi.—p. 245.
*Chordoma of the Sacrum. R. Micotti.—p. 265.
*Postoperative Acetonuria. T. Laurenti.—p. 282.
Surgery of the Papilla of Vater. O. Tenani.—p. 291. Cont'd.

Kinking of Intestine from Membranous Pericolitis.—The intestine was bound down by the long pedicle of a fibrous body that had developed during the pericolitis. The inflammatory origin was beyond question. In this class of cases the membranous pericolitis is liable to return, while with the congenital pericolic membrane, once removed, there is no recurrence. It is important therefore to differentiate these two groups, and with the inflammatory type take extreme precautions against irritating the tissues in any way, operating rapidly and leaving no raw surfaces and, perhaps, concluding by pouring in a little liquid petrolatum to ward off adhesions between the loops.

Chordoma of the Sacrum.—Micotti's patient was a man of 53 and he died a few days after removal of the malignant chordoma. The first symptoms had been noted about three months before, shortly after a trauma of the region, and the tumor rapidly increased in size. It is the fourth case on record, he says, in men, and only one case is known in a woman. Exploratory puncture in his case differentiated the lesion before the operation. Even when safely removed, the growth recurred *in situ* after an interval of four months and thirteen months in two of the cases, but metastasis was never known.

Postoperative Acetonuria.—Laurenti concludes from study of eighty-five men and seventy-five women after various operations that acetonuria is almost constantly observed after chloroform and ether anesthesia and after spinal anesthesia, but it is rare with local anesthesia. The acetonuria never seemed to have any influence on the postoperative course, and no connection was apparent with the nature of the lesion, the fever, or the nature of the operation. It disappeared almost constantly as soon as solid food was given after the liquid food of the first three to eight days. He ascribes it to the strain of the operation.

Deutsche medizinische Wochenschrift, Berlin

May 5, 1922, **48,** No. 18

Deficient Ejaculation: Functional Aspermatism. Fürbringer.—p. 577.
Cathartics and Their Use in Medical Practice. F. Müller.—p. 580.
Course of Infectious Diseases under Continued Deficient Nutrition. A. Sternberg.—p. 581.
Clinical Experiences with Neo-Silver-Arsphenamin.´ A. Stühmer.—p. 584.
Prevention of Toxic Manifestations (Fever, Cutaneous Inflammation) After Injections of Neo-Arsphenamin by Concomitant Administration of Calcium Bromid and Calcium Chlorid. D. Kennedy.—p. 586.
Actinomycosis of Semilunar Ganglion and Actinomycotic Suppurative Leptomeningitis. H. Stahr.—p. 586.
Kaup Modification of the Wassermann Reaction. H. Langer.—p. 588.
Gastric Secretion and Diseases of Liver. C. Moewes.—p. 588.
Genesis of Peptic Ulcers in Digestive Tract. Müller.—p. 589.
Determinations of Hemoglobin Content (Sahli and Autenrieth-Königsberger). E. Komiya and T. Katakura.—p. 591.
Yellow Dermography in Icterus. J. Schürer.—p. 593.
Stethoscope for Blood Pressure (Korotkow). J. Bamberger.—p. 594.
Roentgen-Ray Injuries. S. Möller.—p. 595.
Affections of the Pleura. G. Ledderhose.—p. 596.
Gynecologic Examinations. H. Freund.—p. 598.

May 12, 1922, **48,** No. 19

*Porphyrinuria. I. Snapper.—p. 619.
*Blood Pressure in Cardiac Patients with Dyspnea. K. Frehse.—p. 621.

Good Effects of Gymnastics on Children Exempted on Account of Weak Constitution or Asthenia. W. Kohlrausch.—p. 623.
Silver Arsphenamin, Old and New. Hübner and Marr.—p. 624.
Clinical Importance of Weichbrodt's "Simple Spinal Fluid Reaction." W. Götz.—p. 626.
Acute Pyloric Stenosis after Benzol Poisoning. W. Hetzer.—p. 627.
Rigorous Use of Cathartics in Dysentery. T. Hausmann.—p. 628.
Causal Morphology and Practical Medicine. G. Ettisch.—p. 631.
Affections of the Mammary Gland. G. Ledderhose,—p. 633.
General Therapeutic Technic in Gynecologic Practice. H. Freund.—p. 635.

Porphyrinuria, With and Without Colic.—In explanation of the remarkable clinical picture of acute porphyrinuria; that is, severe abdominal colic with porphyrinuria, in which, after several attacks, death ensues amid neuritic manifestations, Snapper sets up the hypothesis that in such cases a chronic poisoning damages first the retroperitoneal nerve ganglions and thus brings on colic and porphyrinuria. Later, this intoxication affects the whole nervous system, and the patient succumbs under symptoms of polyneuritis. Two cases are described, with the necropsy findings, in which there were no colic pains at any time. The patients were two men of 21 and 29.

Blood Pressure in Heart Disease with Dyspnea. — Frehse examined for a period of a year and a half all the cardiac patients entering his clinic, and studied also the case histories of cardiac patients for five years back, with a view to ascertaining the relation to blood pressure of dyspnea in cardiac patients. The histories of 700 cardiac patients constitute the basis for his statements. There were patients with valvular lesions and muscular insufficiency; all grades of stasis, from the mildest form up to stasis with grave dyspnea, cyanosis, edema and exudate. In the majority of these patients, arterial pressure at the height of stasis was normal. In 142 patients the maximal pressure was increased to 150 mm. of mercury. But the significant thing was that out of this large number of cardiac patients not a single case was found in which the high blood pressure seemed to be causally connected with the dyspnea.

Deutsche Zeitschrift für Chirurgie, Leipzig

April, 1922, **170**, No. 5-6

Operative Treatment of Appendicitis; 1,000 Cases. Suermondt.—p. 289.
*Rectitis and Its Consequences. W. Smital.—p. 318.
*Birth Paralysis plus Congenital Deformities. A. Schubert.—p. 343.
Loose Bodies in Joints. M. Kappis.—p. 367.
*Transfusion of Blood and Autotransfusion. Goder.—p. 384.
Arthritis Deformans of Elbow. W. Schulte.—p. 398.
*Nonspecific Disease of Testicles and Epididymis. F. Mandl.—p. 416.

Rectitis and Its Consequences.—Smital analyzes the experiences in Hochenegg's service with 80 cases of inflammatory disease of the rectum and its sequels. Only 21 were men and 15 were women of the 21 cases in which syphilis was responsible. In the 17 gonococcus cases, 12 were women, as also 8 of the 11 tuberculous cases. The consecutive strictures almost always required operative measures. External rectotomy gave excellent results in the 12 cases followed to date out of the total 22. One of the 5 with extirpation of the rectum is in good health ten years later. One woman was kept in good condition for two years by bougie dilatation, but then neglected it and required an operation. Conservative measures are applicable only in the initial stage, and on suspicion of syphilis. In 5 cases cancer developed later, but only in one instance in the rectum; in this case the carcinoma followed a year after colostomy for gonococcus stenosis of the rectum. An endless thread method is illustrated which has proved extremely satisfactory. A silk thread is passed from the natural to the artificial anus, and with this thread a long loop of tubing is pulled back and forth through the stricture. The man does this himself, and the colostomy was closed except for the thread. Defecation has thus been rendered possible by the natural route for sixteen years to date. To dilate the stricture more effectually, the tubing is reenforced with a smaller tube slipped inside. To keep the thread from cutting the loop of tubing, a short segment of narrow tubing is strung on the anal end of the silk thread.

Birth Paralysis.—Schubert presents evidence that malformations and deformities are so common with birth paralysis that the latter must be regarded as of intra-uterine origin, and not the result of birth trauma as a rule.

Transfusion of Blood and Own Blood Transfusion.—Goder has compiled 52 cases in which the extravasated blood was infused, with recovery of all but one of the otherwise practically moribund patients. He reports a favorable case from his own experience, and commends the procedure as harmless and life-saving. Tubal abortion is generally the indication, but it has been applied with rupture of the spleen, of the liver, and with gunshot wound of the spleen and of the lung. It is not necessary to defibrinate the blood; it is merely citrated and strained through several layers of mull lining the funnel.

Chronic Nonspecific Orchitis and Epididymitis. — Mandl assumed a tuberculous origin in three of his cases, and in two a needless semicastration was done. In three of the cases a Bassini operation for inguinal hernia was evidently a factor, as the disturbances soon followed. Epididymitis erotica may explain one case, and infection from prostatitis another, not of gonococcal origin.

Jahrbuch für Kinderheilkunde, Berlin

May, 1922, **98**, No. 3-4

Pigment in Skin of Children and Fetuses. M. Gonnella.—p. 123.
Digestion of Protein in Infant Feeding. O. Heller.—p. 129.
*The Differential Stethoscope. G. Kaulen.—p. 141.
*Dysentery in Young Children. G. Piltz.—p. 153.
*Influence of Atropin on Young Children. H. Slobozianu.—p. 176.
*Intestinal Neuroses in Infants. Stargardter.—p. 189.
*Heat Regulation in Infants with Deformities. A. Mader.—p. 195.
*Prodromal Eruption in Measles. F. J. Nöthen.—p. 211.

The Heart Sounds in Children.—Kaulen discusses the findings with the Bock differential stethoscope in 248 children from 1 month to 14 years old.

Dysentery in Children. — Piltz contends that dysentery is much more common in infants than generally suspected. It is highly contagious, and is often responsible for a part of the hot weather infant mortality. The dysentery may run a mild course but may aggravate nutritional disturbance from other causes. Complications in the form of pyelocystitis and pyelonephritis are comparatively frequent and of grave prognosis.

Influence of Atropin on Renal Elimination of Salt and Water in Children.—Twenty tests were made on eight children, including six infants; all but two of the children had healthy kidneys. Small doses of atropin seemed to stimulate the vagus and thus check the elimination of water and chlorids. Large doses paralyzed the vagus, and the output of water and chlorids increased.

Intestinal Neuroses in Infants. — Stargardter reports the cases of three breast fed and apparently normal infants who developed diarrhea, flatulence and colic for which no explanation could be found in the food or infection. Formed stools appeared after four or five daily intramuscular injections of epinephrin, and the cure was complete by the eighth or tenth day in 2 of the infants; the other child had several relapses. Probably intercurrent infections were responsible for this. The benefit from epinephrin seems to stamp the dyspepsia in such cases as a sympatheticotonic neurosis, if all other causes can be excluded and dietetic measures fail to relieve. These children showed no signs that suggested the exudative diathesis, and after recovery did not display any tendency to nervousness.

Heat Regulation in Infants.—Mader discusses in particular the malfunctioning of the heat regulating apparatus in deformed new-born infants.

A Pre-Eruption in Measles.—Nöthen cites 4 cases in which children convalescing from scarlet fever developed measles, and the actual measles eruption was preceded by a fleeting pre-eruption which came and went repeatedly within a few hours or days, shifting around, and showing all types of exanthemas, including rose spots, urticaria and purpura, as well as scarlatinal and measles eruption types. It has little diagnostic value unless possibly giving a clue to measles in an otherwise puzzling case.

Klinische Wochenschrift, Berlin

March 25, 1922, **1**, No. 13

The Constitution Problem in Psychiatry. E. Kretschmer.—p. 609.
Significance of Calories in the Theory and Practice of Medicine. A. Gottschalk.—p. 611.
Bilirubin Formation in Surviving Spleen. Ernst and Szappanyos.—p. 614.
Use of Purin Derivates in Spasms. S. Hirsch.—p. 615.
Favorable Experiences with Trichlorethylene in Trigeminal Neuralgia. K. Magunna.—p. 618.
After-Treatment in Laparotomy; with Special Reference to Rehn's Semi-Sitting Position. C. Rohde.—p. 619.
Spina Bifida Occulta and Sciatica. H. Weskott.—p. 625.
Relations Between Virulence and Rate of Increase of Infective Agents. Doerr and Berger.—p. 628.
Cultures in Vitro of Embryonic Tissues. N. Chlopin.—p. 628.
Disturbed Epinephrin Formation in Suprarenals. Peiser.—p. 628.
Foreign Body Simulating Diphtheric Stenosis of Larynx; Three Cases. T. Brandes.—p. 629.
Reichmann's Syndrome in Tabes Dorsalis. K. Regensburger.—p. 631.
Fundamentals of Present-Day Management of Wounds. W. von Gaza.—p. 632.
Healing of Injuries in Plants. E. G. Pringsheim.—p. 638.

Medizinische Klinik, Berlin

May 28, 1922, **18**, No. 22

*Myopia. A. Elschnig.—p. 683.
The Various Methods for Treating Wounds. Sonntag.—p. 685.
*The Tonus Under Protein Therapy. F. Glaser.—p. 688.
Sulfoxylatsalvarsan in Treatment of Syphilis. J. Fabry.—p. 690.
*High Blood Pressure. F. Kisch.—p. 691.
Calomel in Treatment of Inherited Syphilis. E. Müller.—p. 694.
*Arc Light Treatment of Lupus, etc. A. Fried.—p. 695.
Case of Transient Tactile Agnosia. Hillel.—p. 697.
*Ether in Treatment of Whooping Cough. Rein.—p. 698.
Dosage in Deep Roentgen Irradiation. F. Nagelschmidt.—p. 698.
Bioscopic Research on Antiseptics. F. Munter.—p. 698.
Disease of the Prostate. E. Portner.—p. 700.
Recent Literature on Stomach Disease. W. Wolff.—p. 702.

What the Practitioner Should Know About the Causes and Treatment of Myopia.—Elschnig remarks in conclusion that when a hereditary predisposition is suspected, the progress of the myopia can be checked by improving the general health, heeding physical anomalies, and treating inherited syphilis. Special care should be taken not to strain the eyes (near work only with good light, not too strong, etc.), and glasses should be worn for near work. Glasses for distance are of far less importance. For some years he has ordered instillation of pilocarpin two or three times a week, evenings, and is convinced that this seemed to have a favorable influence on the progress of the myopia. Atropin, he says, is useless or harmful.

Variations in Vessel Tonus Under Protein Therapy.—Glaser's research on the hemoclastic crisis was mentioned recently, June 3, 1922, p. 1768. He explains the drop in the number of leukocytes after parenteral injection of a protein as a vagotonic manifestation—the expression of a brief anaphylactoid condition. This brief vagotonic phenomenon may persist and become evident as the alimentary test leukopenia or hemoclastic crisis. The leukopenia in this latter phase, he argues, is merely the manifestation of altered distribution of the leukocytes, from the change in the tonus of the vegetative nervous system. He has witnessed the transformation of a sympatheticotonic alimentary leukocytosis into a vagotonic alimentary leukopenia under the influence of parenteral injection of a protein.

High Blood Pressure.—Kisch has found the average blood pressure in men of 40 or 45 of medium strength and build to be about 140, and 5 or 10 mm. mercury higher than this in larger and stronger men, fond of sports. In women, up to 130 was the average before the menopause. Transient hypertonia is common, and is liable to prove misleading. Even in the healthy, various factors may modify the pressure. With pain from gallstones, the pressure may keep high for weeks, and return to normal after removal of the cause of the pains. Certain drugs, such as digitalis and pituitary extract, send up the pressure. In 3 cases of exophthalmic goiter in young women, the pressure was 145 and 150 but dropped by 20 and 30 mm. as the hyperthyroidism improved. In certain other cases of exophthalmic goiter the blood pressure was below normal. This was the rule also in attacks of angina pectoris. A single pressure reading is thus liable to be misleading in all patients. With arteriosclerosis affecting the aorta in particular, the pressure was very seldom over 160 or 170 and the diastolic pressure was normal or only slightly above. With arteriosclerosis of the peripheral vessels, both the systolic and the diastolic pressure were higher; up to 180 and 200 was common. But the pressure and the pulse alone with arteriosclerosis afford little insight into the severity of the process and the functional capacity of the heart. There is also a sympatheticotonic form of asthma with remarkably high pressure for which no explanation can be found. The blood pressure was found very high also in a few cases of diabetes, a "nervous chromaffine diabetes with high blood pressure."

Carbon Arc Light Treatment of Surgical Tuberculosis.—Fried reports from the Lupus Institute at Vienna that severe tuberculous lesions in bones and joints as well as lupus healed under the arc light treatment, alone or supplemented with roentgen-ray treatment. It was applied on the indications for and principles of heliotherapy. In one series of outpatients, severe processes in the knee healed without an immobilizing dressing and without appreciable impairment of function. Caries of sternum, ribs, foot and hand sometimes healed under the arc light alone. An 80 amperes lamp was used, or three lamps of 20 amperes each. The latter allowed a larger number to be treated at a time. It was impossible to foretell the cases in which treatment would be successful. The organism may lack the reacting power necessary, but these refractory cases should not deter from trying the arc light treatment for a few weeks or months in suitable cases. No injurious by-effects were ever observed, except occasional transient sunburn effects. The aim was to tan the whole body, the arc light 60 or 80 cm. from the body, the focus approached to 30 or 35 cm., the sittings never over an hour, and repeated three times a week. The number of cases is not mentioned, but this treatment has been regularly applied since 1915.

Ether in Whooping Cough.—Reim injected daily 1 c.c. of ether, with 0.05 gm. camphor, subcutaneously in treatment of infants, and twice this amount in older children, in a recent epidemic of thirty-seven cases of whooping cough. The course was mitigated materially in three infants less than three months old in the third or fourth week of the disease. All bore the injections without apparent harm. After five or six injections, the paroxysms dropped from 18 or 24 a day to 6 or 8. His experience has convinced him of the value of this ether-camphor treatment, especially in the early stages of whooping cough.

Münchener medizinische Wochenschrift, Munich

May 12, 1922, **69**, No. 19

The Idea of Function in the Term "Disposition" and the Morphologic Conception in the Term "Constitution." H. E. Hering.—p. 691.
The Nystagmus Problem. R. Cords.—p. 693.
General Considerations for Surgical Anesthesia. G. Schmidt.—p. 697.
*Local Anesthesia in Gynecologic Operations. J. Frigyesi.—p. 699.
Experiences with the Kielland Forceps. R. Zimmermann.—p. 700.
Clinical Aspects of Periarteritis Nodosa. Brinkmann.—p. 703.
Capillary Analysis of Gastric Secretion (Holmgren). C. H. Lasch.—p. 705.
Bladder Drainage with the Trocar. K. Nather.—p. 706.
Resuscitation of Infant Apparently Stillborn. P. Klein.—p. 707.
Successful Grafting of Hypoglossal on Facial Nerve. W. T. Schmidt.—p. 708.
Adjustment of the Light and Dark Field with Mirror Condenser in Leitz Apparatus. H. Rock.—p. 709.
"Colloidal Mercury" and Linser's "Mixing Syringe." Forster.—p. 709.
The Essential Basis of Constitutional Anomalies. P. Mathes.—p. 709.
Treatment of Gonorrhea in the Female with Celluloid Capsule (Pust). S. Löber.—p. 710.
Errors in Dosimetry in Deep Roentgen Therapy. K. Frik.—p. 711.
Treatment of Pertussis. Klotz.—p. 711.

Local Anesthesia in Gynecologic Practice.—Reporting on results in the Municipal Women's Hospital in Pest, Frigyesi emphasizes that nearly all gynecologic operations may be performed under local anesthesia. The mortality is low and the patients are more comfortable after the operation. Of 277 laparotomies, 101 were performed solely under local anesthesia and 96 under local anesthesia with the introduction of a superficial narcosis.

Zeitschrift für Tuberkulose, Berlin

May, 1922, **36**, No. 3

*Legislation for Prophylaxis of Tuberculosis. F. Kreuser.—p. 165.
The Nature of Allergy and Anergy. C. Kraemer.—p. 174.
Marriage of Consumptives. Schaefer.—p. 180.
*Operative Treatment of Pulmonary Tuberculosis. H. V. Wagner.—p. 181.
Analysis of Pulmonary Tuberculosis. E. Guth.—p. 193.

Legislation for Prophylaxis of Tuberculosis.—Kreuser outlines the regulations which he would like to have adopted to provide for notification, welfare work, ways and means, etc., for a more systematic campaign against tuberculosis.

Operative Treatment of Pulmonary Tuberculosis.—Wagner comments on the prevailing trend towards operative procedures for pulmonary tuberculosis, and the more and more complete abandoning of surgery for bone and joint tuberculosis. In each of these lines brilliant success is being realized. If nothing eles is accomplished, the thoracoplasty usually dries up the source for contagion of others in incurable cases. With bone and joint tuberculosis, almost as fine results are being realized from heliotherapy in the vicinity of Berlin as Rollier has reported from the Leysin mountain climate. In the Berlin experiences, the action of the sunlight was enhanced by reflection from water, keeping the patients on rafts. The heliotherapy was also supplemented with means to induce passive hyperemia in the lesion, usually for four hours three times a day, with an hour's interval. Each time, from 0.2 to 1 gm. of sodium iodid is given internally before applying the band. Bier assumes that the iodin is deposited in the region under passive hyperemia. It promotes healing and counteracts the tendency to abscess formation under the heliotherapy. No plaster casts are used, but extension is applied, and passive and active exercises, but never to the extent of inducing pain. Bier's serial roentgenograms have demonstrated that even large sequesters are resorbed in time; the passive hyperemia seems to be responsible for this. The long wave portion of the spectrum seems to be the effectual portion for treatment of tuberculosis. In refractory cases, a change of radiant energy, a change of climate, the mountains or the sea, may prove successful. In conclusion, Wagner remarks that we smile at the nose rings of the African tribes, and the deformed feet of Chinese women, forgetting that we maltreat in the same way one of the most important organs of our body, the skin. It is our protection against pathogenic organisms, our most important excreting and temperature regulating organ. Our constant covering up of the skin hampers its functioning.

Zeitschrift für Urologie, Leipzig

1922, **16**, No. 5

*Renal Hematuria. A. Schüppel.—p. 201.
*Surgery of the Prostate. B. von Rihmer.—p. 214.
Contrast Medium for Pyelography. F. Gastreich.—p. 227.

Decapsulation of Kidney for Renal Hematuria.—The decapsulation failed to arrest the essential hematuria from the left kidney in the man of 55, and the kidney was removed. Incipient senile contracted kidney with sclerosis of the arterioles had been responsible for the hematuria. Decapsulation is futile in such cases. If internal treatment and roentgen-ray exposure of the spleen fail to relieve, nephrectomy should follow at once.

Operative Treatment of Hypertrophied Prostate.—Rihmer relates that the mortality was 31 per cent. in his 121 cases of hypertrophied prostate treated by catheterization alone. Aside from 31 with acute prostatic retention—who all recovered—23 died of the 95 being thus treated for chronic partial retention; 8 of the 16 with paradoxic ischuria, and 2 of the 5 with urosepsis. The death rate is thus high with catheter treatment alone. There were 5 deaths among the 18 uremia cases treated by cystostomy; calculi formed in some of the others, but a number are living in robust health six or seven years later. All were cured in the 4 cases of chronic partial retention and in the 8 with total retention, all with some signs of infection. In Alapy's series of 14 cases, cystostomy improved conditions so that operative measures became possible, with the recovery of 10. In 6 cases of severe prostatic uremia he operated in two stages, first reducing the uremia by cystostomy before attempting the prostatectomy. The effect of cystostomy is prompter and more complete than from a retention catheter. The bladder has to be emptied gradually with much distention. The scar of the cystostomy may have to be resected later, but, with all its drawbacks, the two-stage Freyer operation saves many men otherwise doomed. The indications can be much extended without increasing the mortality. In the sclerosis cases—the so-called atrophy of the prostate—intra-urethral measures may be advisable, but recurrence of symptoms is liable.

Zentralblatt für Chirurgie, Leipzig

March 25, 1922, **49**, No. 12

Technic of Appendectomy. B. Heile.—p. 394.
Total Amaurosis After Procain Injection or Air Embolism? O. H. Petersen.—p. 396.
A Diagnostic Symptom of Appendicitis. A. Gregory.—p. 397.
Operation for Hypospadias and Defect of Pendulous Portion of Urethra. A. Fischer.—p. 399.
"Is the Extirpation of Suprarenals in Epilepsy Justifiable?" Reply to Comment. O. Specht.—p. 402.

April 1, 1922, **49**, No. 13

Semmelweis, Not Lister, the Founder of Antisepsis. F. Bruck.—p. 426.
Excision of Gastric Ulcer Danger Zone. M. Kirschner.—p. 428.
"Sensory Fibers in the Anterior Roots." W. Lehmann.—p. 435.
Chronic Icterus Due to Compression by Tuberculous Gland. Hübsch.—p. 437.
Method of Counteracting Tension on Lines of Suturing. Meyer.—p. 439.
"Tetanus Reactivation After Seven Years." Comment. Herz.—p. 440.

Ugeskrift for Læger, Copenhagen

May 18, 1922, **84**, No. 20

*Estimation of Basal Metabolism. A. Krogh.—p. 525.

May 25, 1922, **84**, No. 21

*Active Immunization Against Diphtheria. L. Juul.—p. 553.
*Orthostatic Albuminuria During Pregnancy. E. Sylvest.—p. 563.
To Aid in Blood Count. E. Meulengracht.—p. 757.

June 1, 1922, **84**, No. 22

*Experiences with the Steinach Operation. K. Sand.—p. 597. Conc'n No. 23.

Estimation of Energy Metabolism from the Respiration.—Krogh describes a very simple apparatus which records the amount of oxygen consumed, and with as much precision as the gas analysis methods. The recording spirometer contains a tank of *natronkalk* to absorb the carbon dioxid as the subject inhales and expels his breath, with a known supply of oxygen from an oxygen tank. The diet is carefully regulated, and the urine findings recorded. He compares the data obtained by this means with Benedict's findings and Boothby and Sandeford's tables of basal metabolic rate determinations. Absolute repose and relaxed muscles are imperative, and this renders the research difficult with children; it may be necessary to give the child chloral or other sedative before the test can be properly applied.

Active Immunization Against Diphtheria.—Juul reviews what has been accomplished in Europe and America in this line, guided by the Schick reaction, and he urges the adoption in Denmark of Zingher's method.

Orthostatic Albuminuria Disappears During Pregnancy.—The orthostatic albuminuria had been under supervision since the age of 10. Albumin was never found in the morning urine and no tube casts were ever discovered, but albuminuria was found constantly in the afternoon urine except during the months of her three pregnancies at the age of 19, 23 and 27. No albumin was found at any time during gestation. The albuminuria returned each time after delivery. The absence of albuminuria on one occasion, eight days after the anticipated menstrual period had failed to appear, was accepted as a sign of pregnancy, soon confirmed by other signs.

Steinach's Rejuvenation Operation.—Sand's article is continued, but in this instalment he reports favorable experiences from operative treatment in fifteen cases of premature senility or impotency or depression. He thinks Steinach's principle is applied best by epididymectomy, resecting a segment, the farthest from the head of the epididymis, ligating and thermocauterizing the stumps, all under local anesthesia, but with extreme care not to injure the delicate nerves and vessels necessary for the testicle.

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THE NEEDS AND DUTIES OF DERMATOLOGY *

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SAN FRANCISCO

As prelude to a strictly scientific program, it seems fitting that the chairman's address should deal with some of the more general considerations which concern dermatology as a specialty. There are many topics deserving of careful thought, but nothing is more timely, perhaps, than a résumé of our needs and duties.

In a general sense, our greatest need is efficiency, and our paramount duty is service. Efficiency and service are closely related, because the greater our efficiency, the greater our capacity for service.

The question of efficiency should interest us with respect to both immediate and future requirements. It were well that we plan somewhat for the dermatology of tomorrow, even while seeking to better that of today.

We must all be aware of the growing sentiment toward standardization in the specialties. We have been, and we are now, living in an age of self-styled specialists. The specialist is as easily made as homebrew and is of equally harmful potential. The only criterion of proficiency is recognition by fellow practitioners of one's own branch. Such recognition may take the form of election to a national society. This is not necessarily conclusive, for good men are sometimes passed by and indifferent ones chosen. Under present conditions, the national societies have an opportunity of rendering infinitely useful service. This, I believe, they are for the most part doing; but it is self-evident that, properly to function in this respect, they must resolutely avoid anything which savors of personal animosity, racial antipathy, nepotism or friendly predilection.

The fact that specialism is entered so easily and through so many channels does not make for uniformity of standards. Whatever may be said against a wider application of the elective system for the undergraduate medical students, it seems obvious that those who intend to specialize should be given the greatest latitude in their intern year.

If the well-educated man is one who knows everything about something and something about everything, the well-trained specialist is one who knows everything about his own department and something about all the others. So that, however zealously we may strive for perfection in one line, it must not be at the expense of broad general training. Specialism of today is justly criticized on the ground of a tendency toward narrowness. The reason for this criticism should be absolutely removed.

Postgraduate colleges as conducted today undoubtedly perform valuable service. The casual course of six weeks does not, however, equip one for a specialty. What seems an urgent need is the designation by unquestioned institutions which will give the same standing to the specialist that the M.D. degree gives the general practitioner.

What about our own case? Of course we need more efficiency. We are quite conscious of our shortcomings. And obviously, by the development of personal attributes, we may work to a higher plane of excellence. But if dermatology as a specialty needs more efficiency, it needs also the means whereby it is to be attained. We shall find those means when we find truth. If we would be really effective, we must find the truth that so often is hidden from us.

What is the truth about dermatitis herpetiformis, or psoriasis, or lupus erythematosus or vitiligo? What is the truth about many of the dermatoses which we bedeck with names that suggest so much wisdom and conceal such appalling ignorance? Our real, our urgent, our vital need is truth; to know what causes all these diseases with the long names.

Our duty in the premises is apparent enough. Both as individuals and as a section, we should do our utmost toward the solution of the problems of etiology, which constitute, today, our most serious handicap.

There are many promising fields for research. Among the external agencies, the part played by fungi has probably by no means been realized. Concerning possible internal causes, we have gone through so many disappointing experiences with various hypotheses that the mildest suggestion of novelty in etiology at once provokes violent reaction.

However much may be said in favor of a certain degree of enlightened skepticism, we must not, through fear of an overswung pendulum, allow the clock to run down. We have need of open minds. The truth that we are seeking will not be found in the reactionary spirit which mistakes enthusiasm for fanaticism, nor will it be found in the exuberant spirit of faddism. Probably it will be found somewhere between the two.

In our search for etiologic factors, we now have a list of possibilities, most of which belong exclusively to the present generation. It is our duty to exploit them without preconceptions as to their validity. I believe that it is fair to propound the following as worthy of complete investigation in every dermatosis of unknown origin: focal infection, the sympathetic nervous system, the endocrine glands, protein sensitization and disturbed metabolism. It seems not

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* Chairman's address, read before the Section on Dermatology and Syphilology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

unreasonable to suppose that such investigation will add materially to our store of etiologic knowledge.

Now, as to our duties. Granting that our chief duty is service, we may consider it under three heads: (1) service to individual patients; (2) service to society in general, and (3) service to the medical profession.

The most valuable service which the dermatologist can perform for the individual is the interpretation of the cutaneous lesion. Too often the careless view is held that the skin specialist is solely concerned with superficial lesions of cosmetic importance only. It is true of course that many consultations are for the relief of relatively innocuous disorders; but it is equally true that many of the lesions for which relief is sought, in the belief that they are trivial, represent boundary posts on the frontier of serious disease.

The interpretation of a given lesion may mean the simple diagnosis of some definite disease, or the recognition of some constitutional condition which, for the moment, is giving rise to no signs or symptoms elsewhere.

In such serious conditions as the acute exanthems, precancerous or frankly malignant lesions, and the various forms of tuberculosis, leprosy or syphilis, the diagnosis practically carries its own interpretation. There is a large group, however, in which slight cutaneous lesions may signify some grave constitutional condition. It is here that we may perform service of utmost value to the individual, if we are complete and accurate in our interpretations.

Some lesions point to diabetes, some to cardiac disturbances, some to pelvic disorder, some to the endocrines, and some suggest toxemia, the search for which leads to focal infection.

The point cannot be made clearer, perhaps, than by taking, as an example, a case of lupus erythematosus. I do not believe that we are doing our full duty in any case of lupus erythematosus in which we are content with a diagnosis plus even successful local treatment. Lupus erythematosus is so definitely suggestive of toxemia that, whether it be from a tuberculous lesion or an infection in the antrum, we have not satisfied the moral obligation which we assume in taking the case, unless, in addition to the treatment, we take on the burden of interpreting the lesions in the most complete sense that available evidence allows. If we find, for example, an infection of the antrum, we must assume that, whether or not it be in etiologic relation with the cutaneous lesions, it is a potential source of danger, about which it is our duty to advise. It is only through the adoption of such an attitude that we can hope to give the same service that we would wish to receive were we in the place of the patient. This, after all, would seem to be a fair criterion of service.

The medical profession has definite duties to society, in which all the specialties must participate according to their respective abilities. No obligation is more important than the conservation of public health. Aside from work along broad lines of general preventive medicine, in various aspects of which dermatology is vitally interested, we can serve humanity to no better purpose than in the exposure of quackery.

Quackery flourishes on nothing so much as on ignorance. The fallacies of former generations concerning the nature of skin diseases still linger in the popular mind, which even today is prone to regard any eruption as evidence of impurity of blood or the stigma of personal or ancestral vice.

These misconceptions make a particularly favorable soil for the development of quackery. The desire for beauty is also a human weakness which is bounteously catered to in the exploitation of innumerable alleged aids to cosmetic perfection. No one knows better than the dermatologist the heavy toll paid by the sufferers from paraffin oil injections; no one knows better the needless unhappiness from experiences with noxious hair dyes, hair removers and even hair growers.

To us, the duty is clear. It is simply the diffusion of truth. In California, a good start has been made by a medical organization which is called the League for the Conservation of Public Health.

One of its activities along educational lines is in cooperation with two daily newspapers which devote certain space to medical information. Questions are referred through the league to the medical man who is deemed an authority in the subject involved. These newspapers are also furnished with various medical articles written by specialists. Both in Los Angeles and in San Francisco, it is now possible for the layman to obtain authoritative opinion or guidance concerning any medical problem. Thus, our profession is attempting, in some measure, to fulfil its obligation to the community, with respect both to preventive medicine and to quackery.

The duty of dermatology to the profession is cooperation. While this is necessarily a reciprocal relation, we shall do our part by attempting to keep in closer touch with medicine in general, as well as by correlating our findings with those of internists and of specialists in other lines. We owe it to the profession to make known in plain terms the significance of dermatologic lesions as we interpret them. We need to write for the man in general practice as well as for our confrères in dermatology.

We need to make of dermatology a clearing house for the subject of syphilis. While we recognize the interest of the internist and the specialist in other branches, we must insist that the teaching and treatment of this disease is today, as in former times, an integral part of dermatology. Before the development of the Wassermann test, there was never doubt as to the destination of a syphilitic patient. Because of the training of dermatologists in the recognition of the objective signs of the disease, the matter was by common consent left in their hands. Today, syphilis is diagnosed in the laboratory and is treated by any or by all. It is our duty to demonstrate such proficiency in respect to this disease that the profession at large will willingly regard it as belonging to dermatology.

There is little need for recapitulation. On the seal of Yale University is the inscription "Lux et Veritas." That phrase epitomizes, I believe, both our needs and our duties. And for dermatology, my prayer would be that of David: "O send out thy light and thy truth: let them lead me."

391 Sutter Street.

Hookworm Disease in Colombia.—According to a recent report by Dr. F. A. Miller, director of the antihookworm campaign, 53,390 persons were examined during the year 1921; 49,940 (92 per cent.) were infected. Treatment was given to 47,822, and 37,488 (78 per cent.) were cured. Up to May 31, 1921, all the expenses were paid by the National Health Board of the Rockefeller Foundation, but from June 1, 1921, the Colombian government will bear 20 per cent. of the expenses. The department of Boyacá and Santander del Norte have contributed $5,000 each to the expenses, and the department of Antioquia, $2,000.

THE LIMITATIONS OF INTRAVENOUS MEDICATION *

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Therapy, as other branches of medicine, is subject to influences which, temporarily at least, tend to overemphasize the value of certain procedures. However, the gradual accumulation of new knowledge concerning the value of these procedures usually brings about a clearer recognition of their limitations. Of recent years, the practice of intravenous medication has come to the front to an ever-increasing extent; and, though by no means a new procedure, its application to the treatment of disease has assumed such proportions that it is both timely and important to consider for a moment the real merits and limitations of this form of therapy.

Of course, it is utterly impossible to cover this subject exhaustively in a brief article. All I can hope for is to point out some of the pharmacologic principles involved, illustrating them by a few examples, and to leave you in that healthful state of mind which demands proof in every instance before accepting claims in favor of intravenous medication. First of all, let us inquire into the reasons for this tremendous increase in the popularity of intravenous injections, for, as in other matters, I believe that the historical development of any procedure often throws light on the cause of its introduction and later practice.

HISTORY

Intravenous medication is not of modern origin; on the contrary, it antedates the discovery of the administration of remedies by subcutaneous injection. An English student of this subject [1] attributes the discovery of intravenous medication to Christopher Wren, a professor of astronomy at Oxford University, who, in 1656, made experiments on dogs, and showed that medicines could be introduced directly into the veins without disastrous effect. I believe that these experiments were the natural result of Harvey's discovery (1628) of the circulation of the blood, and they were probably devised to facilitate the rapid distribution of remedies in the body. A year later (1657), the first intravenous injection was made on man, and this was followed by numerous attempts to treat diseases by this method with a great variety of drugs. Crude empiricism characterized this period. All conceivable substances were injected, indiscriminately. A certain Dr. Hale of Boston had even the curiosity to inject into his own veins castor oil in order to test its purgative effect. Strange to say, he survived long enough to write down his experiences. We may look with ridicule on these early attempts; but I dare say that future generations may find amusement in some of our present-day experiments.

The modern application of intravenous medication began with Baccelli's [2] introduction of the intravenous injection of quinin for the treatment of malaria (1890). He advocated this method as a routine treatment, on the assumption that the drug is brought immediately into contact with the parasites, whereas, given by mouth, the time required by absorption would necessarily delay the action. This was soon followed by Credé's [3] treatment of septicemia by means of intravenous injection of colloidal metals. The reports of this period, as of the former, showed, however, that intravenous medication is not without danger, and consequently it did not come into vogue.

About twenty years later (1910), the discovery and use of arsphenamin in the treatment of syphilis revolutionized medical practice in this respect. Although this drug, given intramuscularly, produced a marvellous effect on the lesions, and caused the rapid disappearance of the parasites, it was soon realized that the local reactions at the site of injection were exceedingly objectionable, so, as a last resort, the intravenous route was chosen; and now, I dare say, millions of such intravenous injections have been given. Hence, the intravenous use of arsphenamin and its substitutes has done more than any other single factor to popularize intravenous treatment. Whereas, in former years, the average physician regarded an intravenous injection as a minor surgical operation requiring considerable practice and preparation, he now had to familiarize himself with this technic; and so it came about that intravenous injections were made on a fairly large scale by the practitioner. Most of the respect for the ever-existing possibility of dangerous reactions resulting from intravenous therapy then vanished, in spite of the fact that careful observers, from time to time, voiced a warning against the careless and indiscriminate use of arsenicals by this route. It is surprising, however, considering the enormous number of arsphenamin injections given, that the reports of untoward reactions have not been more numerous.

THERAPEUTIC EFFECT

This demonstration of the relative harmlessness of intravenous arsphenamin injections has prompted physicians to apply this method within recent years to other drugs and to other diseases, principally on the assumption that intravenous injection is of necessity followed by a more powerful therapeutic effect than is administration of the drug through other channels. The fact was forgotten that the intravenous administration of arsphenamin was simply an attempt to avoid pain and local reaction, and that it was not introduced in order to increase the therapeutic effect. I want to lay particular stress on this point, as this misconception seems to be quite prevalent among physicians and pharmacologists, and it is largely responsible for the present popularity of intravenous medication. I particularly call your attention to the data furnished by Fordyce, Craig, Harrison, Wechselmann and others which add assurance of the therapeutic efficiency of intramuscular and subcutaneous injection; and, during the last three years, we have been able to establish this fact by well-controlled experiments on animals, using a quantitative method. Thus, we showed [4] that the parasiticidal effect of injections of arsphenamin and neo-arsphenamin given intramuscularly is as good as that of the same dosage given intravenously.

That this should be so is not at all surprising in the light of some recent work of ours [5] on the mode of action of these arsenicals. Arsphenamin of good qual-

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* Chairman's address, read before the Section on Pharmacology and Therapeutics at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Fortescue-Brickdale, J. M.: Guy's Hosp. Rep. **58**: 15, 1904. Eggleston, Cary: Internat. Clin. **2**: 130, 1917.

[2] Baccelli, G.: Tr. Tenth Internat. Med. Cong. **2**: 138, Part 5, 1890.

[3] Credé: Berl. klin. Wchnschr. **38**: 941, 1901.

[4] Voegtlin, Carl, and Smith, H. W.: J. Pharmacol. & Exper. Therap. **17**: 357 (June) 1921.

[5] Voegtlin, Carl, and Smith, H. W.: J. Pharmacol. & Exper. Therap. **15**: 475 (July) 1920.

ity we believe to be practically nontoxic per se; but, after its introduction into the animal body, there is gradually formed from it, by partial oxidation, an extremely toxic modification (arsenoxid), which exerts its destructive action on the parasites and, to a lesser extent, on the tissues of the host. Therefore, we must regard arsphenamin as a drug which, after its introduction into the body, forms a depot of a potential drug. When arsphenamin is given intravenously, the depot is more widely spread over the body than when the drug is given intramuscularly, where it remains localized for at least a short time. Nevertheless, in principle, the intravenous injection establishes a depot just as does the intramuscular, and the foregoing experiments clearly prove that it matters little, so far as the therapeutic effect is concerned, whether this depot of arsphenamin is scattered all over the body or is confined to one muscle. The active modification of the drug "arsenoxid" is formed in both cases, and it reaches the parasites continuously by way of the circulation. It is this continuous stream of the active modification, to which the parasites are exposed over many hours, which causes their death.

It having thus been shown that arsphenamin when given intravenously exerts no more powerful parasiticidal effect than when injected intramuscularly, and that the intravenous method was chosen in order to avoid local reactions, the question arises: Are there any drugs which, under certain conditions, give better therapeutic results when injected intravenously? I believe that we must answer this question in the affirmative, as, for instance, when time is an important element in the treatment or when the drug is not sufficiently absorbed by other channels. The intravenous injection of quinin in malignant malaria, of strophanthin in certain cardiac cases, of diphtheria antitoxin in severe diphtheria, is not merely advisable but is absolutely indicated as an emergency measure. Under such conditions, the physician cannot afford the delay incident to the administration of these remedies through other channels.

With regard to the efficacy of intravenous quinin injections, clinical observers agree that the action in extreme cases is more prompt than when the drug is given by mouth, and the patient's life may thus be saved. However, as soon as the critical condition has passed, quinin should be given by mouth for the reason that the available evidence shows that malaria is not more readily cured by intravenous medication;[6] and this is supported by some recent findings[7] which indicate that about 90 per cent. of the quinin injected intravenously in man disappears from the blood within one minute, and is stored in the tissues.

Another example of the superior therapeutic effect of intravenous medication is the administration of salt solutions in severe hemorrhage.

With intravenous medication, the dosage required to cause a certain therapeutic effect is, with several drugs, considerably smaller than if treatment is given by other channels. Epinephrin, for instance, produces a much greater rise in blood pressure when injected into a vein than when given intramuscularly. On the other hand, the pressor effect is much more prolonged in the latter case, on account of the more gradual destruction of the drug by oxidation. If, therefore, we wish to counteract the depressing effect of certain drugs on the blood pressure, such, for instance, as arsphenamin, we choose the intramuscular injection of epinephrin in preference to the intravenous; and this principle holds for certain other drugs with symptomatic or etiotropic action. In other words, gradual absorption counteracts rapid destruction and elimination of the drug, and hence insures prolonged pharmacologic action, which often is a therapeutic desideratum.

COMMERCIALIZATION

What has been said concerning the superior value of intravenous medication with regard to the therapeutic effect is sufficient to raise a question as to the unscientific claims made by certain commercial interests who advertise a great variety of drugs put up in solution for intravenous use. Most of these products have not been included in New and Nonofficial Remedies by the Council on Pharmacy and Chemistry, because they are sold under misleading claims regarding their alleged safety and efficiency.[8]

SAFETY

We have so far considered principally the merits of the curative value of intravenous medication; but it is equally if not more important to inquire into the safety of this method of therapy.

It is perhaps unnecessary to call attention to the various possibilities of injury to the patient which may follow the use of a faulty technic. Asepsis is an essential requirement. It is also perfectly obvious that care should be exercised not to inject any air, solid particles or oil droplets, on account of the danger of embolism. However, this can be avoided by proper technic and, if necessary, filtration of the solution before injection. Furthermore, it is clearly evident that care should be exercised not to allow any of the drug to escape into the perivascular tissues in case such solutions cause local irritation. These untoward reactions are under the complete control of the physician. It sometimes happens that thrombosis occurs in the vein, which usually makes it impossible to use this vein for future injections.

It is, furthermore, of the utmost importance to realize that intravenous medication brings the drug into immediate contact with some vital organs, such as the heart and the central nervous system, and the drug concentration to which these organs are exposed is much greater, at least temporarily, than if the same dose had been given by the usual channels. Now, concentration is an all-important factor in drug action. All drugs, even the purest distilled water, are poisonous in higher concentration, and their beneficial effect is usually restricted to a range far below the toxic dose. Several hundred milligrams of caffein can be given to dogs with impunity by hypodermic injection; whereas 5 milligrams per kilogram of body weight rapidly injected into a vein will cause death by cardiac failure It appears to me not at all surprising, therefore, that serious reactions and even deaths sometimes occur from the rapid intravenous injection of such drugs as quinin, arsphenamin and its substitutes and strophanthin.

To be sure, the chances for the occurrence of such deplorable results can be reduced, if not completely avoided, by a full realization of the principles involved, followed by logical procedure. It should always be borne in mind that the rate of injection of any drug must be slow enough to give the blood a chance to distribute it as effectively as possible. Theoretically, this can be accomplished by giving a relatively concentrated solution very slowly, or by using a very dilute solution. No general rules may be laid down to fit every case; suffice it to say that the number of untoward reactions to arsphenamin have been very materially reduced by the now prevalent use of dilute solutions, given slowly by means of the gravity method. Clinical experience in this matter has fully corroborated previous experiments made by Jackson and Smith [9] of the Hygienic Laboratory. In these experiments, it was shown that the circulatory phenomena which ensue when an arsphenamin solution is rapidly injected into dogs can be avoided if the solution is given very slowly. That this should be so is not astonishing, if it is remembered that the proper functioning of the animal body depends on a nicely adjusted equilibrium of the body fluids and also of the tissues.

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[6] Lane, Clayton: Malaria: A Critical Review, Trop. Dis. Bull. **19**: 93, 1922.

[7] Ramsden, W.; Lipkin, I. J., and Whitley, E.: Ann. Trop. M. & Parasitol. **12**: 223 (Oct.) 1918.

[8] Some of Loeser's Intravenous Solutions, J. A. M. A. **76**: 1120 (April 16) 1921.

The application of chemistry and physics to the study of these equilibriums has taught us much in recent years. We now know that the chemical composition of the blood and its physical chemical properties, such as osmotic pressure, hydrogen-ion concentration and colloidal state, are maintained with remarkable constancy and appear to be essential for physiologic wellbeing. Some of the factors of safety which operate in the maintenance of normal conditions have been recognized. The hydrogen-ion concentration, for instance, is kept at a certain level by means of the so-called buffer value of certain blood constituents, which neutralize any excess of hydrogen or hydroxyl ions introduced into the body. It is this mechanism which protects us under ordinary conditions against alkali or acid intoxication, so that we can take with impunity a considerable amount of alkali and acid with our food. Here again, however, we are forced to consider the rate of introduction. A certain amount of alkali which is well tolerated when given by mouth may prove fatal when injected rapidly intravenously; and, as Jackson and Smith [9] point out, the acute circulatory reactions following the intravenous injection of alkaline solutions of arsphenamin may be largely due to the excess alkali, which may irritate the myocardium or the blood vessels.

In this connection, I can refer you to some unpublished experiments by Dr. M. I. Smith, which demonstrate the injurious effect of a rapid injection of sodium hydroxid. He found that, in cats, approximately 0.25 c.c. of a normal solution per kilogram of body weight caused a precipitate fall of blood pressure and complete circulatory collapse. These experiments may possibly be of significance in connection with the careless overalkalization of arsphenamin solutions. It would, therefore, seem highly desirable to develop proper buffer solutions to use with arsphenamin.

Again, as regards the colloidal condition of the blood, information is rapidly accumulating pointing to the danger involved from the injection of foreign colloids into the blood stream. Only recently, a death has been reported from the intravenous injection of acacia,[10] a drug which was advocated, during the war, for combating severe hemorrhage and surgical shock. Foster and Whipple [11] have also pointed out that acacia injections decrease the coagulability of the blood and the regeneration of blood fibrin; and Hanzlik and Karsner [12] have demonstrated the production of emboli and thrombi in the pulmonary vessels of guinea-pigs.

In the earliest days of the use of arsphenamin solutions, Wechselmann discovered the so-called "Wasserfehler," an acute reaction of the patient due to the presence of bacterial protein in the water used for making the drug solution. Moreover, Hunt [13] attributes the higher toxicity of freshly prepared arsphenamin solutions, as compared with those which have stood or are heated for a short time, to the physical chemical properties of the former. Colloidal reactions between the drug and certain blood constituents may very well be responsible for these phenomena. Some recent work has shown that arsphenamin solutions approach the true colloidal state; and it is obvious that in a neutral medium, such as the blood, arsphenamin could not exist in true solution, for the reason that the arsphenamin base is completely precipitated at the neutral point. In the case of this drug, therefore, the conditions under which it is used for injection are of the greatest practical importance.

Several instances have come to my attention, even recently, in which the physician used by mistake the hydrochlorid instead of the alkaline solution, with disastrous effect. The injurious action of the hydrochlorid is probably due to the tendency of the hydrochloric acid of the drug to cause intra vitam precipitation of the free base or of a combination of the free base with blood protein. Acids are generally known to cause an aggregation of amphoteric colloids, such as proteins and arsphenamin; whereas alkalis tend to cause dispersion. As a matter of fact, Joseph [14] has actually demonstrated the presence of such arsphenamin precipitates in the blood of animals injected with the hydrochlorid; whereas he failed to find them after the use of alkaline solutions of arsphenamin.

Another possibility for the production of reactions may perhaps be found in the use of large volumes of solutions improperly adjusted as to osmotic pressure. Hypotonic solutions of sodium chlorid given rapidly were shown, by Weed and his collaborators,[15] to cause a great and sudden rise in cerebrospinal fluid pressure. Is it not possible that some of the symptoms which may follow the use of large amounts of drug solutions improperly adjusted in this respect and rapidly injected, especially under pathologic conditions of the central nervous system, could be attributed to sudden changes in cerebrospinal fluid pressure?

To sum up, it appears that a considerable amount of evidence has accumulated in recent years which indicates that the nicely adjusted equilibriums of the blood and those of the easily accessible tissues may be temporarily upset by intravenous medication; and this disturbance may give rise to undesirable symptoms and even cause death.

These symptoms are due to various causes, some of which have already been clearly recognized. In many cases, untoward reactions can be avoided by introducing the drug solution at a slow rate, which permits the protective mechanism of the blood and tissues to operate efficiently; whereas, if the injection rate is too fast, this mechanism breaks down, and symptoms appear as visible results of the disturbance of the chemical or physical equilibrium of the blood and tissues.

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[9] Jackson, D. E., and Smith, M. I.: J. Pharmacol. & Exper. Therap. **12**: 221 (Nov.) 1918.

[10] Olivecrona, H.: Acta chir. Scandinav. **54**: 1, 1921.

[11] Foster, O. P., and Whipple, G. H.: Am. J. Physiol. **58**: 393-406 (Jan.) 1922.

[12] Hanzlik, P. J., and Karsner, H. T.: J. Pharmacol. & Exper. Therap. **14**: 379, 425, 449, 479 (Jan.) 1920.

[13] Hunt, Reid: Some Factors Relating to the Toxic Action of Arsphenamin, J. A. M. A. **76**: 854 (March 26) 1921.

[14] Joseph, D.: J. Exper. Med. **14**: 83, 197, 1911.

[15] Weed, L. H.: The Cerebrospinal Fluid, Physiol. Rev. **2**: 171, 1922.

Under certain pathologic conditions, this equilibrium is more easily disturbed. I shall only refer to the increased possibility of producing reactions in case of diminished functioning of the excretory organs. It is a common practice to test kidney function before and during a course of arsphenamin or its substitutes, for obvious reasons.

In special cases, previous treatment with a drug which produces a cumulative effect has also to be taken into account. In a case of malignant malaria which is treated intensively with quinin by mouth, it is decidedly dangerous to give the intravenous dose of quinin ordinarily recommended for this purpose without first allowing the patient to dispose of the drug previously given; and this is equally true of the arsenical treatment of syphilis, and of the intravenous use of strophanthin in cases which are under treatment with digitalis by mouth.

Having seen that intravenous medication is not necessarily superior therapeutically to other modes of drug administration, and having pointed out the numerous possibilities of injury to the patient inherent in this method, we should strive to simplify the technic of the administration of drugs wherever possible, in order to avoid the necessity of the injection of the medicament directly into the circulation. The subcutaneous injection of morphin and similar drugs is an exceedingly simple procedure, which very often is left to the attending nurse. Would it not be a great step forward if such drugs as arsphenamin or its substitutes could be given subcutaneously?

During the last year, in collaboration with Miss Dyer, Dr. Johnson and Mr. Thompson, I have studied such a preparation experimentally, and so far it meets all the essential requirements. It is prepared from arsphenamin, formaldehyd and sodium bisulphite; its aqueous solutions are very stable and do not increase in toxicity on standing for twenty-four hours or on vigorous shaking. Its parasiticidal effect is extremely constant, and it does not cause any local reactions if injected hypodermically. The chemotherapeutic index or, in other words, the ratio between the curative and the maximum tolerated dose is as good as in the case of arsphenamin. The drug is now being tested clinically, and, should our hopes be fulfilled, I believe that it will have a considerable effect on the practical problem of the control of syphilis; for it stands to reason that such a preparation would make it possible for physicians who have not the required experience with intravenous arsphenamin treatment to give the treatment in this simple manner, if necessary under the general supervision of an experienced syphilologist, as advocated recently by Stokes.

DISEASE CONTROL AND PREVENTION

I believe that it should be emphasized in this connection that intravenous medication, of necessity, places decided restrictions on the treatment as well as on the prevention of certain diseases, on account of the more or less difficult technic inherent in this method. Take, for instance, the problem of the control and eradication of syphilis; it surely stands to reason that a simple technic of treatment, such as the subcutaneous injection, would make it possible to put a larger number of syphilitics under the controlling influence of the arsenicals; and this would unquestionably help in checking the spread of this disease, and it might also assist in its eradication.

Again, the practicability of the prevention of malaria by means of the oral administration of quinin rests exclusively on the fact that it is possible to produce a prophylactic effect by taking quinin tablets by mouth; and I doubt whether anybody would claim that the prevention of this disease could be made a feasible proposition if quinin had to be injected intravenously for this purpose. Therefore, every effort should be made to render the administration of such drugs as simple and safe as possible, without, however, sacrificing their therapeutic efficiency. Intravenous medication, to my mind, will never serve this purpose, and will always have a more or less restricted field of usefulness.

THE REAL THINGS IN MEDICINE*

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The minimum requirements for a career in medicine are a preliminary education, four years in a medical school, and a license to practice. While these requirements are indispensable, they are by no means sufficient. Three higher attributes stand out as real elements that make for a successful physician; without these, real success in medicine is impossible: brains, culture and character.

BRAINS

Brains are the alpha and omega of the man of medicine. We all recall the artist who, when asked what he mixed his paints with, replied: "With brains, sir." Not long ago when I was on the way to talk to college students on medicine as a profession, the wife of one of the faculty said: "Tell them that the one thing they ought to have is brains." She had made my speech. To begin the study of medicine without two good cerebral hemispheres thickly covered with a deep cortical layer is to invite failure. No encouragement should be extended to those about to enter the profession of medicine or to those already in to continue, unless they are supplied abundantly with gray matter. The misfits in medicine, as well as in other occupations, are due largely to a lack of understanding. There are some in the cornfield who ought to be in medicine; there are some in medicine who ought to be in the cornfield.

The study of medicine bestows no more brains and adds not one cubit to the mental stature. It provides only a few more implements of the mind to be used for good or for ill. Unless the roots are deeply planted in the soil of real learning, the study of any science narrowly pursued takes away from the natural resources of the mind more than it puts in. In other words, a finely endowed intellect is needed to carry on in the realm of science, to withstand its temptations toward the illogical, to keep clear headed in the midst of fact and fancy.

Such endowment comes not from science itself; it issues permanently from a mind nurtured in the ways of thinking. The handmaiden of brains, essential for the physician, is common sense, which is simply the ability to put brains to good account. In the words of Holmes, "Science is a first-rate piece of furniture for a man's upper chamber if he has common sense on the ground floor. But if a man hasn't got plenty of good common sense, the more science he has the worse for his patient."

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* President's address, read before the Medical Society of the State of North Carolina, Winston-Salem, April 25, 1922.

CULTURE

Make no mistake about culture. Culture is refinement, accuracy, poise, resourcefulness; it is not effeminacy, weakness, conventionalism, impracticability. We have been getting too far away from the humanities, from classical education, from academic scholarship, if you please. In the quest of science—and there is no nobler pursuit—we have set up utilitarian courses, called premedical and certainly premeditated, for the purpose of reducing to a minimum all those things which do not bear directly on the matter in hand, and swelling to a maximum those that are concerned in the material things of medicine. In this we have left out the very bed rocks of learning: the capacity to interpret the phenomena and the power to express the findings. If the average trained laboratory worker in our country today has any weakness, it is his inability to convey his ideas, to put down what he has done, to express his results in terms clear and terse. Generally his work surpasses his words. And it is not the misfortune of the individual, but of the plan which essays to substitute scientific research for sound scholarship; to get the one without the other, when we may have both. It is the common failing of the later generation of medical men that they do not write so lucidly or think so accurately as those just before them. There are, of course, numerous and notable exceptions. But the observation is probably correct, and its explanation lies in the small stress placed on actual scholarship required of one entering the profession of medicine.

We are living in an age of inaccuracy. We are inaccurate in thought, in speech, in spelling, in writing. We know a great deal; but do we know anything very well? Short cuts and practical preparation are the order of the day. Language, the only medium through which thoughts are given out, has been almost forgotten. Will it be considered very old fashioned if I should suggest that the neglect of the languages, and particularly the banishment of Greek, may be responsible for our loose thinking and our lack of scholarship? The value of Greek for the medical student might be a theme for a discourse in itself. If you should go over the evidence, you would be surprised to find how much medicine owes to the Greek language, what a very large number of our words referring to diseases, operations and organs are derived from the Greek—fully as many as from Latin. And many of those coming through the Latin were taken originally from Greek. "We suspect, too, that our men of science who are supposed to be opposed to 'so much Greek' must study that language secretly or they assuredly could not name the tools of their own trade."[1] The chief advantage of the study of Greek is a training in accuracy, in the expression of nice shades of meaning, the very essence of a cultivated mind engaged in scientific thought. We cannot divorce science and culture; we cannot go on rearing a race of seekers after truth who are not trained thinkers; we cannot fail to perceive that the education of a candidate for a learned profession means for us, as it has meant for all the older nations, a thorough grounding in the ancient and honorable arts and classics before we approached the special study needed for our dignified calling. That way trod our great fathers, who outstripped us with the means at their disposal; that way lies our hope of elevation, of bringing back the well rounded medical man and adding to him the marvelous scientific attainments of the present age. My thought was expressed by Thomas L. Stedman,[2] in these words: "Some day the pendulum will swing the other way and a new renaissance will once more join culture to knowledge to make the perfect physician."

CHARACTER

Detracting not one whit from the appeal for better mental equipment, it appears even more timely to emphasize the greater need for moral qualification in the physician. By this no reference is meant to righteousness or to worlds to come, to religion or to denominationalism, but only to the possession of a sound moral sense. The character of a physician is his most priceless property. It is what he stands for and whom he stands with; it is his attitude toward life; it is "what God sees him do in the dark." Truth is the goal; it develops character, and character tells in one's work. Too many are entering the medical profession without good working consciences, without a keen appreciation of the difference between right and wrong; too many are coming into an honored and honorable calling with low standards of trade and traffic in their souls; too many get in who are not gentlemen to begin with and cannot be made gentlemen to end with. Today the young physician too frequently feels compelled to ask his associates, "What do I get out of it?" when he might better ask himself, "What am I putting into it?" Greatly to be desired is a stronger effort to train the moral perception of medical students. They must be inspired toward a high-minded estate. In the speech and bearing of graduates of certain medical schools can be recognized just exactly the outlook on life and the regard for our profession held by their teachers. It is an unconscious percolation. The fine sense of intuitive right-thinking and truth-loving can shine through both precept and example. Morals cannot be legislated into people; but ideals can be educated into them.

PREPARATION FOR THE PRACTICE OF MEDICINE

My tribute to science is the greater because of my contention for broader preparation before embarking in its service. I heartily join with Moses Harvey in saying that "science is teaching man to know and reverence the truth and to believe that only so far as he knows and loves it can he live worthily on earth, and vindicate the dignity of his spirit." Medicine is both a science and an art; it has to do both with knowing and with doing. It is not an exact science—more's the credit, for exact sciences are inert and uninteresting. But the one big asset for the medical man is the acquisition of the scientific attitude in his student days. Every physician should remain a student the whole of his natural life. A pitiable sight is the practitioner who was known as a "good student" but who, after five years more or less, has degenerated into a routinist, never reviewing his former knowledge or adding to his original store. Such a man, though perhaps skilled in so-called practical affairs, forgets more and more medicine each year, until finally it is difficult for him to keep up. He begins to decry theory and to extol practice; he thinks only of results and never of causes; he speaks magnificently of "common sense" and "letting Nature take its course," but rarely uses the one or permits the other.

The trouble with this type of person is that he has never acquired the scientific spirit. He fell short in the early approach and missed the mental hole. The eager student loves learning for its own sake and believes that no knowledge is useless, if it is correlated. He understands that science is organized knowledge. The scientific attitude means that nothing must be accepted unless it is known; that nothing can be known until it is approved; that everything shall be met in the spirit of hesitant belief. This smacks of pessimism, and one poet at least has been led to exclaim:

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[1] London Saturday Review, Aug. 16, 1913.

[2] Stedman, T. L.: A Practical Medical Dictionary, New York, William Wood & Co., vii.

> O, star-eyed science! Hast thou wandered there,
> To waft us home the message of despair?

But nothing could be more unjust. It is not despairing to search for the truth. The challenge is, "How much do you know?" and "How can you prove it?" The doubting Thomas has a place here.

What has no place in science is the *post hoc, ergo propter hoc* habit of mind. It is the most dangerous of all doctrines for the medical man. It is the rankest empiricism and furnishes the platform for all quacks and impostors. "Whereas I was blind, now I see" is an insidious appeal to effects in utter disregard of the means—the cry of the charlatan. Montaigne wrote that when a man is sick and gets well, he cannot say whether it was because of the remedies used, the lapse of time, or his grandmother's prayers. It requires a powerful mental effort to get away from the belief that whatever happens after an event is always on account of it; but we must get away from this belief or we shall not retain our clear thinking.

After all, it is the acquisition of knowledge which is enticing and inspiring, not merely the possession of it. "If I held truth captive in my hand," says Malebranche, "I would let it fly that I might again pursue and capture it." And it is well to remember that not all the new is scientific, nor all the old empiric. Science teaches us to unlearn many things each day and to relearn as many the next; for there is scarcely anything new except what has been forgotten.

GROUP PRACTICE

A turn in the affairs of medicine is just before us. Whether that turn will be toward new and untried fields or along some old and well-worn paths, the future —the near future—will determine. The struggle is on between medicine as practiced by the private physician in the time-honored relation, and the practice by groups in a collective fashion. No matter what may be the arguments on the one side or on the other, the situation will work itself out precisely in accordance with the desires of the public, the results of methods in use and the attitude of physicians.

Owing to the multiplicity of technical detail and the accumulating mass of new discoveries in modern science, it is now more than ever true that no man diagnoseth to himself. It was never true that any one man, looking at the patient through the peephole of his slender specialty, could compass a complete diagnosis, or that a cursory inspection in the old way by the ordinary practitioner would round out a survey of the case. But always there has been a demand for the man who could find out everything there was to know about his patient, whether or not he himself could carry out all the detailed investigations and therapeutic indications. The main reason for requiring assistance in the diagnosis of disease is the need for particular apparatus, in the use of which some are skilled, to elucidate findings not brought out by the general physical examination. Thus grew up specialism and thus were developed instruments of precision. But there never has been, and never will be, anything to take the place of cultivated brains and trained special senses. This dual instrument, ready for instant and proper use, will be found as the principal equipment in the office of the real physician. Hear a layman's view:[3]

> The real pest among reputable physicians is the young man who expects his patients to pay for his needlessly high overhead expenses. He may be known by his spacious and elaborate offices and waiting rooms, buttoned door boys, sleek secretaries, fluttering office nurses and powder monkeys of both sexes, and an all pervading shimmer of white enamel, mechanical novelties and glittering metal work. Not infrequently the young practitioner who indulges in all these fripperies is trying to put over a poor piece by costly stage effects. He sometimes forgets, and his patients still oftener fail to realize, that what he really has for sale resides in his own cranium, and that mere style, atmosphere and scenery are poor substitutes for knowledge, experience and technical proficiency.

Unguided by intellect, instruments of precision become instruments of confusion, for they are not infallible and are wofully subject to the human equation. Rightly used and rigidly interpreted, they mean much in proving a diagnosis; regarded as the only means in arriving at conclusions or depended on as unfailing agents, they are but disappointments. Great pity should be felt for the inexperienced beginner who expects his microscope, his hemocytometer, his cystoscope, his chemical reagents and his metabolimeter to solve all the mysteries of diagnosis and to spell accurately the name of the disease. If I should see any such, I would say: "Let us first take a look at the patient; use our minds in obtaining his story; perform a laying-on of hands; after which we will ask for the aid of scientific apparatus which may either confirm or reject our observations. And if the laboratory findings do not agree with the clinical signs, then so much the worse for the laboratory."

And what will become of our specialism? Where will it end? Will there be need for its regulation and control? Undoubtedly the existence of specialties is the proof of their necessity, and their development has been the crowning achievement of modern medicine. But increasing subdivisions of specialism give us pause, so much so that by reaction we are beholding a newer specialist—the general practitioner. He is in a class by himself, left in charge of those who are actually sick, with the issues of life and death on his hands, both early and late. He is the keystone of the medical arch; without his support the whole fabric would fall; family after family are depending on him for counsel, relying on his judgment in every crisis. Of what use are specialists unless there is the intermediary to say when they are needed? And since the general practitioner has by distinction become a specialist and expected to know a little about everything, why should not the professed specialist be required to know something of general medicine? One finds oneself somewhat in agreement with the recently suggested proposal that examining boards may require five years in general practice before allowing the privilege of going into a specialty. How else may be curbed the tendency to divide the body into compartments for seclusive attention without a working knowledge of the whole system? These questions also will furnish their own answers.

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[3] Saturday Evening Post.

Many are rushing into group medicine as a solution of the whole matter. Such practice brings to bear upon each case the combined study of a number of specialists, who, examining the patient individually, finally come together for establishing a complete diagnosis, or leave it to one member of the group to pronounce the judgment. Work in groups has come to stay; for it is inevitable that men will associate for mutual help and encouragement. Team work is the modern slogan, and it is the way to win the game. But if the group discounts the individual and the individual forgets the patient, we have, not group medicine, but gang medicine; and their product is syndicated science, than which nothing could be more unscientific. One very notable group clinic and several others of lesser fame and more recent date have served to popularize the combined method of practice, and diagnostic groups are springing up all over the land. There are some with only two men in them (reminding us of the close corporations in which one partner is the president and treasurer, and the other, vice president and secretary), and others containing scores of men; there is the peripatetic clinic, in which taxicab fare is a considerable item; there are those conducted under one roof either of a separate institution or on one floor in an office building; there is the community hospital with its broad choice of consultants and naturally a subgrouping among these. While there is much to be said in favor of any form of associated effort, certain fallacies and dangers lurk in group practice. Primarily it is well to recall that "a chain is no stronger than its weakest link," and unless the men on the team are of equal capacity in their several branches, the resultant report will be onesided. There is danger, too, of everybody's business being nobody's business, so that the diagnosis produced may be a compound of the average forces of a factory, ground out piecemeal. An impersonal mark is likely to attach to all such methods to rob the process of any human touch and to afford the greater chance of error, especially if the interpreter for the group sees the patient only for a short sitting on the last day of the ordeal. Of necessity, the head of an important group is compelled to be a genius in his sphere, and all groups which have succeeded scientifically have had such heads.

Free and frequent discussion has waged over the group question and its allied problems. My feeling is that the group idea is one of the most useful modes of service in medicine. But no group should be iron clad or unwieldy; its tendency to send out machine-made work should be changed into that of a hand-picked product; it should stop straining at gnats and swallowing camels, and learn that the group was made for the patient, not the patient for the group. Just as strongly should we realize that the practice of medicine will never—and should never—get away from the personal relation of patient and physician, and that always we shall depend for our health and our happiness on the daily visits of the physician from house to house,

> Battling with custom, prejudice, disease
> As once the son of Zeus with death and hell.

ADJUSTMENT TO CHANGING CONDITIONS

A spirit of uncertainty pervades our rank and file. The existence of a subconscious fear that something or somebody will take away pristine rights, privileges and emoluments cannot be doubted. Nor can it be denied that this fear is natural and justified by appearances. What with welfare boards, full-time instructors in health, community service, vital statistics laws, narcotic restrictions, prenatal clinics and the like, physicians have begun to feel that they are "preached to" overmuch, that they are "regulated" beyond endurance, and that their confines are being invaded. Such expressions are heard in different quarters from time to time. Much as we may sympathize with them, the truth is that the fear which they denote is unfounded. We shall not lose anything unless we divest ourselves of it; we shall not have anything taken away from us, unless we prove unworthy to keep it; we shall not fail to receive any reward unless we sidestep the labor and the waiting necessary to secure it. The only harm that can come to us is the harm we may do ourselves by sins of omission and commission. The upsetting questions most of us are asking ourselves are: What are we going to do about it? where will the encroachments cease? how shall we adjust ourselves to the inevitable conditions? I will tell you what we are going to do: We are going to change, to progress. We shall go forward; we will meet and master every disturbing difficulty.

I have appealed to the fellows of the various component societies to keep in mind the county as the unit of organization and to remember that, for our common interest, attendance is the keynote, and cooperation the watchword; I emphasized the importance of the district societies and approved of plans to conduct their meetings according to a definite program, regarding them as miniature state societies; I sought to dignify the position of councilor, to exalt the duties of this officer, representing as he does in his district the power and influence of the parent organization. Finally, each member was urged to feel that the whole structure of organized medicine in state and nation hinged upon his own local status.

CONCLUSION

I have an ideal to express for this society. First, I would have it conform in every particular to the specifications set forth in Article II of the constitution, adopted in 1903, which stated that "the purposes of this society shall be to federate and bring into one compact organization the entire medical profession of the state . . . with a view to the extension of medical knowledge and to the advancement of medical science; to the elevation of the standard of medical education and to the enactment of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interests; and to the enlightenment and direction of public opinion in regard to the great problems of state medicine; so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life." I would have this society embody these principles in the conscience of its every member, especially recalling the significance of the order in which the principles are presented; I would have it a place where righteousness reigns and no mean thing may live; I would make it a guild and not a trade union; I would keep it a haven where politics doth not enter and where selfish exploitation doth not corrupt; I would wish every one to think of not what the society is to give him, but what he is to give the society; I would want it a communion where freedom rules, where each fellow may have the aspiration and the opportunity to develop what is in him; but I would also carry its standard so high that we may draw all men up to it and never for one moment trail its colors in the wretched dust of the unqualified and the unfit.

We have every reason to feel encouraged. My note is one of optimism. If only we may glorify brains as the consummate need; if we reverence culture as a means of grace; if we set character above circumstance, then indeed shall we grow in capacity, refinement and virtue, assuming our rightful stations as devotees of a learned profession and champions of the real things in medicine. We cannot fail, we cannot lag behind, if we serve these purposes. May we not all stamp deep down in our minds and hearts the cheering message of our first president, the immortal Strudwick, who, seventy-two years ago, gave voice to these lofty words:

> Neither the apathy of friends, the cold neglect and deep injustice of legislation, nor pampered quackery and empiricism can stay its onward course. True medical science will, like the majestic oak, withstand the shock and storm of every opposition. It has been beautifully compared to a star, whose light, though now and then obscured by a passing cloud, will shine on forever and ever in the firmament of Heaven.

SIGNIFICANCE OF THE EXTRINSIC MUSCULATURE OF THE LARYNX

ITS RELATIONSHIP TO CERTAIN DISORDERS OF THE VOICE *

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During the twenty-four centuries of historical knowledge of the developments in laryngeal physiology, long periods, even of centuries, have elapsed during which no advancement in knowledge of the laryngeal function is known to have been recorded. And it may not be without a useful purpose to note here that evidence is not wanting to cause one to wonder whether the laryngologist may not now be passing through one of these listless, or self-satisfied, periods with respect to laryngeal physiology. An examination of numerous recent laryngeal textbooks and general physiologies seems to warrant such a fear. One turns over the accounts of the physiology of the larynx in textbook after textbook without encountering any reference at all to physiologic knowledge of the larynx of the first importance, knowledge already nearly or quite a half century old. Such neglect of the very bases of laryngeal knowledge can but serve to retard progress in certain phases of laryngeal therapy.

If we are to understand the function of the larynx, it is first necessary to understand what the larynx is, both anatomically and physiologically. The anatomic definition is arbitrary and limits the meaning of the term to the laryngeal box itself, including the epiglottis. But a physiologic definition admits of no such arbitrary limitation. The physiologic larynx must be defined as the entire physiologic mechanism on which the movements of the vocal cords depend.

The laryngeal box is not only a suspended organ, movable upward and downward (through a range of about 3 cm.) and in all other directions, excepting directly forward, to an important though limited degree; but it is movable only with, and as a part of, the hyoid bone, and the base of the tongue, and even of the lower jaw and floor of the mouth. Particularly, the larynx, hyoid and base of the tongue cannot but be considered as a physiologic entity. The larynx is suspended from the hyoid bone, the hyoid from the base of the tongue, the tongue from the lower jaw and the skull. All three are intimately involved in a complicated musculature whose action alters their relationship to each other and to the fixed bony structure of sternum, spinal column and skull. The component parts of this musculature are so numerous and the musculature is so complicated that a complete understanding of the combined movements requires much more investigation than has been undertaken up to this time. But one fact is not hard to make out; namely, that all parts move together and in harmony to produce even the simplest attempt at phonation by the vocal cords. They constitute definite factors in vocal cord physiology and all must be considered as belonging to the physiologic larynx.

The first definite statement which I have found in the literature, conveying the thought that extrinsic muscular action is *always* an accompaniment of vocalization, is that made by John Wyllie,[1] in 1886. In discussing the mechanism of pitch production, he says, "The position of the larynx varies with every note."

Reliable studies of the relationship of the extrinsic muscular action to the movements of vocal cords were made by Brücke,[2] in 1856, von Meyer,[3] in 1884, and John Howard,[4] in 1886, as well as by others.

Nature approaches the problem of vocal cord action in no partial or haphazard spirit. She approaches it rather with all the needs of vocal and musical physiology well in mind. The demonstration of this truth lies in the fact that no central nervous plan of laryngeal action has been provided, excepting that which compels the coordinating action of all the complex musculature of the larynx, both intrinsic and extrinsic. We, as human beings, are not afforded a nervous control of the intrinsic muscular mechanism alone. The nervous centers of vocalization which we may employ are only those which control the fifty or sixty distinct muscles, intrinsic and extrinsic, all of which must function for the simplest vocal act.[5]

The fact that combined action of the intrinsic and extrinsic muscular systems of the larynx is necessary for vocalization is further demonstrated by their instinctive united employment in producing the laryngeally produced crying sounds of the babe as he enters the world.

Only by harmonizing these two great physiologic facts, the production of voice by the adjustment and vibration of the vocal cords, immediately due to the action of the intrinsic muscles, and the constant coincident extrinsic movements of the laryngeal musculature, is it possible to understand the physiology of the larynx.

The immediate basis of vocalization lies in the manner of adjustment of the vocal cords to each other. Definite adjustments of the cords for pitch production through a range of about two octaves is required. At the same time, definite adjustment of the vocal cords for the production of overtones suited to each voiced sound (if not also to each voiceless sound) must be provided. When one realizes that the mechanism of adjustment for each voiced sound must be able to maintain itself through a long range of pitch elevation and depression, one may begin to comprehend the complexity of the required vocal cord adjustments. They must be almost infinite in number. Differences of tension, of thickness, of adaptation of parts, of manner of vibration, must succeed one another endlessly. None excepting a human mechanism could begin to have such complexity and diversity of action. Each muscle, intrinsic and extrinsic, must play its related part, ever changing in action as the need changes, cooperating with a more or less strength of action, much as each instrument of a large and finely governed orchestra must adapt its action to the instrumental purpose of the whole.

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* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Wyllie, John: Disorders of Speech, 1886, p. 475.

[2] Brücke: Grundzüge der Physiologie und Systematik der Sprachlaute, Vienna, 1856.

[3] Von Meyer, G. H.: The Organs of Speech, New York, 1884.

[4] Howard, John: The Physiologic Basis of Artistic Singing, Boston, 1886.

[5] The motor centers for the speech function control, at the same time, the function of chest contraction and expansion. If the muscles of the chest were included in the foregoing estimate, it would be found that the action of approximately 100 muscles was required for the production of any manner of vocalization.

If one now also conceives of the other aspect of the production of speech and song, that of enforcing through resonance the sounds created in the larynx, and if he realizes that a part of the extrinsic musculature which is concerned with vocal cord adjustment is employed also for resonantial adjustments, one is in a position to realize the full complexity of this function. The object of resonance adjustment is to so shape the movable walls of the resonance spaces as to adapt them, in size and form, to best reinforce the overtones already definitely produced in the larynx. Thus, the base of the tongue and the hyoid musculature is ever conforming its action to the needs of the vocal cord adjustments; at the same time, never forgetting its relationship to resonantial adjustments.

Certain larger principles of action of the extrinsic musculature of the larynx may be expressed thus:

1. The extrinsic musculature may be roughly conceived as determining the larger relationships between thyroid and cricoid cartilages, and, thus, between thyroid and arytenoids, while the intrinsic musculature determines the finer adjustments of the vocal cords themselves.

2. Each plan of adjustment between cricoid and thyroid alters the relationship of each of these cartilages to its next neighbors and requires new muscular adjustments to meet this alteration, and so on to the next neighbor, until the fixed bony structures have been reached. Each muscle of the entire system must thus enter into the plan for any particular vocal cord adjustment.

3. The entire suspended mechanism must be steadied with respect to each element in the series, and all must be steadied against the fixed bony structures.

4. The question of resonance spaces for the various sounds of the language, as well as for musical purposes, must ever be given attention, in part by many of the muscles that require adjustment to the needs of action of the vocal cords themselves.

The aphonic voice (which appears to correspond with the whispered voice) is also produced by the combined action of the entire laryngeal physiologic musculature. Brücke was the first to point out that the whispered voice had its origin in the larynx. While the exact action of the intrinsic structures of the larynx for the whispered voice is less clear than that for the loud voice (which also is largely a matter of surmise), it is evident, at any rate, that, while the mechanism of adduction is more or less in action, the mechanism which tenses the vocal cords is not in action. The sound that is produced in the larynx in whispering is that of air passing over vocal cords, usually, at any rate partly, adducted, but not accurately stressed.

The extrinsic musculature is likewise in action for the whispered voice, in general corresponding to the action of this musculature in the production of the loud voice, but in certain details differing from it. The most striking difference in the action of the extrinsic musculature is its intensity of action (as determined by palpation) in the production of the loud voice as compared with its light action in the whispered voice. But another striking difference is the uniformly high position of the thyrohyoid region in the production of the ordinary whispered voice, as compared with the low position in the corresponding loud voice.

The high position of the thyrohyoid region required for the production of the higher pitched sounds, as compared with lower pitched sounds, whether loud or whispered, is a matter of common knowledge. Its explanation has received considerable attention and doubtless requires much more. Its chief effect seems to be to tilt the thyroid cartilage on the cricoid, thus increasing the distance beween the two ends of the vocal cords.[4]

Normal adduction of the vocal bands is both neurologically and physiologically a very different procedure from abduction. Physiologically, adduction demands action not only of the adductor intrinsic musculature but also of the entire extrinsic musculature. Neurologically, it demands the innervation not only of the recurrent and superior laryngeal nerves, supplying the intrinsic musculature, but also of all the nerves supplying the fifty and more extrinsic muscles.[6]

On the other hand, abduction consists simply in the relinquishment of the adductor activity, and the outward movement of the cords under action of intrinsic muscles alone. Abduction depends, then, solely on the recurrent laryngeal nerve for its innervation.

In explaining some practical diagnostic and therapeutic uses which a knowledge of the extrinsic musculature of the larynx affords, it may be said that these uses are founded mostly on two facts: (1) that any large abnormal activity of the extrinsic musculature is determinable by palpation; and (2) that general determination of the management of this musculature is partly under control of the will.

The pathologic aphonic voice may, as all laryngologists know, result from two main causes: (1) local intrinsic conditions which prevent the approximation or else prevent the tensing of the vocal cords, although the general physiology of adduction be otherwise operating normally, and (2) failure of the cerebral centers for the loud voice to function. In either case, the quality of the tone becomes whispered, or aphonic.

Much confusion may be avoided in making the differentiation between these two pathologic conditions, if we bear in mind that the aphonic voice from central causes may be readily and definitely diagnosed by palpation of the thyrohyoid-base-of-tongue region, while the patient is phonating. In case of aphonia from central causes, one may thus readily learn that the mechanism for the loud voice is not functioning, but is being replaced by the mechanism for the whispered voice; while, if the cause of the aphonia is due solely to local intrinsic laryngeal causes, the extrinsic mechanism for the loud voice will be found by palpation to be operating, although the voice is whispered. One, of course, must be on his guard against the possibility of both causes, local laryngeal and cerebral, being in operation at the same time.

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[6] Not to speak of the nerves supplying the compressive muscles of the chest, which must also act in harmony with the adductor mechanism.

The falsetto voice of puberty, which is dependent on psychologic misconception, or disturbance, consists in the maintenance, by sheer muscular wrongness of action and overaction, of a strained speaking voice higher in pitch than can be normally produced by that particular vocal apparatus. The condition may usually be diagnosed by the thin, strained, monotonous, excessively high pitched quality, in connection with the history. But for confirmation and clarification of the diagnosis, especially if a doubt exists, and also for purposes of treatment, the external musculature of the phonating larynx should always be palpated. In the production of the normal voice, this mechanism acts with a free upward and downward action of the thyrohyoid structures, dependent on the sounds being produced, and the pitch of their production. But, in the habit tensed falsetto voice, these structures are held constantly and rigidly against the highly raised base of the tongue. The entire physiologic musculature is thereby compelled to operate under the handicap of a muscular mechanism steadily and rigidly overacting to produce a false high pitch. This faulty mode of action is readily diagnosed by intelligent extrinsic palpation.

The correction of the falsely produced voice in this disorder is dependent on the education and training of the sufferer to direct normally the physiologic muscular mechanism. In early cases, this is usually relatively easy. In cases of long standing, with the resulting weakness of insufficiently used muscles, and the fixedness of long habit, the return of the voice to normal requires both time and vocal knowledge. In any case, the consideration of the extrinsic musculature serves best as a basis for the training required for correction. The patient is taught to compare by palpation the action of the normal larynx with that of his own. With this knowledge as a basis, he is taught the art of lowering the position of the larynx while talking, as a concrete necessity for the lowering of the pitch.

In still another class of disorders of the voice, dependent on emotional causes (and not as yet, so far as I know, given a description or classification in the literature), one meets with a similar tendency to strained upward action of the elevators of the larynx, and here also, from both a diagnostic and a therapeutic standpoint, a specific knowledge of the extrinsic physiologic laryngeal musculature is important.

Finally, in dysphonia spastica, similar phenomena in the external musculature are observed, but in a more severe and uncontrollable form than in any manifestation of a similar disturbance. The moment such a patient starts to talk, an intense uncontrollable overaction of the elevators of the larynx takes place, constituting the dominating musculature feature of the disturbance. A concrete understanding, through palpation, of the faulty action of the extrinsic musculature has much the same diagnostic and therapeutic use and importance as in the habit-produced falsetto voice. I have recently succeeded in bringing about recovery in a case of this character (where recovery is very rare), through a plan of training, founded largely on teaching the patient how to control the extrinsic muscular mechanism.

The finer control of the voice, especially for artistic purposes, is dependent on three primary factors: (1) the maintenance, by trained action of the chest musculature, of a controlled and adequate air pressure against the vocal cords; (2) the trained coordination of the entire laryngeal musculature, extrinsic and intrinsic, to adjust the vocal cords to receive accurately and adequately the air pressure from the lungs, and (3) the accompanying adjustment of the same and related musculatures to so shape resonance spaces that they shall give proper resonance values to the sound vibrations produced by the vocal cords. Strength of muscle, accuracy of action and trained control, all to a definite end, are the needs. And the muscles thus employed are extrinsic as well as intrinsic. Delicate harmony of action of the entire vocal musculature is required. Consequently, relatively delicate disturbances, even at a distance from the larynx itself, if they occur in the region of the extrinsic musculature, may disarrange the voice. For example, disturbed sensations confuse the speaker, or singer, in his attempt to make the required delicate muscular adjustments. Adherent secretion in the pharynx and nasopharynx may seriously impair the vocal control.

Any manner of interference with muscle normality anywhere in the entire physiologic larynx may confuse the vocal procedure. For example, inflammatory edema of the pharynx, nasopharynx, base of tongue, or tonsils, by invading the muscle structure or by pressure on muscle, may serve to disarrange the physiologic laryngeal action.

SUMMARY AND CONCLUSIONS

1. The physiologic larynx includes all muscles, extrinsic as well as intrinsic, on whose movement vocal cord action depends.

2. The laryngeal box, the hyoid and the base of the tongue are closely involved in all vocal action.

3. The base of the tongue region especially is concerned not only with laryngeal action, but also, at the same time, with the shaping of reasonance spaces.

4. This complete complicated musculature has for its purposes: (1) the production of endless differences in the manner of vibration of the vocal cords, and (2) the shaping of accurate resonance spaces for the reenforcement of vibrations produced in the larynx.

5. The action of the extrinsic musculature is discernible to an important degree by palpation of the thyrohyoid region.

6. Diagnosis of aphonia from cerebral causes is readily made by such palpation.

7. In the habit-produced falsetto voice, the high tension voice resulting from emotional causes, and in dysphonia spastica, a knowledge of the external musculature is important from both a diagnostic and therapeutic standpoint.

8. Physiologic normality of the voice, and especially of the artistic voice, is dependent on normally acting and cooperating individual muscles within the entire physiologic laryngeal mechanism; and abnormality of voice may result from disturbed sensation or disturbed action of muscles anywhere within this territory.

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ABSTRACT OF DISCUSSION

Dr. Charles G. Stivers, Los Angeles: It is time to correlate and coordinate all of the scattered knowledge on the vocal functions into a more cohesive whole, that investigators may know where to look for the latest advances and enjoy that moral support which is essential to all workers in the field of human betterment. The need for voice specialists is being expressed by our own members and by the laity—singers, actors, teachers of vocal expression and others, who feel, from sad and costly experience with so-called "vocal professors" and near-specialists, the need for the adequately trained voice specialist. I recently heard a prominent otolaryngologist say that the time would come when we would have as accurate an estimate of voice ability as is now possible in estimating the loss of hearing, and to do so calls for a standard of sound. The treatment of the falsetto voice of puberty resolves itself into a reconstruction in the patient's mind of his conception of how his voice should be produced. It is really a psychologic approach, and it affects a readjustment in the patient's mind, so that his voice becomes placed where it should be in the adult register.

Dr. Louis K. Guggenheim, St. Louis: I should like to ask Dr. Kenyon just how he differentiates central from peripheral involvement by putting his hand on the patient's neck. As I understand it, he attributes the falsetto voice of puberty to the emotional state occurring at that period. I believe it has been definitely proved that the falsetto voice of puberty is the result of definite changes in the tissues of the larynx, chief among which changes is an edema. This edema does not permit the full vibration of the cords, but merely the vibration of the edge of the cords.

Dr. Jacques Holinger, Chicago: There is an answer to Dr. Guggenheim as to the central cause of the difficulty of swallowing. In bulbar paralysis, the only symptom is difficulty in swallowing and, maybe, of phonation. This may be recognized by watching the larynx during the act of swallowing or phonation or by putting a finger on it. The larynx moves very little or not at all in cases of paralysis. You have practically a diagnosis at first hand. Bulbar paralysis in old people is not very rare, but I could not find in any textbooks that epidemic cerebrospinal meningitis in children should start with bulbar paralysis. Permit me to give you a history: I was called to see a girl of 11 who had been sick four days. A brother, 9 years old, had been sick for several weeks with a "cold," and was just recovering. No diagnosis was made. The girl talked indistinctly and had some difficulty in swallowing, but sat up in bed and played. She had an anxious expression and her temperature was 100 F. I asked the child to phonate, placing my finger on her throat. She had a peculiar, monotonous voice. In this, as also in swallowing some water, the larynx was not raised. The water went into the larynx and had to be coughed up. I suggested a lumbar puncture. The suspicion of cerebrospinal meningitis was confirmed. Flexner's serum was given, but three days later she became unconscious and died. I repeat that, at the time I first saw her, there was no other symptom except the difficulty in swallowing and phonation. It was very apropos that Dr. Kenyon took this occasion to draw attention to this whole complex of throat symptoms. They are not very frequent, but when they are observed, they always indicate some serious central lesion. They are very easily overlooked or misinterpreted.

Dr. Dennis J. McDonald, New York: I should like the author in closing to stress particularly the falsetto voice. We all know there is a maldevelopment of the larynx which produces a thinning of the voice. There is also a condition in the female in which the voice runs from D above the line a whole octave, treatment for which by a great many of our teachers practically ruins the voice. Many of these cases, I think, are due to strain.

Dr. Elmer L. Kenyon, Chicago: That there can be no organic changes in the structure of the larynx at the time of treatment in most of these cases of high pitch maintained after puberty is perfectly clear; because under training treatment which is adequate, a voice high and strained comes to normal pitch and quality very rapidly. I have no doubt there are exceptions, cases in which structural changes in the larynx have had some influence in bringing about an erroneous habit of producing a high pitch. Indeed, a considerable portion of such children have had persistent "colds" during the puberty period, when the voice should have been changing. The child whose voice is being trained for a singing voice and who is not taught at puberty that the voice must change in pitch and quality may struggle to maintain the childish vocal characteristics until a wrong habit has been formed. Answering Dr. Guggenheim's question as to the technic of the determination of the aphonic voice by palpation, it is extremely simple if one only possesses a clear knowledge of how these extrinsic laryngeal structures act under palpation in the normal person. He must know by palpation the manner of action and especially the vigor of muscular effort required to produce the normal (*a*) loud and the (*b*) whispered voice. The loud voice requires muscular vigor of action, causing vibration; the whispered voice clearly requires less vigor and less definiteness of muscular action. The pathologic aphonic voice is apparently nothing else than the normal whispered voice substituted for the loud voice. These differentiations are easily determined by one who studies the action of the extrinsic musculature under palpation. As to Dr. Stiver's suggestion that the falsetto voice is basically a matter of psychology, I perfectly agree. Treatment is a matter of changing the person's attitude of mind with reference to his voice; it is a matter of teaching him that he handles his voice wrongly, and teaching him how he must handle it. The use of this knowledge of the manner in which the extrinsic musculature acts under normal and abnormal conditions is an important detail in enlightening the person with the falsetto voice with respect to the fact that his attitude toward his voice production is wrong.

OTALGIA AND MASTOIDALGIA NOT INDICATIONS FOR OPERATION ON THE MASTOID PROCESS

REPORT OF THREE CASES *

HAROLD I. LILLIE, M.D.
ROCHESTER, MINN.

Otalgia and mastoidalgia, pain in the ear and in the mastoid region, referred in origin and not due to inflammation or new growths, have been encountered in our practice in cases in which operation on the mastoid had been either advised or performed. It was quite apparent that the results, so far as relief of the patients' discomfort was concerned, had not come up to their expectations.

The conditions causing this referred type of pain do not appear to be generally understood. Wilson says, "In the ear, with its nerve supply from many sources, pain not only suggests the region particularly involved in the inflammatory process, but also makes a constant demand upon the physician to deal with referred pain and to interpret its significance." A careful examination of the mechanism of the ear with a head mirror and reflected light will eliminate the idea that inflammation causes the pain in the ear and mastoid, particularly if adjunct information is derived from a careful study of stereoroentgenograms of the mastoid, and from laboratory examinations, including the leukocyte count, and so forth.

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* From the Section on Otolaryngology and Rhinology, Mayo Clinic.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

It is quite true that the descriptions of otalgia and mastoidalgia in textbooks leave much to be desired. A few paragraphs (not chapters), deal very sparingly, in well chosen words, with a subject worthy of much greater detail, a knowledge of which would be of great benefit to physicians and patients. For those interested in a careful, detailed study of the sensory nervous mechanism of the ear and mastoid, Wilson's comprehensive article,[1] "Pain in the Ear and Its Diagnostic Significance," will be of interest. Wilson says that, in the majority of cases, the pain is referred along the third division of the fifth nerve, less often along the second, and rarely along the first; that the most common seat is in the auriculotemporal nerve of the first division, and that, at times, the pain is referred to a posterior area, where no difficulty is found in associating it with the great auricular nerve.

Recently, Sluder[2] has described the painful syndromes associated with disturbance of the sphenopalatine ganglion. He deserves great credit for calling our attention to this syndrome, and, as a result, we have encountered fewer cases of this type in which the diagnosis cannot be made. I have no doubt that the syndrome exists in his classic description. I have observed it in several cases; but my observation has led me to believe it is not necessary that the entire syndrome, as described in the textbook, should be present before the origin of the pain may be diagnosed. Frazier[3] has made a comprehensive classification of facial neuralgia. It is probable that the type of painful syndrome under discussion would be classified in his fourth, or miscellaneous group; or possibly in his fifth group, in which are the cases of psychoneurosis or psychalgia.

The three cases I shall report did not present the complete lower-half headache syndrome, and no direct causal factor for the discomfort was discernible, although careful investigation of the usual causes of reflex pain in the ear was made and each was eliminated.

REPORT OF CASES

Case 1.—Miss M. S., aged 17, was referred to the ear, nose and throat section of the Mayo Clinic in March, 1921, complaining of pain in the right ear and mastoid. The trouble began six years before with severe pain in the right ear, without fever. She was taken to a hospital, where a mastoid operation was performed within two hours of onset. There was no discharge from the ear or mastoid, and the operative wound healed promptly. Pain and tenderness, definitely worse every three or four months, had persisted; during exacerbation, all the symptoms appeared worse at night. Further operation on the mastoid and removal of the appendix had been advised to relieve the condition. The tonsils had been removed.

Examination of the ear, nose and throat was negative. The right tympanic membrane was denser than the left, but the function of both ears was quite normal. The right mastoid tip was tender. Roentgenograms revealed no particular evidence of inflammation. Roentgenograms of the teeth revealed that the third molars were unerupted, but not impacted. The general physical examination and the neurologic examination were negative, but a diagnosis of migraine was made.

The sphenopalatine ganglion region was cocainized, and the patient was immediately relieved. The change in her facial expression was gratifying. Subsequently, on several occasions, phenol (carbolic acid) in liquid petrolatum was used in the epipharynx, and the patient remained free from the discomfort.

Case 2.—Miss L. B., aged 21, came to the Mayo Clinic in February, 1921, complaining of pain in the right ear and mastoid. The trouble had begun in August, 1920. There had been no discharge. Paracentesis had been performed, and the patient had been relieved of the pain for several weeks. This procedure had been repeated. In December, 1920, the pain became so severe that sleep was disturbed. Operation on the mastoid had been contemplated; but, because there had been no fever and no increase in leukocytes, it was delayed. From the patient's friends, it was learned that she had been very precocious in her school work and was regarded as an unusually brilliant student. She had never taken part in the social activities enjoyed by other girls.

The patient did not present the facies of one who suffered severely. The ears, nose, and throat were not unusual; the sphenoid ostium on the right could readily be entered. The right ear and mastoid showed no signs of inflammation, although the mastoid seemed slightly sensitive to touch. The general physical examination was negative except for an adolescent goiter. Roentgenograms of the teeth, and the neurologic and eye examinations were negative. A diagnosis of migraine was made.

The sphenopalatine ganglion region was cocainized and the pain in the ear was definitely relieved for about an hour. The application of silver nitrate and phenol in liquid petrolatum seemed to have little effect. Finally, March 31, 1921, injection of the sphenopalatine ganglion with alcohol relieved the patient. The relief was not immediate, but was complete in a week's time.

The patient returned to the clinic in July, 1921, with a frontal headache; but pain had not returned in the ear and mastoid.

Case 3.—Mrs. C. B. V., aged 42, was examined in the Mayo Clinic in August, 1920, and was found to have gallbladder trouble. Operation was performed and she was relieved of the symptoms. She had had headache since adolescence, especially before the menstrual period. Her one pregnancy had terminated at three months.

Clinical and laboratory investigations proved to be negative, except that roentgenograms of the chest revealed an old intralobar pleurisy. The patient was seen again in December, 1920, and examination revealed no further positive findings.

In April, 1921, the patient was referred to the ear, nose and throat section, complaining of paroxysmal pain behind the right ear, sometimes also in the throat, for which she had been advised (elsewhere) to have a mastoid operation.

Examination revealed apparently negative tonsils, and a low grade granular pharyngitis. The septum of the nose was deflected, with considerable obstruction on the left side. The membrane was undergoing a secondary physiologic atrophy. The right side of the nose appeared normal. The canals of the ears and tympanic membranes were normal, as was function. There was no definite causal factor discovered, although the intranasal and pharyngeal condition may have been contributory.

The right sphenopalatine ganglion region was cocainized, and 10 per cent. silver nitrate was applied. The pain in the ear and mastoid was relieved, and there has been no recurrence. The patient was instructed with regard to the care of the nasopharynx, and this, with the assurance that operative interference was not indicated, may have been a factor in the permanence of the cure.

COMMENT

These patients did not present definite etiologic or causal factors for the sphenopalatine syndrome; all could be grouped definitely as nervous individuals; all were relieved of symptoms by treatment directed to the sphenopalatine ganglion. Operation on the mastoid region previously had not relieved them of their symptoms. I have no explanation for the temporary relief of the otalgia by paracentesis. It seems that, before operation on the mastoid is advised, all conditions which might cause this referred type of discomfort should be investigated.

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[1] Wilson, J. G.: Pain in the Ear and Its Diagnostic Significance, Quart. Bull. Northwest. Univ. Med. Sch. **11**: 211-221, 1910.

[2] Sluder, Greenfield: Concerning Some Headaches and Eye Disorders of Nasal Origin, St. Louis, C. V. Mosby Company, 1918, pp. 272.

[3] Frazier, C. H.: Neuralgias of the Trigeminal Tract and Facial Neuralgias of Other Origin: Impressions Derived from a Survey of 555 Cases, Ann. Otol., Rhinol. & Laryngol. **30**: 855-869 (Dec.) 1921.

ABSTRACT OF DISCUSSION

Dr. Greenfield Sluder, St. Louis: During the past year we have made some observations in the clinic at Washington University as to the control of earache through the nasal ganglion or Meckel's ganglion. In a number of observations and experiments we found that a large part of these cases have been controllable with cocain through the nasal ganglion. The exception to that would be any condition in which one has reason to believe that cocain is not absorbed. In the clinic, and in my own practice, we have found that the pain of otitis media, suppurating under pressure, can be controlled by cocainization of the nasal ganglion. We have had some cases in which the landmarks on the drum were more or less obliterated, accompanied by tinnitus, in which the pain was stopped and the tinnitus with it, by anesthetizing the nasal ganglion. Dr. Lillie spoke of separate symptoms, saying that the entire syndrome is not necessary. During the year we have also determined that pain in the lower jaw from the surgical removal of teeth can also be controlled through the nasal ganglion, and there is no anatomic explanation of how that may be. The paper is interesting as to why the diagnosis of migraine should have been made.

Dr. Norval H. Pierce, Chicago: We older otologists believe that noninflammatory otalgia is due to disease of the teeth in 85 per cent. of cases, and as I grow older I have no reason for changing that belief. In otalgia, of unknown origin, we should always have a roentgenogram taken for unerupted teeth. Dr. Sluder's work in this direction is most interesting, but the fact that otalgia can be relieved by cocainization of the region of the sphenopalatine ganglion does not establish the cause of the otalgia. It merely blocks the nerve path between the point of irritation and the place to which the pain is referred.

Dr. Harry L. Pollock, Chicago: We all have seen cases of impacted molars causing otalgia. Three patients were operated on for mastoiditis before they came to us, and we discovered the impacted molars, the removal of which relieved the symptoms completely. But there are cases in which, as far as we are able to determine, there are no underlying pathologic conditions which may cause these symptoms, in which the pain is just back of the tip of the mastoid. That is always constant in these cases. The typical syndrome includes pain over the eye, back of the ear, in the throat, and sometimes in the arm; but in very few cases do we get all these branches of the ganglion at one time. The characteristic pain, however, is just a few centimeters back of the mastoid. In many of these cases we find a low grade sphenoiditis causing the pain, and if we clear up the sinuses the trouble and the pain will disappear. In many cases the pain comes on postoperatively, and we think it is the result of the scar. But in those cases in which the application of cocain would relieve the symptoms, we are sure to get good results from the injection of the sphenopalatine ganglion. They can be reinjected without danger. In those cases in which this typical pain back of the ear is present and the application of cocain to the foramen does not relieve it, the injection will not do any good.

Dr. Louis K. Guggenheim, St. Louis: I shall report a case which may relieve Dr. Pierce's doubt and also add a symptom, violent throbbing in the ear. This patient had no teeth. She was 70 years of age, and came to me two weeks after an attack of influenza. At that time she was perfectly well, except for violent pain and throbbing in the left ear. This pain was in the region of the tympanic cavity and also in the mastoid, and there was marked tenderness on pressure. It was difficult to insert a speculum because the canal was so sensitive. I found the drum membrane and canal perfectly normal in appearance; the nose and throat were negative. For the moment I did not think of the sphenopalatine ganglion. I gave the patient a prescription for codein and told her to take a dose every three hours. Her daughter gave it to her every hour, without relief. She came next day, very much depressed because the pain and throbbing had persisted. I then thought of the nasal ganglion and applied 5 per cent. cocain in that region. Shortly after the speculum could be inserted without pain. The patient slept all night without codein, and returned the next morning entirely relieved. As far as I know, she has never had any pain or throbbing since that time.

Dr. William B. Chamberlain, Cleveland: I performed mastoid operations in two of these cases before Dr. Sluder's work on the sphenopalatine ganglion appeared; otherwise I should certainly have tried cocainization. In one case, a man, aged 30, the roentgenogram was negative; examination of the mastoid and middle ear was negative. The pain promptly disappeared after the operation, and he has remained free from pain ever since. Needless to say, the mastoid was negative when I opened it. The other case was in a girl, aged 16. I made all the usual tests, and found the mastoid and the middle ear negative. I performed a mastoid operation, opened the mastoid thoroughly, and found it absolutely normal. The interesting thing about this case is that the mastoid never healed, although it was normal, and, of course, absolutely aseptic technic was followed. She ultimately fell into the hands of a surgeon who, fortunately, was a friend of mine. He also tried everything to get this mastoid to heal, and finally made a skin graft. The mastoid, as far as my knowledge goes, has never healed, and the pain is still persisting. I have never had opportunity to try out the cocainization of the sphenopalatine ganglion. Another case, in which the pain was localized 2 inches behind the ear, was found to be due to an impacted tooth. On removal of the tooth, the pain was relieved.

Dr. Ivor G. Clark, Columbus, Ohio: In certain of the cases of mastoidalgia without definite pathology the pain in the mastoid is said to be greatly relieved by mastoidectomy. I recall a paper by Dr. Ayers in which he reported that it relieved several of these patients.

Dr. Harry N. Mayer, St. Louis: There is no discussion as far as I am concerned on the point that these headaches can be controlled by cocainization of the sphenopalatine ganglion. I should like to suggest that in these cases the diet be looked into carefully to find out what these patients are eating—what they are doing that is not normal. It has been my experience that some of these are acidosis cases, and sodium bicarbonate and milk of magnesia has helped me effect a cure in some of these lower half headaches that did not respond to the application of cocain to the ganglion.

Dr. Jacques Holinger, Chicago: In several patients suffering from pain in the ear for many weeks we found, after long observations, small pimples on the skin and surroundings of the mastoid, which on careful examination proved to be regular herpes zoster efflorescences. Herpes zoster in that region is not so very rare, and causes the physician much difficulty of diagnosis and the patient persistent and prolonged pain. The membrane and the function are found normal. The pain was not increased on deep pressure on the process. In two cases there was distinct relief after a mastoid operation. These herpes vesicles are easily overlooked. Herpes zoster may occur in other regions pertaining to our specialty in addition to the mastoid. One patient suffered fearfully in the region of the frontal sinus. Intranasal treatments did not help. We recognized the real nature of the disease only after the whole head had been shaved, and the patient prepared for a frontal sinus operation according to Killian. Large confluent herpetic areas were found, sharply limited at the middle line. I had treated the same woman two years previous for an acute frontal sinuitis. The operation took place eight or ten years ago; she had no complaints since. I see her sisters often.

Dr. H. I. Lillie, Rochester, Minn.: In answer to Dr. Sluder's question about the diagnosis of migraine, that was made from the neurologist's standpoint; it was not our diagnosis. These cases were chosen because none of the usual causes were found in this particular group. That is, we had a large group of otalgias and mastoidalgias in which the contributory factors were easily found; but this was another group. In that respect I may say that we used every differential diagnosis measure we knew of or could learn of, and we took pains to eliminate all the usual, and some of the unusual, causes for this syndrome.

EXPERIENCE WITH CHAULMOOGRA OIL DERIVATIVES IN TREATMENT OF LEPROSY *

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The recent encouraging reports [1] on the treatment of leprosy with the esters of chaulmoogra acid in the Hawaiian Islands induced us to give the leper patients at the San Francisco Hospital the benefits of this remedy. The extensive chemotherapeutic studies of Walker and Sweeney [2] at the Hooper Foundation of the University of California furthered our interest in the subject. Only by their active cooperation has this work been made possible. There have been from twenty to twenty-five patients with leprosy at the San Francisco Hospital for many years. When we began treating these cases, we did not anticipate the publication of our findings. The results, however, have been so at variance with our expectations and the impression obtained from the literature, that we feel some record should be made of them.

EARLY USE OF CHAULMOOGRA OIL

Chaulmoogra oil has long been recognized as the best remedy in the treatment of leprosy. Old Buddhist records in India of ten or more centuries ago refer to the improvement in infected persons after eating the raw chaulmoogra seeds. In modern times, Dyer,[3] Heiser,[4] Hopkins,[5] Connell [6] and Hollman [1] have reported improvement and even cures due to the administration of the whole oil by mouth over a long period of time. Marked gastric disturbances, and the length of time required to obtain results, made this mode of treatment unsatisfactory.

To overcome these disadvantages, the mixture of chaulmoogra oil with other substances to make it suitable for subcutaneous or intramuscular injection was attempted. The formula proposed by Mercado and Heiser,[7] consisting of chaulmoogra oil, 60 c.c.; camphorated oil, 60 c.c., and resorcin, 4 gm., has been used extensively. Heiser [8] reports the cure of twenty-eight patients by the use of this formula. Hopkins,[5] McCoy and Hollman,[9] Armellini,[10] Bercovitz,[11] Coghill,[12] Hall,[13] Cadbury,[14] Connell,[6] Hollman and Dean,[1] and others report cures or improvement in cases after the use of this and other combinations.

In 1916, Sir Leonard Rogers,[15] in India, reported the preparation of soluble salts of fractions of the fatty acids of chaulmoogra oil and their use intramuscularly and intravenously. He made three preparations of the chaulmoogric acids containing fractions of the lower, the medium and the higher melting points. The first preparation he called, arbitrarily, sodium gynocardate; the second, sodium hydnocarpate, as it contained a preponderance of hydnocarpic acid; and the third preparation, sodium chaulmoograte, as it contained more chaulmoogric acid than the other preparations. The latter preparation formed sodium salts too insoluble for use unless combined with other substances. After experimentation, he decided that the sodium hydnocarpate was more active than the sodium gynocardate. It was found [16] that sodium hydnocarpate could be prepared more readily and in larger quantities from hydnocarpus oil than from chaulmoogra oil. Rogers,[17] Cadbury,[14] Carthew,[18] Muir,[19] Peacock,[20] Connell,[6] Neve,[21] and others report the use of sodium gynocardate subcutaneously and intravenously with very good results. Rogers [22] and Muir [23] report even better results with the use of sodium hydnocarpate.

Rogers [24] tested the action of other oils with a large content of unsaturated fatty acids, namely, cod liver oil, linseed oil, Japanese sardine oil, and soya bean oil. He found the cod liver oil preparation, called by him sodium morrhuate, to be most effective. Advanced cases, treated with it, cleared entirely, and some patients who had ceased to improve with other preparations recovered completely when given sodium morrhuate intramuscularly or intravenously. Rogers concluded that the preparation of these different oils may be used to advantage in the treatment of leprosy. If a patient ceased to respond to one oil, the preparation of another oil should be substituted.

Harper [25] of India reports excellent results in the treatment of leprosy by intravenous injections of a mixture of chaulmoogra oil, sulphuric ether and iodin. Muir [26] also reports good results by this method of treatment; but he believes that better results are obtained by the intramuscular or intravenous administration of a formula consisting of ethyl esters of the fatty acids of hydnocarpus wightiana, 1 c.c.; pure creosote, 1 c.c.; camphor, 1 gm., and olive oil, 2.5 c.c.

At the present time, Muir [26] is giving small doses of the ethyl esters of chaulmoogra acids intravenously at frequent intervals, with encouraging results.

The ethyl and other esters of chaulmoogric acids were first prepared by Power and his collaborators in

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* From the Department of Dermatology and the George Williams Hooper Foundation for Medical Research of the University of California Medical School.

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1904, during their extended investigation[27] of the chemistry of chaulmoogra oil at the Wellcome Chemical Research Laboratories in London from 1904 to 1907.

Notwithstanding the previous preparation of the esters by Power and the ancient use of chaulmoogra oil in leprosy, Ludwig Taub of Elberfeld, Germany, obtained patent rights in Germany in 1909 for the preparation of esters of chaulmoogra acids and their use in therapeutics. This patent right was assigned to a German chemical company, which put the ethyl esters on the market under the trade name of "antileprol." A little later, patent rights were also obtained in Great Britain and the United States. Following the war, and the confiscation of German patent rights, the alien property custodian sold the rights of this patent in the United States to the Winthrop Chemical Company of New York, which is preparing and distributing the ethyl esters of chaulmoogra acids under the trade name of "chaulmestrol."

In 1919, Hollman and Dean[1] reported the preparation and use by intramuscular injection of the ethyl esters of fractions of the fatty acids of chaulmoogra oil for the treatment of leprosy in Hawaii. These acids were separated into fractions by fractional crystallization, and these fractions converted into their ethyl esters. Four fractions in all were used. Groups of cases were treated with each fraction. It was decided that the therapeutic agent in chaulmoogra oil was distributed through all four fractions. This work was later carried on by McDonald and Dean, and is at present under the supervision of Dr. H. E. Hasseltine of the United States Public Health Service.

In 1919, Hollman and Dean[1] reported the treatment of twenty-six cases for less than two years, eight (30 per cent.) becoming bacteriologically negative in this time. In 1920, McDonald[1] reported the paroling of forty-eight cases; and in 1921,[1] ninety-four more cases were added, making a total of 150 cases.

These patients had been treated with weekly injections of the mixed ethyl esters of the acids of chaulmoogra oil, with 2 per cent. of iodin in chemical combination. This was supplemented by capsules containing the fatty acids of chaulmoogra oil with 2.5 per cent. of iodin chemically combined, given by mouth three times a day. In 1921, McDonald[1] reported series of cases treated without iodin and without chaulmoogra oil capsules. He concludes that "the oral administration is by no means necessary," and "the rôle of the iodin is at most a minor one."

This extended and varied empiric use of chaulmoogra oil and its derivatives in the therapeutics of leprosy was put on a scientific basis by the investigations of Walker and Sweeney,[2] at the Hooper Foundation for Medical Research of the University of California, in 1920. It was demonstrated experimentally that chaulmoogra oil contains substances having a high bactericidal activity in vitro. This bactericidal activity was found to reside in the fatty acids of the chaulmoogric series, and to be a function of the carbon ring structure which is peculiar to the chaulmoogric acids. The bactericidal action of these cyclic fatty acids was shown to be specific against the acid-fast groups of bacteria, and to be inactive toward all other bacteria. Furthermore, it was demonstrated that other unsaturated fatty acids, notwithstanding the therapeutic claims of Rogers and his colleagues, did not possess the specific bactericidal activity of the chaulmoogric acids. From the results of this experimental investigation, it was concluded that the empiric use of chaulmoogra oil and its derivatives in leprosy was justified, and that its therapeutic effect was due to the bactericidal action of the chaulmoogric acids on *Bacillus leprae*.

TREATMENT OF LEPERS AT THE SAN FRANCISCO HOSPITAL

In August, 1920, we began treatment of the lepers at the San Francisco Hospital, and they were under treatment up to March, 1922, when they were transferred to the national leprosarium at Carville, La.

Of a total of twenty-one cases, there were ten of the nodular type, six of the maculo-anesthetic type, and five of the mixed type. One had shown manifestations of the disease for two months, one for thirteen years, and the others for periods intermediate between these two extremes; the average duration of the disease was four and one-half years. Most of the cases were far advanced. The average period of isolation before beginning treatment was three years.

SUMMARY OF CASES TREATED

Case	Name	Age, Years	Type of Disease	Duration	Severity	Duration Treatment	Average Dose, C.c.	Condition
1.	F. C.	22	Nodular	6 mo.	Moderate	3 mo.	3	Unimproved
2.	W. H.	27	Nodular	5½ yr.	Moderate	3 mo.	3	Unimproved
3.	L. C.	28	Mixed	5½ yr.	Moderate	2 mo.	3	Unimproved
4.	T.	41	Nodular	6 yr.	Advanced	10 mo.	3	Unimproved
5.	A. A.	34	Nodular	1 yr.	Moderate	3 mo.	3	Slight imp.
6.	L. Y.	27	Mac. anes.	3½ yr.	Moderate	5 mo.	3	Unimproved
7.	M.	24	Mixed	3 yr.	Moderate	8 mo.	3.5	Slight imp.
8.	G. H.	33	Nodular	3 yr.	Moderate	8 mo.	3	Unimproved
9.	D.	37	Nodular	10 yr.	Advanced	12 mo.	3	Worse
10.	S.	27	Nodular	5 yr.	Advanced	18 mo.	4	Worse
11.	W. K.	24	Mixed	2 yr.	Moderate	17 mo.	4	Much imp.
12.	Y. S.	45	Nodular	13 yr.	Advanced	9 mo.	3.5	Unimproved
13.	T. L.	36	Mixed	4½ yr.	Moderate	2½ mo.	3	Unimproved
14.	S. A.	53	Nodular	5 yr.	Advanced	13 mo.	3.5	Worse
15.	J. F.	15	Mixed	2 yr.+	Advanced	5 mo.	1	Died during treatment unimp.
16.	E. L. B.	71	Nodular	12 yr.	Moderate	11 mo.	4	Died, pneumonia unimproved
17.	F. W.	19	Mac. anes..	3 yr.	Moderate	14 mo.	3.5	Slight imp.
18.	G.	22	Mac. anes.	2 mo.	Mild	3 mo.	4	Absconded, unimp.
19.	J.	29	Mac. anes.	6 mo.	Mild	2½ mo.	3.5	Absconded, unimp.
20.	E.	47	Mac. anes.	6 mo.	Mild	8 mo.	4	Unimproved
21.	M.	45	Mac. anes.	2 yr.	Moderate	4 mo.	3.5	Much imp.

We employed chiefly the ethyl esters of the total fatty acids of chaulmoogra oil in our treatment. The injections were made intragluteally at weekly intervals, and the dosage was varied according to the weight of the patient and the amount of local and constitutional reaction after the preceding injection. The injections were not supplemented by chaulmoogra oil orally, or by the combination of iodin with the drug.

Laboratory investigations of the chemotherapeutics of chaulmoogra oil and its derivatives, which are being conducted by one of us simultaneously with the treatment of these patients, disclosed that two other esters, the butyl and propyl esters, produced much less local reaction and pain than the ethyl esters or any of a large series of derivatives prepared and tested. Therefore, these two new esters were substituted for the ethyl ester in the later treatment of our patients, and two lepers were treated exclusively with these esters. The clinical results confirmed the relative absence of local reaction obtained in the animal tests, and the therapeutic action appeared to be as good as that obtained with the ethyl esters.

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[27] Power and Gornall: J. Chem. Soc. **85**: 851, 1904; Power and Lees: Ibid. **137**: 349, 1905. Power and Barrowcliff: Ibid., 884. Barrowcliff and Power: Ibid. **91**: 557, 1907. Power, F. B.: Am. J. Pharmacol. **87**: 493, 1915.

These twenty-one patients were under treatment for a period of from three to eighteen months, with an average of eight months. Of these patients, a boy, aged 15 years, with advanced leprosy, died of the disease; one man, aged 71, died of pneumonia-leprosy unimproved; three patients in advanced stages became definitely worse; nine showed no improvement; two patients with cases of moderate severity were markedly improved; three with cases of moderate severity were slightly improved, and two patients with the disease in an early stage absconded after three months' treatment.

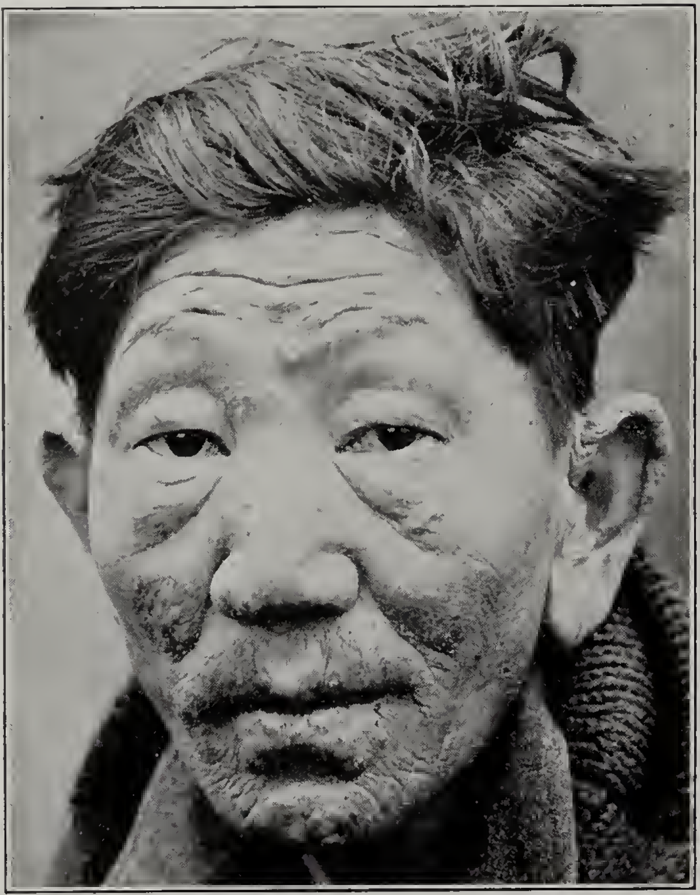
Fig. 1 (Case 8).—No improvement after eight months' treatment.

None of these patients became bacteriologically negative during treatment; but the nasal discharge in one case (Case 11) became negative after more than a year of treatment. The accompanying table, case reports and reproductions of photographs illustrate the results obtained.

TREATMENT AT KALIHI AND AT MOLOKAI

In consequence of the slow progress of most of these cases after treatment for fifteen months, it was decided to check up our results by a personal study of the treatment of lepers with the ethyl esters of chaulmoogric acids in the Hawaiian Islands. During December, 1921, one of us had the opportunity to see all the patients at Kalihi Hospital, Honolulu, and practically all the patients at the Molokai Leper Settlement.

There are 176 patients with lepra at Kalihi under the supervision of Dr. H. E. Hasseltine of the United States Public Health Service. These patients present all types of leprosy, from the earliest forms of maculo-anesthetic to advanced nodular. On account of all the very early cases of lepra in the Territory of Hawaii being segregated in Kalihi, that hospital is an ideal place for experimentation with the derivatives of chaulmoogra oil.

The various preparations used in treatment are made at the University of Hawaii under the supervision of Dr. A. L. Dean. At present, both at Kalihi and at Molokai, the preparations are used without the addition of iodin. The injections are given once a week, and until recently all injections were given into the buttock. Since the early part of January, 1922, Dr. Hasseltine has been giving a few patients small doses of the ethyl esters intravenously every few days. The latter method has the advantage of being painless.

Between 1918 and July, 1921, 150 patients were paroled from Kalihi; of this number, ten at least have died; a few have gone to other parts of the islands, and twenty (8 per cent.) have returned to Kalihi for further treatment as the result of recurrence of active symptoms of leprosy. It is likely that more of the paroled patients will show activity of the disease and will need further treatment.

The present system of paroling patients and giving them weekly injections of the ethyl esters for a further period of two years is a good one. It allows the patients to work, and with the continued medication there will be fewer recurrences, and many more patients are likely to be permanently cured.

During the six months previous to January, 1922, there were but six patients paroled. This small number of paroles indicates that the present authorities are using greater caution to prevent the discharge of arrested cases which are later liable to show exacerbations of leprosy. There are many patients with an advanced stage of leprosy at Kalihi, probably fifty of whom are incurable with our present method of treatment, and many of these should be sent to Molokai.

The settlement of Molokai contains 452 patients, and during 1921 more than 300 received treatment with the ethyl esters. As no patients with leprosy have been sent to Molokai since 1919, it is quite evident that very few early cases are to be seen there, and of the 300 receiving treatment, few, if any, show indications of an early parole. Dr. William Goodhue, the physician in charge of Molokai Settlement, is conscientious in giving the injections, and hopes to see many of the milder cases cured.

From conversation with Dr. Heiser, Dr. Trotter and many others who have had extensive experience in the treatment of leprosy, it seems to be the unanimous opinion that the present treatment with the esters is by far the best of any chaulmoogra oil treatments so far advanced. From bacteriologic studies and from clinical symptoms, it seems probable that the present system of treatment will cure the early cases, especially in young subjects. The advanced cases certainly improve in time, and it is possible that many of these will be cured after years of treatment. Some of the advanced cases show little or no improvement after many months of treatment, and a very small percentage seem to do poorly under treatment.

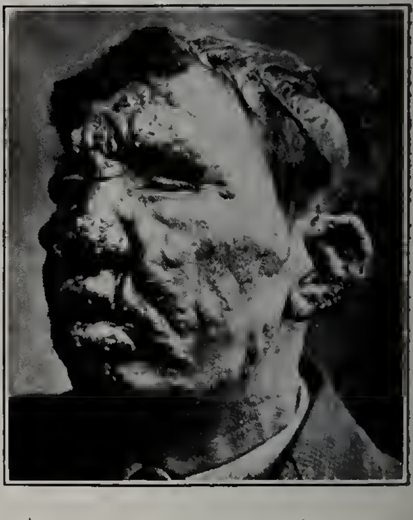
Fig. 2 (Case 9).—Lesions more extensive after twelve months' treatment.

In our cases of leprosy treated in San Francisco, the discouraging results are undoubtedly due to the age of many of the patients and the advanced stage of leprosy in most of them. In the few early cases we have treated, we are satisfied that the present remedy is of great value, and from statistics gathered we are also of the opinion that the injections must be kept up for at least three years in the milder cases and much longer in the advanced ones.

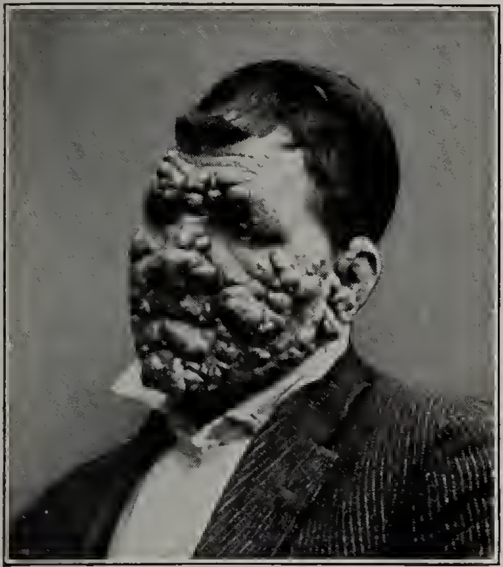

Fig. 3 (Case 10).—Appearance of patient before treatment.

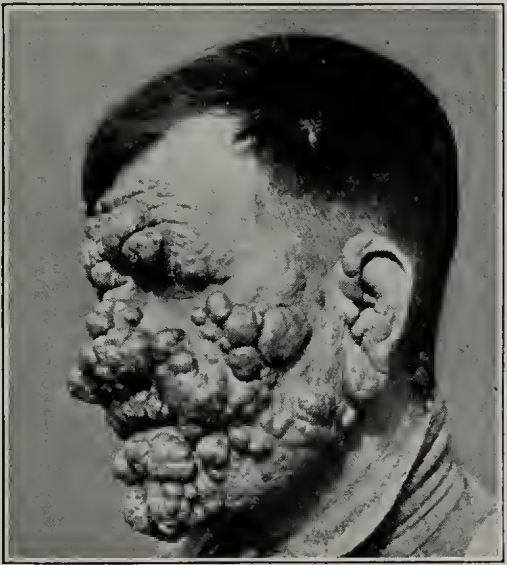

Fig. 4 (Case 10).—After eighteen months' treatment: lesions somewhat larger.

Isolation of all advanced cases of leprosy in one leprosarium in Louisiana is an excellent plan. Under government control and supervision these patients will receive much better treatment than when they were scattered in isolated county hospitals throughout the United States. We shall watch with much interest the results of treatment in this national leprosarium, and particularly the effect of further treatment in our individual cases.

REPORT OF CASES

Case 1.—F. C., a man, aged 22, born in China, who had leprosy of the nodular type, of six months' duration, was treated three months with an average dosage of 3 c.c. There were large nodules on the brow, and many small nodules on the cheeks, neck, chin and ears. There was marked tumefaction of the lobes of the ears. The trunk was normal except for a few pigmented macular areas on the back. There were a few similar areas on the forearms and arms, and many miliary semiconfluent nodular areas around the wrists. Tumefaction and pigmentation of the hands were well marked. There was no muscle atrophy. Compulsory treatment was discontinued after three months. The leprosy was unimproved.

Case 2.—W. H., a man, aged 27, born in Canton, China, had leprosy of the nodular type, of five and one-half years' duration. Treatment was given for three months with an average dosage of 3 c.c. There were alopecia and tumefaction of the brows; semiconfluent and confluent nodules on the nose, cheeks, chin and ears; diffuse, ill-defined, macular mottling over the shoulders, arms and forearms, and tumefaction of the backs of the hands. There was no muscle atrophy or sensory changes. Compulsory treatment was discontinued after three months. The leprosy was unimproved.

Case 3.—L. C., a man, aged 28, born in China, had leprosy of the mixed type of five and one-half years' duration. The symptoms began six months before entrance. The patient was under treatment for a period of two months, with an average dosage of 3 c.c. There was diffuse but not marked thickening of the forehead, brows, nose and cheeks. The ears were enlarged, especially in the lobes. There was a geographic macular eruption on the neck; a coin-sized, well defined macular eruption on the trunk, anterior and posterior; diffuse macular areas on the arms and forearms; multiple, miliary nodules on the wrists, and tumefaction of the hands; a diffuse, leprous thickening of the right palm. The ulnar nerves were moderately enlarged; there was thenar and hypothenar atrophy, especially of the right hand. There were confluent nodules over the right elbow tip simulating xanthoma. There were geographic areas on each thigh, and nodules on the right buttocks. The patient took treatment under compulsion, and discontinued it after two months. No improvement was noted.

Case 4.—T., a man, aged 41, born in Greece, had leprosy of the nodular type, of five years' duration. The patient was under treatment for a period of ten months. The average dosage was 3 c.c. each week. There was worm eaten alopecia of the scalp of six years' duration, simulating syphilis. The eyes were normal; the trunk, thighs and arms clear; the cheeks shiny and red, with many telangiectases and comedones. Small nodules and stains were scattered over the face. The brows and lashes were gone. The ears were enlarged and wrinkled. The hands and forearms were nodular. There was passive congestion in the hands; the normal lines of the palms were accentuated. On the legs, around the knees, were deep, dark scars. There were ulcers on each calf. There were nodules and hyperkeratosis of the soles. The condition in March, 1922, was more advanced.

Case 5.—A. A., a man, aged 34, born in India, had leprosy of the nodular type, of one year's duration. Treatment was given for three months. The average dosage was 3 c.c. There was alopecia of the brows. There was thickening with scattered small nodules over the face, cheeks and chin. The nose was broadened and flattened. The trunk was practically clear. There was marked tumefaction of the hands and feet, and considerable ulceration and secondary infection on the feet. In March, 1922, all the areas were slightly improved. The patient's general health was improved.

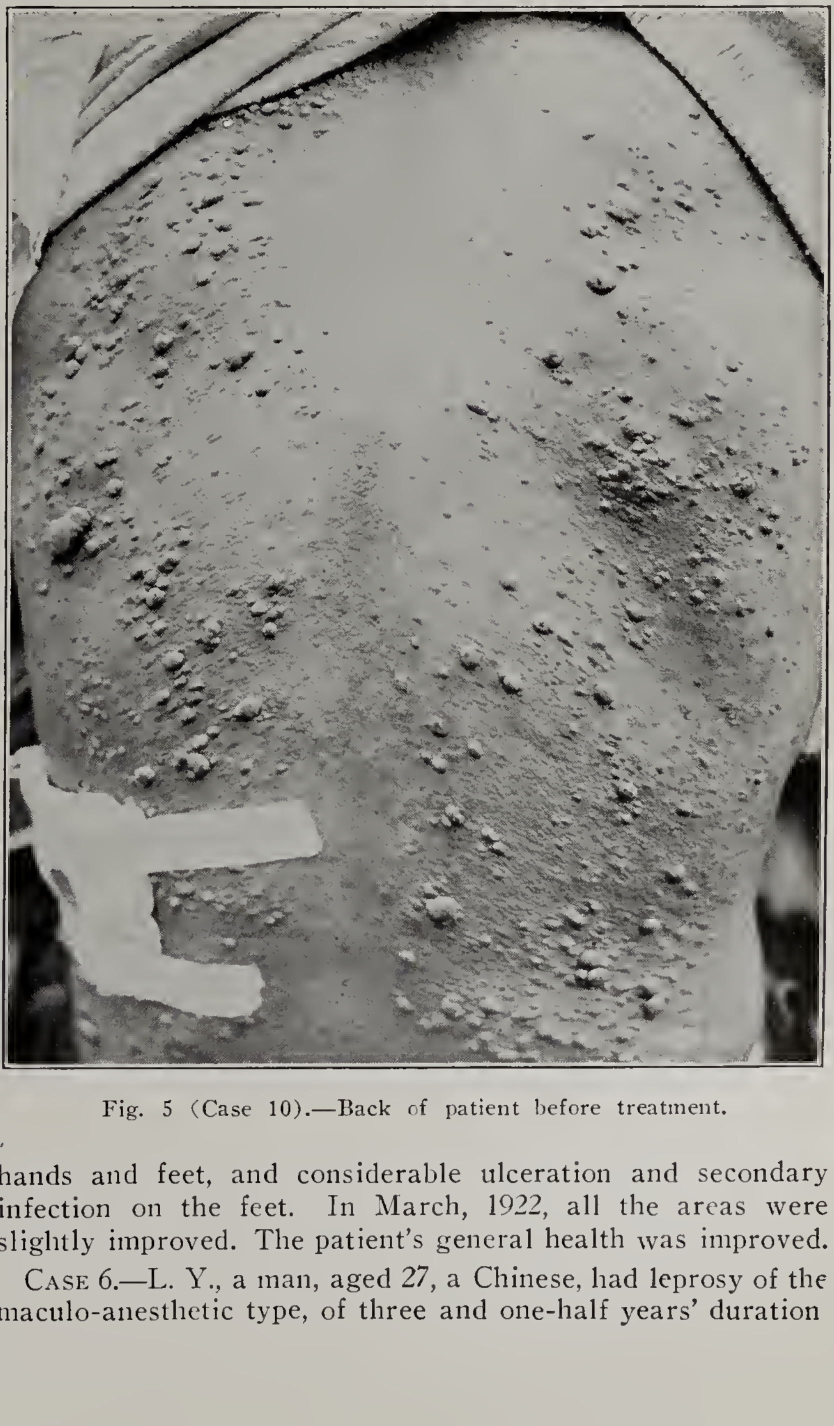

Fig. 5 (Case 10).—Back of patient before treatment.

Case 6.—L. Y., a man, aged 27, a Chinese, had leprosy of the maculo-anesthetic type, of three and one-half years' duration

The patient was under treatment for a period of five months. The average dosage was 3 c.c. The brows, nose and ears were normal. There were confluent and diffuse macules on the face and neck. A few chicken-egg sized anesthetic rings were noted on the chest. The hands were distinctly claw-shaped, and all the muscles were atrophied. The arms and thighs were covered with diffuse, anesthetic, geographic areas. Compulsory treatment was discontinued after five months, with the leprosy unimproved.

Case 7.—M., a man, aged 24, born in Hawaii, with leprosy of the mixed type, of three years' duration, was given treatment eight months. The average dosage was 3.5 c.c. There were about a dozen discrete and comparatively flat nodules on the forehead, cheeks and chin, confluent on the right cheek. There was faint tumefaction of the ears. There was a diffuse, confluent and semiconfluent macular eruption on the trunk and thighs. Tumefaction was noted on the backs of both hands. A few small nodules were located on the wrists and forearms. There was no disturbed sensation or muscular atrophy. Compulsory treatment was discontinued after eight months. The nodules on the face were smaller. The macular areas on the body were less distinct.

Case 8.—G. H., a man, aged 33, a Japanese, with leprosy of the nodular type, of three years' duration, received treatment for eight months. The average dosage was 3 c.c. There were about two dozen small, flat nodules on the cheeks, lips and chin. The ears were large, nodular and pendulous. There was a faint, miliary, papular rash over the trunk and thighs. There was tumefaction over the back of the hands. The palms were dry, the normal lines increased. After eight months' treatment, the patient complained of general malaise and severe pains all over the body a few hours after each injection. The injections were discontinued. The leprosy was unimproved.

Case 9.—D., a man, aged 37, an American, with leprosy of the nodular type, of ten years' duration, was given treatment for twelve months. The average dosage was 3 c.c. There were discrete and confluent nodules over the entire face. The nose and ears were ulcerated. There was total alopecia of the brows. The patient was blind in both eyes. There was a diffuse, lichenoid, leprous dermatitis from the scapulae to the buttocks. A similar condition existed on the buttocks, with scattered nodules throughout. There were crenated skin and lichenoid dermatitis on the thighs. A diffuse and marked tumefaction was present on the backs of the hands and fingers. In March, 1922, the condition of the lesions was more advanced.

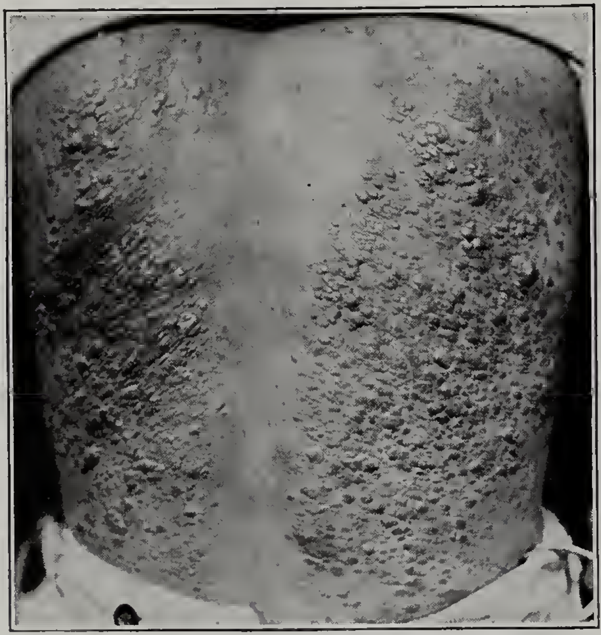

Fig. 6 (Case 10).—After eighteen months' treatment: individual lesions smaller, but much more numerous.

Case 10.—S., a man, aged 27, a Portuguese, with leprosy of the nodular type, of five years' duration, was treated eighteen months. The average dosage was 4 c.c. Nodules from the size of a pea to that of a pigeon's egg covered the face. Some lesions were almost pendulous. A few ill-defined nodules were on the tongue and hard palate. There were semipendulous and semiconfluent nodules over the hands and forearms, small nodules over the palms, and scattered pea to lima bean sized semipendulous nodules over the trunk. There was no muscle atrophy. In March, 1922, the lesions were somewhat larger and more extensive.

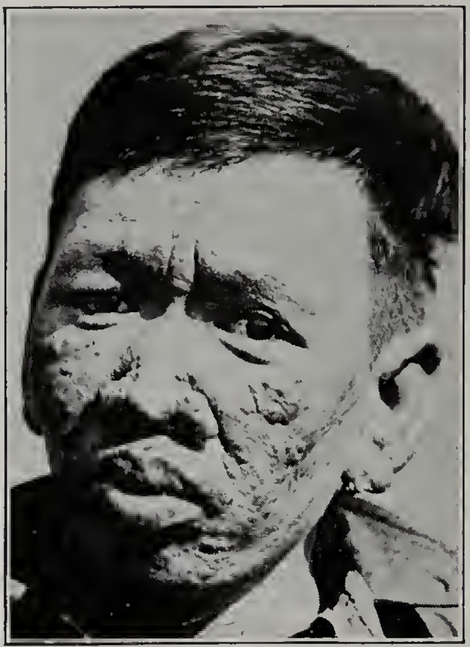

Fig. 7 (Case 11).—Before treatment.

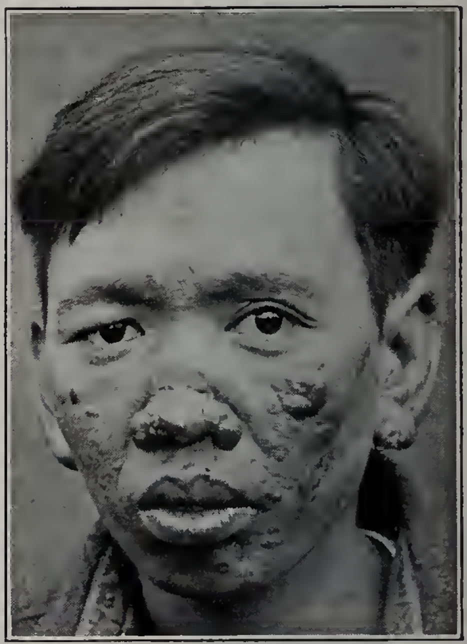

Fig. 8 (Case 11).—After seventeen months' treatment: most of nodules remaining are fibrous.

Case 11.—W. K., a man, aged 24, with leprosy of the mixed type, of two years' duration, was treated seventeen months. The average dosage was 4 c.c. Pea-sized nodules were scattered over the forehead, cheeks, nose and ears. Some areas were soft, and some fibrous. A few small nodules were scattered on the forearms. There were geographic, cyanotic macules on the trunk, a chronic lichenoid leprid of the thighs, and solid edema of the backs of the hands. The ulnar nerves were enlarged. There was contracture of the little and ring fingers. The nasal secretions contained many lepra bacilli. These disappeared after one year's treatment. In March, 1922, many nodules had disappeared, leaving pigmentation. The remaining nodules were fibrous and apparently inactive.

Case 12.—Y. S., a man, aged 45 years, a Chinese, with leprosy of the nodular type, of thirteen years' duration, was treated nine months. The average dosage was 3.5 c.c. There were confluent, pea-sized, subcutaneous nodules over the entire face. The nose was flattened and partially destroyed. There were ulcerations on the nose, lips and cheeks. There was almost complete alopecia of the brows. The skin of the trunk was dry and scaly, with hyperpigmentation over the lower back. There was edema of the backs of the hands and the feet. Compulsory treatment was discontinued after nine months. The leprosy was unimproved.

Case 13.—T. L., a man, aged 36, a Chinese, with leprosy of the mixed type, of four and one-half years' duration, was treated two and one-half months. The average dosage was 3 c.c. A few faint, indistinct nodules were seen on the upper lids. There was considerable atrophy of the skin of the face, apparently the result of the absorption of leprous lesions. Small cutaneous and subcutaneous nodules were grouped on both forearms. There were pigmentation and crenated skin on the backs of the hands, and contracture and atrophy of all the fingers on the right hand, associated with marked anesthesia. There was very little contracture or atrophy of the left hand. The condition, after two and one-half months of compulsory treatment, was unimproved.

Case 14.—S. A., a man, aged 53, an American, who had contracted the nodular type of the disease in the Philippines, five years before, was given treatment thirteen months. The average dosage was 3.5 c.c. The forehead was wrinkled and hypertrophied. There were about two dozen small nodules on the cheeks, chin and lips. The left eye had been removed two and one-half years before because of corneal involvement. The entire right eye was blurred; the pupil was irregular from synechiae. The entire body had a faint, wrinkled, pigmented, scaly appearance. The condition of the hands was similar, but more advanced. Very little, if any, atrophy was present. In March, 1922, the patient was totally blind. The nodules on the face were larger. The general health of the patient was very poor.

Case 15.—J. F., a boy, aged 15 years, a German, born in Honolulu, with leprosy of the mixed type, of probably two years' duration, was treated five months. The average dosage was 1 c.c. The patient weighed 50 pounds (22.7 kg.). There was total alopecia of the brows. The nose, ears, lips, cheeks and chin had been partially destroyed by ulcerating nodules. There were dry, faint, mottled and macular areas over the trunk and the extremities. There were tumefaction of the backs of the hands and contracture of the little fingers on both hands. The patient's general condition was much improved after two months' treatment; it became gradually worse, however, and he died of the disease after five months' treatment.

Case 16.—E. L. B., a man, aged 71 years, an American with leprosy of the nodular type, of twelve years' duration, was treated eleven months. The average dosage was 4 c.c. The patient was blind in both eyes. The skin on the face was atrophic from absorption of nodules. There was a diffuse, leprous, lichenoid dermatitis over the back, abdomen and the sides of the body; a faint, diffuse, gyrate mottling over the chest and the thighs and crenated skin on the forearms. The backs of the hands were dry, wrinkled, crenated and bluish. There was no muscle atrophy. The patient died of pneumonia after eleven months of treatment, with the leprosy unimproved.

Case 17.—F. W., a man, aged 19, a Chinese, with leprosy of the maculo-anesthetic type, of three years' duration, was treated fourteen months. The average dosage was 3.5 c.c. There was elephantiasis of the upper and the lower lip. On the face, neck and upper part of the back there were faint, ill-defined, macular areas. The toes and fingers were markedly contracted with considerable atrophy. Both ulnar nerves were definitely enlarged and nodular. The hands and areas on the forearms were anesthetic. In March, 1922, the macular areas were disappearing; otherwise the condition was unchanged.

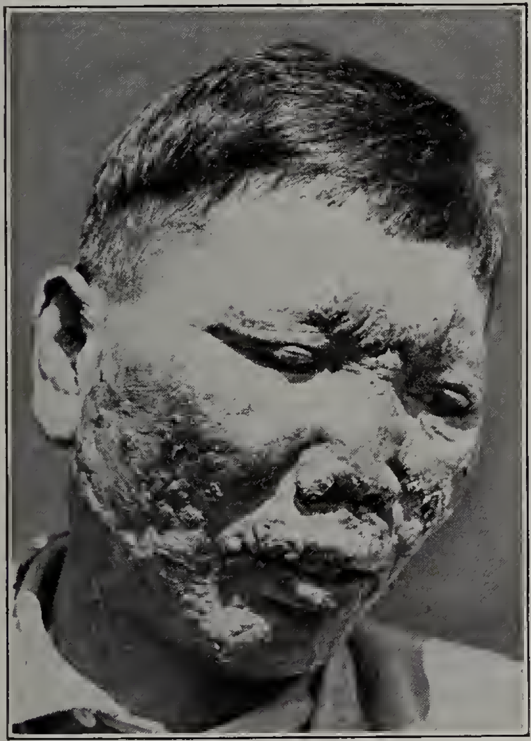

Fig. 9 (Case 12).—No improvement after nine months' treatment.

Case 18.—G., a man, aged 22, born in the Philippines, with leprosy of the nerve type, of two months' duration, was treated for three months. The average dosage was 4 c.c. each week. The right ulnar nerve was about the size of a little finger. The right little finger was contracted. The side of the wrist and palm innervated by the ulnar nerve showed a brownish pigmentation with accentuation of the normal lines. This entire area was anesthetic. The patient absconded after three months' treatment with the leprosy unimproved.

Case 19.—J., a man, aged 29, born in the Philippines, with leprosy of the nerve type, of six months' duration, was treated two and one-half months. The average dosage was 3.5 c.c. each week. Hyperpigmented and depigmented areas were scattered over the body. Half a dozen dollar sized rings were scattered over the buttocks and the back. There was slight tumefaction of the backs of the hands, with an accentuation of the normal markings on the palms. A similar condition prevailed on the soles. There were small ulcers on the great toes. The patient absconded after three and one-half months' treatment, with the leprosy unimproved.

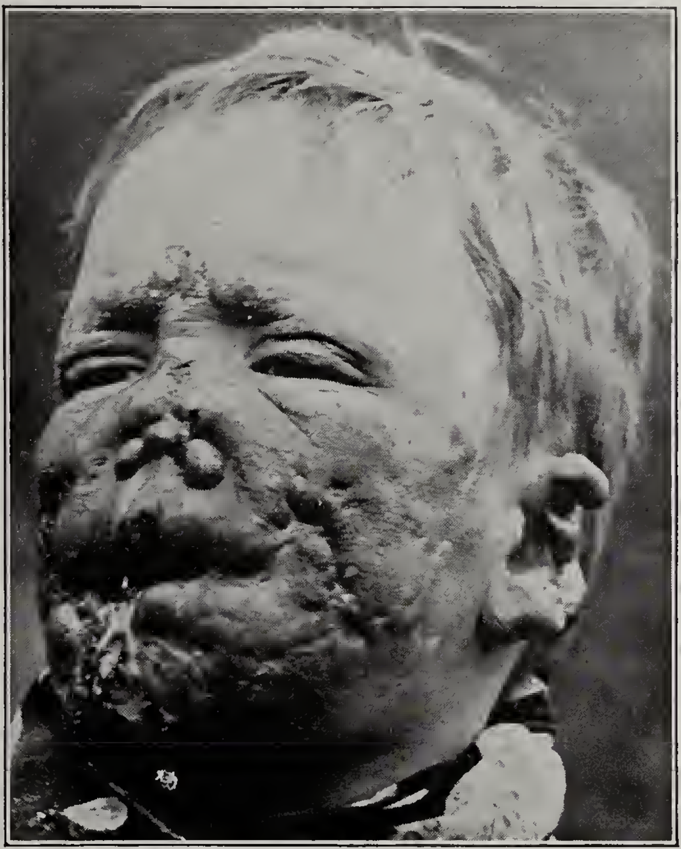

Fig. 10 (Case 15).—Boy, aged 15, died of disease after five months' treatment.

Case 20.—E., a man, aged 47, an American, with leprosy of the maculo-anesthetic type, had spent some time in Brazil sixteen years before. The duration of the symptoms was six months; the duration of treatment, eight months. The average dosage was 4 c.c. A palm-sized fawn-colored, anesthetic macular area was situated just above the left internal malleolus. After seven months' treatment, erythematous macular anesthetic areas appeared on the upper lip and the right cheek. A few months after beginning treatment, the area on the leg was barely visible; at present, however, it is about the same as at the time when the patient was first seen. After eight months of treatment, he complained of general malaise with pains in the muscles and joints that were so severe that they prevented him from working. Treatment was discontinued for two months.

Case 21.—M., a man, aged 45, an Englishman, probably contracted the disease in South Africa. The duration of symptoms was two years. The disease was of the maculo-anesthetic type. He was under treatment for a period of four months. The average dosage was 3.5 c.c. Erythematous, macular areas were situated on the left chin, left temple and left ear. The left posterior lumbar region was covered with an extensive, erythematous, macular eruption. There was a small macular area on the right anterior wrist. The macular areas were all anesthetic to pin pricks, heat and cold. After one month's treatment, the areas on the back and wrist became pigmented, and sensation began to return. At present, after four months' treatment, the pigmented areas are fading, and the skin is returning to its normal state. The areas on the face are involuting more slowly. There is general malaise, with pains in the joints and muscles of such severity that the patient is confined to bed for three or four days after each injection. Treatments were discontinued for three or four weeks. The patient was given sodium cacodylate injections during this rest period.

135 Stockton Street.

ABSTRACT OF DISCUSSION

Dr. William T. Corlett, Cleveland: The paper is fair and comprehensive. Its conclusions, however, may be a little too optimistic; but optimism, next to the actual curative agent, is the stimulus that the leper needs. Since the parole system was adopted in the Hawaiian Islands in 1918 or 1919, the leper himself has received a new lease of life. That the community is more endangered is another question. He has felt that it is possible for him to become rid of the malady, which is a valuable curative asset in any disease. As to the treatment of leprosy with the ethyl esters: So far as I can ascertain, they bring out no beneficial properties not possessed by the old chaulmoogra oil itself—when the patient can take chaulmoogra oil. But the crude oil is often irritating to the stomach, and many patients cannot take it. In such instances the intramuscular, or better, the intravenous, administration of the ethyl esters is a decided advantage. The separation of the ethyl esters made available in 1904, or soon after, must be, therefore, considered a step in advance. A few weeks ago when I left Honolulu, Dr. Hasseltine, the marine and public health officer, was giving, when possible, the ethyl esters intravenously, and this to my mind will prove to be the future treatment for leprosy. The use of the ethyl esters intramuscularly, into the buttocks, is painful, much more so than the same method of giving mercury. Even when patients are willing to submit to it, there are disadvantages. I recall two cases in which extensive abscesses followed this procedure, while the introduction into the veins is painless. If the ethyl esters can be rendered sufficiently innocuous to be introduced safely into the veins, it would be the best treatment of leprosy so far as relates to the ethyl esters or the newer derivatives of chaulmoogra oil.

Dr. R. M. Wilson, Korea: I have 800 patients with leprosy under my care. I have trained our lepers to do their medical work and use the microscope, as well as other laboratory work, and I am enthusiastic about chaulmoogra oil. I believe that chaulmoogra oil is as good as the ethyl esters because it contains many things the ethyl esters do not. We have been using chaulmoogra oil, 1 per cent., and for six months we have been using the ethyl esters, but the ethyl esters have not affected the old cases treated by chaulmoogra oil. Either the ethyl esters or chaulmoogra oil in a new case will show quite marked results in six months' time. I think that in the cases shown this morning we could hardly hope to see much improvement, because the cases are so advanced. The great hope is in the younger cases, particularly the children, who respond more readily. We find in some cases that improvement takes place under hypodermic injections before the internal treatment is effective. In our institution we have the industrial work pretty well established; these patients do brick and tile work, and they prefer to take the capsules internally and that seems to hold them in check. Many cases are not entirely healed, but they are held in check. I have 300 patients on the ethyl esters in Peking and 200 on chaulmoogra oil, and hope to report in a year's time which gives the best results. These lepers come in literally crawling in the dust, feeling that they are dead dogs, and then when they come to realize that we can do something for them they are the happiest group you can find. I am very enthusiastic about the ethyl esters, and believe there is no doubt that we can get splendid results in the early cases.

Dr. I. L. McGlasson, San Antonio, Texas: In San Antonio we have about thirty cases of leprosy, not that number under treatment, but that is about the number we have proved. This paper is a wonderful article on the class they have attempted to treat, but I believe that the problem in leprosy is the same as in tuberculosis and cancer—there are cases we cannot touch. I think that it is unfair to draw conclusions from the old and hopeless cases. It is the early case in which we can do the most good. I am going to advance another opinion, and that is that many cases are not recognized. They occur not in the poorer class but in the better classes, and yet they are lepers. The class in which we get the best results, in my experience, consists of early cases, when the patients are in fine shape physically and mentally. I think the point is well taken by Dr. Corlett as to the time when they will return. A certain percentage will recur, which indicates that we have stopped treatment early. We have no means of knowing when they can be discharged as cured and when they can stop treatment. Whether this is the best treatment or not, we are on the right track to get a treatment which can offer something if we get the cases in time. My experience is that in the + and ++ Wassermann reactions that cannot be substantiated clinically, if one will investigate the nose and the skin, one will probably find some evidence of leprosy. Let us keep an open mind on this. The cases in California were far advanced, and it would take a long time before they could be influenced by the ethyl esters or chaulmoogra oil; but in the early cases I am sure that a great deal can be accomplished, and many patients cured.

Dr. Ernest D. Chipman, San Francisco: The cases reported were old, but I know from personal conversation with Dr. Morrow that they have taken the cases as they found them, and that they thoroughly believe in the efficacy of the treatment in early cases. Dr. Corlett, and I think Dr. Wilson also, expressed the view that a very important feature in leprosy is the moral effect produced by the introduction of a treatment that gives the patients some hope. I have had an opportunity of visiting the hospitals in Honolulu twice during the last few years, and have been much impressed with the apparent happiness with which patients faced their hospitalization. Whereas in former times they made every effort to conceal the disease, they now come voluntarily for treatment.

Dr. Floyd Stewart, St. Louis: I had the pleasure of treating many of these patients with Dr. Isadore Dyer of New Orleans. Dr. Dyer first began using potassium chlorate, sodium salicylate and strychnin. He reported a case as a probable cure because all the lesions cleared up. The patient was dismissed from the Charity Hospital outclinic, and was not taken to the leper colony. At that time it was purely voluntary; there were no laws to transport these people, and this patient, a negro, returned to work; but in about eighteen months he came back for further treatment. At that time Dr. Dyer took up another treatment, called the "antivenin" treatment. He purchased this serum from the Calmette Laboratory at Lille, France, and it gave remarkably good results at first. Following this case we had several that showed improvement for a certain length of time, and then retrogressed. Dr. Dyer discussed the use of the antivenin serum, not on account of the cost, which he had defrayed himself, but because of the poor final results. Then he took up this new treatment with chaulmoogra oil. He was rather enthusiastic about the results he was obtaining. I hope that Dr. Morrow's results are encouraging enough for him to persist in treating these cases, and that he will succeed in curing the mild cases at least, for it is quite evident that when physicians and patients are enthusiastic about a remedy, better results will be obtained.

Dr. Edward A. Oliver, Chicago: We have had about seven of these cases under treatment in the Cook County Hospital and have been very enthusiastic about the ethyl esters. Six were of the nodular type and one of the maculo-anesthetic type. We first started on chaulmoogra oil, and then when we received the ethyl esters we used them. There was no patient who did not improve, but they were only moderately advanced cases. One patient was a Serbian, and he improved very rapidly, all of the lesions disappearing. One man we have paroled now. Every one of these patients improved mentally, physically and in every other way under the ethyl ester treatment.

Dr. Hiram E. Miller, San Francisco: In presenting this paper we had only hoped to moderate the impression that advanced cases of leprosy were being readily cured by the injection of ethyl esters over a comparatively short length of time. However, I would like to emphasize the fact that we feel that early cases in young persons may be cured with the present methods of treatment.

PHARYNGEAL INSUFFLATION ANESTHESIA *

ALBERT H. MILLER, M.D.
PROVIDENCE, R. I.

In any system of ether administration by inhalation, a percentage of ether vapor is added to the tidal respiratory air and is carried to the pulmonary alveoli during inspiration. On expiration, a part of the ether vapor is expired and wasted, the proportion of waste depending on the point in the respiratory tract to which the ether vapor has been delivered. The points of delivery of the ether vapor in inhalation anesthesia, arranged in order of their efficiency are: the bifurcation of the trachea, as in tracheal insufflation; the oropharynx, as in pharyngeal insufflation, and the nasal and oral orifices, as in the usual methods of anesthesia.

ADVANTAGES OF PHARYNGEAL INSUFFLATION ANESTHESIA

When compared with the delivery of ether vapor to other points in the respiratory tract, pharyngeal insufflation has manifest advantages. The introduction of the pharyngeal tube is a simple matter, takes little time and does not require a deep initial anesthesia. After the introduction of the tube, the surgeon has a clear field for operations on the face, head, neck, chest and upper air passages. No inhaler nor mask covers the mouth and nose. The operation is not hindered by proximity of the anesthetist or of his appliances. The constant flow of air into the pharynx provides for the requirements of respiration, and permits covering the face with sheets and towels without interfering with the respiration.

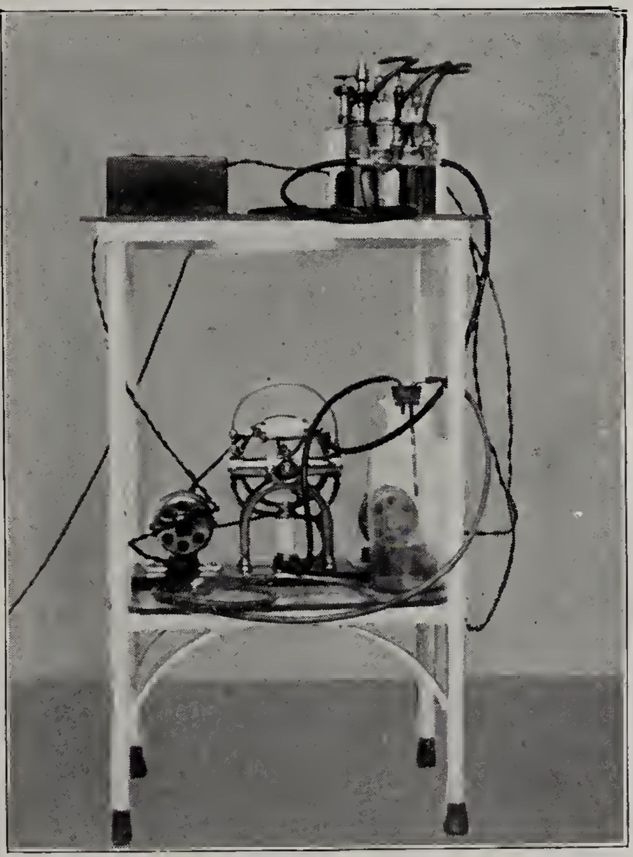

Fig. 1.—Apparatus for pharyngeal insufflation anesthesia. Above, rheostat for controlling speed of motor; constant temperature ether vaporizer. Below, motor and air pump; bottle connected with suction apparatus.

APPARATUS

The essentials for satisfactory pharyngeal insufflation are: an apparatus for delivering a current of air, capable of regulation up to 10 liters per minute; a vaporizer which will mix with the air current a constant percentage of ether vapor and which can be perfectly controlled as to the ether vapor percentage delivered, and nasal and oral tubes for delivering the ether vapor air mixture to the orophraynx.

Means for providing the current of air for pharyngeal insufflation are: an air pump actuated by an electric motor, the speed of which is controlled by a delicate rheostat; or a tank of compressed air controlled by a reducing valve; or a foot pump. If no means for controlling the speed of the electric air pump is provided, the foot pump should be chosen, as the rate of flow of the air can be roughly controlled by the speed at which the foot pump is worked. The object of this apparatus is to keep the air in motion and not to produce positive pressure.

The mixture of ether vapor and air is formed by injecting liquid ether regularly, in small amounts, into the air current; by atomizing or aspirating liquid ether into the air current, or by passing the air current over the surface of liquid ether in a container. In the last of these methods, which is the one most commonly used, the rate of vaporization depends on the temperature of the liquid ether in the container. As evaporation goes on, the liquid ether constantly becomes colder, with resulting diminution in the rate of vaporization and in the anesthetic dosage. If the ether container is placed in a warm water bath of uncertain temperature, the result is uncertain, and may be either an overdose or an underdose of the anesthetic.

The constant temperature ether vaporizer is designed to overcome the uncertainty as to ether dosage resulting from variations in temperature. By means of an electric heater and thermostat, the liquid ether is kept at a constant temperature of 32 C. (90 F.). With a constant current of air passing across the surface of the ether, the percentage of ether vapor with air will also be constant. An arrangement of valves attached to the vaporizer allows the entire current of air, or any fraction of the entire amount, to pass over the liquid ether, the remainder flowing directly through a by-pass. By varying the percentage of the air current which is allowed to pass through the ether chamber, any strength of ether vapor in air, from zero to the capacity of the apparatus, may be obtained, and will be delivered constantly as long as the air current is maintained, the position of the valves is unaltered and ether remains in the container.

The diameter of the ether container is 3 inches (7.5 cm.), and the evaporating surface measures 45.6 square centimeters.

With the thermostat set for 32 C. (90 F.), and the electric air pump delivering 5.13 liters of air per minute, the ether vapor strength is 60 per cent. by weight and 29 per cent. by volume, or 220 millimeters ether vapor tension. The method of computation follows:

Period, ten minutes.

Volume of air, 51.3 liters, by direct measurement.

One liter of air at room temperature, 20 C. (68 F.) weighs 1.205 gm. Weight of air, $51.3 \times 1.205 = 62.8165$ gm.

Weight of ether vaporized, 38.27115 gm., by subtraction from total amount.

Percentage of ether to air by weight, $38.27115 \div 62.8165 = 60$.

Formula for reducing percentage by weight to percentage by volume: $X = \frac{32\,P}{32 + 83(1.00 - P)}$, when X is the percentage by volume expressed as a decimal, and P is the percentage by weight expressed as a decimal.

Substituting 0.60 for P in this equation:

$$X = \frac{32 \times 0.60}{32 + 83(1.00 - 0.60)} = 0.29.$$

Twenty-nine per cent. of $760 = 220$, the ether vapor tension in millimeters of mercury.

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* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

The nasal tube is curved to fit the cheek, with the tip bent to enter the nasal orifice. To the tip is attached a rubber tube about 5 inches (12.5 cm.) long and one-quarter inch (6 mm.) in diameter. The oral tube is bent to fit the cheek, with the tip bent to enter the mouth, and has a similar rubber tube attached. Since a single tube is sufficient, there is no advantage in the use of double tubes. The rubber tip of either the nasal or oral tube reaches to a point in the oropharynx opposite the tonsils.

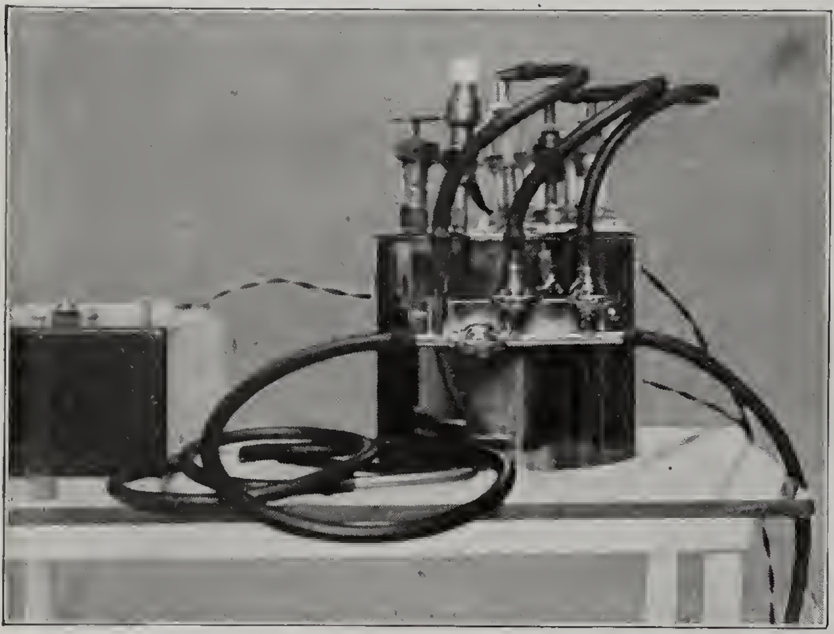

Fig. 2.—Constant temperature ether vaporizer: water-bath kept at a constant temperature by an electric heater and thermostat; Woulfe bottle partly filled with ether; valves mounted on water bath; inlet to right, outlet to left. When all valves are in horizontal position as shown, the air current passes through the by-pass and carries no ether vapor. This starting position cannot readily be mistaken.

TECHNIC OF ADMINISTRATION

Before the anesthesia is begun, the pump is started and set to deliver a current of air of from 6 to 10 liters per minute. If the amount of air delivered is not sufficient to provide for the entire respiratory need, a more concentrated ether vapor will be required to compensate for the dilution of the mixture. Until the introduction of the nasal or oral tube, the entire air current passes through the by-pass and carries no ether vapor. The initial anesthesia is secured in the customary manner and need be only deep enough to permit the introduction of the tube without resistance from the patient. The tube is lubricated and is slipped gently into the nostril or into the mouth over the tongue. The tube may be held in place by a strip of adhesive plaster across the cheek. Whether the nasal or oral tube shall be chosen depends on the nature of the operation to be performed. For operations on the nose or nasal passages, the oral tube is chosen. In most other cases, the nasal tube is used, as it does not readily become dislodged. For the tonsil and adenoid operation, the nasal tube is introduced, and it is removed when the adenoid operation is to be commenced.

After the tube has been introduced, a steadily increasing percentage of the air current is made to pass through the ether chamber until the entire current is passing over the ether. The depth of anesthesia is controlled by regulating, with the valves, the percentage of the air current which is allowed to pass through the ether chamber and not through the by-pass. After studying the patient's reaction to the anesthetic for a few minutes, the anesthetist may move away from the patient. He can judge the depth of anesthesia by the character of the respiration, the state of muscular relaxation, the movements of the extremities, especially of the fingers and toes, and the respiratory reaction on suddenly slightly increasing the ether vapor percentage. As the anesthetist may not be able to control the jaw without interfering with the operation, an artificial air way is introduced, if indicated.

In draping the patient for the operation, interference with the respiration from sheets or towels may be neglected, as the constant current of air entering the pharynx is sufficient for the respiratory need. The operation proceeds without interference due to proximity of the anesthetist or his appliances to the operative field. The principal care of the anesthetist, aside from maintaining the proper depth of anesthesia, is to see that respiration is not mechanically interfered with by the surgeon or assistant.

OBJECTIONS TO PHARYNGEAL INSUFFLATION ANESTHESIA

Theoretical objections which are raised to this form of anesthesia are based on an increased pressure in the pharynx, and the danger of postoperative pulmonary complications due to this increased pressure. The first of these objections can be readily answered by connecting a manometer in series with the tube which joins the vaporizer to the nasal or oral tube. While the apparatus is in use, the manometer registers no pressure whatever except when a lightly anesthetized patient attempts to swallow, when a pressure of 10 or 12 millimeters is momentarily indicated. One having a knowledge of the structure of the pharynx would be able to foretell this result. As the pharynx has five principal openings, it would not be sensible to suppose that an air current entering one of these openings could increase the intrapharyngeal pressure while the four other orifices remained open.

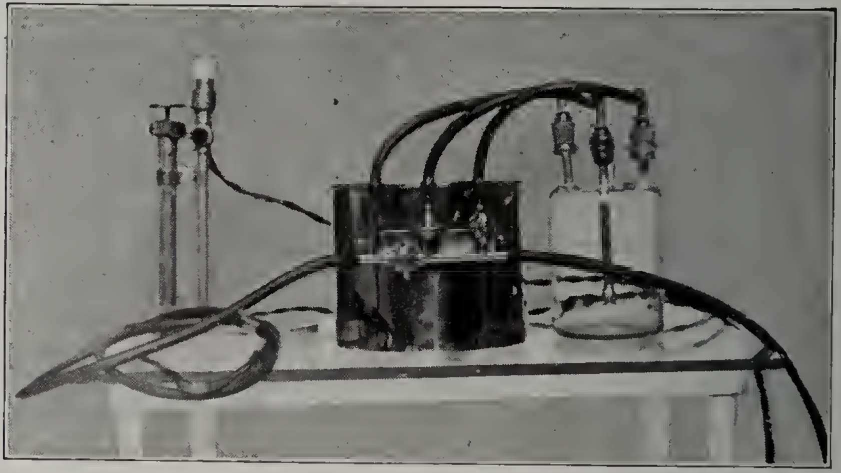

Fig. 3.—Constant temperature ether vaporizer; from left to right: electric heater and thermostat; water-bath; Woulfe bottle; inlet to right, outlet to left; tube in center opening dips into ether. When first and third valves mounted on water-bath are in the vertical position, all of the air current passes through the ether container. When the valve to the left is in the horizontal position and the one on the right is vertical, as shown, less than half of the air current passes through the container. As the left valve is turned from this position to vertical, the percentage of ether vapor is increased. With the left and central valves vertical and the right horizontal, the air current bubbles through the liquid ether and the ether percentage is considerably increased.

To determine the effect of pharyngeal insufflation in producing postoperative pulmonary complications, it is necessary to compare the results in this form of anesthesia with the results of other methods. For this purpose, I have tabulated 1,000 recent consecutive personal cases. These 1,000 operations were followed by twelve pulmonary complications, one case of pulmonary embolism resulting fatally. The percentage of pulmonary complications is 1.2 and the mortality from these complications is 0.1 per cent. Pharyngeal insufflation was used in 188 of these 1,000 cases, with two postoperative pulmonary complications. Both of these patients developed a cough without fever, and both recovered. The percentage of pulmonary complications in these 188 cases was 1.06, with no mortality. This experience is corroborated by the records of institutions which have used pharyngeal insufflation extensively, without any increase in the proportion of pulmonary complications. It is probable that, so far as the anesthetic has any effect in the production of pulmonary complications, these unfortunate results depend on the depth of anesthesia rather than on the method employed, and that, following a light degree of anesthesia, these complications rarely occur.

CASES SUITABLE FOR PHARYNGEAL INSUFFLATION

In the 1,000 cases tabulated, pharyngeal insufflation was employed 188 times, or in 27 per cent. The accompanying table indicates the nature of the operations and the results.

NATURE OF OPERATIONS AND RESULTS

Operation	Number of Cases	Results *
Tonsil and adenoid	112	
Goiter	16	Two died of hyperthyroidism, one in ten hours, one in three days; one developed cough without fever
Nasal septum	11	One developed cough without fever
Breast	9	
Mastoid	8	Two died from meningitis, one in six days, one in thirty-three days
Sinus	4	
Brain	4	
Maxilla	4	
Cervical glands	4	
Kidney	4	
Esophageal diverticulum	2	
Laryngeal tumor	1	
Spinal cord	1	
Tongue	1	
Nose	1	
Ear	1	
Eye	1	
Other operations	4	
Total	188	

* Satisfactory except as noted.

CONCLUSIONS

Pharyngeal insufflation anesthesia is chosen for all of the operations in which the ordinary methods interfere with the work of the surgeon. In these cases, it is essential to efficient surgical work. The apparatus should be carefully chosen and intelligently used. Pulmonary complications following the use of pharyngeal insufflation are not due to the method, occurring with no greater frequency than after other forms of anesthesia.

131 Waterman Street.

ABSTRACT OF DISCUSSION

Dr. Joseph C. Beck, Chicago: Even if the instrument the author recommends is better, I believe the Beck-Mueller apparatus should not be discarded. I find no difficulty of any kind since using the motor-driven apparatus that was perfected by Dr. Mueller. The only thing I cannot agree with is to have the mouth wide open when the anesthetic is given. This anesthesia is not used at all in our clinic since we have adopted synergistic anesthesia. There is a combination of ether, olive oil and paraldehyd, the subcutaneous injection of morphin, ⅛ grain each hour, probably in combination with a 25 per cent. solution of magnesium sulphate. This anesthesia serves for all purposes in our line of work, and only in children have we thus far used anything but this rectal anesthesia, because we have not proved it to our satisfaction. Dr. Herb recommends paregoric instead of morphin. My objection to the motor-driven apparatus is the horrible smell of ether through the house, and the irritation which it causes, and then the noise it makes.

Dr. Edwin McGinnis, Chicago: I want to ask whether in using this motor-driven apparatus you can grade the amount of ether coming out of the end of the tube. The disadvantage of the Beck-Mueller apparatus in laryngeal surgery is that there is too much ether. If in this apparatus the control is better, if it will deliver a reduced amount of ether, I should say that it would be an advantage.

Dr. Albert H. Miller, Providence, R. I.: I would apologize to Dr. Beck for not having shown his very good apparatus, but I announced at the first that the forms of apparatus to be shown were selected only as types. The new apparatus shown does deliver a regular, measured dosage of ether vapor. The dosage can be regulated by varying the percentage of air which is allowed to pass through the ether chamber. The maximum capacity of the apparatus is greater than is usually required. I think that we have in this apparatus an extremely delicate, scientific sort of instrument which will maintain an exact degree of anesthesia for an indefinite period. We have found that in addition to the tonsil and septum operations, cases of goiter, diverticulum of the esophagus, tumor of the larynx, and other difficult cases which are often done under local anesthesia with great discomfort to the patient for lack of such a delicate apparatus, can be done perfectly by means of this apparatus, and for this reason I wish to introduce it.

EXPERIMENTAL STUDIES ON THE ETIOLOGY OF ENCEPHALITIS

REPORT OF FINDINGS IN ONE CASE *

EDWARD C. ROSENOW, M.D.
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It has been my privilege to study the etiology of encephalitis during the past three years through the cooperation of Dr. Shelden and his associates of the Section on Neurology of the Mayo Clinic. From the outset of this study it was considered possible that the disease might be caused by a filtrable virus or by bacteria of more ordinary morphology but with peculiar neurotropic properties. The methods employed were such as to test both possibilities. Altogether, forty cases, representing different clinical types of the disease, have been studied. A large number of animals have been injected; the microscopic study of sections is not yet completed, and other details in the mass of experimental data are awaiting final analysis.

In order to illustrate in general the scope of the work and the results obtained, I shall report at this time in some detail the findings in one case.

Mrs. P. E., aged 53 years, first seen, March 25, 1921, complained chiefly of a nervous breakdown, the symptoms of which began in January, 1921, when, after a period of hard work and worry, she suddenly felt weak and tired, and developed noticeable trembling all over her body. This trembling lasted for about a week, and from that time on she had been either in bed or sitting in a chair most of the time. Her daughter said that her mother had been irrational for some time.

At the time of the first examination she was markedly excited. She had numerous hallucinations, marked anxiety, both motor and psychic restlessness, a rapid pulse, and slight increase in temperature. Physical examination revealed badly

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* From the Division of Experimental Bacteriology, Mayo Foundation.

* Read before the Section on Nervous and Mental Diseases at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

infected teeth, hyperemic mucous membrane in the nasopharynx, and slightly enlarged heart. She could move her legs, although the muscles were very weak. Sensations were apparently normal, except for numbness over the dorsum of the left foot. The knee jerks were normal. The pupillary reflexes and fundi were negative. The urine contained a small amount of albumin and pus. Examinations of the blood, including the Wassermann reaction, were negative.

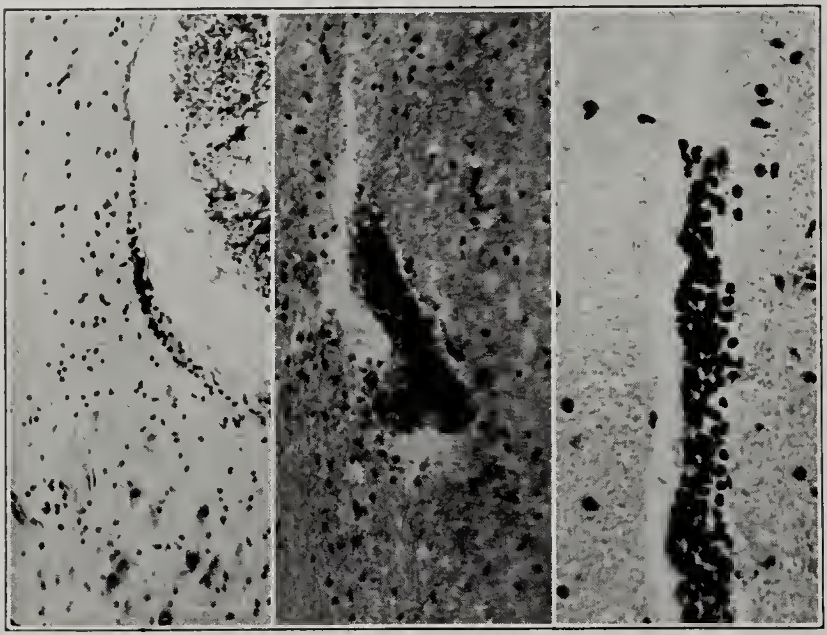

Fig. 1.—Localized adventitial and perivascular round-cell infiltrations in the base of the brain of the patient; hematoxylin and eosin; *a* and *b*, × 100; *c*, × 200.

March 28, the patient was admitted to Stanley Hospital, where she continued to have hallucinations of hearing and sight. She soon became lethargic and stuporous, and developed external ocular palsies and general twitchings of the muscles, especially of the lower extremities and the abdominal wall. During her illness in the hospital the leukocyte counts were 6,900 and 8,100; the hemoglobin was 75 per cent. The Wassermann reactions on the blood and spinal fluid were negative, and the Nonne on the latter was positive. The spinal fluid was clear and contained one lymphocyte. On the ninth day the pulse became very rapid and irregular, and the temperature rose. The patient died rather suddenly in profound coma on the night of the tenth day. One injection of the antiencephalitis serum was given shortly before death without effect.

Necropsy revealed encephalitis, senile atrophy of the ovaries, small cervical polyp, and marked sepsis of upper and lower teeth. The convolutions of the brain stood out prominently and were extensively injected. On section of one half of the brain, a golden raised area measuring 1.5 cm. in diameter was found in the region of the pons; otherwise the brain presented no gross abnormalities. The abdominal viscera, the lungs and the heart disclosed moderate cloudy swelling, but no other changes.

Histologic examination of the kidneys revealed an occasional glomerulus replaced by a hyaline scar, and thickening of Bowman's capsules, with hyaline changes in some of them. The walls of the blood vessels were slightly thickened. Histologic examination of sections of the brain revealed no noteworthy lesions, except those in the basal ganglions. A number of sections from these areas revealed moderate perivascular infiltration, localized adventitial round-cell infiltration of the larger blood vessels (Fig. 1), areas of hemorrhage, usually around the blood vessels, moderate degeneration of the ganglion cells, and neurophagocytosis (Fig. 2). Sections of the golden area, which resembled grossly a resorbing area of hemorrhage, revealed a striking phagocytosis of brownish pigment granules by the nerve ganglion cells (Fig. 3). Prolonged search of sections of the base of the brain, stained by the Giemsa and Gram-Weigert methods, revealed undoubted diplococci varying much in size and shape (Fig. 4 *a*, *b*, *c* and *d*). In some instances large, swollen diplococci seemed to be breaking into a variable number of small forms (Fig. 4 *e*). These were found in the lesions or immediately adjacent to them. In sections of the cerebral cortex and medulla, which showed no changes, the demonstration of micro-organisms was not accomplished.

Cultures of emulsions of the base of the brain yielded a pure growth of the green-producing streptococcus. A similar streptococcus was isolated from the apexes of the infected teeth after death, and from the pyorrhea pockets and the blood during life. Cultures from the blood after death yielded a pure growth of the hemolytic streptococcus. Cultures from the cerebral cortex, the medulla, the cervical cord and the spinal fluid were negative.

EXPERIMENTS

Injections into animals were made with (1) the sediment of the dehemoglobinated blood obtained during life; (2) the pure culture of hemolytic streptococcus obtained from the blood after death; (3) nasopharyngeal washings in salt solution; (4) filtrates of the nasopharyngeal washings; (5) salt solution suspensions of pus aspirated from pyorrhea pockets; (6) cultures from the apical infection of an incisor removed in a sterile manner at necropsy; (7) emulsions and filtrates of the central nervous system; (8) the spinal fluid, and (9) cultures from a lesion in the base of the brain.

The sediment from the dehemoglobinated blood was injected intracerebrally into two rabbits. Both remained well. The culture from the blood after death, which yielded a pure growth of hemolytic streptococcus, was injected intracerebrally into three rabbits, two receiving 0.1 c.c., and one 0.1 c.c. of a 1:10 dilution. All died of meningitis within twenty-four hours, and countless numbers of hemolytic streptococci were found in the turbid spinal fluid.

A suspension in salt solution of the nasopharyngeal washings was injected intracerebally (0.2 c.c.) into one rabbit; the animal died within twenty-four hours. Necropsy revealed a large area of hemorrhage at the point of injection, hemorrhages between the cerebellum and medulla, and slightly turbid spinal fluid. The cultures became contaminated and were lost.

The filtrate of the nasopharyngeal washings was injected intracerebrally (1.5 c.c.) into each of two rabbits. Both remained well. One was chloroformed one week after inoculation, and the findings in the brain and cord were negative. A rabbit inoculated intracerebrally with an emulsion of the brain of this rabbit remained well.

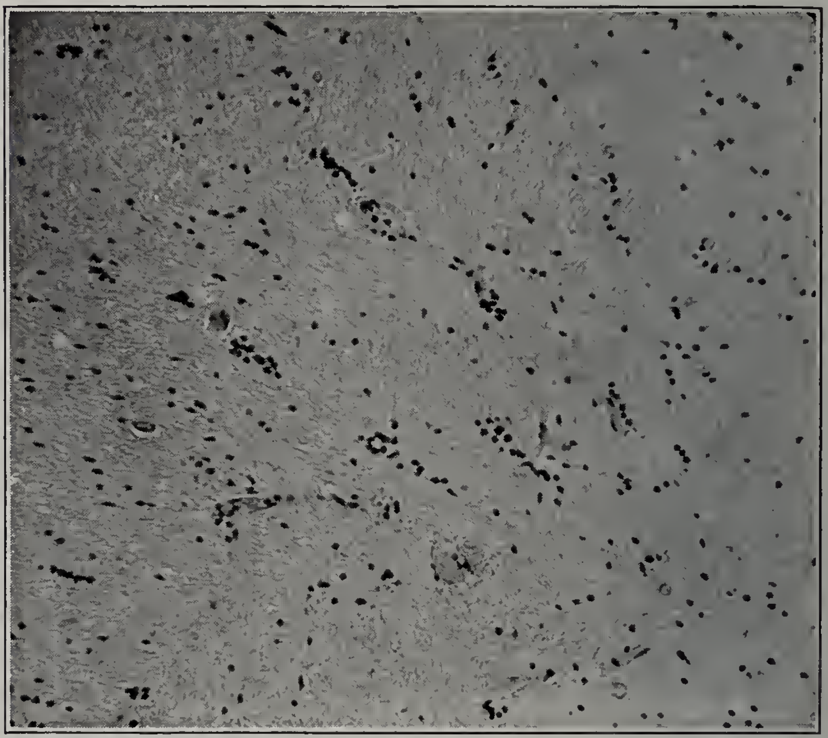

Fig. 2.—Collections of round cells and neurophagocytosis in the pons; hematoxylin and eosin, × 100.

A salt solution suspension of the pus from pyorrhea pockets was injected (0.2 c.c.) into one rabbit. The animal became comatose, developed twitchings of muscles and occasional spasms of the abdominal muscles and extremities, and died twenty-four hours after the injection, apparently from respiratory failure. Cultures from the brain on blood-agar plates yielded countless numbers of colonies of green-producing streptococci. Those from the blood were negative.

One-tenth cubic centimeter of a subculture of the brain of this rabbit in the tenth generation was injected intravenously into one rabbit, which remained well.

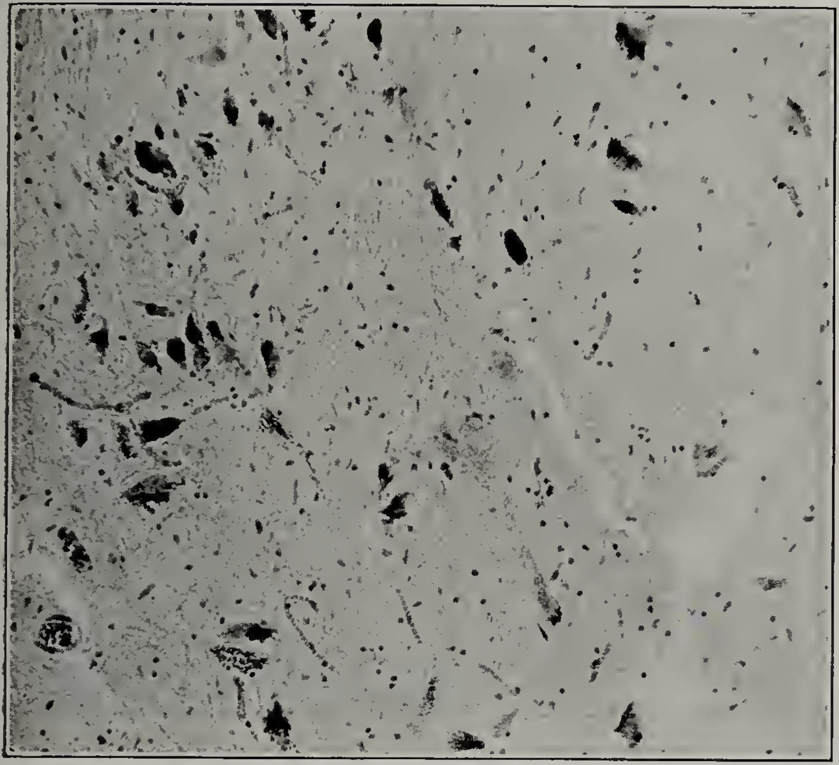

Fig. 3.—Pigmentation of ganglion cells in lesion showing brownish discoloration; hematoxylin and eosin, × 100.

The primary culture in glucose-brain broth from the infected incisor, which on plating yielded many colonies of green-producing streptococci and a few colonies of staphylococci, was injected intracerebrally into two rabbits, one receiving 0.1 c.c., the other 0.1 c.c. of a 1 : 10 dilution. Both died within forty-eight hours. The brain of one yielded a pure culture of the green-producing streptococcus; the brain of the other yielded this organism and a few colonies of staphylococci. Inoculation from a single colony of the green-producing streptococcus of the fresh growth on a blood-agar plate was made into glucose-brain broth. This was rapidly transferred, and a five-hour culture in the tenth culture generation was used to soak a strip of gauze, with which the nose of one rabbit was packed, and to inject intracerebrally one rabbit (R 2523), with 0.1 c.c., of a 1 : 100 dilution. The rabbit whose nose was packed remained well for forty-eight hours, when the pack was removed. On the third day it sat quietly in the cage; respirations were increased; it was irritable and tremulous, and disinclined to hop. On the fourth day it developed ascending paralysis, from which it died. The spinal fluid was turbid; the medulla and the cervical cord contained small hemorrhages; the vessels of the cerebrum were congested, but there were no hemorrhages. There was no exudate surrounding the olfactory lobes. Cultures of the blood were sterile; those from the brain and the spinal cord yielded the streptococcus. Sections of the brain showed marked leukocytic infiltration around the vessels of the meninges, and infiltration of the pia over the base of the brain and the cervical cord. Gram-positive diplococci were found in the lesions, but not elsewhere. The findings in the rabbit injected intracerebrally were as follows:

Rabbit 2523, weighing 1,390 gm., was injected, April 13, 1921. April 14, at 7 a. m., it appeared well; at noon it seemed well, but was somewhat drowsy, and at 2 p. m. it sat quietly as if half asleep. At 9 p. m., it still appeared sleepy, and slightly tremulous in hopping. April 15, at 7 a. m., there was marked tremor of the anterior part of the body; this became worse when the animal hopped. At noon it had developed peculiar motions of the head, synchronous with a vertical nystagmus. At 7 p. m., it sat quietly in the cage; respirations were slow, the left eyelid drooped, and the upper eyelids twitched rhythmically; this was peculiar, as the right eyelid moved quickly downward, the left moved upward, and vice versa. The animal responded slowly to stimuli, and when it hopped a coarse tremor and occasional twitchings of the muscles of the anterior part of the body were noted. April 16, the animal was undoubtedly better, though it was still sleepy, and ataxic in hopping; the peculiar rhythmic movements of the eyelids had disappeared. April 18, the animal was less sleepy and less ataxic. April 20, the lethargic symptoms had become worse. The animal hopped slowly and stiffly, and only when goaded. Response to stimuli was delayed. April 21, at 9 a. m., it sat as if asleep. It could be aroused, but responded slowly, and immediately after being prodded it apparently fell asleep in the characteristic attitude, the head held somewhat forward, the ears erect and in tension, and the eyes half closed. At 11 : 30 a. m., the somnolence was marked. The animal was photographed sitting up, lying on its side, and on its back, sound asleep in each position (Fig. 5). The next day, at 6 : 45 a. m., it sat quietly in the cage, apparently fast asleep. Slight or moderate stimulation failed to arouse it. If it was pushed to one side and lost its balance, it would right itself and assume its characteristic position. When forced to hop, it did so very slowly and immediately went to sleep. At 9 : 30 p. m., the condition was unchanged. April 28, the animal was undoubtedly less lethargic; it responded more promptly to stimuli; its head tilted to the left. April 30, the lethargy had largely disappeared, but the animal held its head markedly to the left. May 5, it appeared wide awake, was alert, and ate normally. The tilting of the head had become more marked, so that it was held in an almost horizonal plane. There was a tendency to fall to the left. May 18, the condition was unchanged. May 20, snuffles developed, and severe infection of the right eye. May 22, the animal was found dead. There were no gross lesions in the brain or the cord. The nostrils contained mucopus. Cultures from the blood and the brain were completely overgrown by a spreading gram-negative bacillus. Sections of the brain showed several areas of round-cell infiltration in the corpus striatum along the blood vessels (Fig. 6), and central portion of the cerebellum near the juncture of the pons. There were no lesions in the choroid plexus, meninges, medulla or cervical cord.

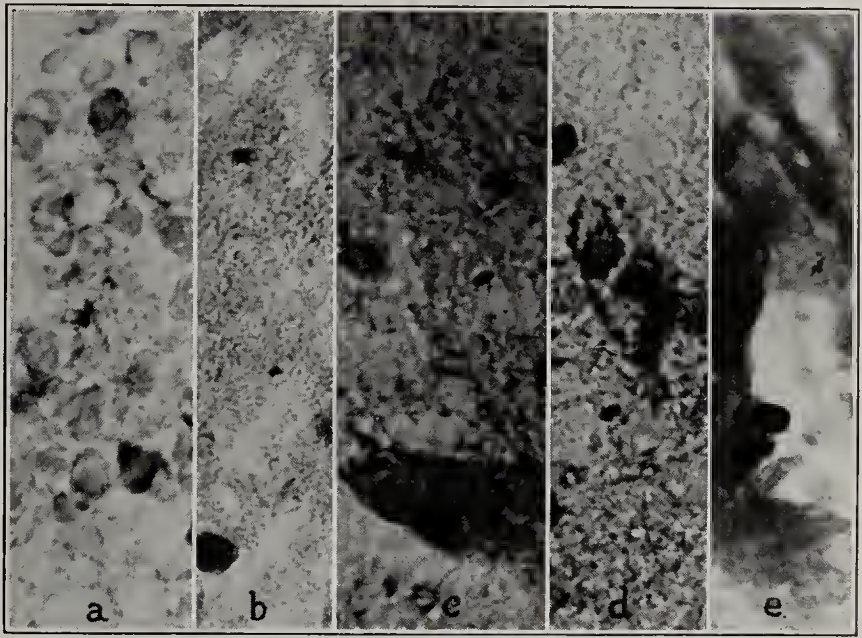

Fig. 4.—Diplococci in lesions in the basal ganglions: *a*, area of hemorrhage in the pons, Gram-Weigert, × 1,000); *b* and *c*, smears from pons after preservation in 50 per cent. glycerol, Giemsa, × 1,000; *d* and *e*, areas adjacent to perivascular infiltration in the pons, Gram-Weigert, × 1,000.

Approximately a 20 per cent. emulsion from the base of the brain and lesion in the pons was injected intracerebrally directly, in doses of 1 c.c., into three rabbits, and 1.5 c.c. into one monkey. Two of the rabbits and the monkey remained well, and sections of the brain and cord eighteen and twenty-one days after injection, respectively, revealed no changes. One rabbit died the eleventh day. No gross lesions were found in the brain or the cord. The peritoneal cavity contained a fine fibrinous film and a moderate quantity of clear fluid. Cultures from the blood and the brain, and from the filtrate of the brain in glucose-brain broth and in ascites tissue fluid remained negative. The emulsion of the brain of this rabbit was injected intracerebrally into one rabbit, and the filtrate of the brain emulsion into two rabbits. All remained well for eleven days. They were chloroformed. Sections of the brain and the cord were normal. The emulsion of the brain of the rabbit injected with the brain emulsion was injected into two rabbits, and the filtrate into one. Again all three rabbits remained well.

A pure culture of the green-producing streptococcus was isolated from the emulsion of the brownish lesion at the base of the brain of the patient. This culture was rapidly transferred in warm glucose-brain broth, from three to six subcultures being made every twenty-four hours for forty-six culture generations. When in the tenth subculture, 0.1 c.c. was injected intravenously into one rabbit (R 2524), and 0.1 c.c. of a 1 : 100 dilution intracerebrally into another rabbit (R 2526), and the nose of one (R 2521) was packed with gauze soaked in the fresh undiluted culture. The rabbit injected intravenously did not develop symptoms, and was chloroformed eleven days after inoculation. The cultures from the brain and the blood were negative. Sections revealed moderate round-cell infiltration immediately surrounding the left lateral ventricle (Fig. 7). The rabbit injected intracerebrally with the diluted culture acted peculiarly at 7 o'clock the morning after the day of injection. It stretched its head far forward slowly, and when forced to hop it often bumped its nose into the side of the cage. At 12 m., its condition was about the same; at intervals it still acted peculiarly as if mentally deranged. The respirations were increased, and tremor of the anterior part of the body had developed. At 4 p. m. it continued to act in a singular manner, pushed its nose into the side of the cage and under its mates, and at intervals turned its head sharply to the right. It had developed twitchings of the right eyelids. In the morning of the second day after injection it was found dead. The vessels of the meninges were markedly congested. Cultures from the brain yielded a pure growth of the green-producing streptococcus; those from the blood remained sterile.

Rabbit 2521, weighing 2,000 gm., whose nose was packed, April 13, had developed purulent discharge from the right nostril the following day, but otherwise it appeared well when the pack was removed. April 15, at 7 a. m., the animal was tremulous and hyperesthetic, and the hind extremities were definitely weak. At 3 p. m., the respirations were increased, and horizontal nystagmus with twitchings of the eyelids was noted. There were peculiar tic-like movements of the head, with a tendency to retraction, but no spasms. At 3:30 p. m., the animal lay quietly, with almost complete paralysis of the hind extremities, and chorea-like movements of the head, which was tilted somewhat to the left. The horizontal nystagmus continued and was synchronous with respirations. At 6 p. m., the animal was restless. It made repeated violent efforts to get on its feet and to hop, but was unable to do so on account of weakness in the extremities. It threw its head from side to side, and nystagmus was more marked. At 7 p. m., the condition was unchanged. The following day its respirations were slow, it was extremely weak, and the fore and hind extremities were completely paralyzed. At 10:30 a. m., it was found dead.

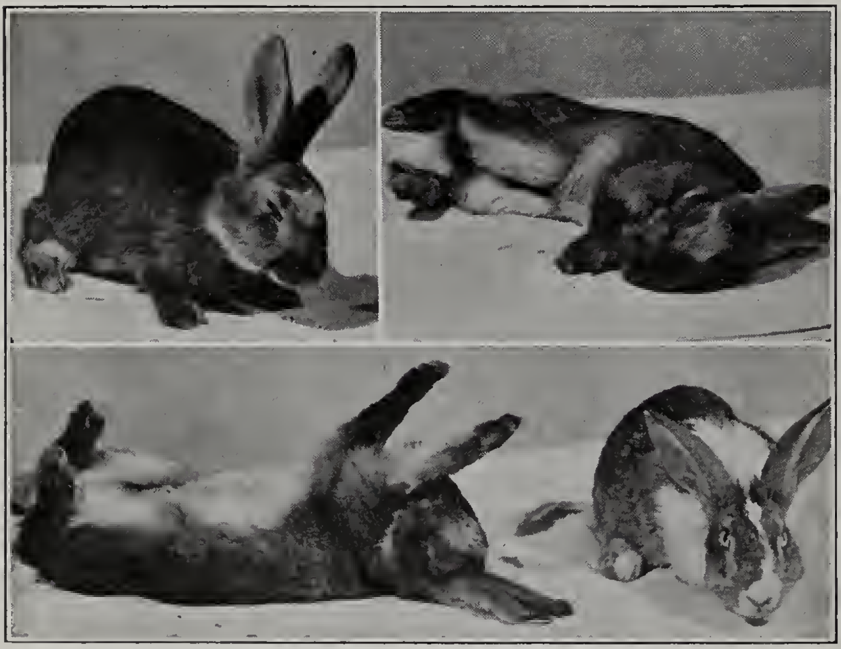

Fig. 5.—Rabbit 2523, showing marked lethargy, with normal control.

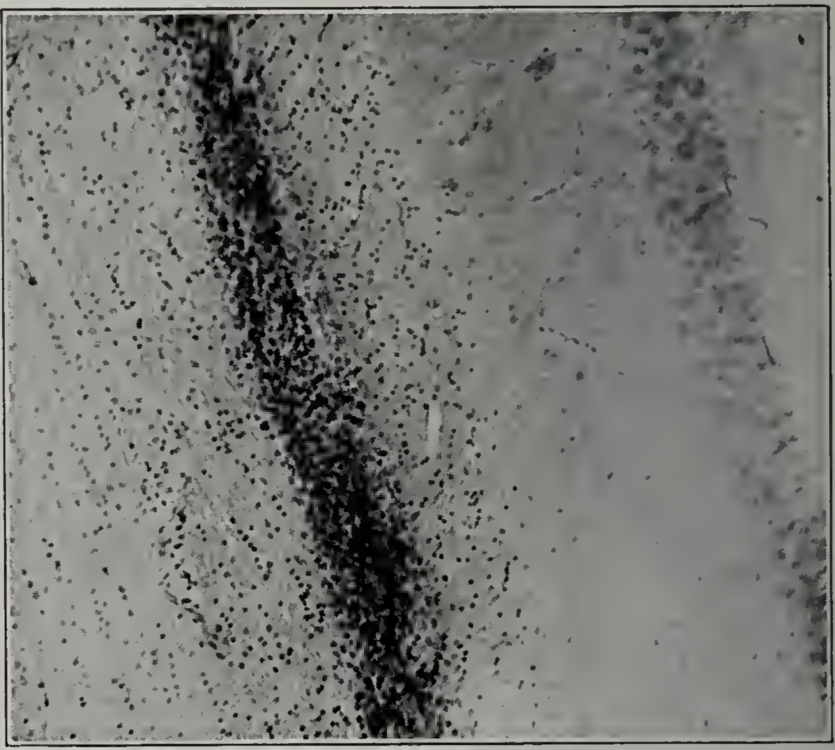

Fig. 6.—Section of cerebrum of rabbit shown in Figure 5; area of round-cell infiltration along a blood vessel in the corpus striatum; hematoxylin and eosin, × 100.

At necropsy, numerous hemorrhages were found in the medulla and throughout the length of the cord, which were most marked in the lumbar enlargement. The cerebrospinal fluid was somewhat turbid. The pia covering the pons, cerebellum and medulla was edematous. Smears revealed leukocytes, mononuclear cells and streptococci. Cultures from the brain yielded large numbers of green-producing streptococci; those from the blood yielded a few colonies of the same organism in pure culture. Sections of the brain showed marked perivascular and moderate diffuse leukocytic infiltration in the meninges, and perivascular infiltration in the cerebrum, especially marked at the base.

The fresh five-hour culture from the base of the brain in the forty-sixth culture generation was injected intracerebrally into two rabbits, one receiving 0.1 c.c., the other 0.1 c.c. of a 1 : 100 dilution. Both died within forty-eight hours of meningitis, and cultures from the brain yielded countless numbers of the organism injected in pure form.

One other rabbit was injected intracerebrally with 0.1 c.c. of a 1 : 100 dilution of the same culture after it was incubated at room temperature for forty-eight hours and exposed to direct sunlight for one hour. The plating of this culture at the time of injection still showed countless numbers of the green-producing streptococcus, but the animal remained well.

Besides the foregoing experiments, protection experiments with the monovalent antiencephalitis serum (H 18) were undertaken in rabbits and mice. Assuming that the spinal fluid and filtrate of brain emulsion would prove infectious, two sets of rabbits (six each) were injected intracerebrally with 1.5 c.c. each of the spinal fluid and the filtrate of the brain emulsion treated as follows:

Two rabbits were injected with the spinal fluid incubated for two hours with equal parts of salt solution, two with the spinal fluid treated with equal parts of normal horse serum, and two with the spinal fluid treated with equal parts of immune horse serum. In the second set, six rabbits were injected with the filtrate of the brain emulsion treated in the same way with salt solution, normal horse serum, and immune horse serum, respectively. Of the twelve rabbits injected, all remained well except one, which died of intercurrent infection (snuffles) four days after inoculation. Cultures from the brain and blood yielded gram-negative bacilli; sections of the brain were negative.

The protection experiments in mice were undertaken with the strain isolated from the apex of the infected incisor after one animal passage, and with the culture from the base of the brain of the patient, both being in the tenth culture generation. Five-hour cultures of these strains in glucose-brain broth were injected intraperitoneally in doses from 1.5 to 0.25 c.c., as indicated in Table 1. In each series, one set of mice was used as controls. One set was given subcutaneously 0.2 c.c. of normal horse serum at the time of the intraperitoneal injection, and one set 0.2 c.c. of antiencephalitis serum (H 18). All but one of the untreated mice in the two series died. The normal horse serum appeared to have slight protective effect. The four animals injected with the two smaller doses survived. The antiencephalitis serum had more marked protective power. Only two of the eight mice, those receiving the largest dose, succumbed. Of the thirteen mice that died, death occurred within forty-eight hours in nine; three died on the third day, and one on the fifth.

TABLE 1.—SUMMARY OF PROTECTION EXPERIMENTS IN MICE

	Strain Isolated from the Infected Tooth			Strain Isolated from the Brain		
Dose in C.c.	Series Untreated	Series Treated with Normal Horse Serum	Series Treated with Antiencephalitis Serum	Series Untreated	Series Treated with Normal Horse Serum	Series Treated with Antiencephalitis Serum
1.5	Death	Death	Death	Death	Death	Death
1.0	Death	Death	Survived	Death	Death	Survived
0.5	Survived	Survived	Survived	Death	Survived	Survived
0.25	Death	Survived	Survived	Death	Survived	Survived

The strains from the tooth and the brain produced small, sometimes umbilicated, nonadherent, greenish colonies on blood-agar plates, and a diffuse growth in glucose-brain broth. The organisms varied greatly in size, depending on the age of the culture and on the medium (Fig. 8). Large, swollen, elongated cocci and diplococci often appeared to be dividing longitudinally and transversely. The organisms grown in ascites tissue fluid were smaller and more regular in size than those in glucose-brain broth. The fermentation powers of the two strains were identical. Glucose, lactose, maltose and saccharose were fermented; inulin, mannite and salicin were not. Both strains were insoluble in bile.

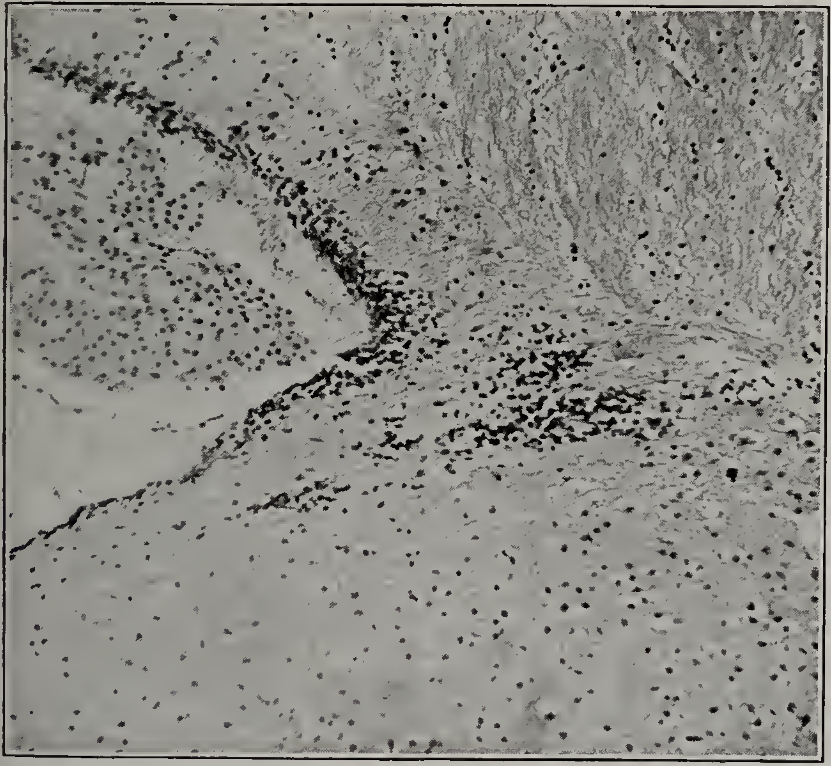

Fig. 7.—Round-cell infiltration adjacent to lateral ventricle in rabbit (R 2524) injected intravenously with the culture from the brain after ten subcultures; hematoxylin and eosin, × 100.

AGGLUTINATION EXPERIMENTS

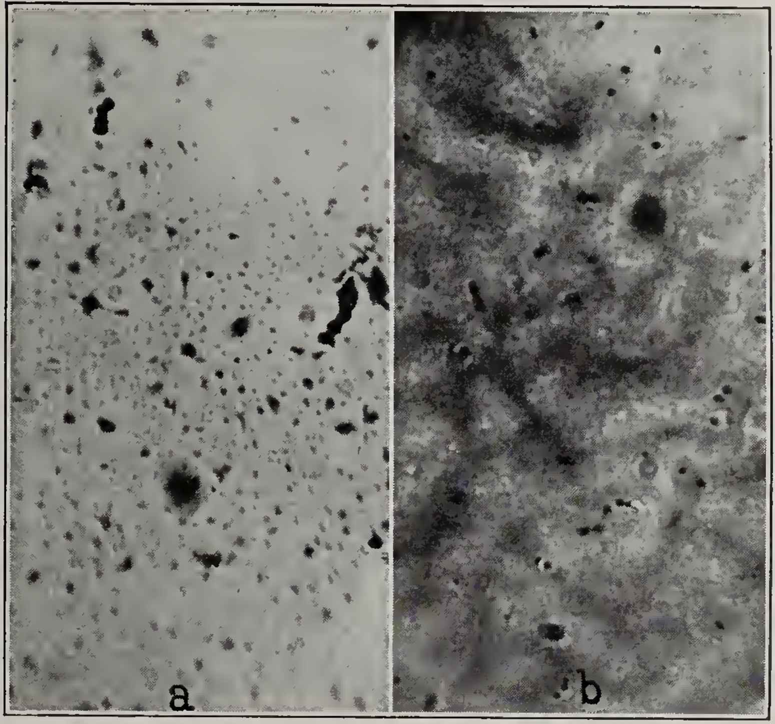

Fig. 8.—The streptococcus as isolated in cultures: *a*, glucose-brain-broth culture from the filtrate of the nasopharyngeal washing; *b*, ascites tissue culture from the filtrate of the brain emulsion; Gram-Weigert, × 1,000.

TABLE 2.—AGGLUTINATION EXPERIMENTS

				Agglutination by Various Immune Serums					
								Pneumococcus	
Experiment	Strain	Place of Isolation	Date of Agglutination Test	Poliomyelitis 312	Encephalitis Horse 18	Influenza Horse 15	Normal Horse	I	II
1	4268	Gum abscess	4/ 8/21	0	2	0	0	0	0
2	4268	Infected molar	4/ 8/21	0	2	0	0	0	0
3	4268	Nasopharynx	4/ 8/21	0	0	0	0	0	0
4	4268	Filtrate, nasopharyngeal washings	4/11/21	2	3	1	0	0	0
5	4268.3		4/12/21	3	2	1	1	0	0
6	4268	Blood during life	4/ 9/21	2	3	0	1	0	0
7	4268.3		4/ 9/21	1	2	0	0	0	0
8	4268	Base of brain	4/10/21	2	2	0	0	0	0
9	4268.9		4/12/21	1	3	1	0	0	0
10	4268.48		5/ 4/21	3	4	0	0	0	0
11	4268.65		5/11/21	2	2	1	1	1	3
12	4268.68		3/14/22	3	3	3	3	3	3
13	4268^2	Infected incisor	4/10/21	0	2	0	0	0	0
14	4268^2.2		4/ 9/21	2	3	0	0	0	0
15	4268^3.2		4/10/21	2	3	0	0	0	0
16	4268^2.9		4/12/21	2	3	0	0	0	0
17	4268^2.30		4/23/21	2	3	0	0	0	0
18	4268.46^2		5/ 7/21	2	3	0	0	0	0
19	4268.46^2		5/ 7/21	2	3	0	0	0	0
20	4268^2.5		3/14/22	3	3	3	3	2	3

The agglutination experiments are summarized in Table 2. The antigens used were fresh cultures in glucose-brain broth. The figures in the table following the point in the numbers indicating the strain represent the culture generation, the exponents the animal passage. The slide method was used, in which one part of each of the serums was mixed with two parts of the antigen, and the agglutination recorded within ten minutes. The poliomyelitis, encephalitis, and influenza immune serums were prepared in horses by repeated injections of green-producing streptococci isolated in these respective diseases. Partial agglutination of the primary culture from three possible infection atriums, gum abscess, pyorrhea pockets and nasopharynx, occurred in the antiencephalitis serum in the first two (Experiments 1 and 2), but not in the last (Experiment 3). The primary culture and the third culture generation of the filtrate of the nasopharyngeal washings were agglutinated by the antipoliomyelitis and the antiencephalitis serums, and slightly by the antiinfluenza serum (Experiments 4 and 5). Similar results were obtained with the strain isolated from the blood during life (Experiments 6 and 7). Experiments 8 to 12 indicate the results obtained with the streptococcus isolated from the brain under different conditions. It was agglutinated specifically by the antipoliomyelitis and the antiencephalitis serums as isolated (Experiment 8), and after forty-eight rapidly made subcultures (Experiments 9 and 10). After sixty-five rapidly made subcultures there was a shifting of agglutination to Type II antipneumococcus serum (Experiment 11), and after many subcultures nearly a year later (Experiment 12) it was agglutinated by all the serums. Experiments 13 to 20 indicate similar results obtained with the strain isolated from the infected tooth. Specific agglutination occurred in either or both the antipoliomyelitis and antiencephalitis serums as isolated, and after many rapid transfers (Experiments 13 to 19), but not after prolonged cultivation (Experiment 20). Both strains appear to have become saprophytized after long residence on artificial mediums, as they were agglutinated by all the serums.

SUMMARY

The etiologic relationship of the foci of infection and of the green-producing streptococcus to the encephalitis in this patient seems to be established. The organism was isolated from the infected teeth, from the filtrate of the nasal washings, from the blood during life, from an emulsion of the base of the brain after death, and from the filtrate of the brain emulsion. It was demonstrated in the lesions after prolonged search (Fig. 4), and proved to be absent elsewhere. The microscopic changes in the brain were typical of this disease (Figs. 1 and 2). The streptococcus from the infected teeth, from the blood, and from the base of the brain was identical in morphology, cultural characteristics, and in immunologic properties (Table 2). The strains, isolated from one infected tooth and from the brain, possessed well marked neurotropic properties. The chief symptoms of the patient, such as lethargy, weakness of the extremities, oculomotor disturbances, spasms and tremors of muscles, and apparent mental derangement, were produced by intravenous and intracerebral inoculation of small doses, and by packing the nose with gauze soaked in the culture, even after many subcultures. The lesions of the brain and the cord of the animals were also characteristic. The organism was isolated from the brain and the spinal fluid, and demonstrated in the lesions in the animals showing symptoms and those examined relatively soon after inoculation. In those that recovered and were chloroformed long after injection, the demonstration of the organism was often impossible.

In a series of similar experiments with material from normal throats, the streptococcus having these peculiar properties was not found. Of the fourteen rabbits injected intracerebrally with salt solution suspensions of nasopharyngeal swabs from fourteen normal persons, five died of meningitis within forty-eight hours. In four green-producing streptococci, and staphylococci, and in one hemolytic streptococci were isolated. The green-producing streptococci were not agglutinated by the antiencephalitis serum, and sections of brain and cord showed only leukocytic infiltration of the meninges. Nine remained well and were chloroformed for examination in from ten to nineteen days after injection. Cultures of the brain, the spinal fluid, and the blood were negative, and sections of the brain and the cord revealed no changes.

The hemolytic streptococcus isolated from the blood of the patient after death produced suppurative meningitis when injected intracerebrally. The negative results following intracerebral injections in twenty-six rabbits and one monkey, of brain emulsions, filtrates of brain emulsions, filtrates of nasal washings, sediments of the dehemoglobinated blood, from which the characteristic streptococcus was isolated, of spinal fluid, and brain emulsions and filtrates of animals which were injected with these and did not develop symptoms, may be interpreted as proving that a filtrable virus, as usually understood, was absent in this case, and that the infecting power of the relatively few streptococci in these materials was insufficient to overcome the resistance of the animals.

The agglutination and protection experiments with the monovalent antiencephalitis serum prove the close relationship of the streptococcus from this case to the one isolated from the case of typical epidemic (lethargic) encephalitis with which this serum was prepared.

The similarity in cultural characteristics and immunologic properties of most of the strains isolated from the different cases studied has been demonstrated. Mice and rabbits have been protected with this serum against the heterologous strains. Moreover, encouraging results have been obtained in a number of patients to whom it was possible to administer the serum soon after the onset of symptoms of encephalitis. These and other findings will be reported in detail elsewhere.

ABSTRACT OF DISCUSSION

Dr. Lewis J. Pollock, Chicago: I should like to ask Dr. Rosenow, first, as to whether the perivascular infiltrations noted in the brain were present to any marked degree in other organs of the body, and, second, whether any particular part of the brain showed a specific vulnerability to the pathology produced by this diplococcus.

Dr. E. C. Rosenow, Rochester, Minn.: There was marked evidence of the tendency of this organism to localize in the basal ganglions of the brain. This occurred not only on intracerebral inoculation, but also following intravenous inoculation and following the packing of the nose with gauze soaked in the culture. The sections of other organs showed no perivascular infiltrations and no other noteworthy lesions, aside from moderate cloudy swelling.

The Swedish Race Institute.—During the first year of the working of this state supported institution at Upsala, Sweden, the research was restricted to a single province, but it is proposed to extend the work throughout the whole country, compiling data on heredity from the standpoints of physiology and pathology. A museum is planned, as well as experimental research. The commission in charge has seven members, including Dr. Lundborg, the director. The staff consists of the archives custodian, a medical assistant, a genealogist, an anthropologist and a photographer. The settled character of most of the population in Sweden and the way in which the generations succeed each other in the same rural district renders Sweden peculiarly favorable for research on heredity. Lundborg has published in the *Svenska Läkaresällskapets Handlingar* a number of studies on racial and culture problems in the light of medical biology.

CARE OF THE BLADDER IN PREGNANCY, LABOR AND THE PUERPERIUM *

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The intimate relationship both anatomically and functionally between the bladder and the female generative organs is largely overlooked in our management of the parturient woman. When we remember that, for the most part, the female bladder has its blood, lymphatic and nerve supplies in common with the generative organs, we are in a position to realize that the changes of pregnancy in the uterus and vagina must largely be duplicated in the bladder. Congestion, edema, increased vessel caliber, hypertrophy of the mucosa and muscle coats, increased capacity and altered form are all changes which the bladder shares with the pregnant uterus.

THE BLADDER IN PREGNANCY

Pelvic congestion and the direct pressure of the enlarged uterus, as yet a pelvic organ, account for most of the bladder symptoms of the first trimester. Increased vascularity of the bladder wall can be noted with the cystoscope as early as the sixth week. The trigon is naturally the first area to show this change. Radeaux[1] showed that sixty-three out of a series of 124 pregnant women had bladder symptoms at some time during the nine months. Twenty-six of the sixty-three had symptoms in the first trimester. Frequency, dysuria, bladder pain and hemorrhage are the complaints in the order of frequency.

As the uterus increases its anteroposterior diameter, the space available for bladder expansion in that direction is diminished. The result is a pocketing of the bladder at the sides. With the woman on her feet and the uterus in anteversion, the fundus presses the bladder walls downward and forward against the symphysis. Dysuria is often the result, especially in a woman forced to be continually on her feet. Rest in bed will relieve these patients.

Urinary frequency, when not associated with infection, usually disappears when the bladder rises out of the pelvis. Bladder hemorrhage occurring at or after the end of the first trimester can usually be demonstrated as coming from varices in the wall. There are a few cases of retention reported developing in early pregnancy in women neurologically and serologically negative with uteri apparently in normal position. One such case which I saw cleared up when the woman aborted spontaneously.

Malpositions of the pregnant uterus, particularly prolapse and retroversion, produce the most serious complications of the first trimester: retention, overdistention, cystitis and possibly slough of the bladder mucosa. The degree of retroversion regulates usually the type and time of onset of bladder symptoms. If the cervix is thrown against the symphysis or into the region of the trigon, symptoms develop early. Dysuria, inability to urinate, the incontinence of retention and the discomfort and pain of distention are the early symptoms. If reposition of the uterus is accomplished at this time, bladder infection may not develop. Occasionally it is necessary to open the abdomen in order to replace the uterus. High fever, rapid pulse, malaise, abdominal and kidney tenderness, vomiting, delirium and shock are reported in the graver cases. Sudden withdrawal of the entire bladder content has been followed by hemorrhage and shock. The use of a trocar is occasionally necessary to empty the bladder. As the condition in the advanced cases is a gangrenous cystitis, the production of a vesicovaginal fistula admits the passage of the slough, resulting frequently in recovery. Deaths have been reported from hemorrhage, shock, bladder rupture, peritonitis and resulting kidney involvement.

Pelvic congestion and edema associated with mild retention and moderate malposition of the pregnant uterus predispose to bladder infections which appear in the latter part of the first trimester and later throughout pregnancy. We now know, however, that there is no justification for the diagnosis of cystitis in pregnancy unless the kidney pelves have been excluded. Torsion of the ureter due to uterine dextroversion and urinary retention are now believed to be the chief factors in the production of pyelitis in pregnancy. Weibel[2] had difficulty in catheterizing the ureters of forty-six out of 100 pregnant women. The same author believes that the staphylococcus and streptococcus infections of the renal pelvis are of the ascending type, and that infection with *B. coli* occurs only in the presence of urinary and intestinal stasis. Research has shown that infection of the kidney may enter through several paths. Embarrassment of bladder function, due to the increased size of the uterus, predisposes to urinary infection in the latter two thirds of pregnancy. Frequency and burning urination should always direct one's attention to the urinary system when unilateral pain, either abdominal or dorsal, is a complication of pregnancy. One is never justified in operating for acute abdominal conditions until the kidney pelves and the bladder are proved negative. Tenderness in the costovertebral angle is not constant in pyelitis. It is surprising how quickly pain is relieved in the ordinary case, once the patient is off her feet. Milk diet, free catharsis, posture, acid sodium phosphate and hexamethylenamin bring relief in most cases. Catheter drainage, while necessary in the graver cases, is advocated largely by the urologic surgeons. If the condition is so serious as to make the induction of premature labor necessary, one can be sure that the termination of labor alone will not cure the condition. Every case of pyelitis must be carefully followed after labor.

In the last months of pregnancy, owing to the pressure of the presenting part against the bladder and urethra, one meets patients complaining of frequency, incontinence and occasional ischuria. These symptoms naturally appear earlier in primiparas. Occasionally, pyelitis develops or reappears at this time. The actual bladder space has been largely obliterated, and the organ sacculates at the sides, the so-called saddle bag bladder. Residual urine is present in many of these patients. One frequently notes, while performing a cesarean section, that, owing to the altered contour of the bladder, the preliminary catheterization has been incomplete.

THE BLADDER DURING LABOR

The onset of labor finds only the upper portion of the bladder in the abdomen. As the cervix dilates and

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[1] Radeaux: Arch. gén. de méd. **2**: 1873-1883, 1905.

[2] Weibel: Arch. f. Gynäk. **99, 100,** 1913.

the lower segment retracts, the vesical walls are carried upward. Late in labor the urethra has been shown to be definitely elongated. The bladder base is lower in the female than in the male, and its tense, ligamentous attachments predispose it to traumas in the expulsive stage. The woman with a contracted pelvic outlet in the anteroposterior diameter, or a generally contracted pelvis, is predisposed likewise to injury of the supporting structures of the bladder and urethra.

Reflexly, as well as by actual obstruction, the full bladder delays dilatation of the cervix and expulsion of both fetus and placenta. The tendency to allow women to labor with considerable quantities of urine in the vesical cavity predisposes to separation of the pubovesical ligaments and subsequent relaxation of the vaginal wall, cystocele and urethrocele. Owing to the stretching of the interureteral ligament at the end of pregnancy, the ureter orifices tend to remain open, and the stress and strain of labor, with the increased bladder pressure during the expulsive efforts, may light up old infections of the kidney pelvis and bladder.

Skene [3] and Emmett,[4] who in their day saw large numbers of bladder injuries, have left us many vivid descriptions. Emmett said that injuries to the urethra were far more common than third degree tears. Both authors showed that the majority of injuries in the first stage occurred above the trigon; those of the expulsive stage were located at or below that structure. Winckel, from necropsy material, and Ruge [5] and Stoeckel,[6] with the cystoscope, showed that the bladder and urethra receive injury in practically every labor Laceration, edema, contusion and hemorrhage were most common and pronounced in the bladder of the primiparous woman. Long labor, instrumentation, contracted pelvis and dry labor predispose to trauma. Ruge showed that the postpartum difficulties with the bladder occurred in direct proportion to the amount and severity of the injury to the bladder wall. All cases in which hemorrhage in the wall of the bladder was demonstrable with the cystoscope required catheterization. Injuries to the ligamentous bladder attachments are probably more common than those demonstrable in the wall. "The crying need of obstetrics," says one authority, "is a method of detecting these injuries before fascial retraction and atrophy set in."

Formerly, vesicovaginal fistulas were not uncommon as a complication of labor. Skene and Emmett both showed that necrosis through the prolonged pressure of labor was the most common cause of this complication. With more modern methods at our disposal, this is probably not true. Whenever possible, rents in the bladder wall are repaired at once. If the lesion is due to devitalization and necrosis, it will not appear for a number of days and its repair is attempted some time later.

Peterson and Williams have shown that fistula is not an uncommon sequel of vaginal cesarean section and pubiotomy. Vaginal cesarean section in the last few weeks of pregnancy is particularly liable to result in injury to the bladder. As the bladder rests more to the right than to the left, pubiotomy is preferably done on the left side. Cases have been reported in which the bladder has been caught between the separated ends of the pubic bone, following pubiotomy. Constant pressure against the hips usually prevents this. Separation of the bladder attachments by the rotation of forceps or cranioclast is often accompanied by infection in and about the bladder. Bladder stones are occasionally reported as having obstructed labor. The larger stones were formerly treated by the production of a vesicovaginal fistula. With hospital facilities available, abdominal cesarean section would seem a better method of treatment.

The most common measures for the protection of the bladder in labor are, briefly, as follows:

1. Careful prenatal observation and diagnosis will give us an idea of the presence of old bladder lesions and infection, the presence of probable disproportion, and the possibility of interference being necessary at delivery.

2. Preservation of the membranes is conducive to shorter labors, better cervical dilatation and more complete retraction and bladder elevation.

3. Nurses and interns must be taught to keep the bladder and rectum of the parturient woman empty. Every operative delivery is preceded by careful catheterization.

4. Episiotomy releases the head posteriorly, takes off the pressure under the symphysis, and frequently spares the forceps.

5. Interference, whether it be forceps, extraction or craniotomy, should not be carried out in the presence of an undilated cervix.

6. The use of a flat retractor between the head and the bladder, advocated by Pomeroy, is of value when traction is necessary.

7. In dealing with posterior positions of the occiput, rotation with the forceps is dangerous. One cannot injure the bladder by manual methods of rotation.

THE BLADDER AFTER LABOR

The most common bladder complication of the puerperium is overdistention and ischuria. Hölste [7] catheterized thirty puerperal women daily for a week after labor. Catheterization was performed immediately after voiding, and the urine obtained was measured. Twenty-four hours after delivery he found a residual urine averaging 107 c.c. in the primiparas and 58 c.c. in the multiparas. This gradually diminished. At the end of a week it averaged only 14 c.c. in the primiparas and 7.5 c.c. in the multiparas. He concluded that usually puerperal women do not empty the bladder completely. In 1912, Steuernagel [8] measured the capacity of the female bladder at the various periods of pregnancy, labor and the puerperium. He showed that there is a steady increase in capacity after the fifth month. In the nonpregnant the bladder usually, as the patient says, "feels full" when 200 or 250 c.c. of sterile boric acid solution is introduced. The woman at term, Steuernagel found, did not develop this desire to urinate until 350 c.c. of the solution had been introduced. Under slight pressure she could tolerate 800 c.c. of solution in the bladder, as against 500 c.c. in the nonpregnant. The striking thing about these researches was that the patients from twenty-four to forty-eight hours pospartum did not develop desire until about 1,000 c.c. was in the bladder. Under pressure they tolerated 2,000 c.c.; in other words, the capacity of the puerperal bladder was four times that of the nonpregnant.

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[3] Skene: Diseases of Women, New York, D. Appleton & Co., 1898.

[4] Emmett: Vasico-Vaginal Fistula, New York, William Wood, 1868; Principles and Practice of Gynecology, Philadelphia, H. Lea & Sons, 1884.

[5] Ruge: Monatschr. f. Geburtsh. u. Gynäk. **20**: 233-237, 1904.

[6] Stoeckel and Ruge: Cystoscopie der Gynäkologen, 1904.

[7] Hölste, K.: Aerztl. Rundschau **16**: 233-237, 1906.

[8] Steuernagel, W. S.: Ztschr. f. gynäk. Urol. **3**: 295-297, 1911-1912.

In 1921, Walker [9] of Baltimore published an article giving the bladder pressure in millimeters of mercury in healthy males, at rest. This he did by attaching a blood pressure machine indirectly to a catheter. He found that when no expulsive efforts were made the manometer rose to 12 or 16 mm. of mercury, according to the amount of urine or sterile solution in the bladder. If more than 400 c.c. was introduced, the pressure fell slightly. Following this idea, we found that the pressure in healthy females was slightly less than in males. With this in mind, several puerperal women, unable to void, were catheterized and the bladder pressure measured. On the whole, they showed pressures averaging from 2 to 6 mm., or from one-fourth to one-third below that of the nonpregnant woman with a corresponding amount in the bladder. This work is still fragmentary, and will be reported in detail later. It is mentioned only as a phase in the subject of residual urine and retention.

All of us have noticed, I think, that the more extensive the repair work done after labor, the more likely the patient is to require catheterization. This is not surprising when one remembers that the pudic nerve supplying the perineum and vulva leaves the cord at about the same level as the nerves supplying the hypogastric plexus. The presence of large vaginal clots, a poorly contracted uterus, or an overfilled rectum favors retention and ischuria. Olshausen believed that catheterization after labor is necessary largely because of the elongated kinked urethra. Scanzoni and Winckel believed retention due to the inability of the bladder muscle to act. Schroeder says that the sensation of distention is less effective in the puerperal woman. Contracture or edema of the bladder neck, often considered a factor in these cases, is certainly seldom noted on passing the catheter. Reflexes set up by the pain experienced when urine comes in contact with injuries of the urethra or vulva have been cited as a cause of retention. Hysteria, posture, primiparity and decreased abdominal pressure are all factors in this condition. Postpartum sepsis produces retention appearing several days after labor from causes similar to those producing intestinal paresis in these cases. As a poorly contracted uterus predisposes to retention, so does retention tend to prevent firm contraction of the uterus. Careful consideration of retention convinces one that there is no single etiologic factor in any given case.

Pathogenic bacteria deliberately injected into healthy bladders have failed to produce infection in the absence of injury or residual urine. "When catheterization," says Curtis,[10] "is performed for indications other than the relief from retained urine, subsequent infection is a rarity. On the other hand, catheterization to relieve a distended bladder is followed by infection in spite of the greatest care." Postpartum accumulations of urine invite cystitis. Authors disagree on the prevalence of pathogenic bacteria in the bladder of the female. Unpublished work now being done in one of the larger clinics will probably show that pathogenic bacteria are present in the bladders of a considerable percentage of women in labor. The normal changes of pregnancy in the bladder therefore, plus the injuries of labor, provide all the factors necessary for the production of infection. What, then, is to be our course in preventing and combating puerperal overdistention, ischuria and cystitis?

The bladder should be emptied before the woman leaves the delivery table.

As soon after labor as is reasonable, she should be urged to void. If necessary, she may be propped up in bed to accomplish this.

Overdistention should not be allowed to develop. If the woman cannot be made to void, and in one's opinion the bladder is full, she should be catheterized.

The care of the bladder should not be left to an inexperienced attendant.

Strychnin, ergot and pituitary extract are sometimes of value in stimulating the bladder muscle, especially when augmented by the increased intra-abdominal pressure of the erect posture.

A hot enema, the electric current and suggestion are often effective.

Hexamethylenamin, in combination with acid sodium phosphate, should be given by mouth in most cases in which catheterization has been necessary.

After each catheterization, a dram of 20 per cent. argyrol should be left in the bladder.

If pus appears in a urine previously clean, daily irrigations of warm sterile boric acid solution usually clear the condition rapidly.

Barnes,[11] Skene and Chamberlain [12] all showed many years ago that once a patient is catheterized, even though she later voids spontaneously, the procedure should be repeated at least once daily until bladder tone has returned and residual urine has disappeared. That failure to do this is the most common cause of our so-called catheter cystitis has been shown by Taussig, Dudley,[13] Curtis and Sampson.[14] Once catheterization is necessary, its repetition for the prevention of a large alkaline accumulation is a conservative procedure.

Urinary incontinence following labor has no single cause. Usually one suspects the incontinence of retention. Skene described overstretching of the bladder neck due to pressure of the presenting part as a cause of puerperal incontinence. Temporary paralysis and lacerations of the urethra, sphincter and bladder wall must be considered in each case. If incontinence occurs soon after labor, one may suspect traumatic fistula or sphincter relaxation. The incontinence associated with sepsis, and the incontinence of fistula from pressure necrosis, are delayed in appearance. The treatment of each case varies with the origin. Strychnin and electrotherapy may be of value in paralysis and overstretching of the sphincter. Lesions of the bladder wall are repaired at once, if found at or soon after labor.

Injuries to the pelvic portion of the ureters are not infrequent. Long, dry, tedious labors, the presence of disproportion, poor retraction and operative interference predispose to these injuries. Involvement of the ureter in inflammatory exudates is sometimes seen. The older gynecologists described the pathology and symptomatology of this condition in detail. Tenderness over the ureter, and temperature falling with the appearance of pus and blood in the urine, are the common findings of importance. Catharsis, bladder irrigations and forced fluids are indicated in the medical treatment. If drainage of the kidney pelvis by catheterization seems advisable, it should be done by an expert, bearing in mind the possibility of perforation.

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[9] Walker, George: Apparatus to Aid in Differentiation Between an Obstruction in the Urinary Outlet and Paralysis of the Bladder, J. A. M. A. **77**: 286 (July 23) 1921.

[10] Curtis, A. H.: Am. J. Obst. **78**: 230 (Aug.) 1918.

[11] Barnes, A.: Lancet, 1875, pp. 127, 165, 372, 455.

[12] Chamberlain, M.: Am. J. Obst. **10**: 177, 1877.

[13] Dudley: Text-Book of Gynecology, Philadelphia, 1898.

[14] Sampson and Hennes: Bull. Johns Hopkins Hosp. **15**: 156, 1904.

Pyelitis or pyelonephritis as a complication of the puerperium is closely associated with the presence of a residual urine and the possibilities of poor kidney drainage. The infection at this time is frequently more active and persistent than when occurring in midpregnancy. Patients suffering from pyelitis at some time previous to labor may light up the infection in the puerperium.[15] Wallich[15] advises frequent catheterization for the woman who is delivered during an acute attack of pyelitis, the idea being to keep the infected urine off the vulva. Smith[16] found the colon bacillus in twenty-two out of twenty-three postpartum urinary infections. Forced fluids, milk diet, free catharsis, the bland oils and alkalization or acidification of the urine, according to the type of infecting organism, are indicated. Drainage of the kidney pelvis may be necessary.

One should be on guard against urethrocele, cystocele, rectocele and prolapse after labors when there is any possibility that the bladder attachments or the tissues of the musculomembranous diaphragm about the cervix have been injured. Immediate repair of the perineal and other ascertainable injuries should be done after labor. These patients should not be allowed to return to active life as soon as the normal parturient. They must be taught to keep the bladder and rectum empty, thus preventing overstretching of the weakened tissues. Detailed instructions are given as to the daily use of long, hot vaginal douches, which aid in restoring tissue tone. Frequently a pessary, worn for a short time, will prevent permanent trouble. When successful repair of the bladder supports or fistula has been performed with difficulty, cesarean section is without doubt justified in subsequent pregnancy. We believe that recent years have shown a diminution in the amount of damage done to the bladder and pelvic tissues during labor. When forceps and extraction have not been employed without regard to the condition of the cervix and the soft parts, follow-up work reveals very little serious damage to the bladder and its supports. In no part of our obstetric practice will a little care, patience and personal attention be more richly rewarded than in the consideration of the bladder complications.

ABSTRACT OF DISCUSSION

Dr. Arthur H. Curtis, Chicago: The cardinal principle which underlies the care of the healthy bladder should be the avoidance of residual stagnant urine. This is not only true of the bladder during labor and the puerperium, but is doubly more important after operation on the pelvic organs. In my experience, one of the most important causes of the pyelitis of pregnancy is ascending infection from stagnant bladder urine. I am convinced also that passage of the catheter has been unjustly blamed as the cause of so-called postoperative catheter cystitis, whereas the condition is really due to ascending infection from stagnant bladder urine. We have established this rule: If it is necessary to catheterize a patient several times, because of inability to empty the bladder, a catheter is passed once each day to relieve the bladder of the residual urine. Ordinarily, before the catheter is withdrawn, we instil a small amount of weak silver nitrate solution; we also give a urinary antiseptic by mouth. The point I wish to emphasize particularly is that it is the stagnant residual urine that causes the trouble. Formerly we used the procedure in common practice—that of passing the catheter when the patient had distress; and, as soon as she developed the power of spontaneous micturition, we discontinued the use of the catheter. Here is the great mistake. It is not the passage of the catheter but it is discontinuing the use of the catheter before the patient can learn completely to empty the bladder which causes the trouble. Formerly, one out of every fifteen or twenty patients came back after operation with urinary tract infection. After establishing the simple procedure of avoiding residual urine in all patients whom it has been necessary to catheterize repeatedly, we absolutely rid our service of these urinary tract infections. I have recently gone over the histories, and in more than a thousand cases there has been almost complete freedom from urinary tract infection.

Dr. John Gardiner, Toledo, Ohio: Yesterday Dr. Neel stressed the fact that actual fascial flaps must be dissected loose and free to get the proper support for the repair of cystocele. And Dr. Spalding brought out, as a pertinent point, the result of excessive dilation of the fascial support of the uterus, and called attention, by way of a warning, to the injudicious use of the Voorhees bag, which, by dilating and stretching, may tear the unstretched fascia supporting the uterus. And further, Dr. Ward clearly pointed out the result of laceration of the posterior pelvic support which, after being torn, allows an insidious falling of the posterior culdesac and a hernia follows. These are very important points in the consideration of the pelvic fascia. From the obstetric standpoint, there is the fetal ovoid about 10 cm. in diameter and about 30 cm. long. Not only is there a dilatation but also a progressive grinding downward and expulsion of the ovoid through the birth canal. This muscular canal can be dilated at most about 3 cm. in the nonparous woman. During labor it must withstand the insult of a sphere 10 cm. in diameter which is being driven down through it and at the same time being forced to accommodate itself to the irregular protuberances of the glove fitting bony birth canal. Thus we have the mechanics of labor. The bladder is bound to suffer more or less. I have been greatly interested in the condition of the bladder, and some years ago worked out to my own satisfaction the point that the bladder and its supports were prone to be injured. I used a rubber bag as a bladder, oiled it and oiled a fetus and arranged the parts as in labor. As pressure was exerted on the bag, partially distended, it would rise up, and as the pressure increased the lower part of the bag was pulled up. When the bag was empty, it was pushed down as the fetus descended. I found, clinically, that there is another factor involved in the safety of the bladder. A great deal depends on the formation of the symphysis pubis. If the symphysis is an acute angle, the bladder usually ascends easily and is unharmed; if the symphysis is flat, it is very ominous for the bladder; if it is even convex, the bladder and urethra seemed at times to slip aside and be more or less protected. I concluded from these facts that the analogy is the same during labor if the bladder is partly distended. We are immediately befuddled when we are trying to bring the surgical technic in its entirety over into the obstetric technic. The advice in abdominal work that patients must be catheterized is absolutely good. In labor, however, a different condition is being dealt with. I am not making a plea that there be a distended bladder during delivery, but I would prefer that there be a full bladder rather than an entirely empty one during labor. Many women are delivered, and no one has any idea as to the condition of the bladder, and no bad results have occurred. If there is a distention that interferes with labor, some of the urine must be withdrawn; but by leaving some urine in the bladder, I feel that there will be less injury to the bladder and its supports. However, I believe that the flat, smooth symphysis is a malformation, and the bladder and its supports during labor are in a very disadvantageous position.

Dr. H. W. Shutter, Milwaukee: I cannot agree with Dr. Gardiner in leaving a small amount of urine in the bladder during delivery. I cannot see its advantage; and, as most of us are unable to tell within several ounces just how much urine a bladder contains, there is a distinct possibility of harm. Lack of time prevented my reading that portion of the paper considering the traumatic lesions of the bladder supports. There are a number of measures that can be instituted soon after labor when the bladder has been torn loose from its attachments or when we anticipate rectocele. Good care in the few weeks following delivery makes these accidents to a considerable extent preventable. Overstretching of the supporting structures is prevented by keeping the bladder empty and the routine use of daily enemas. Long hot douches taken daily help these women restore tone to the pelvic tissues. Dr. Curtis told me that every case of pyelitis complicating pregnancy that has come under his observation shows a residual urine on catheterization after voiding. This coincides with the finding of the colon bacillus in twenty-two out of twenty-three cases of urinary infection in pregnancy reported by Dr. F. H. Smith. In other words, urinary infection is a matter of stasis and residual urine in virtually all these cases.

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[15] Wallich, V.: Pyelonephritis en suites de couches, thesis, Paris, 1904.

[16] Smith, F. H.: Urinary Infections of Pregnancy and the Puerperium, Am. J. M. Sc. **155**: 127, 1918.

PRIMARY CLOSURE OF WOUND WITHOUT DRAINAGE IN USUAL COMPOUND FRACTURE OF LEG *

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The most common site of compound fracture is the leg, because of the unusually scanty covering of the fragments. The ideal treatment is that which prevents suppuration and converts the compound into a simple fracture. This has been accomplished rarely in civil life under favorable circumstances and occasionally, during the recent war, under most difficult conditions. These successful results were due partly to good treatment but chiefly to the particular nature of the causal accident or injury. In civil life, with which alone I am concerned, there is a marked difference in the prognosis of a case in which the fracture has been made compound by the protrusion through the skin of the sharp end of a tibial fragment and one in which a heavy, contaminated object has produced the fracture and the wound over it, thus devitalizing the neighboring soft tissues and carrying into the wound dirt and other foreign bodies. Therefore, the classification of the compound fractures into those due to indirect and those due to direct violence is a very important one. In my opinion, the most important question connected with compound fractures is, To which of these two varieties does each case belong? There seems to be little tendency to make this distinction, probably because of the difficulty in doing so; and the reference to it is only occasional. It would seem that because we cannot establish the occurrence of the more benign indirect violence with penetration of the skin by the clean fragment, we assume the opposite conditions, that is, direct violence with more or less consequent devitalization of the soft tissues and the carrying of infection into the wound. As a consequence the treatment of the great majority of cases is assumed to require free drainage. I have assumed the contrary cause to be operative in the usual case.

The most important evidence that the skin wound is produced by the protrusion of a fragment is its small size in almost every instance. Sometimes it is very small because it is made by the pointed end of a sharp fragment and very rarely is it larger than could be accounted for by the protrusion of the entire transverse surface of the shaft of the bone. If the wound were usually the result of the impact of some outside object, it would vary in size much more than it does, that is, we should more frequently find larger wounds with more irregularly lacerated margins, contused skin and subcutaneous tissues and abrasions of the adjacent skin surfaces. What directed my attention particularly to the size of the wounds was a previously conceived theory concerning the mechanism of most fractures and dislocations.

In 1919, I [1] offered the theory that most fractures and dislocations, which occur frequently in man, a biped, and rarely in quadripeds, are due to the ordinary fall which is common in man because he is a biped and rare in the quadrupeds. Reasons were also offered for assuming that the fall on the hand was responsible for nearly all fractures and dislocations of the upper extremity and for the typical deformities characteristic of them. Without attempting to follow out the exact mechanisms of them, I have, for some years, been assuming that in the lower extremity most fractures and dislocations are the result of indirect violence from a fall and that consequently most compound fractures are probably made compound by the protrusion of the fragment through the skin and not by the direct impact of some outside injuring object. This would account for the usual small size of the wound, the usual absence of contusion of the soft tissues about the wound and abrasions of the adjacent skin surfaces. Even when the history shows clearly that the compound fracture was due to the fall of a heavy object on the leg, one cannot say that the fracture and the skin wound over it were caused by the direct impact of this object. It is quite as likely that the falling object struck the leg at some point distant from the site of the resulting fracture and skin wound and that consequently these were due to an indirect application of the force with protrusion of the fragment and a clean wound.

It will, of course, be apparent that if indirect violence and protrusion of the fragment produce the compound fracture, the only sources of infection to be considered are those resulting from contact of the protruding fragment and the surfaces of the wound with adjacent objects, such as clothing and soil. The size of the wound cavity will be dependent on the extent of the separation of the two or more fragments from the adjacent tissues by the fracturing force which not only broke the bone or bones but also separated them from one another to a greater or lesser degree, according to the amount of force applied. The inference here is that while the cavity may be a large one it is clean for the most part and its walls have suffered little devitalization.

TREATMENT

Two therapeutic requirements present themselves: (1) restoration and maintenance of the normal relations of the fragments to one another, and (2) the combating of any infection which has gained admission to the wound and the prevention of the introduction of any more. To meet the first, I have employed the operative method with direct fixation of the fragments and one nonoperative method, the extension cast. To meet the second requirement, I have provided as

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* Read before the Section on Surgery, General and Abdominal, at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Thomas, T. T.: Ann. Surg. 70: 359 (Sept.) 1919.

thorough asepsis as possible to prevent the admission of new infection and direct application to the wound of tincture of iodin, with or without neutralization by alcohol and with and without the addition of the application of dichloramin-T to combat any infection introduced through the wound. I have recently[2] fully described and illustrated the extension cast employed. This cannot be done satisfactorily here because of lack of space. The purpose now is not so much to attempt to establish exact methods of treatment as to suggest possible lines of progress toward the ideal method of treating compound fractures in general, the conversion of them into simple fractures by immediate closure of the wounds without infection.

A previously entertained impression, now strengthened by experience, is that the more absolute the immediate immobilization of the fragments the better the chances of avoiding infection; indeed, too much mobility of the fragments seems capable of causing a discharge which will not behave as does ordinary pus. I believe that the direct fixation of the fragments by operative means, for this reason, is better than the indirect fixation by the nonoperative methods, although this was not so definitely established as one could wish. The technic of the treatment of the wound will vary with the method of fixation of the fragments. For the operative method, it is essentially the same, regardless of the particular fixation apparatus used. I employed plates and screws, screws alone and nails. With the extension cast, the fixation is applied at one sitting and the position of the fragments does not change after the cleansing of the wound. Continuous traction with gradual correction of the deformity was not employed in any of these cases.

When the extension cast is to be used, the wound is temporarily covered by sterile gauze and a bandage. Under a general anesthetic, the extension and fixation may be applied without covering by plaster the portion of the leg containing the wound. After removal of the temporary dressings, the surgeon, gowned, gloved and masked as for the usual aseptic operation, prepares the wound area. The limb, which has been previously shaved, is cleansed with a sterile gauze sponge in a hemostat, while an assistant pours on ether. Then the parts are draped with sterile sheets and towels, and the wound and surrounding skin are painted with tincture of iodin, which is washed off with alcohol. Then with a sterile sponge in a hemostat, tincture of iodin is carried to all parts of the interior of the wound. In some cases, the excess of iodin was neutralized with alcohol and in some not. Usually, one or more sutures are employed to close a gaping wound loosely, that is, with spaces between the sutures wide enough to permit free escape of wound secretions into the gauze dressings. After the first few cases treated in this way, the cast was then made to cover the whole limb, including the wound.

When operation and direct fixation of the fragments are resorted to, the patient is given a general anesthetic, usually ether, and the limb is prepared carefully with ether, iodin and alcohol, as in the nonoperative method, the skin having been previously shaved. After the draping of the field of operation with sterile sheets and towels, the surgeon swabs out the entire inside of the wound with tincture of iodin. It will probably prove to be best to neutralize the excess of iodin with alcohol. The wound is then enlarged to permit better access to the fragments, which are then approximated with as little disturbance of their attachments to the surrounding structures as possible. The idea is to reach the fragments, adjust them and provide firm fixation as quickly as possible. In most cases, the necessity of promptness in this treatment has prevented the taking of a preliminary roentgenogram, and this has necessitated more exposure of the fragments for the accurate placing of screws or nails across the line of fracture and through both fragments. These were employed with the idea of diminishing the amount of foreign body in the wound. The determination of the best mode of fixation of the fragments is a question that needs more attention. By this time the iodin has largely disappeared from the wound so that I have, in some cases, before closing the wound, filled it with dichloramin-T. In all except Case 3, drainage of the wound was avoided. The tendency has been to use chromic gut No. 2, interrupted sutures, and to leave free spaces between them so that wound secretions can escape easily into the dressings. Sterile gauze wet with alcohol is applied to the wound and this is reinforced by a considerable thickness of dry gauze and the limb is encased in a plaster cast, extending usually to the middle of the thigh.

REPORT OF CASES

The cases reported herewith illustrate various phases of compound fractures of the leg and of the results of treatment described above. In all, only the tibial fracture seemed to be compound and the small size of the skin wound indicated that it was due to penetration by the tibial fragment. The treatment of the wound as outlined above for the extension cast method and for the method by direct fixation with plates, screws, Parham-Martin bands, etc., will not be repeated for each case.

Case 1.—An iceman, aged 43, a free user of alcohol, while at work in a stable, Dec. 26, 1918, was struck on the back of the neck by a bale of hay which fell from the floor above. He sustained a fracture of both bones of the left leg, a tibial fragment protruding through the skin. The bleeding was not severe. He exhibited a heaving impulse over the precordium and a faintly palpable thrill at the cardiac apex, which was displaced downward to the sixth interspace. There was moderate cardiac enlargement and pulsation of the superficial vessels of the neck. He had a soft double murmur, heard best over the aortic area, radiating down to the sternum and not transmitted to the vessels of the neck.

He was admitted to the university hospital soon after the accident. The upper tibial fragment was protruding from the wound. The foot and both lower fragments were displaced backward and outward. The intern cleansed the wound with tincture of iodin and alcohol and applied a sterile dressing. On the same day, an extension cast was applied and the wound and surrounding skin were treated by the technic outlined above. The wound was then enlarged, the protruding fragment released and reduced, the pull of the extension cast permitting a good approximation of the fragments. The wound was closed by sutures without drainage and was dressed aseptically. It was not covered by the plaster cast as in later cases. Healing occurred without infection. The cast was removed, Jan. 15, 1919, and an ordinary one applied. The second cast became loose and a third one was applied, February 8. Two days later, he was discharged. In about eight weeks after the accident, the third cast was removed and the patient used crutches. He returned to his work about the middle of April; but he had worked only a few weeks, when heart trouble compelled him to give up again. He then remained in bed until he died in July, 1918.

Case 2.—A stone mason, aged 34, Dec. 28, 1918, sustained a compound comminuted fracture about the middle of the leg, when a large stone, weighing in his judgment about a ton, fell on his left leg. His reputation for honesty and skill as a workman was such that he was probably telling the truth. The upper part of the leg and the lower part of the thigh showed considerable contusion and abrasion. He was brought immediately to the Northeastern Hospital, where a wound was found in the skin of the inner side of the leg, just back of the tibia, at about the junction of the lower and middle thirds, or about 4 inches (10 cm.) below the site of fracture of the tibia. This indicated that the upper fragment had descended that far and had produced the skin wound which was about 1½ inches (4 cm.) long. An extension cast was applied the same afternoon and the wound was treated by the technic described above. The wound was found to be very extensive when the sterile gauze pad saturated with tincture of iodin was carried to all its parts, indicating that the tibial fragments had been extensively stripped from their attached muscles by the force producing the fracture. The roentgenogram taken afterward showed excellent position of the fragments.

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[2] Thomas, T. T.: S. Clinics N. America **1**: 207 (Feb.) 1921.

As in the preceding case, the wound area was not covered by the cast. Jan. 21, 1919, a new cast was applied, the wound having healed without infection, and, February 1, the patient was discharged. He was readmitted, February 25, on account of poor union of the fracture which was plated on the following day. He was again discharged in a cast in two weeks with an open wound and returned, April 14, for removal of the plate and two pieces of dead bone. The union was not solid and, May 22, he began to wear a walking brace. He seemed to have developed solid union about July 1, but continued to wear the brace until about the middle of the following November. He had begun to work as a stone mason, September 1, and has continued to do so ever since, earning his full wages from the beginning. He now has one-half inch (1.2 cm.) shortening in the affected leg, with slight external bowing but excellent function.

Case 3.—A Lithuanian laborer, aged 48, April 1, 1919, sustained a compound fracture at the junction of the lower and middle thirds when a heavy load of steel rods fell onto his right leg. He lost much blood and was brought to the Northeastern Hospital immediately after the accident, where open reduction was performed within a few hours, with essentially the technic described above. This was the first case of this group in which the open method was adopted and a rubber drainage tube was employed. A plaster cast was applied with a hole cut in it over the wound, to enable the wound to be dressed. Within a few days the edges of the wound separated slightly, exposing the plate to view. Slight infection of the wound followed. The tube, plate and screws were removed at the end of two weeks and a new cast was applied with an opening in it for drainage. The patient was put on crutches with the idea that better drainage from the upright position would be worth while. He was discharged a few days later, with the request that he return to the dispensary for further dressings. The thought was entertained that because of the benign character of the wound, which discharged slightly, going about in the open air would influence favorably the healing of the wound and would bring about earlier bony union. This did not meet with the patient's approval and he gained admission to another hospital, May 13.

The evidence appears to show that expectant treatment was followed, that is, new and larger openings were provided and the limb was kept continuously in a cast, a new one being applied from time to time. During his stay in the hospital and afterward he says that eleven pieces of bone were removed from the wounds. He remained in the hospital until Nov. 13, 1919. The wound has since broken open a few times, usually with the extrusion of a piece of bone, the last time in June, 1921. He returned to his usual work in May, 1920, and has been able to perform such work continuously since, except when there was no work for him. He has now (April 1, 1922) three-fourths inch (2 cm.) shortening; the bone is somewhat thickened about the fracture area; the bony union and motion at the ankle are excellent, and so far as he can judge the leg is as good as it ever was.

Case 4.—A boy, aged 14, was knocked down by an automobile, July 4, 1919, the wheels passing over both legs and breaking both bones in each leg. The fracture was compound in the left leg. The patient was brought promptly to the Northeastern Hospital. Dr. John A. Broadfield was called immediately and began to operate on the compound fracture very soon afterward. There was some comminution and considerable displacement of the fragments; but by traction and manipulation, they were placed in excellent position and fixed by a plate and six screws. The wound was swabbed out first with tincture of iodin and later in the operation with dichloramin-T. It was closed without drainage except for free spaces between the skin sutures. A plaster cast was applied. The fracture of the right leg was treated in a fracture box, the deformity being slight. July 8, a window was cut in the cast and the wound inspected. A dark brown secretion was exuding, but evidence of infection was slight. July 18, the wound was partly open and the plate was visible, a creamy pus escaping. The temperature rose to 100.4 F. on the day following operation, subsided to normal in about ten days and remained about normal afterward. The pulse did not rise above 110 after the day of operation, on which it reached 150. September 12, a new cast was applied with an opening for drainage of the wound. The patient was discharged from the hospital, September 24. December 8, he was readmitted for removal of a small sequestrum and curettage of the bone in the fracture area and was discharged three days later. The cast was removed, March 15, 1920. He began to walk first with crutches and later with a cane. The wound was completely healed about the middle of June, 1920. Strong bony union developed, with slight external bowing of the leg, due to a softer union in the early weight-bearing stage. So far as he can judge, this limb is now (March 15, 1922) as good as the other; but there is a shortening of one-half inch (1.2 cm.), with perfect motion in the ankle and knee and apparently perfect strength in the leg.

Case 5.—A motor truck chauffeur, aged 22, sustained a compound comminuted fracture of the tibia and a fracture of the fibula when one wheel of a motor truck passed over his left leg. He was brought promptly to the university hospital where an intern found a wound in the skin about the size of a half dollar, through which the end of the tibial fragment could be seen. There was free bleeding from the wound. The intern cleansed the surrounding skin with tincture of green soap and alcohol, cleansed the wound and packed it with sterile gauze wet with dichloramin-T because of the hemorrhage. On the same day I applied an extension cast and treated the wound with the technic described above for the extension cast cases. It was observed at this time that the extension exerted on the leg by the cast rendered the skin over a considerable area of the front of the leg pale. It was thought at the time that this was only a temporary disturbance of the circulation which would disappear later, especially as a similar effect had been noticed in previous cases of simple fracture of the leg with no later untoward effect. December 2, the wound showed evidence of infection and on the following day a small quantity of pus was evacuated and the Carrel-Dakin technic instituted. December 3, the skin over the front of the leg in the area made pale by the extension, about the size of the palm of the hand, showed evidence of necrosis. From this time on it was necessary to care for an increasingly suppurating wound, associated with the sloughing surface tissues. Jan. 10, 1920, the extension cast was removed and a fracture box was substituted, the loss of the extension becoming evident in a recurrence of the deformity of the fragments. January 13, under ether and with a liberal use of tincture of iodin, two Parham-Martin bands were applied, which held the fragments in accurate apposition so that the fracture box could still be employed. About five weeks later a posterior splint was substituted for the fracture box, which permitted better care of the discharge. February 10, the Carrel tubes were dispensed with and on the following day he was put in a wheel chair. March 17, since we believed that the fragments would now maintain their good position without their support, we removed the bands from the fragments, together with a loose piece of bone. However, the foot and the lower fragments from their own weight slowly turned inward, causing a slight varus deformity. April 7, the patient was sent home on crutches, where the rather large granulating surface was to be treated by his family physician. In September a walking brace was applied, which enabled him to walk about without the support of a cane, and about a month later he went to work in a machine shop on a drill press. About Jan. 1, 1921, he again gave up work and did not try again until about the middle of the following September, when he went back to his old work as a motor truck chauffeur. He has been able to do this kind of work since except for the idleness enforced by the following operation. March 7, 1922, in the university hospital, I performed a skin graft operation on the unhealed granulating, wound surface, which was about the size of the palm, with much success. April 27, there remained three unhealed irregular spots, each approximately a half inch (1.2 cm.) in diameter. There was no shortening, about a half inch (1.2 cm.) elevation of the heel, slight varus position of the foot and about half of the normal motion of the ankle.

Case 6.—A blacksmith, aged 61, slipped on the ice, Feb. 8, 1920. He was brought immediately to the university hospital where he was found to have a fracture of both bones of the left leg at the junction of the lower and middle thirds, that of the tibia being compound. On the same day an extension cast was applied and the wound treated as outlined above. A roentgenogram taken afterward showed the fragments in excellent position. February 19, the leg was movable in the cast, which did not cover the wounded portion of the leg. The cast was then made to cover the whole leg, a small hole being cut in it over the wound for purposes of dressing. February 25, it was discharging a small quantity of pus. Dichloramin-T dressings were applied. April 20, the cast was removed. There was union of the fracture. The pus had, however, slowly increased and burrowed to the region of the ankle. Under gas anesthesia better drainage was afforded at the original opening and at the ankle. June 3 he was discharged to return to the surgical dispensary for dressings of the wound. He reported that after two visits the wounds closed and he returned to work. He gave up again in a few days on account of a perineal abscess. I did not see him after he left the dispensary until March 20, 1922. In July, 1920, he was admitted to another hospital, where better drainage was provided and where he remained for four or five months. He has not worked since but he intends to return to work very soon. March 20, 1922, there was no sinus, he had about a half inch (1.2 cm.) shortening, considerable limitation of motion at the ankle and slight elevation of the heel from shortening of the Achilles tendon.

Case 7.—A girl, aged 15, was admitted to the university hospital, Aug. 8, 1920, with a compound fracture of the left leg. With the technic described above, an open reduction was performed after the wound had been enlarged and the fragments accurately approximated and fixed by driving two long nails through both, across the line of fracture, which was somewhat oblique. The wound was closed without drainage, a sterile dressing applied and the limb, including the wound, was completely covered by a plaster cast, extending from above the knee to, and including, the foot. No infection developed. She was discharged, August 18, to return later for the removal of the cast.

She did not return but was attended at home by her physician, Dr. William B. Ewing, who split and removed the cast at the end of seven weeks, reapplying it and keeping it on until three months after the fracture occurred. When the cast was first removed, the gauze covering the wound was moist with a dark serum. The end of one nail, which appeared at a small opening, was removed. Union of the fracture was not firm until the end of three months, when the sinus was closed. April 30, 1922, I found one-half inch (1.2 cm.) shortening, with a very slight posterior bowing at the seat of fracture, shown by the roentgen ray. The mother and the patient said that her friends could not tell from the appearance which limb had been fractured, while the function of the limb was perfect.

Case 8.—A boy, aged 15, Dec. 7, 1920, was kicked in the right leg by a horse, a compound fracture of the tibia and a fracture of the fibula resulting. He was brought at once to the university hospital and an open reduction and fixation of the tibial fragments by three nails was performed on the same day, with the technic described above. The wound and dressing were enclosed completely by a plaster cast from above the knee to, and including, the foot. No infection resulted. He was discharged, December 21, and returned four weeks later to have the cast removed. He used crutches or a cane for a month more before beginning to bear weight on the fractured leg. He returned to the hospital, Aug. 15, 1921, with a small discharging sinus over the seat of fracture. The bone was exposed and this sinus was found to come from a loose nail, which was removed. The other two nails were so covered by bone that they could not be found easily and were not removed. The wound was swabbed with tincture of iodin and closed without drainage, and it healed without infection. He was seen, March 19, 1922, at which time there were perfect shape and function of the limb, with no shortening.

Case 9.—A man, aged 65, spare but in good health for his age, who lived largely an outdoor life, May 5, 1921, was thrown from a railroad "work car," sustaining a compound fracture of the left leg in the lower third. He was brought to the university hospital on the same day, and in the receiving ward the leg was cleansed and a sterile dressing applied by an intern. The upper fragment had become engaged in the skin after penetrating it and had carried this skin back into the wound underneath. On the day of admission, an extension cast was applied by the technic referred to above. It was necessary to make a longitudinal incision, about 2 inches (5 cm.) long in order to release and reduce the engaged end of the protruding fragment. Under the traction exerted by the extension cast and with a little direct pressure on them, the fragments were well approximated. The wound was closed by chromic gut sutures without drainage and completely enclosed in a plaster cast from above the knee to, and including, the foot. The after-course in this case was especially interesting. The temperature and pulse seemed to indicate that no infection had taken place; but soon after operation, the patient began to complain of much pain about the seat of fracture, so that it became necessary to give him morphin for relief. May 20, fifteen days after the fracture and its reduction, the cast was removed in order that the cause of the pain might be discovered. The removal necessitated the administration of gas-ether anesthesia. The sutured wound margins had separated about three-fourths inch (2 cm.), at the widest part, and the upper fragment could be seen. The external margin of the wound had undergone some necrosis and the gauze covering the wound had become wet through with a discharge resembling pus. The wound cavity was cleansed thoroughly with sterile gauze sponges, swabbed with tincture of iodin and then alcohol, and a sterile gauze dressing, wet with dichloramin-T, was applied. This was fixed by a bandage. The fragments, from the loss of the special cast extension, had lost their good approximation and overlapped somewhat. They were straightened as much as possible and a new cast was applied from above the knee to, and including, the foot, covering the wound and dressing completely. June 7, four weeks later, it was noted that there had been no evidence of infection shown by temperature, pulse or general condition, but that for the preceding few days there had been some pain at the seat of fracture, with a slight rise in temperature which otherwise would not have been considered important. On this day an opening was made in the cast and the wound exposed. It was distinctly smaller and cleaner than four weeks before. A new sterile gauze dressing saturated with dichloramin-T was applied and held firmly in position by adhesive plaster strips, applied over the cast opening.

The patient was discharged, July 15, without any inspection of the wound since the last dressing four weeks before, there having developed no signs of infection in the meantime. After twenty days more, August 4, he was brought back to the hospital and the cast and dressing were removed, a very interesting condition being disclosed. When the first cast was removed and the free discharge was found in the wound, in addition to the absence of constitutional signs of infection there were no local signs, other than the discharge, that is, no redness, tenderness, edema or any appreciable thickening of the tissues. Eight weeks later, without any attempt at drainage, the puslike material had entirely disappeared and the wound, so far as gross appearances were concerned, was perfectly clean. The granulations, apparently from the bone, had so grown into the meshes of the gauze that the latter could be removed only by tearing away these granulations, leaving a freely bleeding surface. There was good bony union. This surface cicatrized without difficulty soon afterward. December 28, it was noted that he was walking with a limp and was using a cane which he expected soon to dispose of. He returned to office work, March 1, 1922. The roentgen ray revealed posterior angulation at the seat of fracture, and he still had some elevation of the heel from contraction of the Achilles tendon. With a thickening of the heel of the shoe, he walks very well without support and has returned to his work in the woods as a tree inspector.

Case 10.—A colored man, aged 38, Sept. 14, 1921, was knocked down by an automobile, sustaining a compound fracture of the left leg in the lower third. He was brought immediately to the university hospital and operated on a few hours later, the technic described above being employed. The wound was about 2 inches (5 cm.) long and almost transverse. It was enlarged longitudinally to about 3½ inches (9 cm.) in this direction after the whole wound had been swabbed out with tincture of iodin. The fragments were then approximated and fixed by an ordinary wood screw passed obliquely across the line of fracture through both. The wound was then closed completely, a sterile gauze dressing wet with alcohol being applied as well as a plaster cast extending from above the knee to, and including, the foot. No infection followed. He was discharged, September 27, walking on crutches. Following a suggestion of another surgeon on this day, the cast below the ankle was removed and two "stilt" like pieces of wood splint were applied, one on each side of the cast, and made to project below the foot. These were incorporated in the cast by additional rolls of plaster-of-Paris bandages, the object being to furnish an ambulatory cast and allow free movement of the ankle. On the following day, I permitted him to walk on this "stilt" cast. November 15, about nine weeks after the operation and accident, this cast was removed and a small discharging sinus was discovered over the fracture. This had been covered completely for seven weeks by the cast without giving any detectable signs of infection, constitutionally or locally, the patient repeatedly having stated that he experienced neither pain nor discomfort in this region. The gauze covering the wound was somewhat thicker than the hand and considerably longer and wider. It was slightly moist over an area about the size of the palm, excluding the fingers, with what looked more like dark blood than pus, that had escaped from the very small sinus. There were no local signs of inflammation in the surrounding skin or deeper tissues. After cleansing the sinus opening and skin about it with tincture of iodin and alcohol, a sterile gauze dressing moistened with dichloramin-T, and another cast like the preceding one but including the foot and without the "stilts," were applied. A week later he was advised to walk on the cast, the idea being to take advantage of weight bearing for its possible influence in favoring the development of bony union. Jan. 3, 1922, after walking on it for fifty-one days, during which neither the wound nor the sinus was exposed, the cast was removed. The sinus was still discharging and bony union had not occurred. There had been no local or constitutional signs of infection at any time except the discharge. January 10, the screw was removed and the bone curetted at the site of the sinus and screw. The wound was then swabbed out with tincture of iodin and completely closed with catgut sutures without drainage. Another cast extending from above the knee to, and including, the foot was applied. Since no signs of infection developed, this cast was not removed until February 28, seven weeks after it had been applied. There was now no evidence of a sinus, the wound having healed completely; but there was still motion at the seat of fracture: The use of a walking brace was ordered and he began to walk on it, March 17.

Case 11.—A farmer, aged 26, Oct. 8, 1921, was knocked down by an automobile. He was taken immediately to a neighboring private hospital where he was found to have a compound fracture of the leg with a small wound in the skin, at about the junction of the middle and lower thirds of the leg. Dr. Samuel Bruck was called from Philadelphia on the following day and had the patient transferred to the Northeastern Hospital of Philadelphia, about thirty-six hours after the accident, and I saw him soon afterward. The roentgenogram taken by Dr. Bruck revealed a comminuted fracture of the tibia and a fracture of the fibula, the tibial fracture being compound. An extension cast was applied at once with excellent reduction of the considerable displacement, and the wound was treated by the technic described above. No infection resulted. The cast was removed, October 27, when the wound was healed completely. A new cast was applied without including the foot, and side splints were so encased in the cast that they projected below the foot like stilts, the object being to permit walking on the cast with freedom of movement at the ankle. October 21, the patient was discharged to walk on crutches; but a week later he was permitted to walk on the "stilt" cast without crutches. Finding that the stilt cast in Case 10 had resulted in the formation of a sinus and delayed union, November 20, it was removed from this patient and a new cast was applied from the middle of the thigh to, and including, the foot. Soon afterward he was permitted to walk on this cast without crutches. Jan. 10, 1922, he had been walking on this cast about six weeks when it was removed and firm bony union was found at the site of fracture. January 26 he could walk very well except for an exaggeration in the foot of the fractured limb of a normal tendency to flatfoot, due to a slight abduction of the lower fragments at the seat of fracture. He had normal motion in the affected ankle and a shortening of this limb of one-half inch (1.2 cm.). He could then do much, but not all, of his farm work.

Case 12.—A boy, aged 16, Oct. 29, 1921, was working as a huckster when a horse fell on him. He sustained a compound fracture of the right leg, which was caught under the horse. There was a wound about an inch and a half (4 cm.) long on the medial side of the leg, about 6 inches (15 cm.) above the ankle joint, the tibia being broken a few inches higher and the fibula at about the same level. There was about an inch (2.5 cm.) shortening of the limb. He was brought immediately to the Northeastern Hospital; and a few hours later a longitudinal incision, about 6 inches (15 cm.) long, was made over the front of the tibia, not including the wound, which made the fracture compound, with the technic described above. The fragments were approximated and fixed by two screws, passed obliquely through both fragments across the line of fracture. The wound was closed completely, and a sterile gauze dressing wet with alcohol was applied over it, the limb being completely enclosed in a cast from the toes to the middle of the thigh. No infection followed. He was discharged from the hospital, November 22, walking on crutches. The cast was removed eight weeks after the accident and he could walk without crutches soon afterward. He had not worked since the accident because he could get no work to do; but he says he was able to work a few weeks after the cast was removed. April 16, 1922, he had no shortening, the leg was perfectly normal in shape and length, except for slight thickening of the bone about the fracture area and he had perfectly normal function in the limb.

Case 13.—A railroad brakeman, aged 39, Nov. 20, 1921, while shifting cars, was "sideswiped" by a passing car and thrown to the ground, his right leg especially being injured. It bled profusely and he arrested the hemorrhage partially by tying a handkerchief around the leg. A little later he was found by a fellow workman, who stopped the bleeding completely by tying the tourniquet tighter. He was brought immediately to the university hospital where he was attended by the chief resident physician, Dr. Cook. The upper fragment was protruding through a skin wound. The leg of the underwear had also been penetrated and had been so entangled in the fragment that it had been carried into the wound and could be withdrawn only with considerable force. The surrounding skin was cleansed with tincture of green soap and a sterile dressing was applied without reducing the fragment into the wound. A Thomas splint, with a loop of bandage around the ankle for traction, was applied. Operation was performed about five hours after admission. The skin wound was situated over the antero-internal surface of the tibia and was from 2½ to 3 inches (6.5 to 7.5 cm.) long, its edges gaping an inch (2.5 cm.) or more in its widest part. With the technic described above the wound was enlarged to about 6 inches (15 cm.); the fragments were approximated and fixed by two screws passed obliquely through both fragments, the line of fracture being only slightly oblique. The wound was closed without drainage, a sterile dressing wet with alcohol and a cast extending from the middle of the thigh to, and including, the foot were applied. Since no signs of infection developed, the patient was discharged, December 3, walking on crutches. The cast was first removed and the wound exposed eight weeks later. There was some purulent discharge and odor. A granulating surface was found along the site of the incision, about 1½ inches (4 cm.) long and about three-fourths inch (2 cm.) wide, with a small sinus extending to the seat of fracture not large enough to admit an ordinary probe. This was laid open, and the loose screws removed. The surfaces of the sinus were curetted, including the granulating skin surface, and after covering the sutured wound edges with a sterile gauze dressing wet with dichloramin-T, they were all covered in completely by a plaster cast from above the knee to, and including, the foot. There being no constitutional or local signs of infection in the meantime, this cast was not removed for five weeks, March 14. The wound was again opened; the line of fracture well curetted and the wound kept wide open by gauze packing. There was not the slightest tendency toward burrowing of pus away from the line of fracture. A cast similar to the others was applied with a considerable opening over the wound for dressings. This cast was removed, May 2, and union seemed firm. The wound was almost healed and showed little discharge. Another cast was applied with an opening in it for dressing the wound. The limb seemed perfectly normal in shape, and measurement showed no shortening.

Case 14.—A huckster, aged 32, Jan. 5, 1922, as he stepped from a moving motor truck weighing about a ton and a half, slipped on the ice and fell, one back wheel of the truck passing over both legs. He was brought immediately to the university hospital. Both bones of each leg were fractured, the left in the upper third and the right a little below the middle. Lateral splints were applied to the former and a fracture box to the latter. On the following day, it was observed that the patient could not sleep on account of excessive pain, especially in the left leg and that the foot on this side was becoming cyanosed. A fracture box was substituted for the lateral splints on this leg and an extension cast was applied to the right leg which improved the positions of the fragments that had shown about a half end-on approximation. During the first week, the left leg and foot appeared to be becoming gangrenous; but in the succeeding days this condition ameliorated until the gangrene was limited finally to a few toes and the heel. January 22, the extension cast was removed from the right leg. The simple fracture had become infected and pus was exuding through a small skin opening over the tibial fracture, converting the simple into a compound fracture. The intern, Dr. H. W. Williams, gave it close attention and used the Carrel-Dakin technic. The infection gradually subsided and, February 9, a cast was applied with a hole for dressing the wound. The treatment arrested any tendency to burrowing of the pus, such as developed in Cases 3 and 6. February 23, the fracture area was curetted and several pieces of bone were removed, the wound being then packed with gauze. April 11, the fracture area was again exposed; three or four completely loose pieces of dead bone were removed and the overhanging cortical portions of bone on each side of the fracture were chiseled away so as to expose well the softened fracture line, except in the small portion where the bone surfaces had united. The whole wound was kept as wide open as possible to encourage drainage and healing by granulation.

COMMENT

In thirteen of the fourteen cases, the treatment was that outlined in the preliminary remarks. In six of these thirteen, the extension cast was employed and in seven the operative method, without extension, was used. In three of the extension cast cases, primary healing was obtained and in three secondary healing. In two of the seven operative cases, primary healing resulted and in five secondary healing.

The end-result in every finished case has been excellent, except for moderate internal rotary deformity of the lower fragments in Case 5. This patient was able to follow his old occupation as a motor truck chauffeur, although he has preferred other and lighter employment up to the present time. He did go back to the truck long enough to satisfy himself that he could do this work.

Although other phases deserve attention, the character of the healing with complete closure of the wound and covering it with a plaster cast is most interesting and most deserving of the space and time allotted to the subject. The cases in which primary healing was obtained need no further attention. This may be most advantageously restricted to those in which failure occurred. The outstanding feature of the remaining eight of the thirteen was the absence of the ordinary signs of infection, such as developed in Case 14, which was not compound to begin with. Even in Cases 3, 4, 5 and 6, pain, redness and edema were conspicuous by their mildness or absence. In Case 5, the greatest interest attaches to the effect of the extension, which immediately produced an anemia of the skin and was followed by necrosis of the corresponding area of skin and subcutaneous tissue and this by slow separation of the necrosed tissue and prolonged suppuration. But there was at no time severe or positive inflammation of the surrounding living tissue. In the midst of this suppuration, with a liberal use of tincture of iodin for disinfection, the Parham-Martin bands were applied and well tolerated for nine weeks. Some burrowing of pus occurred, but was by no means extensive.

The most interesting individual case was Case 9, the developments in which were responsible for the unusual course pursued in Cases 7, 10 and 13. Had they followed instead of preceded Case 9, Cases 3, 4 and 6 might have been treated as Cases 7, 10 and 13. There was no sequestration of bone nor any burrowing of pus in the latter three. My own feeling is that mobility at the seat of fracture was responsible for the sinuses in these and might readily have prevented primary healing in Cases 3, 4 and 6, although the drainage tube in Case 3 may have been responsible. I am inclined to attribute the delayed union largely to such mobility. The importance of it in the breaking down the wound technic after the open treatment of fractures has probably not been sufficiently appreciated. Muscle contraction very likely is capable of producing such mobility, even when the limb is immobilized in a plaster cast, extending far above and below the seat of fracture. In not a few cases of simple fracture of the shaft of the femur in which plating has been peromed, a firm close cast, applied from the chest to, and including, the foot, and primary healing obtained, the roentgen ray has later showed the plate lifted from the bone at one end and the screws obviously loose. In my opinion, the mobilizing effect of muscle contraction on the fragment ends is the most likely explanation of this condition.

Since the completion of this paper, I have operated on two patients with compound fracture of the middle of the humerus, using the tincture of iodin technic. The first was a woman, about 55 years old, who was knocked down in the street by an automobile, March 14. After one week's unsuccessful attempt by a physician to correct the deformity, during which time the wound was drained by a piece of rubber dam and a tube, I plated the fracture, March 21, introducing a drainage tube in the lower angle of the wound. The dressings were not changed for nine days, when the tube was removed and the wound redressed without drainage. All dressings and splints were removed finally at the end of six weeks and two days, when bony union seemed to be firm, as determined by palpation and the roentgen ray.

The second patient, a boy, aged 10 years, fell from a height of about 18 feet (5.5 meters), May 13, 1922. The fracture was plated on the following day and the dressing applied then has not been removed since. When I left home, March 21, seven days after operation, he was very comfortable and had not shown any signs indicating infection of the wound.

CONCLUSIONS

1. It is probable that most compound fractures of the leg are made compound by the protrusion of a fragment end through the skin, and that, consequently, the associated wound cavity is primarily free of infection, except for that introduced by contact of the usual small wound surface and the protruding fragment end with adjacent objects, such as soiled clothing, dirt and other foreign bodies.
2. The ordinary aseptic technic to prevent the introduction of more infection and the thorough swabbing out of the entire wound cavity to overcome the infection already present may be justifiably followed by complete closure of the wound without drainage.
3. Improvement in results should be sought chiefly in a method of perfectly immobilizing the exactly adjusted fragment ends. Success in finding such a method would materially increase the number of cases in which healing by primary union of the soft tissue wound and by primary union of the bone fragments occurs.
4. The final results in this group of thirteen cases are much better than could be expected without the early accurate adjustment of the fragments and the cleansing effect of the tincture of iodin.

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ABSTRACT OF DISCUSSION

Dr. F. B. St. John, New York: As Dr. Thomas has said, the leg is the most common site of compound fracture. He further states that the ideal treatment is that which avoids suppuration and converts the compound into a simple fracture, and in this I heartily concur. I cannot quite agree that the most important question connected with compound fractures of the leg in general is to determine whether the wound and fracture are caused by direct or indirect violence. It would seem to me of equal importance to determine the extent of injury to skin, soft parts and bone, and the probable amount of contamination, whether it be due to an external object directly causing the injury, or to soil, clothing or skin; and by extent of injury is meant the amount of devitalization of bone fragments or soft parts. In the consideration of the type of compound fracture with which Dr. Thomas deals, we assume a relatively small wound made by the bone with the minimum amount of devitalization of bone fragments and soft parts, with, in the usual case, a relatively small amount of contamination; but it is not always the case in compound fractures of the leg caused by indirect violence, and this should be emphasized. Any rational form of treatment which adequately obtains and maintains reduction is desirable, and, in general, the simpler the fixation apparatus, the more desirable it is. The second principle, viz., to combat infection, the result of contamination already acquired, and to prevent the introduction of any more, is of equal importance, and I would add the prevention of dissemination of already acquired contamination by careless examination or unnecessary manipulation of parts. In my experience, it has been unnecessary to resort to the open operation for obtaining and maintaining reduction in this type of fracture, as we have found that overhead suspension with traction has been satisfactory. We also use simple molded plaster splints, including the foot and extending well above the knee, with wide fenestration at the site of the wound. In rare cases which do not respond to an intelligently applied closed method, temporarily maintaining reduction by internal fixation, especially a plate with screws, never wire bands, may be desirable, but should be applied only by a surgeon with wide experience in successful operative bone work. The open operation with internal fixation adds an unnecessary element of risk, especially with primary closure. We not infrequently employ partial or complete secondary closure of these wounds, as when the bone is actually exposed, and after the immediate danger of infection has passed. Obtaining and maintaining reduction by well applied external means without primary suture I believe to be the safest form of treatment, especially in the hands of the average surgeon; and it must be remembered that it is he, and not the specialist, who treats the great majority of the usual compound fractures of the leg.

Dr. Fred W. Bailey, St. Louis: It has been a question in my mind whether the suggestion of Dr. Thomas is a distinct improvement. Experience, of course, is the best teacher. My experience with simple compound fractures due to indirect violence, and such cases as he reports, is that they are by far the least troublesome. I agree with him in the necessity of getting to these cases early before extraneous infection has taken hold, and of careful preparation of the field, surgical cleanliness, and the removal of all devitalized tissues after careful preparation of the field. I agree with him in the value of alining and holding in position the fractured ends, and in the main, with internal permanent fixation in selected cases. Mobility, though slight, at the fracture site, such as often occurs in a cast with considerable padding, offers less hope for complete primary union. Sterilization of the wound and surface is a prime essential. Pure iodin followed by alcohol may possibly do harm; while it may control infection brought in to a degree, at the same time by further devitalizing the traumatized tissues a condition may be created which is ideal for the increase of infection. The best method of treating a recent compound fracture, indirect in type, is thorough sterilization of the field as for a major surgical operation, apposition of the ends of the bone after the wound itself has been properly cleansed, the use of some good chlorin product, by the Carrel-Dakin method for two or three days, then removal of the drain, and observation through a fenestrated cast; we then have the best reason to hope for an ultimately good result. As for putting the plate in position in acute fracture, I think it is a thoroughly justifiable surgical procedure in selected cases; but such cases are extremely rare. I am still too timid to take any compound fracture, direct or indirect, close it and place it permanently in a cast, depending on the blood picture, pulse and temperature as to whether they are running a benign course.

Dr. W. D. Coughlin; St. Louis: I do not yet know how to tell whether I am dealing with a noninfected compound fracture. It is true in many cases that the patient soon converts his small wound into a healed wound and so he has made a simple fracture of a compound fracture, but I have seen so much unnecessary mutilation and so many unnecessary deaths as a consequence of having had these noninfected fractures closed promptly, without drainage, that I am unalterably opposed to it. I do not believe that any compound fracture wound should be closed up by any one and every one. If Dr. Thomas and others like Dr. Thomas choose to treat a fracture in any particular way, I have nothing to say; but as a matter of teaching what should be taught to the rank and file of the profession, I think I am quite safe in saying that there are about four fundamental principles to be observed in the treatment of compound fracture: one is cleanliness, to remove devitalized tissue. I do not understand how in a noninfected fracture there can be very much devitalized tissue. The second is reduction, and third, the most essential principle in the treatment of a compound fracture, permanent and absolute fixation, if it is possible to obtain it. How to make drainage depends altogether on the experience of the operator. If he has no experience, the patient will be better treated if provision is made for drainage, but there should be fixation, reduction and cleanliness. No attempt should be made to close the wound. Whether to use a plate at the time of first treatment must be considered, but it ought to be the concensus of opinion of teachers of surgery that the less you meddle with compound fractures the better off the patient will be.

Dr. Florus F. Lawrence, Columbus, Ohio: One of the things that was settled years ago was the way fractures healed and the rarity with which osteomyelitis followed compound fractures. Infection of the bone is the exception, and generally if there is infection it is of the soft parts. The most dangerous type of infection is with the tetanus bacillus. When we remember that oxygen is the natural defense against tetanus, it follows that if we cleanse the wound thoroughly with oxygen, or hydrogen peroxid, we may obviate any possibility or danger of tetanus. So, in the past twenty years or more, in all compound fractures, I have enlarged the opening when necessary to obtain complete hemostasis and to expose the bone, that it may be sutured or wired or nailed. I then flush the wound with a solution of hydrogen peroxid and close it. The fact that we have been treating bone does not mean that we must drain. A wound of bone unites as readily as a wound in soft parts if we give it the same opportunity, if we suture, nail or wire the fragments, removing those parts that are devitalized, or liable to become necrotic, and, above all, remove seriously damaged soft tissues from the wound and leave the wound protected. As Dr. Thomas suggested, we can close compound fractures and secure 95 per cent. uninfected wounds and primary union of both the bone and soft parts with perfect anatomic and functional results.

Dr. Isidore Cohn, New Orleans: I have been teaching students to treat as many of these fractures as simple fractures as possible. Thus I would excise what seems to be devitalized tissue and pack the wound with dichloramin-T, but never suture primarily. In all these cases we give antitetanic serum. Moreover, after excision of devitalized tissue, we do not put on plates or wire. There is a possibility of infection in compound fractures, and in the event of this, plates and screws become loosened and are not as effective as they might be. We use the portable roentgen-ray apparatus and immediately reduce the deformity by the McKenna traction table. We have been greatly pleased to see end-to-end apposition in most of the cases. In my own work, it has not been necessary in a single case to put on a plate or use wire or screws or anything of the kind. One thing that impressed itself on me was the use of a cast by Dr. Thomas for nine weeks without changing. If we leave a cast on nine weeks, the muscles will atrophy and contractures will result. In order to obtain the best results, it is necessary to change casts frequently, to give baths and massage as well as resistive exercises. The nonweight bearing brace diminishes the period of total disability.

Dr. H. W. Orr, Lincoln, Neb.: I must confess to a certain measure of astonishment when I hear certain points with reference to the treatment of fractures debated that have been debated here this morning. One or two of the speakers have pointed the way to a solution of our problems, emphasizing the point that we must adhere to fundamentals. First of all, we must have anatomic reposition of injured parts at once and must maintain good relationship till healing occurs. If we disregard these two things, we have disregarded the principles that are essential for good results. To talk of putting metal plates regularly into compound fractures is suggesting something which, in the light of our war experience, no possible percentage of results can possibly justify. With our present resources in the matter of proper reposition and immobilization with Thomas splints and such adjuncts as ice tongs and bone pins, it is never very difficult to get proper position and to retain such position until there is good healing.

Dr. Daniel F. Jones, Boston: It is undoubtedly true that men of large experience can select the cases in which there may be closure without drainage, but for the average surgeon, the closure of compound fractures is a dangerous procedure. It is particularly dangerous to close the wound without drainage after putting in a steel plate. We must not forget that the great majority of these fractures of the lower leg can be held in position by traction. If skin traction or the Sinclair skate cannot be used, sufficient traction can always be obtained by a pin, either over or through the os calcis, to hold the fragments in place.

Dr. William Fuller, Chicago: I believe that practically all surgeons agree that the use of any foreign material such as screws, plates and wire, in the treatment of compound fractures, is a serious mistake, except in very rare instances. The first and prime consideration in all compound fractures is the prevention or elimination of infection in the wound. So important is this that the bone lesion itself may, with advantage, be ignored at first, except for some simple appliance which will prevent further trauma of the soft parts by the sharp ends of the fragments. Time does not appear to be valuably spent when we occupy it at this late day in discussing papers advocating the use of foreign material in the treatment of the fractures of the long bones, especially compound fractures. It is reasonable that the manipulations necessary to introduce foreign material for the purpose of holding a fracture will add a great and serious element of trauma to tissues already damaged in compound fractures. Such measures cannot be condemned too emphatically.

Dr. Dennis W. Crile, Chicago: I have recently had an opportunity to look up the results in a large number of fractures of the leg. The period of disability was five times as long in those cases in which internal fixation had been used as it was in those treated without any sort of internal fixation. I think the use of metal fixation is a vicious practice when dealing with compound fractures, with rare exceptions. The worst results I have ever seen have been those in which metal has been introduced in the presence of infection. We never introduce any metal or foreign substance into any compound fracture.

Dr. T. Turner Thomas, Philadelphia: I laid before you what I had been doing with compound fractures of the leg, the why of it and the results. Can any one show where internal fixation has done damage? There has not been a single case in which the fear of infection concerned me. Give me a method by which I can absolutely immobilize these nicely adjusted fragment ends and I am confident that I shall show a greater percentage of primary healings than I have reported today. To have used a method of continuous extension, in my opinion, would have favored unsatisfactory development and, with drainage, would have favored infection. I wanted a method that would give firm fixation of the fragments and as nearly perfect reduction as possible at one sitting, with thorough cleansing of the wound. I believe that no one has yet shown better results in a similar number of cases of the same kind. Nearly every case had a nearly normal end-result. Neither life nor limb was threatened in any case and I lost no sleep. What I have been interested in much more than in these compound fractures is to establish the idea that most fractures of the long bones, including compound fractures, are due to a fall and consequently to indirect violence. If this is true, then most of these compound fractures are being presented to us with perfectly clean wounds, except for what infection the usually briefly protruding fragment and small surface may pick up. May not tincture of iodin be trusted to neutralize that? Some one said that he could not tell which wound was infected and which was not. No one can. But believing in the fracture mechanism, I tried out this method of treatment with caution and it worked. In the early cases, I kept the wounds uncovered by the cast, ready for quick exposure on the slightest indication of infection. Continuing experience brought increasing confidence, and an increasing desire for perfect immobilization, so that the close fitting complete cast was later resorted to and never afterward abandoned. I cannot see that I should hold myself responsible for what some one else may do with the method. On the other hand, it might well happen that in the hands of the average surgeon it would give better results than the methods which have been in vogue. In some of the early cases, the small amount of pus burrowed persistently for a long time, but even in them I had far less trouble than in similar cases treated by open methods. Again let me emphasize that the pathogenesis of the compound fracture offered here is an offspring of the general mechanism of fractures and dislocations already mentioned and that they are expected to stand or fall together.

THE CHAULMOOGRA OIL TREATMENT OF TUBERCULOUS LARYNGITIS

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Recently Lukens[1] called attention to the use of chaulmoogra oil in the treatment of tuberculous laryngitis, stressing the relief of pain and dysphagia which followed its use. Certainly, any agent which is capable of relieving the distress caused by an actively tuberculous larynx is worthy of the utmost consideration, and should be given a trial.

Although the use of chaulmoogra oil has been attended by quite markedly beneficial results in the treatment of leprosy and, by some, is regarded as a specific in this disease, its use in tuberculosis is still in the experimental stage. Kolmer, Davis and Jager[2] have shown that the oil has no effect on virulent tubercle bacilli in their experiments on guinea-pigs, using an in vitro-vivo method. Therefore, we should not expect the oil to act as an active bactericidal agent in any lesions. Voegtlin, Smith and Johnson,[3] in a more extensive set of experiments, arrive at the same negative conclusion and, indeed, in one of their series they state that the treatment of their infected guinea-pigs with chaulmoogra oil may have been actually injurious.

In view of these facts, Rogers'[4] note of warning that chaulmoogra oil should be cautiously used, and then only by experts, seems peculiarly apropos.

In the Colfax School for the Tuberculous, seven patients were set aside for treatment with chaulmoogra oil. These patients were purposely chosen because of the severity of their laryngeal lesions which, with one exception, caused excruciating pain and dysphagia. With this one exception (Case 6) they were all febrile patients with far advanced pulmonary tuberculosis, and the prognosis was, therefore, grave. The most that was hoped for was the relief of symptoms. In all seven of the patients, there was involvement of the epiglottis, arytenoids and the cords.

The accompanying table shows the duration of treatment, which was carried out after the method described by Lukens with a laryngeal syringe; the pulmonary condition and the symptoms before and after treatment.

In these cases the treatment was an average of three injections a week, beginning with a 10 per cent. solution of chaulmoogra oil in olive oil for one week, followed by a 20 per cent. solution thereafter.

TREATMENT AND RESULTS

Case	Duration of Treatment in Weeks	Lung Condition		Symptoms Before Treatment			Symptoms After Treatment		
		Before	After	Temperature	Dysphagia	Aphonia	Temperature	Dysphagia	Aphonia
1	7	Right, moderately advanced; left, advanced	No change	100 to 102	+	+	99.7 to 103.4	0	+
2	6	Right, advanced; left, advanced	Improved by roentgen ray	Normal to 104+	+	Slight	Normal to 104+	Slight	+
3	7	Right, advanced; left, moderately advanced	Progressive	Normal to 102	+	+	100 to 104+	+	+
4	8	Right, advanced; left, advanced	Progressive	99.4 to 101.2	+	+	100 to 103.3	+	+
5	2	Right, advanced; left, advanced	....	99.5 to 100+	+	+	99.5 to 102.5	+	+
6	6	Right, advanced; left, advanced	Arrested	Normal	0	+	Normal	0	+
7	4	Right, advanced; left, advanced	Progressive	101.8 to 103.6	+	+	102.4 to 104	+	+

From a study of the table, it will be seen that in only one instance (Case 1) were the subjective symptoms markedly altered. In this case, the relief of the dysphagia was remarkable. The patient now states that her throat feels much better, and that she swallows more easily. Examination reveals a normal appearing epiglottis, small arytenoids, and cords thickened but pale. While there is no doubt that the local condition is much better, we must not forget that all tuberculous foci show a marked tendency to remissions and exacerbations, and that the improvement shown in Case 1 may be merely a remission and not necessarily an improvement resulting from local medication.

Unfortunately, tuberculous laryngitis is usually secondary to pulmonary tuberculosis; in any treatment the general condition must also be considered. In our series of cases, the general condition of two showed no change. Patient 2 was receiving other special treatment, and so cannot be considered. Patient 6 had an arrested case, and was given the oil merely because he asked for it and no change in his general condition was expected. With these exceptions, the general condition of every patient grew steadily worse. Their temperatures averaged consistently higher in the afternoons and evenings than they had previously. Whether or not this was caused by the oil we are not at present prepared to state, but it was the phenomenon observed.

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[1] Lukens, R. M.: Chaulmoogra Oil in the Treatment of Tuberculous Laryngitis, J. A. M. A. **78**: 274 (Jan. 28) 1922.

[2] Kolmer, J. A.; Davis, L. C., and Jager, R.: Influence of Chaulmoogra Oil on Tubercle Bacillus, J. Infect. Dis. **28**: 265 (March) 1921.

[3] Voegtlin, Carl; Smith, M. I., and Johnson, J. M.: Therapeutic Value of Chaulmoogra Oil and Its Derivatives in Experimental Tuberculosis, J. A. M. A. **77**: 1017 (Sept. 24) 1921.

[4] Rogers, L.: Successful Treatment of Leprosy by Chaulmoogra and Other Oils, Practitioner **107**: 77 (Aug.) 1921.

Indeed, in Case 1, in which the larynx itself showed such marked improvement, the temperature fell an average of 1 degree F. shortly after the oil was discontinued.

It should be stated that, in general, the patients said that their throats felt somewhat better after each treatmen. Except in Case 1, this was transitory, however, and in two cases, 5 and 7, injection of the superior laryngeal nerves was necessary to relieve the pain.

CONCLUSIONS

1. Intralaryngeal applications of a 10 to 20 per cent. solution of chaulmoogra oil in olive oil may relieve the dysphagia of an advanced laryngeal lesion entirely, but such relief has followed its use in only one out of our seven cases. Slight temporary relief occurred in every case.
2. On the other hand, the general condition of a febrile patient may, possibly, be unfavorably influenced by such treatment.
3. Caution should be used in the laryngeal treatment of tuberculosis with chaulmoogra oil until more accurate data are in our possession concerning its local and general effects.

CHAULMOOGRA OIL IN THE TREATMENT OF TUBERCULOUS LARYNGITIS

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AND
JAMES E. LEBENSOHN, M.S., M.D.
CHICAGO

Since the publication of Lukens' paper [1] on the use of chaulmoogra oil in tuberculous laryngitis, we have introduced this treatment in the Throat Clinic of the U. S. Veterans' Hospital, Maywood, Ill. Of the patients in this hospital, from 300 to 400 are suffering from pulmonary tuberculosis in some of its various stages. In the last four months, forty cases of tuberculous laryngitis were selected for treatment with chaulmoogra oil. Our technic differs from that of Dr. Lukens only in these respects: A special laryngeal syringe is used; the patients are treated daily, and only the 20 per cent. solution of chaulmoogra oil in liquid petrolatum is employed.

The cases handled fall into four groups:

GROUP 1

The largest number treated were those with distinct but not extreme laryngeal lesions. These patients had generally been hoarse for months previous to treatment, and had various degrees of discomfort, ranging from a vague sense of pain referred to the throat to definite dysphagia. In these cases the symptoms were controlled by the intralaryngeal injections of chaulmoogra oil, though in the severer cases some vestige of discomfort maintained itself. The dysphagia is often relieved in a few treatments, but the condition of the voice has been found to be generally but slowly affected.

One remarkable case of this group should be cited:

J. J. S. had dysphagia and hoarseness for more than six months. His general condition was fairly good, but his throat caused him much distress. The first attempts at swallowing were exquisitely painful, with excruciating radiations to the ears. After the first few swallows the acts of deglutition became somewhat more tolerable. The objective findings consisted chiefly of patches of ulceration and infiltration involving the posterior two thirds of both cords; pale infiltration of the aryteno-epiglottidean folds, particularly the right, and sprouting granulations in the interarytenoid region. This case was the "chorditic" type of tuberculous laryngitis, in which the arytenoids had become secondarily involved. For the first three days of the chaulmoogra oil treatment the patient could notice no change. On the fourth and fifth days, improvement was admitted. He remarked then that his voice felt stronger and clearer. On the eighth day he felt entirely free from discomfort, his appetite had greatly improved, and he spoke without effort. Since then his lesions have progressively resolved, and his laryngeal condition has improved in every way.

Some cases that at first failed to respond satisfactorily to the chaulmoogra oil treatment went along excellently after one or two applications of Lake's pigment [2] had been given and the chaulmoogra oil treatment continued. Control of pain was secured in moderately advanced laryngeal lesions even in cases of advanced tuberculosis that went on to a fatal issue. Occasionally the anodyne effect of orthoform had to be used as an adjuvant. In none of these cases was cocain used.

GROUP 2

The second group of cases included those of early tuberculosis in which the laryngeal symptoms were only a subjective sense of tickling or irritation in the throat, associated with slight hoarseness or weakness of the voice. The physical signs revealed by the laryngoscope were slight. These cases often cleared up surprisingly after a few treatments. Occasionally the pain would recur after the treatments had been discontinued, but would then be as quickly controlled as originally.

An interesting case was one of pachydermia laryngis. Hoarseness and weakness of the voice had extended for many months. With the first few treatments a remarkable improvement in the voice occurred. A further strengthening of the voice took place after tonsillectomy. The case was pronounced nontuberculous by the medical department.

GROUP 3

The third group included those of advanced tuberculosis with advanced laryngeal lesions, that had previously not been benefited by the usual treatments. Chaulmoogra oil likewise was not able to afford them any lasting comfort. The dysphagia complicated their other miseries till the inevitable end.

GROUP 4

Chaulmoogra oil treatment was also carried out in cases of chronic laryngitis dependent on nasal conditions, but without any particularly beneficial results.

A few cases of syphilitic laryngitis that were characterized by dysphagia were treated with the oil at the same time that vigorous antisyphilitic treatment was being given. The chaulmoogra oil did not seem to be of especial value in these cases.

It perhaps deserves mention that a skin lesion of the nose in a tuberculous patient pronounced lupus by the dermatologists was treated with chaulmoogra oil with gratifying results. The lesion, when first seen, was of six weeks' duration, and had become progressively more tender and prominent. After a week's use of chaulmoogra oil, all discomfort had disappeared and the lesion showed marked regression. The patient is still under treatment.

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[1] Lukens, R. M.: Chaulmoogra Oil in the Treatment of Tuberculous Laryngitis, J. A. M. A. 78:274 (Jan. 28) 1922.

[2] The formula introduced by Lake consists of lactic acid, 50 gm.; liquor formaldehydi, 7 c.c.; phenol (carbolic acid), 10 gm.; distilled water, sufficient to make 100 c.c. The phenol acts as an anodyne, and pain rarely lasts more than a few minutes. Cocain is only occasionally needed for the first few applications when the throat is unduly irritable.

CONCLUSION

Chaulmoogra oil, we believe, should have a definite place in the treatment of laryngeal tuberculosis. It is useful in the majority of cases, though in the treatment of laryngeal tuberculosis as a whole it cannot entirely replace the other forms of medication, such as the cocain-epinephrin spray, orthoform, menthol and Lake's pigment, superior laryngeal nerve blocking, epiglottidectomy, etc.

Some may be skeptical of the value of chaulmoogra oil, as employed in these cases, because the mechanism of its action is not clear. It may be true that the oil has no specific effect, but its beneficial action can be perhaps adequately explained by its detergent, anesthetic and counterirritant properties. Barwell[3] says: "Intratracheal-oil injections act in the same way (i. e. like steam inhalations and oil nebulae) in relieving dryness and soreness of the throat, and I have found them very useful in cases of advanced ulceration, reducing inflammation and relieving discomfort." He employed a 1 per cent. solution of menthol in liquid petrolatum, but from both theoretical considerations and clinical experience it would appear that chaulmoogra oil should act more efficaciously.

3159 West Roosevelt Road.

Clinical Notes, Suggestions, and New Instruments

A SIMPLE MECHANICAL STAGE

PHILIP REICHERT, RAY BROOK, N. Y.

The apparatus here described is a simple, efficient and inexpensive mechanical stage for the use of students practicing microscopy.

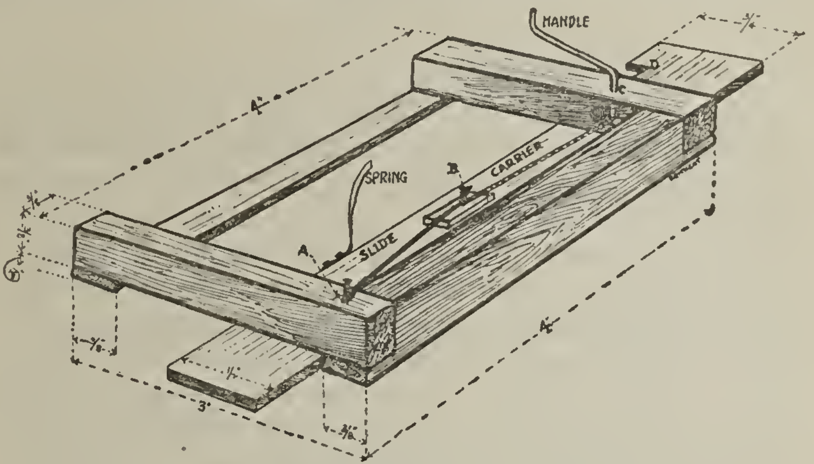
The frame is of wood, well smoothed with fine sandpaper, and glued at the corners. Its outside dimensions are 3 by 4 inches. On the right cross-piece a vertical hole receives a handle made by bending heavy wire into shape. A large opening has been drilled horizontally beneath, making the wire accessible from the side so that a thread may be wound about it by turning the handle.

The slide carrier imitates those on the expensive machines. It is made of wood 5½ inches long, ⅛ inch thick and ½ inch wide, except for a projection on the right side which makes the width on that side ¾ inch. This projection receives the slide; a flat spring cut from thin brass ⅛ inch wide and 2 inches long is placed at a suitable distance on the left to hold the slide against this projection. The spring is fastened to the carrier by means of two wire brads; it is wise to hold the thin board in a vise while the brads are being driven so as not to crack the wood.

The post *B* is set on a block 1 inch long, ½ inch wide and ⅛ inch thick. The left margin of this block must be 2½ inches from the left margin of the slide carrier. A rubber band is stretched from this post to the post *A*. Placed diagonally as shown, it tends to draw the slide carrier to the left, and at the same time keeps it tight against the frame so that the slide will ride smoothly and not wobble.

The action of the rubber band is opposed by a heavy black thread which is fastened to the post *B*, the other end going into the horizontal opening in the right cross piece, and winding about the lower end of the handle at *C*. The handle should have a radius of about 1 inch. It is evident that rotation of the handle will cause the slide carrier to move from left to right or reverse.

The frame is mounted on the stage of the microscope and held in place by means of a heavy rubber band or a screw clamp such as may be purchased at any hardware shop. When one horizontal excursion is complete, the clamp is loosened, and the frame is moved either forward or backward and again clamped so as to permit a new part of the field to pass beneath the objective.



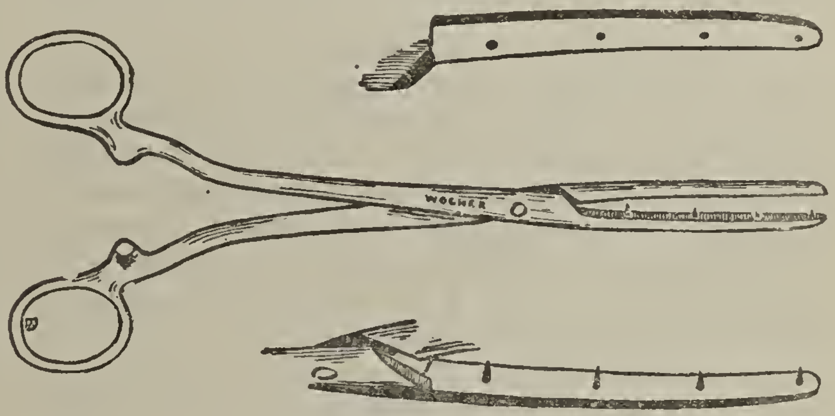
Simple mechanical stage.

The cost of the materials is approximately 25 cents, and the apparatus can be easily made in less than an hour. In practice, it permits steady and accurate control of the movements of the microscopic field.

A NEW MUSCLE CLAMP

JOSEPH L. DECOURCY, M.D., CINCINNATI

This muscle clamp was adopted primarily for muscle section in thyroidectomy. The requirements of such a clamp are to exert a hemostatic action on the vessels of the muscle and at the same time to hold the muscles and fascia in a firm grasp without crushing the tissues. The disadvantage of the clamps thus far used, in my opinion, has been that their crushing action not infrequently leads to tissue necrosis and favors infection and adherent scars.



New muscle clamp.

The clamp consists of a smooth surface with four sharp protrusions, as shown. The protrusions insert themselves into the fascia and muscles and hold them firm, while just sufficient pressure is made from the smooth surfaces of the clamp to close the thin walled vessels without making undue pressure on the other tissues.

A Prescription.—Filling a prescription is not the same as buying a suit. This the customer realizes. The man who has been cheated on furniture or wearing apparel has pretty much himself to blame, for he should have some knowledge of what he is buying. The same is not true of medicine. The customer trusts, implicitly, to the druggist; he expects his prescription to be filled by one who knows how to compound medicine and he expects to receive the best drugs.—Presidential Address, W. Gay Clark, Tennessee Pharmaceutical Association.

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[3] Barwell, Harold: Diseases of the Larynx, Oxford University Press, 1907.

DISPENSARY SERVICE IN THE UNITED STATES

FIRST PRESENTATION OF DISPENSARY DATA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

The object of this census of dispensaries by the Council on Medical Education and Hospitals is to obtain and tabulate data on the medical institutions for *ambulatory* patients, similar to that already published regarding hospital service in the United States. To visualize the work done by all the various dispensaries and clinics requires a simultaneous survey of all of them, including dispensaries that are conducted as outpatient departments of hospitals; independent dispensaries; special clinics, such as tuberculosis, mental hygiene, venereal disease, baby and child hygiene and eye, ear, nose and throat dispensaries, as well as industrial dispensaries and group practices.

The number of each kind of dispensaries known to exist in the United States is given in Table 1.

TABLE 1.—NUMBER AND CLASSIFICATION OF DISPENSARIES IN THE UNITED STATES

General dispensaries		946
Special dispensaries:		
Tuberculosis	667	
Venereal disease	487	
Mental hygiene	260	
Baby and child hygiene	566	
Outpatient departments of eye, ear, nose and throat hospitals	37	
Outpatient offices and stations of the United States Public Health Service	119	
Outpatient departments of orthopedic hospitals	16	
Miscellaneous	53	
		2,205
		3,151
Industrial (enumeration not completed)		92
Total dispensaries known		3,243

There are still other dispensaries of each of the several classes that have not responded or about which there are not sufficient data to classify them. Particularly is the enumeration of industrial dispensaries incomplete. The number of industrial dispensaries has been placed at something more than 400 by some who are in touch with industrial medicine. This estimate is very conservative. There is evidence to support an estimate that the dispensaries and clinics of all kinds that provide the services of physicians for ambulatory patients, including industrial dispensaries with salaried physicians, would number more than 4,000.

As to the amount of service rendered, the general dispensaries that furnished reports handled 3,872,345 patients, who made 11,798,887 visits during the last fiscal year. Including a reasonable estimate for the general dipensaries that did not report, these figures would be increased to 4,250,000 patients and 13,500,000 visits. In the special dispensaries the average number of patients in each institution is considerably lower than in general dispensaries, but the average number of visits per patient is much larger. An estimate based on reports received indicates that the special dispensaries cared for a total of 3,750,000 patients during the year, who in that time made approximately 16,000,000 visits. The grand total, therefore, of patients in all general and special dispensaries and clinics would number approximately 8,000,000 and the visits made by them, approximately, 29,500,000. The number of separate individuals using dispensaries and clinics is less than 8,000,000, since allowance must be made for those who patronized two or more institutions during the year.

By adding to the special dispensaries enumerated in Table 1 the number of clinics of corresponding kind reported as being held in the general dispensaries, it will be found that there are at least 863 separate dispensaries and clinics for tuberculosis; 793 for venereal diseases; 454 for mental hygiene; 881 for baby and child hygiene; 631 for eye, ear, nose and throat, and 255 for orthopedics.

TABLE 2.—NUMBER AND WORK OF GENERAL DISPENSARIES BY STATES

State	Population 1920	No. of General Dispensaries	Patients Last Fiscal Year	Visits by Patients Last Fiscal Year
Alabama	2,348,174	7	37,207	113,455
Arizona	334,162	3	56,091	69 182
Arkansas	1,752,204	9	12,284	67,901
California	3,426,861	56	193.920	599,751
Colorado	939,629	6	106,754	148,003
Connecticut	1,380,631	16	32,270	136,719
Delaware	223,003	5	8,782	35.571
District of Columbia	437,571	13	23,351	60,700
Florida	968,470	4	16,213	10,226
Georgia	2,895,832	5	11,109	69.882
Idaho	431,866	1	912	2,751
Illinois	6,485,280	48	169.872	559,453
Indiana	2,930,390	10	15,913	47,703
Iowa	2,404,021	11	17,455	45,997
Kansas	1,769,257	11	29,537	60,221
Kentucky	2,416,630	14	27,855	113 575
Louisiana	1,798,509	12	78,575	281,068
Maine	768,014	8	4,641	14,508
Maryland	1,449,661	25	111,775	327,495
Massachusetts	3,852,356	74	268,775	1,055,225
Michigan	3,668,412	31	127,215	303,931
Minnesota	2,387,125	17	60,150	235,791
Mississippi	1,790,618	5	16.119	10 022
Missouri	3,404,055	28	130,973	533,482
Montana	548,889	5	17,535	39,933
Nebraska	1,296,372	9	17,550	68,801
Nevada	77,407	3	6,609	17,275
New Hampshire	443,083	3	861	2,244
New Jersey	3,155,900	42	134,856	376,981
New Mexico	360.350	1	1,500	......
New York	10,385,227	163	1,182,818	3,439,038
North Carolina	2,559,123	9	6,948	22 905
North Dakota	646,872	2	853	204
Ohio	5,759,394	40	140,805	461,613
Oklahoma	2,028,283	4	2,352	16,214
Oregon	783,389	3	2,020	4.250
Pennsylvania	8,720,017	136	537.438	1,689,512
Rhode Island	604,397	13	33,781	137,860
South Carolina	1,683,724	7	21,028	26,206
South Dakota	636,547	7	11,143	71,209
Tennessee	2,337,885	9	35,717	109,404
Texas	4,663,228	13	29,560	90,358
Utah	449,396	4	4,985	5,277
Vermont	352,428	4	3,513	7,020
Virginia	2,309,187	14	47,868	88,446
Washington	1,356,621	9	4,964	59,490
West Virginia	1,463,701	10	5,009	7,739
Wisconsin	2,632,067	14	62,733	149,576
Wyoming	194,402	3	2,151	4,720
Totals	105,710,620	946	3,872,345	11,798,887

On pages 466 to 475 appears a list of 946 general dispensaries or those that provide general medical and surgical care for the ambulatory sick of the communities which they serve. The list gives the name and local address of the dispensary and, opposite each, (1) the number of individual patients received last fiscal year and (2) the number of visits made by these patients during the last fiscal year, as reported by the medical director or superintendent. Additional data on special dispensaries are being prepared for later publication in THE JOURNAL, and will be included in a special reprint of dispensary information.

The number of general dispensaries and the work done by them during the last fiscal year are summarized by states in Table 2. Similar data for the fifty largest cities of the United States are given in Table 3.

TABLE 3.—NUMBER AND WORK OF GENERAL DISPENSARIES IN FIFTY LARGEST CITIES

	Population 1920	General Dispensaries Reporting	Patients Last Fiscal Year	Visits by Patients Last Fiscal Year
New York	5,621,151	69	958,622	2,699,561
Chicago	2,701,705	33	159,493	498,230
Philadelphia	1,823,779	54	356,680	1,176,726
Detroit	993,739	9	54,416	170,602
Cleveland	796,836	11	61,702	279,665
St. Louis	773,000	13	86,342	438,653
Boston	747,923	27	189,692	793,040
Baltimore	733,826	22	109,387	323,865
Pittsburgh	588,193	15	49,261	122,904
Los Angeles	575,480	3	60,577	102,951
San Francisco	506,676	15	63,142	268,105
Buffalo	505,875	11	39,764	197,323
Milwaukee	457,147	7	37,833	80,957
Washington, D. C.	437,414	13	23,351	60,700
Newark, N. J.	414,216	6	26,628	105,554
Cincinnati	401,158	6	24,535	83,250
New Orleans	387,408	6	68,074	218,287
Minneapolis	380,582	4	19,157	102,060
Kansas City, Mo.	324,410	10	38,021	78,856
Seattle	315,652	3	....	34,914
Indianapolis	314,194	2	....	....
Jersey City, N. J.	297,864	4	22,023	50,206
Rochester, N. Y.	295,750	3	9,289	41,694
Portland, Ore.	258,288	2	10,785	18,018
Denver	256,369	1	7,439	25,713
Toledo, Ohio	243,164	5	3,246	9,964
Providence, R. I.	237,595	7	21,550	83,280
Columbus, Ohio	237,031	4	20,758	11,938
Louisville, Ky.	234,891	3	13,088	83,692
St. Paul, Minn.	234,680	1	6,260	21,804
Oakland, Calif.	216,361	3	10,997	54,779
Akron, Ohio	208,435	1	14,885	47,272
Atlanta, Ga.	200,616	1	6,476	37,861
Omaha	191,601	4	16,796	68,361
Worcester, Mass.	179,741	4	12,425	45,140
Birmingham, Ala.	178,270	3	18,659	62,178
Richmond, Va.	171,667	2	11,343	31,347
Syracuse, N. Y.	171,647	1	5,267	27,639
New Haven, Conn.	162,390	3	6,262	56,880
Memphis, Tenn.	162,351	1	13,311	46,193
San Antonio, Texas	161,379	2	7,754	20,276
Dallas, Texas	158,976	2	3,316	8,740
Dayton, Ohio	152,559	2	5,480	9,433
Bridgeport, Conn.	149,152	3	12,788	51,756
Houston, Texas	138,276	1	7,148	18,483
Hartford, Conn.	138,036	2	4,500	11,520
Scranton, Pa.	137,700	6	11,482	58,001
Grand Rapids, Mich.	137,634	2	1,898	3,356
Paterson, N. J.	135,866	2	4,335	12,235
Youngstown, Ohio	132,358	2	1,613	5,847
Totals	25,381,011	416	2,717,850	8,859,809

PHYSICIANS SERVING IN GENERAL DISPENSARIES

On the question as to how many physicians are serving full-time and how many part-time, there were 615 general dispensaries that answered, not including any of the dispensaries run by the state or federal government. These 615 employ 1,268 full-time physicians, or an average of two for each dispensary, and 9,929 part-time, or an average of sixteen for each dispensary. The answers on this question are summarized in Table 4.

TABLE 4.—PHYSICIANS SERVING IN GENERAL DISPENSARIES

	Number of Full-time Physicians	Aver. No. Full-time Physicians	Number of Part-time Physicians	Aver. No. Part-time Physicians
459 outpatient departments reporting	1,088	2	7,730	14
157 independent dispensaries reporting	180	1	2,199	14
615 general dispensaries	1,268	2	9,929	16

In answer to whether they have separate services for the different departments of medicine and surgery, 429, or 59 per cent., of those answering the question said that they have separate services, and 293, or 41 per cent., said that they have one undivided service for all kinds of cases.

TABLE 5.—TEACHING IN GENERAL DISPENSARIES

	Teach Medical Students		Post-graduate Teaching		Interns		Nurse Training	
	No.	%	No.	%	No.	%	No.	%
378 outpatient departments	131	35	84	22	271	72	316	84
56 independent dispensaries	34	61	11	20	11	20	31	55
434 Totals	165	38	95	22	282	65	347	80

TEACHING IN GENERAL DISPENSARIES

Four hundred and thirty-four dispensaries are doing systematic, organized, medical teaching. Their replies are summarized in Table 5.

Of the 637 hospitals approved by the Council for the training of interns, 418, or 66 per cent., have outpatient departments. The figures in detail are shown in Table 6.

TABLE 6.—OUTPATIENT SERVICE IN HOSPITALS APPROVED FOR INTERNSHIPS

	Number of Hospitals Approved	Number That Have Dispensary Service	Per Cent.
1. General hospitals	503	338	67
2. State and other hospitals for the insane	28	6	21
3. Other special hospitals	106	74	70
Totals	637	418	66

SOURCE OF FINANCIAL SUPPORT

Reports on the source of financial support received from 651 of the general dispensaries show that 377, or 58 per cent. of those reporting, receive some financial support from patients; 223, or 34 per cent., from endowments; 224 receive gifts; thirty-one get county aid; ninety get city aid, and sixty-three get state aid.

The outpatient departments of hospitals are more fortunate than independent dispensaries in having endowments and in getting contributions from patients. Thirty-seven per cent. of the outpatient departments reported endowments, as against 24 per cent. of the independent dispensaries; and 66 per cent. of the outpatient departments collect something from patients, as against 34 per cent. of the independent dispensaries. The majority of outpatient departments that reported endowments probably meant that the hospital, not the outpatient department, as such, was endowed. In securing financial aid from city, state or federal government, the independent dispensaries run ahead of the outpatient departments. Further details regarding the sources of financial support will be found in Table 7.

TABLE 7.—FINANCIAL SUPPORT OF GENERAL DISPENSARIES

	Outpatient Departments		Independent Dispensaries		Totals	
	No.	%	No.	%	No.	%
Number reporting financial support	494	..	157	..	651	..
Source of financial support:						
Endowments	185	37	38	24	323	34
Patients	324	66	53	34	377	58
Gifts	154	31	68	44	222	34
County aid	20	4	11	7	31	5
City aid	45	9	45	29	90	14
State aid	50	10	13	8	63	10
Federal aid	3	6	2	1	5	7

SOCIAL WORKERS IN GENERAL DISPENSARIES

Social service workers are employed by 380 general dispensaries, which use 964 salaried and 1,171 volunteer workers, or a total of 2,135. Only thirty-nine said that they depend on volunteers entirely to do their social service.

TABLE 8.—SOCIAL WORKERS IN GENERAL DISPENSARIES

	No. Dispensaries	No. of Volunteer Workers	No. Dispensaries	No. of Salaried Workers	No. Dispensaries	No. of Full-time Workers
278 outpatient departments	126	974	..	774	..	722
102 independent dispensaries	39	197	72	190	60	140
380 Totals................	165	1,171		964		862

OBSERVATIONS

Some of the main facts that have been brought to light in connection with the survey are:

1. There is a steady increase in the number of patients seeking treatment in general dispensaries.
2. There has been an unprecedented increase since the war in the number of special clinics and dispensaries, such as those for tuberculosis, venereal disease, mental hygiene and child hygiene.
3. There is great need for individualized study and treatment of dispensary patients, to counteract what seems to be a prevailing tendency to routinization.
4. There is need of a closer bond between the outpatient service and the other service of hospitals, and this will be best met by having the hospital and the outpatient staffs identical and by having unified records.
5. In the matter of finances there is an increasing tendency to charge nominal fees, thereby placing part of the cost of an institution on the patient.
6. A general increase is noted in the use of social service workers to see that patients continue their treatment, and to investigate their social and financial status so as to prevent pauperizing.
7. The difficulty of securing satisfactory data is increased by the inadequacy of clinical and office record systems in a large number of institutions.
8. There is a great and increasing amount of educational work, especially the teaching of interns, medical students, graduates and pupil nurses.

ACKNOWLEDGMENTS

The collecting of data here published, as well as the large mass of information being digested for publication and for reference, has been made possible through the splendid cooperation of superintendents and medical directors of individual institutions, as well as the organized health agencies, both voluntary and governmental, under whose auspices medical service is provided for ambulatory patients.

Among the many that should be mentioned are the state, national and local health departments, and various national and state volunteer organizations, together with their branches and others.

It is hoped that the statistics here presented, as well as those that are being prepared for later publication, will be of interest and service to all who are concerned with dispensaries.

The amount of data, the degree of completeness and the accuracy obtained are indeed gratifying, and it is felt that a basis has been established for the comparison of data that may be obtained by future surveys, which it is confidently hoped and expected will show unprecedented progress in development of dispensaries and the improvement of their services to their respective communities.

GENERAL DISPENSARIES OF THE UNITED STATES

SHOWING THE NUMBER OF PATIENTS RECEIVED AND THE NUMBER OF VISITS TO THE DISPENSARY BY PATIENTS DURING THE LAST FISCAL YEAR

Including outpatient departments of hospitals and independent dispensaries that give a general medical and surgical service.

Independent dispensaries are marked (†), and *those not so marked* are the outpatient departments of hospitals.

Other classifications indicated are: (*), outpatient department of hospital that is approved for a general intern training; (**), outpatient department of hospital that is approved for a special intern training; (¶), dispensary that serves employees and community; (⁺), dispensary that serves employees and their families; (‡), school infirmary.

ALABAMA

	Patients Last Year	Visits Last Year
Birmingham		
Birmingham Baptist Hospital, 708-14 Tuscaloosa Ave.	5,475	10,875
*Hillman Hospital, Ave. F and 20th St.	12,384	49.803
Northside Infirmary, 1508, 7th Ave.	800	1,500
Dothan		
Frazier Hospital, S. St. Andrews St.	655	1,492
Fairfield		
¶Employes Hospital of Tennessee Coal, Iron and Railway Company.......	3,640	8,650
Mobile		
*City Hospital, 156 N. Broad St.	6,543	24,358
Tuskegee Institute		
*John A. Andrew Memorial Hospital	7,710	16,777
Totals..............	37,207	113,455

ARIZONA

	Patients Last Year	Visits Last Year
Bisbee		
*Copper Queen Hospital	25,938	27,910
Miami		
Miami Inspiration Hospital	29,021	37,978
Phoenix		
†Maricopa County Health Center	1,132	3,294
Totals..............	56,091	69,182

ARKANSAS

	Patients Last Year	Visits Last Year
Fort Smith		
†Fort Smith Federated Welfare Assn., Rogers Ave. and 2d St.	306	....
Hot Springs		
Leo N. Levi Memorial Hospital, Prospect Ave. and Quapaw St.	5,025	40,962
Little Rock		
Logan H. Roots Memorial City Hospital, 604 E. 2d St. (Isaac Folsom Clinic)	2,239	16,195
Pettus Surgical Infirmary, 110-112 W. 9th St..	265	....
Pulaski County Hospital, 26th and Jones Sts.	1,810	1,975
St. Luke's Hospital, 1920 Schiller St.	2,499	7,497
North Little Rock		
†Medical Clinic, City Hall....................	(No data available)	
Pine Bluff		
†The Pine Bluff Clinic, 5th and Maine Sts......	(New)	
West Helena		
†Medical Clinic, Court House	140	1,272
Totals..............	12,284	67,901

CALIFORNIA

	Patients Last Year	Visits Last Year
Alameda		
†Alameda City Health Center, 1512 Oak St.....	684	3,243
Bakersfield		
Kern County Hospital, 3100, 19th St.	3,650	(No record)
Berkeley		
†Berkeley Dispensary and Health Center, 830 University Ave.	6,265	13,819
‡University of California Infirmary	5,005	41,113
Dorris		
Dorris Hospital, 3d and Oregon Sts.	1,040	2.250

	Patients Last Year	Visits Last Year
Fort Bragg		
Fort Bragg Hospital, Inc., Main and Fir Sts.	1,500	14,500
Fresno		
*Fresno County Hospital, Ventura Ave.	3,200	4,000
Hobart Mills		
Hobart Hospital	859	2,462
Long Beach		
Seaside Hospital, 14th St. and Magnolia Ave.	388	....
Los Angeles		
*Boyle Ave. Dispensary O. P. Dept. White Memorial Hosp., 304 Boyle Ave.	43,510	49,330
**Children's Hospital, 4616 Sunset Blvd.	2,947	10,899
†Graves Memorial Dispensary, 737 N. Broadway	14,120	42,722
McCloud		
McCloud Hospital, 4 Sisson Road	156	3,297
Oakland		
Baby Hospital Assn., 5105 Dover St.	3,238	14,538
Fabiola Hospital Assn., Moss Ave. and Broadway	859	1,301
†Public Health Center of Alameda County, 3105 Grove St.	6,900	38,940
Ontario		
†Ontario Health Center, Sultana and Grove Sts.	322	....
Pasadena		
†Pasadena Dispensary, 38 Congress St.	(No record)	9.001
Portola		
¶Western Pacific Railway Hospital	720	3,640
Richmond		
†Richmond Health Center, 237, 9th St.	(New)	
Riverside		
†Riverside Clinic, 317 Loring Bldg.	498	1,223
Riverside County Hospital, Magnolia Ave. and Arlington St.	....	....
Sacramento		
Sacramento City Emergency Hospital, 6th and H Sts.	6.278	7,091
Sacramento Hospital, Stockton Blvd.	1,053	4,492
San Diego		
San Diego County Dispensary O. P. Dept. San Diego County General Hospital, C and Front Sts.	9,278	10,199
San Francisco		
†Canon Kip Memorial Clinic, 246, 2d St.	1,240	5,004
*Children's Hospital, 3700 California St.	3,071	12,412
Chinese Hospital Clinic, 40 Trenton St.	425	575
†College of Physicians and Surgeons, 344, 14th St.	3,645	13,862
Franklin Hospital, 14th and Noe Sts.	9,330	17,749
French Hospital, Geary St. and 5th Ave.	3,224	6,500
Mary's Help Hospital Clinic, 145 Guerrero St.	2,394	8,064
*Mount Zion Hospital, 2200 Post St.	2,262	22,917
†National Homeopathic Clinic, 173 Haight St.	360	1,656
San Francisco Policlinic and Post Graduate College Hospital, 1535 Jackson St.	6,234	7,430
*Stanford University School of Medicine Dispensary O. P. Dept. Lane Hospital, 2398 Sacramento St.	11,016	78,487
*St. Luke's Hospital, 27th and Valencia Sts.	913	4,205
†Third Street Clinic, 89, 3d St.	1,299	3,560
*University of California Hospital, Parnassus and 2d Aves.	17,729	85,684
San Jose		
Columbia Hospital, Inc., E. Santa Clara St. at 19th	220	650
†Good Cheer Club Clinic, Room 15, Porter Bldg., 2d and Santa Clara Sts.	4,220	13,704
Santa Clara County Hospital	1,123	4,446
San Luis Obispo		
†San Luis Obispo Co. Health Center, Garden St.	(No data available)	
San Mateo		
Mills Memorial Hosp.	250	....
San Pedro		
†San Pedro Emergency Hospital, 203, 6th St.	1,508	2,280
Santa Ana		
†Social Service Dept. of Orange County, 111 E. 3d St.	....	....
Santa Barbara		
*Cottage Hospital Dispensary, 3d and Bath Sts.	989	2,883
Scotia		
Scotia Hospital Assn., Inc.	875	3,500
Stockton		
†Stockton City Clinic, 29 S. Sutter St.	607	1,483
Sugar Pine		
+Sugar Pine Hospital.	275	800
Susanville		
Riverside Hospital. Riverside Drive	385	750
Veterans' Home		
Veterans' Home of California Hospital	6,525	14,514
Visalia		
†Tulare County Health Center, W. Main St.	(New)	
West Orange		
Orange County Hospital	806	1,276
Westwood		
+Westwood Hospital, 500 Elm St.	525	7,300
Totals	193,920	599,751

COLORADO

Canon City		
Holmes Hospital, 428 Greenwood St.	315	1,114
Denver		
†University of Colorado School of Medicine Clinic, 1307 Welton St.	7,439	25,713
Fort Collins		
†Red Cross Clinic.	165	221
Greeley		
†Weld County Clinic, Greeley Hospital	402	605
Pueblo		
+Minnequa Hospital of the Colorado Fuel and Iron Co., Minnequa and Lake Aves.	97,433	117,850
Salida		
Red Cross Hospital, 140 W. 3d St.	1,000	2,500
Totals	106,754	148,003

CONNECTICUT

	Patients Last Year	Visits Last Year
Bridgeport		
†City Dispensary Madison and Washington Aves.	4,746	18,386
Columbus Hospital, Inc., 564 Worthington Ave.	1,600	4,800
Emergency Hospital and Dispensary	6,442	28,570
Danielson		
†Civic Federat'n Health Station, Main St.	391	1,658
Greenwich		
Greenwich Hospital Assn., Lake Ave.	450	1,245
Hartford		
†City Dispensary, 550 Main St.	(No record)	1,481
†Hartford Dispensary 56 Winthrop St.	4,500	10,039
New Haven		
*Grace Hospital Dispensary, 1423 Chapel St.	2,562	7,621
†Health Center, City of New Haven, 578 Grand Ave.	3,700	5,514
*New Haven Dispensary, O. P. Dept. New Haven Hospital, 321 Congress Ave	(No record)	43,745
North Grosvenordale		
Emergency Hospital (North Grosvenordale Dispensary)	......	......
Putnam		
Day-Kimball Hospital, 75 Pomfret St.	495	798
Sharon		
Sharon Hospital Assn., Inc.	179	895
South Norwalk		
†The Norwalk Dispensary Assn., 6 Pine St.	1,261	(No data available)
Stamford		
Stamford Hospital, Hubbards Hill	172	228
Waterbury		
†Waterbury Dipensary, 35 Field St.	5,772	11739
Totals	32,270	136,719

DELAWARE

Lewes		
Beebe Hospital of Lewes, Inc.	(New)	
Marshallton		
Edgewood Sanitarium.	353	2,237
Wilmington		
*Delaware Hospital, 14th and Washington Sts.	7,563	30,612
*Homeopathic Hospital Assn., 1501 Van Buren St.	565	1,898
Physicians and Surgeons Hospital, 802 Adams St.	301	824
Totals	8,782	35,571

DISTRICT OF COLUMBIA

Washington		
*Central Dispensary and Emergency Hospital, 1711 New York Ave., N. W.	1,627	5,959
**Children's Hospital of the District of Columbia, 13th and W Sts.	1,225	4,378
*Columbia Hospital for Women and Lying-In Asylum, 25th and L Sts., N. W.	997	2 371
†Dispensary of the 19th St. Baptist Church.	......	......
*Eastern Dispensary and Casualty Hospital, 708 Massachusetts Ave., N. E.	687	....
*Garfield Memorial Hospital, Florida Ave., Opp. 10th St. N. W.	......	......
*Georgetown University Hospital, N and 35th Sts., N. W.	8,350	16,155
*Providence Hospital, 2d and D Sts., S. E.	3,840	13,277
*Sibley Memorial Hospital, 1140 N. Capitol St., N. W.	1,000	2,967
Washington Sanitarium and Dispensary, 1252, 6th St., S. W.	4,000	12,000
*George Washington University Hospital, 1339 H St., N. W.	1,625	3,593
†Woman's Clinic Dispensary, 1237 T St., N. W.	......	......
Totals	23,351	60,700

FLORIDA

Jacksonville		
†City Free Dispensary, Orange and Main Sts.	10,363	......
New Smyrna		
Forster Sanatorium	1,850	2,042
Tallahassee		
Florida Agricultural and Mechanical College Sanatorium School Grounds	4,000	8,184
Totals	16,213	10,226

GEORGIA

Atlanta		
*J. J. Gray Clinic, O. P. Dept. Grady Hospital, 50 Armstrong St.	6,476	37,861
Augusta		
Augusta City Dispensary, O. P. Dept. University Hospital, University Pl.	......	18,445
Macon		
*Macon Hospital, 820 Pine St.	1,156	2,340

	Patients Last Year	Visits Last Year
Rome		
Harbin Hospital, 100 3d St.	1,077	2.200
Sandersville		
Rawlings Sanitarium.	2,400	9.036
Totals	11,139	69,882

IDAHO

	Patients Last Year	Visits Last Year
Lewiston		
White Hospital (Lewiston Hospital Assn.), 1504 Main St.	912	2.751
Totals	912	2,751

ILLINOIS

	Patients Last Year	Visits Last Year
Anna		
Hale Sanitarium, 604 S. Main St.	747	1,254
Bloomington		
St. Joseph's Hospital, Jackson St. and Morris Ave.	1,804	27,650
Chicago		
Bethany Sanitarium and Hospital, 3415 W. Van Buren St.	1,040	4 840
Burnside Hospital, 9435 Langley Ave.	1,400	1,750
†Central Free Dispensary, 1744 W. Harrison St.	17,621	99,594
*Chicago Policlinic and Hospital, 221 W. Chicago Ave.	2,700	8,500
**Children's Memorial Hospital Dispensary, 735 Fullerton Ave.	14,390	27,994
†Children's South Side Free Dispensary, 705 W. 47th St.	3,742	20,732
*Cook County Hospital Clinic, Harrison and Wood Sts.	13,819	13,819
[Outpatients are referred to other institutions for treatment.]		
**Dispensary of the Chicago Lying-In Hospital conducted at the Provident Hospital, 36th and Dearborn Sts.	1,131	(No record)
*Grant Hospital, 551 Grant Pl.	2,150	6,455
†Guardian Angel Dispensary, 46th and Gross Ave.	1,444	2,139
†Hahnemann Free Dispensary, 2815 Cottage Grove Ave.	2,985	10,203
*Illinois Central Hospital, 5744 Stony Island Ave.	1,895	5,600
†Illinois Post Graduate Medical School Dispensary, 1844 W. Harrison St.	7,791	14,971
Iroquois Memorial Dispensary, O. P. Dept., Iroquois Memorial Hospital, 23 N. Market St.	7,701	10,809
*Elizabeth Marcy Center Dispensary, O. P. Dept. Wesley Hospital, 1335 Newberry Ave.	3,461	....
**Maxwell Street Dispensary of the Chicago Lying-In Hospital, 1336 Newberry Ave.	1,027	17,063
*Mercy Clinic, O. P. Dept. Mercy Hospital, 2526 Calumet Ave.	8,947	9,560
*Mount Sinai Hospital, 1519 S. California Ave.	639	1,157
**North Chicago Hospital, 2551 N. Clark St.	1,875	45,625
†Northwestern University Dispensary, 2431 S. Dearborn St.	19,557	37,691
†Olivet Institute Dispensary, 1500 Cleveland Ave.	853	4,585
Peoples Hospital, 253 W. 22d St.	1,200	7,000
*Post Graduate Hospital, 2400 S. Dearborn St.	20,279	20,279
*Provident Hospital, 16 W. 36th St.	1,131	3,390
*Michael Reese Dispensary, O. P. Dept. Michael Reese Hospital, 1012 Maxwell St.	4,719	70,527
**Stock Yards Dispensary of the Chicago Lying-In Hospital, 734 W. 47th St.	179	2,399
†St. Elizabeth's Dispensary, 1360 N. Ashland Ave.	....	....
*St. Joseph's Hospital, 2100 Burling St.	1,611	4.662
*St. Luke's Hospital, 1439 Michigan Ave.	1,893	(No record)
*Mary Thompson Hospital of Chicago for Women and Children, 1712 W. Adams St.	3,830	9,943
*University Hospital, 432 S. Lincoln St.	825	4,488
†University of Illinois College of Medicine Clinic, 508 S. Honore St.	5,540	23,983
*Washington Boulevard Hospital, 2449 Washington Blvd.	2,118	8,472
Decatur		
Decatur and Macon Co. Hospital Clinics	286	3,845
Elgin		
†Elgin Community Dispensary, 12 S. Spring St.	445	1,118
Evanston		
*Evanston Hospital, 2650 Ridge Ave.	1,766	4.702
*St. Francis Hospital, 355 Ridge Ave.	1,283	919
La Grange		
La Grange Sanitarium and Hospital, 87 S. 5th St.	480	2,500
Metropolis		
Walbright Hospital	1,000	5,000
Peoria		
†Public Health Nursing Assn. Dispensary, 206 City Hall	2,746	17,998
Rockford		
Rockford Hospital, 507 Chestnut St.	992	(No data available)
†Rockford Dispensary	....	....
†Rockford Municipal Dispensary, 124 S. Wyman St.	675	2,452
Rock Island		
St. Anthony's Hospital, 767 30th St.	......	......
Springfield		
St. John's Hospital, 8th and Mason Sts.	1,219	7,740
Totals	172.572	573,772

INDIANA

	Patients Last Year	Visits Last Year
Evansville		
Hayden Hospital, 20 Walnut St.	912	....
Gary		
¶*Gary Hospital of the Illinois Steel Company, Broadway and Calumet River	13,067	38.894
Indianapolis		
†Indianapolis City Dispensary, Market and Senate Sts.	....	....
*Indianapolis City Hospital, 10th and Locke Sts.	(New)	
Marion		
†Public Health Clinic, 5th and Adams Sts.	....	....
Muncie		
†Muncie Public Health Clinic, 207 N. High St.	527	3.268
Oaklandon		
Sunnyside Sanatorium.	661	1.385
South Bend		
Children's Dispensary and Hospital Assn., 1040 W. Division St.	396	2,021
Terre Haute		
†Rose Dispensary, 7th and Cherry Sts.	350	2.135
Union City		
Union City Hospital	....	....
Totals	15.913	47,703

IOWA

	Patients Last Year	Visits Last Year
Ames		
‡Iowa State College Hospital	....	10,187
Creston		
Greater Community Hospital, 402-4 N. Oak St	957	....
Des Moines		
†Des Moines Health Center, 1st and Locust Sts.	5,027	14,258
Iowa City		
*University Hospital, Iowa Ave.	5,808	7,302
Mason City		
†North Iowa Clinic, Central Trust Bldg.	....	....
Park Hospital Clinic, 102 N. Washington St.	3,000	9,433
Nevada		
Iowa Sanitarium and Hospital	414	(No record)
Oskaloosa		
Mercy Hospital	1,175	2,450
Ottumwa		
Ottumwa Hospital	288	437
Sioux City		
†Dispensary, Organized Welfare Bureau, 209, 3d St.	786	1,930
Waterloo		
†Blackhawk Co. Public Health Assn.	....	....
Totals	17,455	45,997

KANSAS

	Patients Last Year	Visits Last Year
Halsted		
**Halstead Hospital	2,481	6,943
Junction City		
†Geary County Health Dept., Courthouse	1,073	1,138
Lawrence		
†Department of Public Health, City Hall	1,459	3.092
Lebanon		
Lebanon Hospital	397	663
Liberal		
Liberal Hospital	(1921 records lost)	
Newton		
Axtell Hospital, 207-9 E. Broadway	15,000	18.030
Pratt		
†Pratt Clinic	....	....
Rosedale		
*Bell Memorial Hospital, College and Broad Sts.	4,832	21,308
Sabetha		
St. Anthony-Murdock Memorial Hospital, 14th St.	145	(No complete data)
Topeka		
†Municipal Clinics, 3d Floor, City Bldg.	2,019	4,052
Wichita		
†City of Wichita, Kansas Clinic, City Hall	2,131	5,025
Totals	29,537	60,221

KENTUCKY

	Patients Last Year	Visits Last Year
Berea		
Berea College Hospital.	(No data available)	
Fleming		
¶Fleming Hospital	....	....
Fulton		
†Health Dept. Dispensary	(New)	
Greenville		
†Muhlenberg County Health Dept., Court House	1,200	2,700
Jackson		
Bach Hospital, Main St.	713	4,327
Lebanon		
Elizabeth's Hospital, Main and Harrison Sts.	520	1,560
Lexington		
†Public Health Nursing Assn., 227 N. Upper St.	3,217	6,639
†University of Kentucky Dispensary of Dept. of Hygiene and Public Health	3,737	6,276
Louisville		
Children's Free Hospital, 226 E. Chestnut St.	945	....
*Louisville City Hospital, Preston and Chestnut Sts.	11,673	48,192
**Pope Sanitarium, 115 W. Chestnut St.	470	35,500
Murray		
William Mason Memorial Hospital, 409 Poplar St.	1,306	3,970
Paducah		
¶**Illinois Central Railway Hospital, 1423 Broadway	3,174	3,174
†McCracken County Red Cross Health Center, 531 Broadway	900	1,237
Totals	27,855	113.575

LOUISIANA

	Patients Last Year	Visits Last Year
Alexandria		
Baptist Hospital 327 3d St.	519	....
Bogalusa		
Elizabeth Sullivan Memorial Hospital	(No record)	18,218
Fisher		
West Louisiana Sanitarium	3,000	18,000
Monroe		
St. Francis Sanitarium L. B. Faulk Free Clinic, 318 Wood St.	882	1,575
New Orleans		
*Charity Hospital of Louisiana, Tulane and Howard Sts.	33,851	113,183
Flint - Goodridge Hospital, 1566 Canal St.	1,981	18.563
¶*Illinois Central Railway Hospital, Magnolia and Lafayette Sts.	758	3,790
New Orleans Hospital and Dispensary for Women and Children, 1823 Annunciation St.	2,653	4,154
Presbyterian Hospital of New Orleans, 701-39 Carondelet St.	11,986	....
*Touro Infirmary and Hebrew Benevolent Assn., 3516 Prytania St.	16,845	78,597
Shreveport		
*Shreveport Charity Hospital, 1240 Texas St.	(New)	
*T. E. Shumpert Memorial Sanitarium, 941 Margaret Pl.	6,100	24.988
Totals	78,575	281,068

MAINE

	Patients Last Year	Visits Last Year
Bath		
†Bath Health Center, Custom House Bldg.	67	897
Biddeford		
Trull Hospital	1,000	....
Boothbay Harbor		
St. Andrew's Hospital.	150	350
Dexter		
Plummer Memorial Hospital	150	....
Old Town		
†Central Penobscot Public Health Assn.	1,103	1,158
Portland		
Children's Hospital, 68 High St.	1,235	11,745
Presque Isle		
Presque Isle General Hospital, 37, 2d St.	239	358
Rockland		
Knox County General Hospital, 2 Maple St.	697	....
Totals	4,641	14,508

MARYLAND

	Patients Last Year	Visits Last Year
Annapolis		
Annapolis Emergency Hospital, Franklin and Cathedral Sts.	749	1,717
Baltimore		
†Baltimore General Dispensary, 100 N. Paca St.	6,731	10,220
†Christ Church Dispensary, 602 S. Bond St.	1,200	12,019
†City Medical Agency Dispensary, Eastern District, 1300 E. Baltimore St.	(Included in Report of Southern Dist.)	
†City Medical Agency Dispensary, Northeastern District, 1224 E. Monument St.	(Included in Report of Southern Dist.)	
†City Medical Agency Dispensary, Northwestern District, 2242 Pennsylvania Ave.	(Included in Report of Southern Dist.)	
†City Medical Agency Dispensary, Southern District, 1418 Light St.	5,163	11,755
Dispensary of Volunteers of America Hospital, 418 W. Lexington St.	4.049	10.245
Robert Gerrett Hospital for Children, 27 N. Carey St.	1,660	6,287
*Hebrew Hospital and Asylum, Monument St. and Rutland Ave.	3,370	16,593
**Hospital for Women of Maryland Lafayette Ave. and John St.	569	569
*Johns Hopkins Hospital, Broadway and Monument St.	31,787	142,532
Howard A. Kelly Hospital, 1418 Eutaw Pl.	8,030	11,775
Harriet Lane Home for Invalid Children of the Johns Hopkins Hospital.	3,448	13,909
Locust Point Dispensary, E. Fort Ave. and Haubert St.	4,000	4,423
*Maryland General Hospital, Linden Ave. and Madison St.	2,998	3,641
†Medical and Surgical Dispensary, 1301 Light St.	....	....
*Mercy Hospital, Saratoga and Calvert, Sts.	5,739	......
[Conducted by Medical Dept., Univ. of Maryland and the State Health Dept.]		
Provident Hospital and Free Dispensary, 413-15 W. Biddle St.	1,023	1,410
*South Baltimore General Hospital, 1213-29 Light St.	12,897	17,622
*St. Agnes' Hospital, Wilkens Ave.	706	1,220
*St. Joseph's Hospital, Caroline and Hoffman Sts.	4,946	7,008
*University Hospital, Lombard and Green Sts.	13,071	52,637
Cambridge		
Cambridge Maryland Hospital	1,185	....
Hagerstown		
†Washington County Public Health Demonstration, 12 E. Washington St.	360	1,679
Havre de Grace		
Havre de Grace Hospital, Union Ave. and Revolution	94	240
Totals	111,775	327.495

MASSACHUSETTS

	Patients Last Year	Visits Last Year
Boston		
†Berkeley Infirmary Dispensary, 44 Dwight St.	2,066	3,696
*Boston City Hospital, 818 Harrison Ave. (See also Haymarket Square and East Boston Relief Stations)	32,301	164,177
**Boston Dispensary and Hospital for Children, 25 Bennet St.	40,000	152,508
**Boston Floating Hospital, 40 Wigglesworth St. Rox,	608	5,542
**Boston Lying-In Hospital, 24 McLean St.	2,858	8,062
*Carney Hospital, 140 Dorchester St., S. B.	4,222	33,980
**Children's Hospital, 300 Longwood Ave.	11,935	47,338
†Dispensary for Women, 633 Massachusetts Ave.	335	5,214
*Dispensary of the New England Hospital for Women and Children, Columbus Ave. and Dimock St. Rox,	1,063	5,748
*East Boston Relief Station, O. P. Dept., Boston City Hospital, 14 Porter St.	10,312	28,643
*Haymarket Square Relief Station, O. P. Dept., Boston City Hospital, Haymarket Square	22,330	22,330
**Collis P. Huntington Memorial Hospital, 695 Huntington Ave.	1,420	6,820
†Jewish Maternity Clinic Assn., 18 Allen St.	....	....
†The Little House Dispensary, 73 A St., S. B.	(New)	
†Lincoln House Dispensary, 80 Emerald St.	3,171	3,412
Long Island Hospital, Long Island	1,360	....
*Masachusetts General Hospital, Fruit St.	25,302	165,676
*Massachusetts Homeopathic Dispensary, O. P. Dept., Massachusetts Homeopathic Hospital, 750 Harrison St.	13,597	58,209
†Maverick Dispensary, 18 Chelsea St., E. B.	2,269	15,183
†Medical Dispensary and Pharmacy, (Salvation Army), 87 Vernon St., Rox,	......	......
Medical Mission Dispensary, 36 Hull St.	3,650	9,894
*Peter Bent Brigham Hospital, 721 Huntington Ave.	7,885	49.545
Plymouth Hospital Dispensary, 12 E. Springfield St.	....	....
South End Dispensary and Hospital, 2a Milford St.	....	2,000
St. Elizabeth's Hospital, 726 Cambridge St., Brighton	3,108	5,063
†Union Rescue Mission, 1-3 Dover St.	....	....
†University Dispensary, 415 Newbury St.	....	....
Brockton		
*Brockton Hospital, 680 Centre St.	1,290	2,870
Brookline		
†Community Health Center of the Brookline Friendly Society, 10 Walter Ave.	1,324	12.641
**Free Hospital for Women, 365 Pond Ave.	1,470	5,556
Cambridge		
Cambridge City Hospital, 1493 Cambridge St.	1,540	6,000
*Cambridge Hospital, 330 Mount Auburn St.	1,490	6,155
Cambridge Relief Hospital, 199 Prospect St.	5,500	50,000
Middlesex Hospital, 85 Otis St.	1,296	3,519
Chelsea		
*Chelsea Memorial Hospital, 100 Bellingham St.	1,645	....
†Chelsea Relief Dispensary, 4 Tremont St.	....	....
Clinton		
Clinton Hospital Assn., Highland St.	412	676
Concord Junction		
Massachusetts Reformatory Hospital	2,748	....
Fairhaven		
Fairhaven Hospital, 20 Fort St.	....	....
Fall River		
Bay View Hospital, Woodman and Bay Sts.	218	426
†Board of Health Dispensary	2,884	9.014
†City Dispensary, Overseers of the Poor, City Hall	1,803	7,571
*Fall River City Hospital, 228 Stanley St.	5,757	14,284
St. Ann's Hospital, 795 Middle St.	388	388
†Truesdale Clinic, 151 Rock St.	....	....
*Union Hospital, 538 Prospect St.	2,039	10,930
Fitchburg		
*Burbank Hospital, Hospital Rd.	600	1,000
Framingham		
Framingham Hospital, Evergreen St.	550	1,074
Gloucester		
†Public Health Dispensary, 132 Main St.	699	2,563
Lawrence		
*Lawrence General Hospital, 60 Prospect St.	1,323	4,839
Lowell		
Lowell City Dispensary, O. P. Dept., City Hospital, City Hall	2,768	....
*Lowell Corporation Hospital, Merrimack and Pawtucket Sts.	4,762	17,659
*St. John's Hospital, Bartlett and Fayette Sts.	2,171	10,452
Ludlow		
Lynn Hospital, 212 Boston St.	4,432	13,091
Melrose		
Melrose Hospital Assn., 585 Lebanon St.	410	775
New Bedford		
†New Bedford City Mission Dispensary, 755 1st St.	1,979	......
*St. Luke's Hospital, Page and Allen Sts.	3,277	7,551
Union Hospital and Dispensary, 1076 Pleasant St.	....	....

	Patients Last Year	Visits Last Year
Newburyport		
Anna Jaques Hospital	631	779
Newton		
*Newton Hospital, 2014 Washington St., Lower Falls	320	3,088
Northampton		
Cooley Dickinson Hospital, Locust St.	241	1,837
Pittsfield		
Hillcrest Hospital, 798 North St.	2,910	5.703
*House of Mercy Hospital, 741 North St.	3.179	5,362
Plymouth		
Jordan Hospital, Sandwich St.	309	1.821
Quincy		
†Fore River Hospital, 97 E. Howard St.	......	......
Salem		
*Salem Hospital, 81 Highland Ave.	1,450	5.429
Somerville		
Somerville Hospital, 30 Crocker St.	......	......
Taunton		
Morton Hospital, 88 Washington St.	1,504	......
Waltham		
*Waltham Hospital, Hope Ave.	585	1,253
Winchester		
†Winchester Public Health Center, 9 Mount Vernon St.	754	2.739
Worcester		
Belmont Hospital, Belmont St.	299	......
*City Hospital, 162 Chandler St.	6,962	31.342
†Franco-American Dispensary, 19 Portland St.	......	......
Washburn Free Dispensary O. P. Dept. Memorial Hospital, 14 Oak Ave.	5,164	13,798
Totals	268,775	1,055,225

MICHIGAN

	Patients Last Year	Visits Last Year
Ann Arbor		
University Hospital, Catherine St.	18,012	27,398
Battle Creek		
Battle Creek Sanitarium Clinic, N. Washington Ave.	4,661	......
Calumet		
Calumet and Hecla Hospital	(No data available)	
Detroit		
Children's Hospital of Michigan, 5224 St. Antoine St.	4,599	19,936
Grace Hospital, 4160 John R. St.	4,192	15,287
Harper Hospital, 3800 John R. St.	26,231	53,319
Michigan Mutual Hospital	......	32,859
Receiving Hospital, St. Antoine and Macomb Sts.	9,084	12,235
†Red Cross Clinic, 303 Palmer Bldg.	(No record)	2,034
Samaritan Hospital, 2200 W. Grand Blvd.	467	742
St. Mary's Hospital, 1420 St. Antoine St.	6,624	27,917
Woman's Hospital and Infants' Home, 443 Forest Ave. S.	3,219	6,273
Flint		
†Health Center, Board of Health, Rivard Blvd. 607 Beach St.	12,424	24,058
Grand Rapids		
Butterworth Hospital, Michigan St. and Bostwick Ave.	1,010	1,708
St. Mary's Hospital Free Clinic, Cherry and Lafayette Ave.	838	1,648
Grosse Pointe		
†Grosse Pointe Board of Health Rivard Blvd. and Jefferson Ave.	559	614
Hancock		
†Houghton County Dispensary, 100 Quincy St.	247	1,059
Highland Park		
Highland Park General Hospital, Glendale and Lincoln Aves.	1,360	2,394
Iron Mountain		
Westerlin Hospital	1,321	4,015
Iron River		
Mercy Hospital	1,300	5,000
Jackson		
W. A. Foote Memorial Hospital, East Ave.	915	2.792
Kalamazoo		
Baldwin Sanitarium, 500 Monroe St.	8.075	....
†Dept. of Public Health and Welfare, 122 E. Water St.	1,189	3.970
†Public Health Clinic, Board of Health	386	3,192
Lake Linden		
Lake Superior General Hospital Dispensary, Calumet and Beasley Sts.	(No data available)	
Lansing		
†Health Center, 112 W. Allegan St.	6,508	7,330
Menominee		
St. Joseph Hospital, 802 Ogden Ave.	1,013	....
Mohawk		
¶Mohawk Mine Hospital, 100 Stanton Ave.	246	14,590
Painesdale		
Copper Range Medical Service, Copper Range Hospital	11,957	30.984
Petoskey		
Petoskey Hospital, 109 W. Lake St.	366	1,180
Pontiac		
†Dept. of Public Health, 97 Perry St.	362	1.397
Totals	127,215	303.931

MINNESOTA

	Patients Last Year	Visits Last Year
Chisholm		
Rood Hospital, 101 E. Chestnut St.	591	11,800
Coleraine		
‡Coleraine Hospital, Morrison Ave.	130	....
Crosby		
¶Miners Hospital	252	5,475
Duluth		
†Duluth Free Dispensary, 407 W. Superior St.	596	812
Morgan Park Hospital, Morgan Park	3,250	23,364
St. Mary's Hospital, 37th St. and 5th Ave. E.	6,050	8,599
Ely		
Shipman Hospital	4,497	7.773
Eveleth		
More Hospital	8,774	23.825
Hibbing		
Rood Hospital, 2009 4th Ave.	3.551	18,754
Minneapolis		
Maternity Hospital, 2215 Western Ave.	(No record)	1,930
Minneapolis General Hospital, 5th St. Bet. 6th and 7th Aves.	3,510	30.997
University Hospital, Union St., and Washington Ave.	15,647	69,133
†Wells Memorial House Dispensary	....	....
Nopeming		
Nopeming Sanatorium	950	2,025
Princeton		
Northwestern Hospital	1,191	. ....
Proctor		
Missabe Hospital	4,900	9.500
St. Paul		
†St. Paul Dispensary, 204 W. 9th St.	6,260	21,804
Totals	60.150	235,791

MISSISSIPPI

	Patients Last Year	Visits Last Year
Hattiesburg		
New Methodist Hospital	....	....
Laurel		
South Mississippi State Charity Hospital, N. Laurel St.	3,984	10,022
Meridian		
Matty Hersee Hospital, 2310 Poplar Springs Rd.	3,305	......
Natchez		
Natchez Hospital	8,030	(No Record)
Vicksburg		
Vicksburg Infirmary, 1022 Harrison St.	800	....
Totals	16,119	10,022

MISSOURI

	Patients Last Year	Visits Last Year
Columbia		
Boone County General Hospital	(New)	
Parker Memorial Hospital, University of Missouri	2,516	7,318
Joplin		
†Joplin Free Clinic, City Hall 205 Joplin Ave.	4,032	7,331
Kansas City		
†Alfred Benjamin Dispensary, 1000 Admiral Blvd.	4,651	9,916
Children's Mercy Hospital, Independence and Woodland Aves.	8.017	21.905
†Emergency Hospital, City Hall Annex	12,000	(No Record)
†Helping Hand Institute, 523 Grand Ave.	1,436	4,477
Kansas City General Hospital, 24th and Cherry Sts.	5,016	22.608
Kansas City General Hospital Colored Division, 22d and Cherry Sts.	2,083	2,663
Research Hospital, 2300 Holmes St.	1,421	4,025
St. Joseph's Hospital, Linwood and Prospect Sts.	120	400
†Thos. H. Swope Settlement Clinic, 1608 Campbell St.	2,142	11,050
Union Station Hospital, Union Station	1,135	1,812
Poplar Bluff		
Cadwell Hospital	62	1,324
St. Louis		
Alexian Bros. Hospital, 3933 S. Broadway	3,674	21,877
Barnes Hospital, 600 S. Kingshighway	16,442	124,311
†First Aid Station, 110 S. 12th St.	2,065	....
†Holy Cross Dispensary, 2500 N. 12th St.	2,122	11,356
Jewish Hospital, 5415 Delmar Blvd.	5,614	26.430
St. John's Hospital Dispensary, 312 N. 23d St.	3,600	21,733
St. Louis Baptist Hospital, 912 N. Garrison Ave.	....	....
St. Louis Children's Hospital, 500 S. Kingshighway	16,494	126,961
St. Louis City Hospital Dispensary, 1605 S. 14th St.	29,099	67,405
St. Louis Mullanphy Hospital, Montgomery and Bacon Sts.	2,685	14,801
†St. Louis Obstetrical Dispensary, 1235 N. Grand Ave.	225	304
†St. Louis University Dispensary, 1402 S. Grand Ave.	2,150	11,888
St. Mary's Infirmary, 1536 Papin. St.	2,172	11.584
Totals	130,973	533.482

MONTANA

	Patients Last Year	Visits Last Year
Billings		
†Health Dept., Yellowstone County, Babcock Bldg.	817	1,788
Butte		
Murray Hospital, 57 W. Quartz St.	13,356	28,044
St. James Hospital, Idaho and Silver Sts.	2,062	7,588
Great Falls		
†Cascade County Health Dept., Stanton Bank Bldg. Rm. 80	1,050	1,463
Thompson Falls		
St. Luke's Hospital	250	1.050
Totals	17,535	39,933

NEBRASKA

	Patients Last Year	Visits Last Year
David City		
David City Hospital	....	....
Hastings		
Nebraska Sanitarium, 315 E. High St.	313	....
Lincoln		
Shoemaker's Private Hospital, 1117 L St.	82	440
Norfolk		
†Free General and special Clinic, Verges Sanatorium	....	....
Omaha		
†Creighton Dispensary, 306 N. 14th St.	7,075	21,448
Creighton Memorial St. Joseph's Hospital, 10th and Castellar Sts.	310	821
†The Solar Sanitarium, 1818 Douglas St.	5,856	25,962
University of Nebraska Dispensary. O. P. Dept., University Hospital, 42d and Dewey Ave.	3,555	20,130
Pawnee City		
Pawnee County Hospital	359	(No Record)
Totals	17,550	68,801

NEVADA

	Patients Last Year	Visits Last Year
Goldfield		
Association Hospital, 721 N. Columbia St.	188	379
Mason		
Mason Hospital	120	....
Tonopah		
¶Tonopah Mines Hospital, 90 South St.	6,301	16,896
Totals	6,609	17,275

NEW HAMPSHIRE

	Patients Last Year	Visits Last Year
Hanover		
Mary Hitchcock Memorial Hospital	451	835
Keene		
Elliot Community Hospital, 305 Main St.	209	475
Whitefield		
Morrison Hospital	201	934
Totals	861	2,244

NEW JERSEY

	Patients Last Year	Visits Last Year
Atlantic City		
Atlantic City Hospital, 23 S. Ohio St.	6,462	10,106
The Waggoner Private Hospital Clinic	....	....
Bayonne		
Bayonne Hospital and Dispensary, 12 E. 30th St.	3,277	12,234
Camden		
Cooper Hospital, 6th and Stevens Sts.	8,385	27,069
Homeopathic Hospital Dispensary, 430 Stevens St.	5,129	12,112
West Jersey Homeopathic Hospital. Mt. Ephriam and Atlantic Ave.	8,603	21,279
Elizabeth		
Alexian Bros. Hospital, 7th and Jersey Sts.	1,860	....
Elizabeth General Hospital Dispensary, E. Jersey and Reid Sts.	3,449	9,036
St. Elizabeth's Hospital, 204 S. Broad St.	1,579	1,825
Englewood		
Englewood Hospital Assn., Child Hygiene Dept.	171	1,861
Franklin		
Franklin Hospital	2,500	5,500
Hackensack		
Hackensack Hospital, Hospital Ave.	1,063	1,822
†Health Center Clinic, 50 Hudson St.	1,344	2,171
Jersey City		
Christ Hospital, 176 Palisade Ave.	3,428	4,732
Greenville Hospital in Jersey City, 1825 Boulevard St.	125	198
Jersey City Hospital, Baldwin Ave.	14,476	23,663
St. Francis' Hospital, 25 E. Hamilton Pl.	3,994	21,613
Long Branch		
Monmouth Memorial Hospital (Wimpfheimer Dispensary)	3,752	8,941
Millville		
Millville Hospital. N. High St.	419	....
Montclair		
Mountainside Hospital	4,195	4,831
Morristown		
Morristown Memorial Hospital, 66 Morris St.	6,070	25,525
Newark		
The Babies Hospital, 437 High St.	3,838	3,838
City Dispensary, O. P. Dept., City Hospital, Plane and Williams Sts.	13,687	55,785
Hospital for Women and Children, Central Ave. and S. 10th St.	2,509	8,776
Hospital of St. Barnabas, 683 High St.	2,279	7,561
St. James Hospital Dispensary, Elm and Jefferson Sts.	578	1,088
St. Michael's Hospital Dispensary, High St. and Central Ave.	3,737	28,506
New Brunswick		
Middlesex General Hospital, Somerset Ave.	(New)	
St. Peter's General Hospital, Somerset and Hardenberg Sts.	1,327	3,220
Orange		
Orange Memorial Hospital, 188 S. Essex Ave.	3,170	10,941
Passaic		
†Free Dispensary, Municipal Bldg.	418	....
Passaic General Hospital, Lafayette Ave.	2,764	3,498
St. Mary's Hospital, Pennington Ave.	825	1,800
Paterson		
Nathan and Miriam Barnert Hospital, 30th St. and Broadway	1,919	5,977
Paterson General Hospital, Market St.	2,416	6,258
Plainfield		
Muhlenberg Hospital, Park Ave. and Randolph Rd.	2,300	6,319
Princeton		
‡Princeton University Dispensary, Nassau St.	1,594	11,994
Thorofare		
Sanitarium Assn. of Philadelphia (open July and August)	201	244
Trenton		
†City Dispensary, Municipal Bldg., E. State St.	1,959	6,879
McKinley Hospital	2,730	3,999
Mercer Hospital, Bellevue Ave.	965	3,383
St. Francis Hospital, Hamilton Ave. and Chambers St.	5,359	9,789
Weehawken		
North Hudson Hospital Assn., Park Ave.	....	1,608
Totals	134,856	376,981

NEW MEXICO

	Patients Last Year	Visits Last Year
Gardiner		
†St. Louis Rocky Mountain and Pacific Railroad Co. Hospital	1,500	......
Total	1,500	......

NEW YORK

	Patients Last Year	Visits Last Year
Albany		
Albany Hospital Dispensary, New Scotland Ave.	432	3,115
Anthony N. Brady Maternity Home, 30 N. Main St.	185	925
Homeopathic Hospital Dispensary, 159 N. Pearl St.	1,548	4,157
South End Dispensary of the Albany Hospital, 2 Ash Grove	1,775	9,059
St. Peter's Hospital, 879 Broadway	1,253	4,174
Auburn		
†Union Neighborhood House, Health Center, 77 Wall St.	1,000	2,278
Binghamton		
Broome County Humane Society Free Dispensary, 71-73 Collier St.	2,342	4,684
Bronxville		
Lawrence Hospital Dispensary, Pondfield Rd.	284	533
Brooklyn		
†Bay Ridge Clinic, 5208 4th Ave.	(Included in Report Health Dept.N.Y.C.)	
†Bedford Clinic, 420 Herkimer St.	(Included in Report Health Dept.N.Y.C.)	
Beth Moses Hospital, 404 Hart St.	(New)	
†Bradford St. Dispensary, 109 Bradford St.	....	....
†Brooklyn City Dispensary, 11 Tillary St.	927	3,892
†Brooklyn Eastern District Homeopathic Dispensary, 194 S. 3d St.	2,451	5,899
Brooklyn Hospital Dispensary, 121 Dekalb Ave.	19,563	81,431
Brooklyn Samaritan Hospital 608, 4th Ave.	1,726	3,137
†Brownsville Clinic, 64 Pennsylvania Ave.	(Included in Report Health Dept.N.Y.C.)	
Brownsville and East New York Hospital Dispensary, Rockaway Pkway and Ave. A.	....	....
†Bushwick and East Brooklyn Dispensary, 1097 Myrtle Ave.	3,727	8,149
Coney Island Hospital, Ocean Pkway and Ave. Z	1,964	3,745
Cumberland Street Hospital Dispensary, 109 Cumberland St.	5,848	13,333
†Day Camp Rutherford Clinic, Ft. of Broadway	(Included in Report Health Dept.N.Y.C.)	
†Dietz Memorial Clinic of the Italian Baptist Church, 18 Jackson St.	408	984
Dispensary of the Jewish Hospital of Brooklyn, Cor. Classon and St. Mark's Aves.	20,132	21,140
†Eastern District Clinic, 306 S. 5th St.	(Included in Report Health Dept.N.Y.C.)	
Greenpoint Hospital, Kingsland Ave., and Bullion St.	4,715	13,552
†Hebrew Ladies' Dispensary of Williamsburgh, 84 Cook St.	....	....
Kings County Hospital Clarkson Ave.	2,965	8,745
Long Island College Hospital Dispensary, 340 Henry St.	19,564	80,955
Lutheran Hospital, E. New York Ave., Cor. Powell St.	11,392	31,640
†Memorial Dispensary for Women and Children, 827 Sterling Pl.	224	1,138
Methodist Episcopal Hospital, 7th St., and 8th Ave.	2,916	7,867
Norwegian Lutheran Deaconess Home and Hospital, 4th Ave., and 46th St.	2,618	2,859
†Prospect Clinic, Fleet and Willoughby Sts.	(Included in Report Health Dept.N.Y.C.)	
†Ridgewood Clinic, 753 Onderdonk Ave.	(Included in Report Health Dept.N.Y.C.)	
Sar Shalom Dispensary of the Williamsburg Mission to the Jewish, 27 Throop Ave.	2,302	5,186
St. Catherine's Hospital, 133 Bushwick Ave	5,341	11,296
St. Christophers Hospital for Babies, 277-283 Hicks St.	806	3,148
United Israel - Zion Hospital Dispensary, 10th Ave., 48th and 49th Sts.	3,816	7,597
Victory Memorial Hospital, 7th Ave. and 92d St.	311	573
Williamsburgh Hospital, 106-112 S. 3d St.	3,635	7,563
Wyckoff Heights Hospital of Brooklyn, 142 St. Nicholas Ave.	1,951	4,491
Buffalo		
Buffalo City Hospital, 462 Grider St.	35,790	189,832
(Including report of 8 Health Centers and O. P. Dept. of Wende Hospital)		
Emergency Hospital of the Sisters of Charity, Pine and Eagle Sts.	3,974	7,491
†Health Center Free Dispensary No. 1, 379 Amherst St.	(Included in Report of Buffalo City Hospital O.P. Dept.)	

	Patients Last Year	Visits Last Year
†Health Center Free Dispensary No. 2, 591 William St.	(Included in Report of Buffalo City Hospital O.P.Dept.)	
†Health Center Free Dispensary No. 3, 1122 Genesee St.	(Included in Report of Buffalo City Hospital O.P.Dept.)	
†Health Center Free Dispensary No. 4, 404 Seneca St.	(Included in Report of Buffalo City Hospital O.P.Dept.)	
†Health Center Free Dispensary No. 5, 51 Court St.	(Included in Report of Buffalo City Hospital O.P.Dept.)	
†Health Center Free Dispensary No. 6, 24 High St.	(Included in Report of Buffalo City Hospital O.P.Dept.)	
†Health Center Free Dispensary No. 7, 122 Hodges Ave. (special)	(Included in Report of Buffalo City Hospital O.P.Dept.)	
†Health Center Free Dispensary No. 8, 462 Grider St.	(Included in Report of Buffalo City Hospital O.P.Dept.)	
Ernest Wende Hospital, Broadway and Spring Sts.	(Included in Report of Buffalo City Hospital)	
Cohoes		
Cohoes Hospital, 221 Main St.	327	1,447
Corning		
†City Clinic, City Hall	316	580
Corona		
†Corona Clinic, 127 46th St.	(Included in Report Health Dept.N.Y.C.	
Dobbs Ferry		
Dobbs Ferry Hospital, Ashford Ave.	200	493
Dunkirk		
†Dunkirk Public Health Center, 510 Deer St.	444	2,050
Elmira		
†Elmira City Dispensary, 425 E. Market St.	440	3,558
Flushing		
Flushing Hospital and Dispensary, Parsons and Forest Aves.	2,910	6,822
Geneva		
†Health Office, City Hall	297	....
Hornell		
†Hornell Health Center, 108 Broadway	426	1,307
Jamaica		
†Jamaica Clinic	(Included in Report Health Dept.N.Y.C.)	
Kingston		
Kingston City Hospital, 296 Broadway	155	424
Lackawanna		
Moses Taylor Hospital, Ridge Rd.	422	4,345
Long Island City		
†Queens Plaza Clinic, 138 Hunter Ave.	(Included in Report Health Dept.N.Y.C.)	
St. John's Long Island City Hospital Dispensary, 12th St., and Jackson Ave.	3,290	8,814
Mount Pleasant		
Grasslands Hospital	243	1,056
Mount Vernon		
Mount Vernon Hospital, N. 7th Ave.	1,152	3,792
Newburgh		
St. Luke's Hospital, 70 DuBois St.	249	522
New Rochelle		
New Rochelle Hospital Dispensary, 16 Guion Pl.	635	1,911
New York		
Babies' Hospital of the City of New York, 657 Lexington Ave.	4,410	16,034
Beekman Street Hospital, 117 Beekman St.	16,388	30,821
Bellevue Hospital Dispensary, 425 E. 26th St.	50.006	188,937
†John E. Berwind Free Maternity, 127 E. 103d St.	1,008	3.181
Beth David Hospital Dispensary, 1830 Lexington Ave.	10,371	19.258
Beth Israel Hospital Assn., 70 Jefferson St.	67,380	76,074
†Bloomingdale Clinic, 227 W. 99th St.	5,095	5,610
Booth Memorial Hospital Dispensary, 314 E. 15th St.	528	1,498
†Bowling Green Neighborhood Assn., 45 West St.	2,464	3.618
Broad Street Hospital Dispensary, 127-29 Broad St.	10,122	26,122
Bronx Hospital Dispensary, 1285 Fulton Ave.	16,024	39.007
†Chelsea Clinic, 307 W. 33d St.	(Included in Report Health Dept.N.Y.C.)	
†Christ Church House, 344 W. 36th St.	136	217
Columbus Hospital, 226 E. 20th St.	3.402	10,001
Community Hospital, 17-21 W. 101st St.	1.066	6.872
†Corlears Clinic, 331 Broome St.	(Included in Report Health Dept.N.Y.C.)	
†Day Camp Manhattan, Ft. E. 90th St.	(Included in Report Health Dept.N.Y.C.)	
†East Harlem Health Center, 345 E. 116th St.	14.550	52,198
†East Side Clinic for Children, 325 E. 84th St.	5.828	7.000
Fordham Hospital Dispensary, Southern Blvd. and Crotona Ave.	703	1.754
French Hospital, 450 W. 34th St.	2.207	17.366
†Good Samaritan Dispensary, 75 Essex St.	41,993	115.825
Gouverneur Hospital, Gouverneur Slip and South St.	92,020	107,154
†Grace Chapel Dispensary, 414 E. 14th St.	282	2,950
Hahnemann Hospital, 657 Park Ave.	132	583
Harlem Hospital, 136th St. and Lenox Ave.	27,154	79,547
†Harlem Reformed Church Dispensary, 180 E. 122d St.	5,497	....
†Health Center No. 1, 206 Madison St.	....	....
†Health Dept., 505 Pearl St.	69,802	144,877
(Including report of 21 separate clinics)		
Italian Dispensary, O. P. Dept. Italian Hospital, 617 E. 83d St.	4,412	11.173
Jewish Maternity Hospital, 270 E. Broadway	1,097	3,470
†Judson Mem. Health Center, 243 Thompson St.	1,506	5,240
Knickerbocker Hospital, 503 W. 131st St.	8,980	12,889
Lebanon Hospital Dispensary, Cauldwell and Westchester Aves.	15,720	33,430
Lincoln Hospital and Home, 320 Concord Ave.	8,290	19,739
Lutheran Hospital of Manhattan, 341 Convent Ave.	2,408	....
Manhattan Maternity and Dispensary, 327 E. 60th St.	1,523	14,885
†Mott Haven Clinic, 493 E. 139th St.	(Included in report Health Dept.,N.Y.C.)	
Mount Sinai Hospital Dispensary, 1 E. 100th St	53,416	173,682
New York City Children's Hospital, Randall's Island	1,988	25,000
†New York Dispensary, 34 Spring St.	35,853	119.698
New York Homeopathic Medical College and Flower Hospital, 450 E. 64th St.	3,293	16,358
New York Hospital, 8 W. 16th St.	14.914	85,605
New York Infirmary for Women and Children, 321 E. 15th St.	8,766	27,837
New York Nursery and Child's Hospital, 161 W. 61st St.	5,042	21,399
New York Post-Graduate Medical School and Hospital, 303 E. 20th St.	67.836	227,015
†North Eastern Dispensary, 222 E. 59th St.	10,799	22,306
†Northern Dispensary, Waverly Pl. and Christopher St.	4,979	10,332
†North-Western Dispensary, 403 W. 36th St.	462	3,030
Anna Ottendorfer Dispensary, O. P. Dept., Lenox Hill Hospital, 76th St. and Park Ave.	25,080	72.933
Presbyterian Hospital, 41 E. 70th St.	26,589	107,893
Reconstruction Hospital, 395 Central Park, W.	444	21,490
†Riverside Clinic, 481 W. 145th St.	(Included in report Health Dept.,N.Y.C.)	
Roosevelt Hospital, 428 W. 59th St.	30,757	69.711
Sloane Hospital for Women, Amsterdam Ave. and 59th St.	14,914	85.605
St. Luke's Hospital, 114th St. and Morningside Drive	23,184	95,264
St. Mark's Hospital, 175, 2d Ave.	8,664	23,763
St. Vincent's Hospital of the City of New York, 11th St. and 7th Ave.	5,851	12,273
†Stuyvesant Clinic, 540 E. 13th St.	(Included in report Health Dept.,N.Y.C.)	
†Stuyvesant Polyclinic of the City of New York, 137, 2d Ave.	16,516	37,614
†Tremont Clinic, 3d Ave. and St. Paul's Pl.	(Included in report Health Dept.,N.Y.C.)	
†Trinity Dispensary, 209 Fulton St.	679	1,904
University and Bellevue Hospital Medical College Dispensary, 338 E. 26th St.	22,632	82,836
†Vanderbilt Clinic and Day Camp, 15 Amsterdam Ave.	36,449	174,955
†Washington Clinic, 128 Prince St.	(Included in report Health Dept.,N.Y.C.)	
West Side Dispensary and Hospital, 328 W. 42d St.	37,528	81,010
Wilkes Dispensary of St. Mary's Free Hospital for Children, 435-439, 9th Ave.	4,211	15,416
Woman's Hospital in the State of New York, 141 W. 109th St.	5,222	27,247
†Yorkville Clinic, 439 E. 57th St.	(Included in report Health Dept.,N.Y.C.)	
Niagara Falls		
†Bureau of Health, 598 Pine Ave.	2,097	2,698
Oneonto		
Aurelea Osborn Fox Memorial Hospital	779	5,542
Oswego		
†Oswego City Health Center, 252 W. 1st St.	739	2,054
Poughkeepsie		
Samuel W. Bowne Memorial Hospital, Pendall Road	500	1,000
†Dept. of Health, 24 Washington St.	2,348	2,946
Vassar Bros. Hospital, Reade Pl.	893	3,625
Rochester		
†Baden Street Dispensary, 160 Baden St.	3,759	16,727
Rochester General Hospital, 501 W. Main St.	3,753	18,528
Rochester Homeopathic Hospital, 224 Alexander St.	1,777	6,439
Rome		
Oneida County Hospital, Floyd Ave., R.F.D. No. 4	1,148	1,148
Schenectady		
†Day Nursery Free Dispensary, 25 Lafayette St.	1,137	2,233
†Health Center, 508 Union St.	1,068	6,902
Staten Island		
†Richmond Clinic, Bay and Baltic Sts., Stapleton	(Included in report Health Dept.,N.Y.C.)	
St. Vincent's Hospital Dispensary, Bard and Castleton Aves., West New Brighton	403	1,783
Staten Island Hospital, Castleton Ave., Tompkinsville	2,061	3,933
Syracuse		
†Syracuse Free Dispensary, 610 E. Fayette St.	5,267	27,639
Troy		
Samaritan Hospital, Peoples and Burdette Aves.	2,095	2,906
The Troy Hospital Assn., 87 Oakwood Ave.	1,958	2,543
Utica		
†Utica Dispensary, 224 Mary St.	2,056	11,644
White Plains		
†Board of Health, City of White Plains, 45 Hamilton Ave.	857	2,204
Yonkers		
St. John's Riverside Hospital (Sherman Dispensary), Ashburton Ave.	4,790	15,806
St. Joseph's Hospital, S. Broadway and Vark Sts.	2,721	6,131
Yonkers Homeopathic Hospital and Maternity, 127 Ashburton Ave.	1,378	2,404
Totals	1,182.818	3,439,038

NORTH CAROLINA

	Patients Last Year	Visits Last Year
Asheville		
Highland Hospital, Inc.	191	....
Fayetteville		
Highsmith Hospital	940	3,832
Lincolnton		
Lincolnton Hospital	....	....
Morganton		
Grace Hospital Dispensary, King St.	624	1,437
New Bern		
St. Luke's Hospital, Broad and George Sts.	1,359	7,428
Raleigh		
†Wake County Free Clinic, 15 W. South St.	771	1,408
Wilmington		
†Free Clinic, Court House	963	4,122
Winston-Salem		
†City Health Dept., Main and 1st Sts.	1,400	2,950
†Lawrence Clinic, Inc., 719 Oak St.	700	1,728
Totals	6,948	22,905

NORTH DAKOTA

	Patients Last Year	Visits Last Year
Grand Forks		
St. Michael's Hospital, Lewis Blvd.	153	204
Jamestown		
Trinity Hospital	700	....
Totals	853	204

OHIO

	Patients Last Year	Visits Last Year
Akron		
†Dept. of Public Health. City Bldg.	14,885	47,272
Cambridge		
Lawrence Hospital, 614 Clark St.	....	....
Canton City		
†Canton City Clinic, Auditorium Bldg., 5th St., N.W.	1,179	4,054
Celina		
Otis Hospital, E. Market St.	....	....
Cincinnati		
†Cincinnati Polyclinic, 1411 Race St.	1,800	....
†Eclectic Medical College Clinic, 630 W. 6th St.	2,160	7,228
Jewish Hospital, Burnett Ave.	2,563	26,501
†Ranley Health Center, 129 E. 9th St.	2,795	3,441
†University of Cincinnati Medical College Clinic, Cincinnati General Hospital, Goodman and Burnett Aves.	9,349	36,069
†Wilhelm and Gette Backman Dispensary, 729 W. 6th Ave.	5,868	10,011
Cleveland		
Babies' Dispensary and Hospital, 2500 E. 35th St.	23,520	25,917
Fairview Park Hospital, 3305 Franklin Ave.	(New)	
Huron Road Hospital Society, Huron Rd., below 9th St.	3,458	6,330
Lakeside Hospital and Western Reserve University, Lakeside Ave. and 12th St.	....	106,520
Lakewood Public Hospital Dispensary, 12611 Madison Ave.	821	2,924
Maternity Hospital and Western Reserve University, 3735 Cedar Ave.	3,708	40,042
Mount Sinai Hospital, 1800 E. 105th St.	....	45,886
St. Alexis Hospital, 5163 Broadway, S.E.	1,336	2,248
St. Luke's Hospital, 6606 Carnegie Ave.	15,284	....
St. Vincent's Charity Hospital, E. 22d St. and Central Ave., S.E.	13,575	49,798
Columbus		
Children's Hospital, Miller and Fair Ave.	6,073	....
†Columbus Free Dispensary, 222 E. Long St.	1,202	2,636
State Street Dispensary, Ohio State University, 315 E. State St.	2,020	9,302
University Homeopathic Hospital, 11th and Neil Aves.	11,463	....
Dayton		
Miami Valley Hospital, Apple St.	2,366	5,783
St. Elizabeth's Hospital, Hopeland St.	3,114	3,650
Hamilton		
†Clinic, Health Dept., Front and Ludlow Sts.	654	2,169
Port Clinton		
Pool Hospital, 125 E. 3d St.	(No data available)	
Portsmouth		
Schirrmann Hospital, 731, 8th St.	4,000	4,500
Ravenna		
†County Board of Health and Red Cross Clinic	548	....
Springfield		
Springfield City Hospital, York and Clifton Sts.	1,720	2,979
Toledo		
†City Dispensary, 503 N. Erie St.	(No data available)	
Maternity and Children's Hospital, 1609 Summit St.	(No record)	
St. Vincent's Hospital, 2213 Cherry St.	805	3,521
†Toledo District Nurse Assn. Dispensary, 1903 Monroe St.	2,001	4.243
Toledo Hospital, 1711 Cherry St.	440	2,200
Van Wert		
Van Wert County Hospital, Central Ave. and Chestnut St.	485	542
Youngstown		
St. Elizabeth's Hospital, 1026 Belmont Ave.	576	894
Youngstown Hospital Assn., Francis St.	1,037	4,953
Totals	140,805	461,613

OKLAHOMA

	Patients Last Year	Visits Last Year
Muskogee		
†Muskogee Public Health Assn., 525 Court St.	....	....
Oklahoma		
State University Hospital, 401 E. 2d St.	2,352	16,214
Sulphur		
Sulphur Hospital Sanitarium	(New)	
Totals	2,352	16.214

OREGON

	Patients Last Year	Visits Last Year
Portland		
†Portland Free Dispensary, 276, 4th St.	9,290	16,351
Sellwood General Hospital, 575 Harvey Ave.	1,495	1,667
The Dalles		
The Dalles Hospital	2,020	4,250
Totals	12,805	22,268

PENNSYLVANIA

	Patients Last Year	Visits Last Year
Allentown		
Allentown Hospital, 17th and Chew Sts.	1,948	6,995
Sacred Heart Hospital, 4th and Chew Sts.	1,014	2,176
Altoona		
Altoona Hospital, Howard Ave. and 7th St.	3,504	11,842
Mercy Hospital, 2601, 8th Ave.	......	2,039
Ashland		
State Hospital for Injured	2,421	7,107
Beaver Falls		
Providence Hospital, 3d Ave. and 9th St.	109	208
Bellevue		
Suburban General Hospital, Jackson St.	175	......
Bloomsburg		
Bloomsburg Hospital	194	245
Blossburg		
Blossburg State Hospital	1,225	6,125
Bryn Mawr		
Bryn Mawr Hospital Dispensary, Bryn Mawr Ave.	1,371	5,187
Carlisle		
Carlisle Hospital, South and Wilson St.	653	......
Chambersburg		
Chambersburg Hospital, Lincoln Way, E.	100	254
Chester		
Chester Hospital, 9th and Barclay Sts.	3,979	5,158
J. Lewis Crozer Homeopathic Hospital, Upland Ave.	838	3,779
Clearfield		
Clearfield Hospital, Turnpike Ave.	782	2,690
Coaldale		
State Hospital	1,991	11,917
Columbia		
Columbia Hospital, 7th and Poplar Sts.	158	362
Confluence		
Frantz Hospital, Logan Pl.	654	2,675
Easton		
Easton Hospital, 660 Wolf Ave.	2,188	3,381
Erie		
†State and Municipal Clinic, 510 State St.	1,336	6,638
St. Vincent's Hospital, 24th and Sassafras Sts.	1,366	2,134
Germantown		
Germantown Dispensary and Hospital, 640 E. Pennsylvania St.	5,480	20,336
Greensburg		
Westmoreland Hospital Assn., 700 W. Pittsburg St.	703	4,993
Harrisburg		
Harrisburg Hospital, Front and Mulberry Sts.	8,077	15,341
Harrisburg Polyclinic Hospital, Front and Harris Sts.	781	1,288
Hazleton		
State Hospital of Middle Coal Field, E. Broad St.	968	3,720
Heilwood		
Penn-Mary Hospital (Bethlehem Steel Company)	....	....
Johnstown		
¶Cambria Steel Company Hospital, Lowman St.	18,115	52,788
Kingston		
Nesbitt West Side Hospital, 562 Wyoming Ave.	....	....
Lancaster		
Lancaster General Hospital, 530 N. Lime St.	559	2,369
St. Joseph's Hospital, College and Marietta Aves.	549	3.113
Lebanon		
Good Samaritan Hospital Dispensary, 4th and Walnut Sts.	118	522
Lebanon Sanatorium, 4th and Willow Sts.	444	....
McKeesport		
McKeesport Hospital, 1500, 5th Ave.	441	3,307
Monongahela		
Memorial Hospital Association of Monongahela, Chess St.	190	268
Mount Pleasant		
Jacob Justice Free Dispensary, O. P. Dept. Mount Pleasant Memorial Hospital, 727 Main St.	218	453
Nanticoke		
State Hospital of Nanticoke, Washington St.	2,366	....
Norristown		
Montgomery Hospital, Powell and Basin Sts.	302	490
Palmerton		
Palmerton Hospital	2,478	13,233
Philadelphia		
American Hospital for Diseases of the Stomach, 1809 Wallace St.	617	4,893
Babies' Hospital of Philadelphia, 334 S. 9th St.	1,709	8,528
Amy S. Barton Dispensary, O. P. Dept. Hospital of Woman's Medical College of Pennsylvania, 335 Washington Ave.	4,374	12.447

	Patients Last Year	Visits Last Year
†Chestnut Hill Dispensary, 8815 Germantown Ave.	....	....
Children's Homeopathic Hospital, Franklin and Thompson Sts.	4,495	15,285
Children's Hospital of the Mary J. Drexel Home, 2100 S. College Ave.	4,417	....
Children's Hospital of Philadelphia, Bainbridge and 18th Sts.	8,226	26,786
Diagnostic Hospital of Philadelphia, 1731 Vine St.	4,805	5,135
Frankford Hospital, Frankford Ave. and Wakeling St.	2,426	9,118
Frederick Douglas Memorial Hospital, 1530 Lombard St.	....	....
Garretson Hosp., 18th and Hamilton Sts.	2,479	4,091
Germantown Dispensary and Hospital, Penn St., near Chew	3,451	15,363
Hahnemann Medical College and Hospital, 15th St., above Race	8,579	32,267
‡Health Department of Girard College	....	....
†Henry Phipps Institute, 7th and Lombard Sts.	3,247	11,343
Hospital of the Protestant Episcopal Church in Philadelphia, Front St. and Lehigh Ave.	22,194	80,110
Hospital of the University of Pennsylvania, 3400 Spruce St.	20,443	88,675
Hospital of the Woman's Homeopathic Assn. of Pennsylvania, 20th St. and Susquehanna Ave.	2,870	14,881
Hospital of the Woman's Medical College of Pennsylvania, 2121 N. College Ave.	2,860	10,889
Howard Hospital, 801 S. Broad St.	6,251	26,076
Jefferson Maternity Dispensary, 2545 Wharton St.	(Included in report of Jefferson Medical College Hosp.)	
Jefferson Maternity Hospital, 224 S. 7th St.	(Included in report of Jefferson Medical College Hosp.)	
Jefferson Medical College Hospital, 10th and Sansom Sts.	32,929	114,655
Jewish Hospital Assn. of Philadelphia, 5500 Old York Road	4,584	15,821
Kensington Hospital for Women, 132-36 Diamond St.	946	4,737
Lankenau Hospital, Girard and Corinthian Aves.	5,309	30,288
Medico - Chirurgical Hospital of Philadelphia, 18th and Cherry Sts.	12,156	25,141
Mercy Hospital, 5000 Woodland Ave.	733	1,452
Methodist Episcopal Hospital, S. Broad and Wolf Sts.	7,496	28,005
Misericordia Hospital, 54th St. and Cedar Ave.	3,928	15,654
Mount Sinai Hospital, 1429 S. 5th St.	16,562	53,430
Northeastern Hospital of Philadelphia, E. Alleghany and Tulip Sts.	5,311	17,197
†Northern Dispensary of Philadelphia, 608-10 Fairmount Ave.	3,270	6,259
Northwestern General Hospital, 2017-21 N. 22d St.	....	4,924
Pennsylvania Hospital, Dept. for Sick and Injured, 8th and Spruce Sts.	15,425	55,190
†Philadelphia Dispensary, 127 S. 5th St.	19,863	56,826
Philadelphia General Hospital, 34th and Pine Sts.	1,243	9,109
Philadelphia Lying-In Charity Hospital, 126 N. 11th St.	1,682	....
Polyclinic Hospital, 1818 Lombard St.	22,711	76,936
Presbyterian Hospital in Philadelphia, 51 N. 39th St.	7,171	36,311
Samaritan Hospital 3401 N. Broad St.	3,841	19,049
Southeastern Dispensary and Hospital for Women and Children, 736 S. 10th St.	1,200	2,600
†Southern Dispensary, 318 Bainbridge St.	3,696	12,561
St. Agnes' Hospital, 1900 S. Broad St.	20,048	60,436
St. Christopher's Hospital for Children, N. W. Cor. Lawrence and Huntington Sts.	3,331	12,941
St. Joseph's Hospital, 16th St. and Girard Ave.	7,408	20,765
St. Luke's Homeopathic Hospital, 4414-50 North Broad St.	8,342	77,038
St. Mary's Hospital, Franklin and Palmer Sts.	8,494	19,683
St. Timothy's Memorial Hospital Dispensary, Ridge and Jamestown Aves.	828	3,273
Stetson Hospital of Philadelphia, 1745 N. 4th St.	6,773	21,260
West Philadelphia Hospital for Women, 4035 Parish St.	2,009	6,332
West Philadelphia General Homeopathic Hospital and Dispensary, 1234 N. 54th St.	4,867	....
Woman's Hospital of Philadelphia, N. College and 22d Sts.	19,957	(No record)
Woman's Southern Homeopathic Hosp., 733-745 S. Broad St.	1,124	3,060
Philipsburg		
Cottage State Hospital.	606	2,348
Pittsburgh		
Allegheny General Hospital, 110 E. Stockton Ave.	7,830	18,793
Children's Hospital, Forbes St. and McDevitt Place	3,983	....
Homeopathic Medical and Surgical Hospital Dispensary of Pittsburgh, 5230 Center Ave.	3,401	10,415
Mercy Hospital, Pride and Locust Sts.	4,000	14,703
Montefiore Hospital Assn. of Western Pennsylvania, 3000 Center Ave.	(No record)	2,700
Passavant Hospital, Reed and Roberts Sts.	3,352	11,804
†Pittsburgh Free Dispensary, 43 Fernando St.	1,569	3,722
†Pittsburgh Hospital, Franktown Ave. and Washington Blvd.	494	811
Presbyterian Hospital, Montgomery and Sherman Aves.	2,627	5,101
South Side Hospital, S. 20th, Mary and Jane Sts.	3,167	8,824
St. Francis Hospital, 45th St., near Penn Ave.	4,421	10,870
St. John's General Hospital, 3339 McClure Ave.	2,930	3,337
St. Joseph's Hospital and Dispensary, 2117 Carson St.	2,613	5,209
University Maternity Dispensary, O. P. Dept. Elizabeth Steel Magee Hospital, Forbes and Halket Sts.	553	4,070
Western Pennsylvania Hospital, 4800 Friendship Ave.	8,321	22,565
Pittston		
Pittston Hospital Dispensary	702	2,320
Pottstown		
Homeopathic Hospital.	155	467
Pottstown Hospital, 729 N. Charlotte St.	790	1,747
Pottsville		
Pottsville Hospital, Mauch Chunk and Jackson Sts.	340	1,318
Reading		
Homeopathic Medical and Surgical Hospital, 135 N. 6th St.	3,012	4,704
Reading Hospital, Front and Spring Sts.	3,778	6,389
St. Joseph's Hospital, 1215 Walnut St.	3,136	5,638
Ridley Park		
Taylor Hospital Dispensary	346	1,117
Rochester		
Rochester Hospital. 500 Pumey St.	285	825
Sayre		
Robert Packer Hospital, S. Wilbur Ave.	6,204	19,373
Scranton		
Hahnemann Hospital, 316 Colfax Ave.	379	784
†Medical Clinic, 333 Adams Ave.	1,488	2,176
Moses Taylor Hospital.	4,585	39,021
State Hospital of the Northern Anthracite Coal Region of Pennsylvania, 410 Franklin Ave.	4,278	14,718
West Mountain Sanatorium, 203 Linden St.	....	....
West Side Hospital.	752	1,302
Shamokin		
Trevorton, Shamokin and Mt. Carmel State Hospital, R.F.D. No. 1	2,107	5,221
South Bethlehem		
St. Luke's Hospital, Ostrum St.	381	1,018
Spangler		
Miner's Hospital	966	....
West Chester		
Homeopathic Hospital of Chester County	150	211
Wilkes-Barre		
†Medical Clinic, 184 S. Washington St.	7,303	16,168
Mercy Hospital, 196 Hanover St.	879	4,467
Wilkes-Barro City Hospital, N. River and Auburn Sts.	692	1,377
Wyoming Valley Homeopathic Hospital, 149 Dana St.	150	314
Williamsport		
Williamsport Hospital, Campbell and Louisa Sts.	611	812
Windber		
Windber Hospital, Somerset Ave.	17,246	50,000
York		
York Hospital and Dispensary, College Ave. and Oak Lane	2,051	2,551
Totals	537,438	1,689,512

RHODE ISLAND

	Patients Last Year	Visits Last Year
Newport		
Newport Hospital Friendship St.	1,135	1,492
Pawtucket		
Memorial Hospital, Prospect St.	1,850	11,461
Park Place Hospital, Park Pl.	922	2,202
Providence		
Homeopathic Hospital of Rhode Island, 62-64 Jackson St.	504	2,289
Lyria Brown Nickerson House Providence City Hospital, 121 Delaine St.	3,004	7,835
†North End Dispensary, 49 Orms St.	1,394	3,247
Providence City Hospital, Eaton St.	5,482	25,712
Providence Lying-In Hospital, 96 State St.	793	1,175
Rhode Island Hospital, 593 Eddy St.	7,871	36,242
St. Joseph's Hospital, Broad St.	2,502	6,780
Riverpoint		
†Federal Hill House Assn., 400 Atwell's Ave.	6,562	28,621
†Pawtuxet Valley Visiting Nurse Assn. Clinic, Allen St.	1,762	10,204
Woonsocket		
Woonsocket Hospital, 115 Case Ave.	200	600
Totals	33,781	137,860

SOUTH CAROLINA

	Patients Last Year	Visits Last Year
Charleston		
Roper Hospital, Lucas and Calhoun Sts.	9,235	15,821
Columbia		
†Columbia Children's Clinic, 401 Gervais St.	2,697	6,035
Columbia Hospital, 2000 Hampton Ave.	2,182	3,600
South Carolina Baptist Hospital, 1519 Marion St.	2,063	......

	Patients Last Year	Visits Last Year
Greenville		
Emma Moss Booth Memorial Hospital, Vardry Heights	3,624	......
Spartanburg		
†Mary Black Clinic, E. Main St.	1,227	2.750
Totals	21,028	26,206

SOUTH DAKOTA

Chamberlain		
Chamberlain Sanitarium and Hospital	(No data available)	
Deadwood		
St. Joseph's Hospital, Charles St.	215	750
Lead		
Homestake Hospital, 214 W. Main St.	......	42,705
Sioux Falls		
†Sioux Falls Medical and Surgical Clinic, 303 S. Minnesota Ave.	7,799	23,386
Sisseton		
Powell Hospital	1,474	......
Watertown		
Bartron Hospital Clinic	1,655	4.368
Webster		
†Peabody Clinic	......	......
Totals	11,143	71.209

TENNESSEE

Chattanooga		
†Chattanooga General Clinic, City Hall	9,288	......
Newell and Newell Sanitarium, 707 Walnut St.	3,025	27,791
Knoxville		
Knoxville General Hospital	1,200	1,500
†Knoxville Health Center, Locust and Clinch Sts.	3,500	12.851
Memphis		
Memphis General Hospital, Madison Ave.	13,311	46.193
Nashville		
Geo. W. Hubbard Hospital, 1117, 1st Ave. S.	285	513
Millie E. Hale Hospital, 523, 7th Ave. S.	1,108	1.297
Nashville City Hospital, Nance and Filmore Sts.	4,000	9,920
Vanderbilt University Hospital Free Dispensary, 700 5th Ave. S.	....	9,339
Totals	35,717	109.404

TEXAS

Arlington		
Knights Templar Hospital, Keystone Stop	300	363
Austin		
Austin City Hospital, 14th and Sabine Sts.	(No data available)	
Dallas		
Baylor Hospital, 3315 Junius St.	3,316	8,740
St. Paul's Sanitarium, 3121 Bryan St.	(New)	
El Paso		
†El Paso County Dispensary, 1st and Campbell Sts.	4,510	13,548
Fort Worth		
†Fort Worth Welfare Assn. Clinic	3,645	5,886
Galveston		
John Sealy Hospital, 816 Avenue B	....	18,318
Houston		
Municipal Hosp., City Hall	7,148	18.183
Marlin		
The Torbett Sanatorium, 317 Coleman St.	2,743	4.441
Orange		
Frances Ann Lutcher Hospital, Pine and 2d Sts.	(New)	
San Antonio		
Robt. B. Green Memorial Hospital, 515 Morales St.	6,346	17,049
St. Luke's Clinic, 745 W. Houston St.	1,408	3,227

	Patients Last Year	Visits Last Year
Waco		
Colgin Hospital and Clinic	....	......
Providence Sanitarium, Vermont and N. 18th Sts.	141	303
Totals	29,560	90,358

UTAH

Logan		
Utah Idaho Hospital	1,265	....
Salt Lake City		
†Community Clinic and Dispensary, 149 Regent St.	789	2,253
County Hospital, 21st and S. State Sts.	1.300	3,024
Salt Lake City Emergency Hospital, 105 S. State St.	1,631	....
Totals	4,985	5,277

VERMONT

Barre		
City Hospital	708	....
Burlington		
†Burlington Free Dispensary, 106-8 Pearl St.	1,213	5,415
Mary Fletcher Hospital, 121-27 Colchester Ave.	1.300	....
Proctor		
Proctor Hospital	292	1,575
Totals	3,513	7,020

VIRGINIA

Alexandria		
Alexandria Hospital, Washington and Duke	1,087	....
†Venereal Dis. Clinic and General Clinic for City Poor, N. Fairfax St.	1,346	4,896
Charlottesville		
†University of Virginia Dispensary	....	4,353
Danville		
†Danville Health Dept.	2.918	3,682
Lynchburg		
Bureau of Health O. P. Dept. Lynchburg Hospital, 205, 10th St.	1,168	6.818
Norfolk		
Hospital of St. Vincent de Paul, Wood and Church Sts.	4,524	9.599
†Kings Daughters Children's Clinic, 300 W. York St.	4,421	6,978
†Norfolk City Free Clinic and Dispensary, Academy Square and Court St.	18,000	....
Norfolk Protestant Hospital, Raleigh and College Aves.	....	3,207
Richmond		
†Medical College of Virginia Free Dispensary, 12th and Clay Sts.	4,563	28,347
Virginia Hospital, 11th and Clay Sts.	6,780	3.000
Roanoke		
Lewis Gale Hospital, Inc., 419 Roanoke St. S. W.	917	4,940
†Roanoke Visiting Nurse Assn. and Dispensary, Municipal Bldg.	2.114	8.273
University		
University of Virginia Hospital	....	4.353
Totals	47.868	88,446

WASHINGTON

	Patients Last Year	Visits Last Year
Aberdeen		
Aberdeen General Hospital	1,143	....
Centralia		
Lee A. Scace Hospital, 701 H St.	....	....
Hoquiam		
Hoquiam General Hospital, 606 K St.	2.880	8.381
Port Angeles		
Port Angeles General Hospital	150	375
Seattle		
†Roosevelt Clinic, 1114 Boylston Ave.	....	13,993
†The Seattle Clinic, Joshua Green Bldg.	(No data available)	
Seattle City Hospital and Municipal Clinics, Public Safety Bldg., 4th and Yesler Way	....	20,921
Spokane		
†Medical Clinic, City Hall	791	15.820
Totals	4,964	59,490

WEST VIRGINIA

Bluefield		
St. Luke's Hospital, 51 Bland St.	1,150	....
Charleston		
Salvation Army Hospital, 612 Virginia St.	349	1,027
Davis		
Allegheny Heights Hospital	....	....
Fairmont		
Fairmont Hospital No. 3, Guffey and Columbia Sts.	350	....
Huntington		
Greater Huntington Hospital	468	1,578
Kessler-Hatfield Hospital	....	....
Martinsburg		
Shenandoah Valley Sanatorium, 506 W. John St.	(No data available)	
Spencer		
West Virginia Methodist Episcopal Hospital	....	1,585
Welch		
Welch Hospital No. 1.	305	....
Wheeling		
Ohio Valley General Hospital, 2000 Eoff St.	802	5,134
Totals	5,009	7,739

WISCONSIN

Beloit		
Dr. Newman's Sanitarium, 1511, 5th St.	....	....
†Visiting Nurse Assn. Clinic, 422 Public Ave.	1,094	3,775
Eau Claire		
Sacred Heart Hospital	650	....
Green Bay		
†Health Center, City Hall	832	1,152
Madison		
University Clinic, Dept. of Clinical Medicine, University of Wisconsin, 762 Langdon St.	6,579	40,692
†Marquette Dispensary Clinic, 4th and Reservoir Ave.	2,397	15,198
Milwaukee Children's Hospital, 219 10th St.	3,024	9,909
Milwaukee County Dispensary, O. P. Dept., Milwaukee County Hospital of Wauwatosa, 160 5th St.	29,833	45,292
Milwaukee Infants' Hospital, 477 Bradford Ave.	598	....
Milwaukee Maternity and General Hospital, 830 Sycamore St.	1,205	7,000
Roosevelt General Hospital, 573 Class St.	307	669
St. Mary's Hospital, 448 Lake Drive	469	2,889
Platteville		
Wilson Cunningham Hospital, Main and Chestnut Sts.	15,000	23,000
Superior		
St. Mary's Hospital, Clough Ave. and Broadway	745	....
Totals	62,733	149,576

WYOMING

Casper		
†Medical Clinic, City Hall	326	1,500
Thermopolis		
Hopewell Hospital	....	....
Wheatland		
Wheatland Hospital	1,825	3,220
Totals	2,151	4,720

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SATURDAY, AUGUST 5, 1922

DISPENSARY SERVICE IN THE UNITED STATES

We publish this week statistics based on an extensive survey of the dispensaries, outpatient departments, clinics and other medical institutions having to do with the care and treatment of ambulatory patients. The figures are based on reports received from the superintendents, medical directors or other executives of the dispensaries or in connection with governmental dispensaries from the municipal, state or national officers of these institutions. The figures, therefore, were obtained from official sources and are reliable. Our acknowledgments are due to all who have cooperated toward the success of the survey. Valuable assistance was received from the officers of national health agencies, hospital associations and voluntary medical organizations having to do with ambulatory patients. Hearty cooperation was received also from several of the state hospital committees.

NUMBER OF DISPENSARIES IN THE UNITED STATES

Information is published in regard to 3,243 institutions from which reports were received and which are known to exist. Statements from reliable sources indicate that there are several hundred others for many of which the names have been obtained but from which repeated requests have failed to bring reports which would enable us to include them in our published lists. Even as we go to press reports from other institutions continue to come in; a conservative estimate indicates that the total number of dispensaries in the United States will exceed 4,000. Satisfactory information has not been obtainable from many institutions for the reason that clinic and office record systems are lacking.

Of the 3,243 dispensaries listed, 946 are outpatient departments of hospitals or independent dispensaries which provide general medical and surgical service for their patients, while 2,297 are special dispensaries, such as those for tuberculosis and venereal diseases; mental hygiene and baby and child hygiene clinics; dispensaries of eye, ear, nose and throat and orthopedic hospitals; dispensaries connected with industrial plants, and offices and stations of the United States Public Health Service.

DISPENSARIES PROVIDING GENERAL CARE FOR THEIR PATIENTS

Statistics published this week deal mainly with the more important group of outpatient departments, or those which provide for the general, medical and surgical care of patients. There are 946 of these institutions, including 689 outpatient departments of general hospitals and 257 independent dispensaries. A list of these institutions is published in which are given the name and address of each dispensary and its location, the total number of patients cared for during the last fiscal year, and the number of visits made by those patients during that time. Similar information regarding special dispensaries such as those for tuberculosis, venereal disease and mental hygiene, is being prepared for publication in the near future and the full report of the survey is to be made available in pamphlet form.

GENERAL DISPENSARIES BY STATES

One of the tables published gives the distribution of general dispensaries by states. Of the 946, New York State has the largest supply, 163, followed by Pennsylvania with 136, Massachusetts with 74, California with 56, and Illinois with 48. In regard to the numbers of patients cared for, New York naturally leads with 1,182,818, followed by Pennsylvania with 537,438; Massachusetts with 268,775; California with 193,920, and Illinois with 169,872. Of the 3,872,345 patients attending the general dispensaries, 2.717,850, or 70 per cent., attended dispensaries in the fifty largest cities. In New York, of the 1,182,818 dispensary patients, 958,622, or 81 per cent., are in New York City.

GENERAL DISPENSARIES IN THE FIFTY LARGEST CITIES

Table 3 of the statistics shows that, of the 946 general dispensaries, 416, or 44 per cent., are located in the fifty largest cities. New York leads with sixty-nine, followed by Philadelphia with fifty-four, Chicago with thirty-three, Boston with twenty-seven, and Baltimore with twenty-two. As to the number of patients cared for, New York leads with 958,622, followed by Philadelphia, with 356,680; Boston, with 189,692; Chicago, with 159,493, and Baltimore, with 109,387. Reports from the dispensaries of Seattle and Indianapolis do not give the total number of patients treated during the year.

SERVICE RENDERED BY GENERAL DISPENSARIES

The importance of general dispensaries to the public is indicated by the fact brought out in the statistics that these 946 institutions handled 3,872,345 patients during the year who, during that time, made 11,798,887 visits. Including a reasonable estimate for the seventy-five general dispensaries known to exist but from which reports are not received, these figures would be increased to 4,500,000 patients and 13,500,000 visits.

SERVICE RENDERED BY SPECIAL DISPENSARIES

Reports received from special dispensaries show that although on the average they cared for smaller numbers of patients, at the same time the patients, as a rule, made larger numbers of visits. An estimate for the 2,297, based on definite reports which were received from the majority, indicates that these institutions cared for a total of 3,750,000 during the year who, during that time, made approximately 16,000,000 visits.

The total number of patients in all dispensaries during the year, therefore, was approximately 8,000,000 who, during the same time, made approximately 29,500,000 visits to those institutions.

DISPENSARY PROBLEMS

One of the live problems relating to dispensaries is the abuse of such service by patients who are able to employ physicians. Investigation indicates that this abuse is not so extensive as has been supposed. The problem is being solved by a careful investigation of the financial status of patients, which is being done by many dispensaries through a cooperation with bureaus of charity which keep a register of the financial status of those seeking financial assistance.

Another problem is the establishment of a schedule of fees for the various services rendered by the dispensary and varying in accordance with the extent of the services rendered. A large number of dispensaries have already established such schedules, but there is no uniformity among dispensaries in the fixing of such charges. There is, also, an evident lack of justice to the patient and of economy to the dispensary in the disproportionate charges for different services in the same dispensary, such, for example, as a charge of ten dollars for roentgen-ray examination, with no charge for a Wassermann test. The next few years will doubtless see much progress in regard to the fixing of reasonable fees so that a larger proportion of the expense of conducting the dispensary can be borne by the patients.

Another problem which in recent years has been given extensive discussion is that of the pay clinics. The object of such clinics is to enable patients who cannot afford to pay the fees charged by physicians to secure satisfactory medical and surgical service at lower rates. Such clinics will be instruments of great good if they accept only such patients as are referred to them by physicians or who are found, on investigation, to be unable to pay full fees. In this way the pay clinic will work in cooperation, and not in competition, with the medical profession.

GROWTH IN NUMBER OF DISPENSARIES

The first dispensary on record[1] was established in London, England, in 1696, to provide medical care for the poor. The first established in the United States was in Philadelphia, in 1786; the second, in New York, in 1790, and the third in Boston, in 1796. We find no record of any survey of dispensaries having been made until that by the United States Census Bureau in 1910; at that time there were only 574, including both general and special dispensaries. An estimate in 1916 placed the number at 900.[1] The present survey gives definite information in regard to the existence of 3,243 dispensaries, not including several hundred others in regard to which there appears to be authoritative evidence regarding their existence but from which thus far it has been impossible to obtain reports. Including the latter, the total would be more than 4,000.

The increase in population in the country has had some influence on the development of outpatient dispensaries, but the chief stimulus, especially in recent years, has been the increasing popularity of the dispensary as a place to secure satisfactory medical service. It has been during recent years also that dispensaries have established well-organized medical staffs and have required their prompt and regular attendance. In addition to this, there has been an increasing tendency toward the establishment of graduated scales of fees by which those who were unwilling to accept charity at the free dispensaries are more willing to patronize the institutions. Another influence leading to the increase in numbers is the recognition by hospitals of the importance of outpatient departments as a means of better serving the people in their communities. It is found that many hospital patients during convalescence can secure the necessary follow-up treatment as ambulatory patients of the outpatient departments.

THE BLOOD DURING WATER TRANSPORT

The remarkable constancy in the composition of the important tissues and fluids within the organism must excite a never-failing interest in any one who studies the fundamental physiologic processes. Regulatory functions are continually being brought into play to secure the uniformity referred to. The various adjustments and adaptations evidently acting to secure a proper arterialization of the blood under the changing condition of atmosphere and tissue needs for oxygen have often been cited in The Journal. An equally effective regulation seems to occur in connection with the behavior of water in the body. The variations in intake may be very large, the amount and paths of the output may also show large irregularities depending on a number of unlike circumstances; yet in health the water balance of the body seems to result in a distribution of the "universal solvent" that averts undue concentrations or dilutions wherever an opportunity for the intervention of water may arise.

No adequate explanation has ever been offered as to how the large quantities of water often consumed can be taken care of without upsetting the normal equilibrium within the organism. Profuse secretion of dilute urine follows the ingestion of liberal quantities of water by mouth. As much may be passed in an hour as is ordinarily voided in a day. As Rowntree[1] has recently pointed out, the inference is that water is absorbed; the absorption results in hydremia, which in turn brings about diuresis. If this reasonable supposition were true, one would expect in the blood pronounced changes, for a time at least, which might become the stimulus for the compensatory kidney functions, just as an accumulation of carbon dioxid in the blood leads to respiratory changes designed to eliminate the excess of the waste product.

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[1] Davis and Warner: Dispensaries, New York, 1918.

Studies of the blood during active water transport have yielded discordant results. It might be expected that something significant would be disclosed in the extreme types of this movement as they occur in chronic polyuria, in which it is known that from 15 to 25 liters of urine a day may be excreted. Yet cases of diabetes insipidus investigated by Christie and Stewart[2] at the Lakeside Hospital, Cleveland, show how trifling the changes in the concentration of the blood plasma, as regards the electrolytes, may be when great changes in the ingestion, excretion and transportation of water are in progress. So far as their experience goes, it would seem that it is only in exceptionally favorable circumstances that even minute changes in the conductivity of the serum, a quantity susceptible of being measured to so considerable a degree of accuracy, can be detected with certainty. For example, blood specimens obtained immediately before and immediately after a long period of complete deprivation of water (twenty-four hours or more) showed no definite differences in the electrical conductivity of the serum which could be associated with changes in the rate at which water was being absorbed, transported and excreted. The same thing was true of the percentage volume of serum. Comparison of blood specimens procured within half an hour, and again after five or six hours, after the resumption of water drinking, with the specimens obtained just before or just at the end of the period of water deprivation, also revealed differences in the conductivity of the serum so slight and so inconstant that it was impossible to connect them definitely with changes in the intake of water.

These facts do not contradict the possibility of some changes in the relative volume of plasma and corpuscles or in the total volume of the circulating fluid, even though its osmotic pressure and the concentration of the electrolytes remain the same. The problem of changes in the tissue water under such conditions, however, looms large. Rowntree[3] has described symptoms attributable to "water intoxication" occurring without significant changes in body temperature, edema or marked increases in plasma volume. They resemble the symptoms of clinical uremia in many respects, and raise the question as to the possible relation of water intoxication, if any exists, to uremia, eclampsia and epilepsy. At any rate, the blood and kidneys no longer deserve sole consideration in the future analysis of the problem of water balance and transport in the organism.

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[1] Rowntree, L. G.: The Water Balance of the Body, Physiol. Rev. **2**: 116 (Jan.) 1922.

[2] Christie, C. D., and Stewart, G. N.: Study of Some Cases of Diabetes Insipidus, with Special Reference to the Detection of Changes in the Blood When Water Is Taken or Withheld, Arch. Int. Med. **29**: 555 (May) 1922.

[3] Rowntree, L. G.: Water Intoxication, J. A. M. A. **78**: 1840 (June 10) 1922.

A RECONSIDERATION OF AUTOLYSIS AS A VITAL PROCESS

Some years ago the medical literature was full of articles on autolysis; this process was invoked to explain so many unexplained phenomena that it became almost as much of a catchword as "endocrines" now is. Attention seemed to be diverted from the subject after a time, and only a few pathologists and biochemists have continued investigating this phenomenon. The tumult and the shouting having now faded well away, it is interesting to consider what has survived of it all, and what significance is now attached to autolysis.

The importance of autolysis in the disintegration of dead tissues has never been questioned since Martin Jacoby's classical experiments, and this function seems now to be established beyond dispute. The problem that has more agitated investigators is the part played by autolysis in physiologic processes and in normal metabolism. It seems reasonable to assume that a property so well-nigh universal as autolysis must have been developed to meet some more common situation than the removal of dead tissues, especially since the capacity of cells for autolysis varies quantitatively rather closely with their metabolic activity. A consideration of this topic by Bradley[1] presents a matured analysis from the biochemical standpoint, and gives us a basis for a new consideration of the significance of autolysis in medicine.

As almost inevitably is the case, the introduction of new methods has cast a new light on the old problem, and our education in respect to the essential importance of the H-ion concentration in biologic processes has made it necessary to discard much of what had formerly been learned concerning autolysis, and to revalue the rest. Wiener, and later Bradley and his associates especially, have shown that autolysis depends absolutely on acidity; for when tissues have their normal H-ion concentration, which is essentially the same as that of the blood, no autolysis can take place. Whenever the circulation within a tissue is stopped, whether within the body or on its removal from the body, acidity begins to increase because of continued metabolism under asphyxial conditions, which leads to an accumulation of organic acids that cannot be completely destroyed because of lack of oxygen. When this acidity has developed to a certain degree, autolysis begins, and its rate is largely determined by the degree of acidity that develops, the optimal reaction being slightly on the acid side of neutrality ($p_H = 6.0$).

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[1] Bradley, H. C.: Autolysis and Atrophy, Physiol. Rev. **2**: 415 (July) 1922.

Therefore we are justified in assuming that autolysis may play its part even in living tissues if their acidity ever develops sufficiently; and Bradley is evidently of the opinion that sometimes this must happen, for he attributes to autolysis a rôle in many pathologic processes, and also some that are essentially physiologic. Perhaps one of the best examples is furnished by the changes that follow poisoning with some of the organic halogen derivatives. Evarts Graham secured evidence that the necrosis of the liver that may be produced by chloroform depends on the decomposition of the drug within the cell, liberating hydrochloric acid, which kills the cells and is followed by the rapid autolysis characteristic of acute yellow atrophy of the liver, a condition resembling the chloroform necrosis liver. The war gases furnished much unwelcome support of this theory, for most of them, such as phosgen, "mustard gas" and chlorpicrin, are organic chlorin compounds which readily penetrate cells and hydrolyze to produce concentrations of acid that kill the cells and lead to rapid autolysis.

Numerous atrophies, without such definite necrosis of tissues as in the foregoing examples, may also be attributed to autolysis resulting from an increased intracellular acidity from asphyxia of greater or less degree. Atrophy of the mammary gland after lactation is a typical physiologic example of autolysis resulting from diminution of the blood supply. Leaving the gland partly distended with milk hastens the atrophy through pressure, which cuts down the blood supply still more. After parturition, the mammary glands in some women produce an excessive secretion of milk, and become tense with pressure and often painful. This great initial pressure regularly leads to a diminution through atrophy so that within a few days the supply of milk diminishes automatically, and the common practice of bandaging the breasts to terminate lactation depends on a similar principle. In general acidosis and in fevers, the loss in tissue mass is correlated probably with acidotic changes within the tissue cells, leading to their partial autolysis. The wastage in anemias seems also to be related to the decreased oxygen supplied the tissues, causing partial asphyxia, which permits autolysis to produce a new equilibrium between the mass and metabolism of the tissues of the body and their supporting blood and oxygen supply. In starvation we have a striking example of slow autolysis by which a very large portion of the proteins of the body is digested and thus mobilized for the use of the more essential organs. It is evident that the tissues least subject to autolysis in starvation are those whose blood supply is most assured, the brain and the heart. This slow autolysis is probably related to blood supply and tissue acidosis, as in the other cases mentioned. The histologic changes of starvation are in many respects similar to those of autolysis. Among other observations possibly bearing on the same question are those of Hildebrandt, who found that autolysis in the functioning mammary gland is much more active than in the resting gland; and of Schlesinger, who found that autolysis was at its maximum (in rabbits) in new-born animals, decreasing rapidly in the first few months of life, and that in conditions associated with emaciation the rate of autolysis varied directly with the degree of emaciation. The very slow generalized atrophies of advancing age are probably also related immediately to a blood supply growing gradually less efficient, and leading to a concomitant decrease in the mass of tissues maintained in equilibrium with it. These are only a few of the more obvious examples of physiologic and pathologic processes in which autolysis has a part. Every loss of tissue mass that is not merely due to loss of water probably involves this mechanism. It is also of corroborative significance that such observations as have been made on conditions that favor growth of cells indicate that for this function an increase in alkalinity is of importance.

All the foregoing evidence indicates that autolysis is a phenomenon that is demonstrable only in pathologic conditions, or in physiologic conditions of atrophy, but does not establish that the responsible enzymes either do or do not play a part in normal protein metabolism.

Current Comment

IS THE BILE CONCERNED IN PANCREATITIS?

Scientific investigation finds a justification not only in furnishing new information and consequent deductions to enrich our knowledge, but also not infrequently in dispelling long accepted fallacies or superstitions. An instance of the latter has recently been offered by the studies of Mann and Giordano[1] on the anatomy and functions of the bile duct. The entrance of bile into the pancreatic duct has repeatedly been charged with responsibility for the production of pancreatitis. Mann and Giordano have ascertained, however, that the anatomic relation of the biliary and pancreatic ducts at the duodenum in man is such that obstruction at the exit could rarely if ever permit bile to pass toward the pancreas. Furthermore, the sphincter is located at a point at which contraction will close both ducts and will not convert them into a continuous channel. Even when a reflux of bile into the pancreatic duct is artificially brought about, the infiltration of the pancreas with the sterile secretion of the liver apparently fails to produce acute pancreatitis. Finally, bile has been found in the pancreatic duct without the corresponding occurrence of the inflammatory reaction. Hence, Mann and Giordano assert that we must look elsewhere than to a bile factor for the explanation of the genesis of most cases of pancreatitis.

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[1] Mann, F. C., and Giordano, A. S.: The Bile Factor in Pancreatitis. Proc. Soc. Exper. Biol. & Med. 19: 353 (April) 1922.

COLOSTRUM AS A SOURCE OF IMMUNE SUBSTANCES FOR THE NEW-BORN

There are evidences of the existence of certain types of immunity in animals—and presumably also in man—very soon after birth. The immense advantage of such early protection against bacterial dangers early in life is obvious. How it is acquired has not yet been clearly ascertained; but there is no doubt that substances capable of conferring immunity are demonstrable in the blood of the young at a period before it is likely that a new formation of the "immune bodies" could have taken place to any considerable extent. Recently the part played by the colostrum in this phenomenon has been elucidated by investigations on cattle at the Rockefeller Institute at Princeton, N. J. Little and Orcutt [1] found that the blood of new-born calves before ingesting colostrum did not contain agglutinins against *Bacillus abortus,* but that after the intake of agglutinin-containing colostrum the blood acquired a titer related to the agglutinin content of the colostrum. Howe [2] has further shown that certain of the blood proteins are missing in the new-born until after the calves have ingested colostrum containing these globulins. It now appears that the agglutinins are associated with these globulin fractions of the proteins of the blood and colostrum; and their absorption by young animals tends to support the idea of direct absorption, into the blood of the new-born, of certain protein fractions present in colostrum.[3] The mode in which early immunity may be acquired thus becomes evident; and the importance of colostrum in the nutrition of the new-born is emphasized anew.

ON GROWING FOREVER

A single strain of connective tissue cells isolated from a fragment, less than 1 cubic millimeter in size, of the heart of a chick embryo by Carrel at the Rockefeller Institute for Medical Research in 1912 has now passed through nearly nineteen thousand generations in vitro. The growth of the tissue fragments is as rapid today as at any other time during the ten years, each piece generally doubling its volume in two days. If it had been practicable to allow the tissues to multiply to their greatest possible extent, their mass today would be more than that of the sun. These facts, taken from a recent account by Ebeling,[4] fortify the conclusion, to which reference has been made in THE JOURNAL on previous occasions, that such cells, like other forms of protoplasm, seem to be potentially immortal. Given a suitable supply of food material, the cells continue young indefinitely, provided the environment does not become oppressive, as may be the case when the products of destructive metabolism are not properly removed or when inhibitory substances are introduced. Some biologists have assumed that organisms are endowed with a limited capacity to transform energy. On this hypothesis, life does not become prolonged beyond the time when the individual's quota of energy has been metabolized; and this is usually represented by the characteristic life span of the species. The chick cells have now been carried through multiplications by absorption and transformation of their environmental tissue juices year after year beyond the usual limit of life of chickens. Hence it may be assumed that the fibroblasts can proliferate indefinitely without any rejuvenative influences other than food. Growing old involves environmental factors.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Hospital News.—Col. Charles E. Forbes, director of the U. S. Veterans' Bureau, recently toured California in search of a suitable site for a $3,500,000 tuberculosis hospital for veterans of the World War. The proposed plans call for a 500 bed unit and the use of 250 acres of ground. Construction work will be started within ninety days following the selection of a site.——An addition will be erected at Fabiola Hospital, Oakland, at an estimated cost of $200,000.——It has been announced by the Sisters of Providence Hospital, Oakland, that a large site has been purchased for a new hospital building which will be erected in a few months at a cost of $700,000.——A new industrial building will be erected at the state hospital at Imola and construction work has been started on the workers' cottages. The installation of laundry equipment amounting to $10,000 will also be carried out.——A new maternity ward will be erected at St. Vincent's Maternity Home, Hollywood.——The capacity of the Letterman General Hospital, San Francisco, division for disabled veterans of the World War, has been enlarged from 250 to 400 beds by order from Washington, D. C.

CANAL ZONE

Epidemic of Fever.—It was recently announced that an epidemic of malaria has developed among Canal Zone employees. The Panama *Star* and the *Herald* are quoted to the effect that breeding places of mosquitoes, which had been sprayed with oil the year round, are now neglected and "there are now more mosquitoes on the isthmus than ever before, since sanitation days." These same papers state that the Ancon Hospital is overcrowded with malaria patients.

CONNECTICUT

Typhoid Carrier on Farm.—Through the efforts of the state department of health, cooperating with the local health officers, a man working on a farm in Connecticut has been found to be a typhoid germ carrier. Milk has been produced for sale on the farm in question and six cases of typhoid fever have apparently resulted from its use. The finding of the health officers is the result of numerous examinations made in the laboratory of the state department of health in New Haven. The carrier, who had typhoid in 1895, has been prohibited from handling food of any kind for distribution.

New Hospital Addition.—Work will soon be started on the new buildings for the Newington Home Corporation at Hartford, a state institution for the care and treatment of crippled children. The legislature at its last session provided $200,000 for such buildings. Physicians in the city of Hartford donate their services to the institution free.——Ground has been cleared for the addition to the New Britain General Hospital at New Britain, which will be erected in the near future at a cost of $500,000. Final plans have been approved and the contracts will be awarded early this month, it was announced. The present New Britain Hospital has a capacity of 100 beds.

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[1] Little, R. B., and Orcutt, Marion L.: J. Exper. Med. **35:** 161 (Feb.) 1922.

[2] Howe, P. E.: J. Biol. Chem., **49:** 115 (Nov.) 1921.

[3] Orcutt, Marion L., and Howe, P. E.: The Relation Between the Accumulation of Globulins and the Appearance of Agglutinins in the Blood of New-Born Calves, Proc. Soc. Exper. Biol. & Med. **19:** 331 (April) 1922.

[4] Ebeling, A. H.: A Ten Year Old Strain of Fibroblasts, J. Exper. Med. **35:** 755 (June) 1922.

DELAWARE

Organization of Health Board.—The board of health of Dover has been reorganized with Dr. L. August H. Bishop as president; Dr. Edwin S. Anderson, vice president, and Herman C. Taylor, secretary-treasurer.

DISTRICT OF COLUMBIA

Jewish Hospital in Washington.—Architect Harry A. Brandt of Washington has been retained to draw plans for the new Hebrew Hospital and Home for the Aged, to be located at the capital. Buildings for the institution will cost $400,000. Two, three and four story buildings will be erected, the materials being brick and limestone.——The general contract for a new addition to the Children's Hospital in Washington has been awarded to W. E. Monney of that city. The building will be a one-story structure, 36 by 25 feet, of brick construction.

GEORGIA

Physician Honored.—The board of trustees of the University of Georgia have conferred on Dr. Lamartine G. Hardman, Commerce, the honorary degree of doctor of science.

Marriage Relations Bill.—Women of Georgia are leading in the fight in the legislature to promote the passage of the bills to come before the present session of the general assembly, especially the marriage relations bill. This measure, which all the state organizations of women favor, proposes that the man should be examined before a marriage license is granted, but that it is not essential that the woman be subjected to examination.

New Activities of Health Board.—The Georgia State Board of Health entered a new field of activity for negroes, July 3, when it conducted a health institute for the teachers attending the summer session of the Fort Valley High and Industrial School, Atlanta, under the direction of Dr. Bocker. The institute was conducted by local physicians and members of the staff of the state health board, in an effort to train the colored teachers in bettering health conditions in their communities. Moving pictures and individual consultations were also arranged.

ILLINOIS

Meeting of Tuberculosis Workers.—Medical, social and financial problems of tuberculosis were discussed at a conference held in Ottawa, July 27-28, under the direction of the Illinois Tuberculosis Association. More than 100 delegates, composed largely of trustees of county tuberculosis sanatoriums, field workers, public health nurses and representatives of all the associations engaged in fighting tuberculosis in sixty counties of the northeastern section of the state, attended the conference.

Big Program for Physicians.—Members of the medical societies of eleven nearby counties and their families were invited to attend an open meeting and picnic at Lowell Park, Dixon, July 19, by the Ogle and Lee County medical societies. The picnic was the largest gathering of medical men held in that section for many years, members of Carroll, Stephenson, Boone, Winnebago, DeKalb, LaSalle, Bureau, Jo Daviess, Kane, Henry and Whiteside County medical societies attending. A baseball match was held between Ogle and Lee counties. Dr. Julius H. Hess, professor of pediatrics, University of Illinois College of Medicine, spoke on "Newer Phases of the Nutrition of Infants," and other papers were read by Dr. Malcolm L. Harris, professor of surgery, Chicago Polyclinic, and Dr. Ernest E. Irons, associate professor of medicine at Rush Medical College, Chicago.

Chicago

Bust of Dr. Black for London University.—U. S. Ambassador Harvey, at the request of President Walter Dill Scott of Northwestern University, will present a bust of Dr. Green Vardiman Black, dean of Northwestern University Dental School, who died in 1915, to the London (England) University. Dr. Black was known as "the father of modern dentistry, and dental pathology and bacteriology."

University News.—Dr. Frederick Robert Zeit, for more than twenty years professor of pathology at Northwestern University Medical School, at his own request has been relieved of active duty in the medical school. He plans to spend next year abroad.——The Pathological Museum of Northwestern University will hereafter be known as the Frederick Robert Zeit Museum of Pathology.——Dr. Charles B. McGlumphy has been appointed assistant professor of pathology at Northwestern University medical School. Dr. MeGlumphy has been working with Stoerk at the Franz Joseph Spital in Vienna for the past two years.

INDIANA

Herb Doctor Fined.—A newspaper report states that Leo M. Wolf, who advertised himself as an Indian herb doctor, pleaded guilty to the charge of practicing medicine without a license, when arraigned in the city court at Lafayette, July 15. Wolf was warned by the court to refrain from further attempts to practice medicine unlawfully, and was fined $35.

Poster Contest for Hospital.—In order to raise funds to complete the $2,000,000 building fund for the erection of the James Whitcomb Riley Memorial Hospital in Indianapolis, a state-wide poster contest has been instituted, the winning posters to be used as aids to collect funds. Prizes of $150 in gold and three original paintings by Howard Chandler Christy, Franklin Booth and Frederick Polley will be awarded the winners of the contest.

Hospital News.—Improvements costing $10,000 will be made at the Marine Hospital, Evansville.——The William S. Major home, Shelbyville, will be remodeled for a city hospital in the near future. The home, which is valued at $75,000, was bequeathed to the city for this purpose by William S. Major. It is estimated that the cost of maintenance will be about $8,000 yearly. Provisions for the expense will be made in the tax levy for the city. It is planned to open the institution to the public as a hospital by Jan. 1, 1923.——The campaign for $100,000 instituted for the Deaconess Hospital, Evansville, was oversubscribed $12,250.——The new county hospital at Hartford City is nearing completion.——An addition has been erected to the Witham Hospital at Lebanon at a cost of $20,000.——A county orphans' home will be built at Lagrange. The institution will cost $60,000 and will be a two-story and basement structure.——Plans have been prepared for a new hospital in Julietta. It will be a two-story and basement structure of brick, steel and reinforced concrete construction to cost approximately $135,000. It will be under county control.——Plans are complete for a new sanatorium to be erected at Martinsville. Six buildings will comprise the new institution. They will be a three-story and basement structure costing $1,250,000.

IOWA

Association for the Blind.—At the annual meeting of the Iowa Association for the Blind, at Vinton, a corporation was established to be known as the Iowa Foundation for the Blind. The purpose of the foundation is chiefly to raise money to be lent to worthy young blind persons who wish to enter business for which they have been fitted but lack capital.

Society News.—At the recent meeting of the Iowa Clinical Society Dr. Francis A. Ely, Des Moines, was elected president; Dr. Charles A. Waterbury, Waterloo, vice president, and Dr. Russell C. Doolittle, Des Moines, secretary-treasurer.——The Polk County Medical Society has decided to hold a three-day clinic, October 17-19, in Des Moines. The five excellently equipped hospitals will furnish facilities for demonstrating the cases.——Dr. Edward L. Rohlf, Waterloo, and Dr. Leonard A. West, Waverly, were elected president and secretary, respectively, of the Austin-Flint-Cedar Valley Medical Association, recently.——Dr. John F. Herrick, Ottumwa, has been elected president of the newly organized Military Surgeons Club of Iowa.

Banquets for Physicians.—A dinner and special meeting of the Jones County Medical Society was held in Monticello, July 17, in honor of Dr. Harrison W. Sigworth, Sr., Anamosa. Dr. Sigworth is now 85 years old and has practiced medicine in Anamosa for half a century.——A complimentary dinner was given to Dr. Lee Wallace Dean by his former interns recently. At this, the first gathering of the men associated with Dr. Dean, they organized, electing Dr. Gordan H.

Harkness, Davenport, president, and Dr. Clark H. Lauder, Grinnell, secretary.——A banquet was given July 19, in Des Moines, in honor of the seventieth birthday of Dr. James Taggart Priestley of that city and to celebrate his fiftieth year of practice. Dr. Priestley is retiring from practice.

LOUISIANA

Radio for Lepers.—The Women's Auxiliary, Rollins Post of the American Legion, installed a radio outfit at the Lepers' Camp at Carville, July 4.

Personal.—Dr. Wilbur C. Smith will be the new athletic director at Tulane University, New Orleans, as well as professor of anatomy in the college of medicine.——Dr. Marion S. L. Lombard, who for three years has been directing head of the New Orleans division of the U. S. Public Health Service, was recently transferred to Mobile, Ala., under the department policy to change its directing heads every three years. Dr. Charles L. Williams, who is epidemiologic aide to the state board of health of Louisiana, will succeed Dr. Lombard.

MAINE

Personal.—Dr. Leverett Dale Bristol, Winthrop, for four years health commissioner of Augusta and formerly connected with the medical faculties of Syracuse, Minnesota, Bowdoin and Harvard universities, has been appointed professor of preventive medicine and public health in the University of Minnesota Medical School and the University of Minnesota Graduate School of Medicine. He will assume his new duties September 1.

Hospital News.—Plans have been completed for the $45,000 addition to Madigan Memorial Hospital, Houlton.——Construction work has been commenced on the new Sisters Hospital to be erected at Waterville. The building will be four stories high and H. M. Rourke, Lowell, Mass., is the architect of the structure.——It is reported that the Female Orphan Asylum property at Portland will be converted into a hospital. Other buildings will be added to the present orphanage and a modern institution developed.

MARYLAND

Investigating Board of Physicians Requested for Penal Institutions.—The state board of prison control has invited Dr. Llewellys F. Barker, Dr. J. Randolph Winslow, Dr. Francis Lee Dunham, Dr. Anton G. Rytina, and Dr. Samuel Wolman, to inspect medical and hospital conditions at the Maryland Penitentiary and the Maryland House of Correction and advise the board what should be done for their improvement. No complaint is made of the physicians in charge, but it is believed that valuable suggestions can be made from outside, and improvements which may be proposed will have the weight of authority of men of high standing in their profession.

Health Department Plans Station on Eastern Shore.—Establishment of a bacteriologic laboratory on the eastern shore is planned by the state department of health, to overcome delays in examination of cultures from communicable disease cases. The new station, which will serve as a branch of the Baltimore laboratory, is expected to be in operation by September 1. Under present conditions, specimens obtained in tuberculosis, diphtheria and typhoid cases are not returned to physicians on the lower eastern shore in less than three days. A site will be sought at some point affording quick transportation to all eastern shore counties. Hagerstown and Cumberland, in the western section of the state, have such laboratories.

MASSACHUSETTS

Hospital News.—The new east wing of the Free Hospital for Women, Brookline, was formally opened, June 16.——New buildings will be erected at the Lawrence Memorial Hospital, Medford, in the near future, at a cost of $200,000.——Work will be begun this summer on a new institution for the feebleminded, to be erected by the state at Belchertown.——Plans have been drawn for a new hospital building for the State Infirmary at Tewksbury. It will be a brick structure costing approximately $100,000.——The New England Baptist Hospital at Boston will erect a new addition at an estimated cost of $400,000.——Appropriate exercises for the laying of the cornerstone of the new hospital building for Holden District Hospital, Inc., at Holden, were held, June 4.

Changes in the Faculty at Harvard.—Dr. Edward P. Richardson has been appointed assistant professor of surgery at the Medical School of Harvard University, Boston. Dr. Reginald Fitz, for the last two years professor of medicine, University of Minnesota, has been named associate professor of medicine. Leonard T. Troland, for six years instructor in psychology, has been promoted to an assistant professorship. Dr. Jacques Bronfenbrenner has been appointed assistant professor of bacteriology; Dr. Alice Hamilton, assistant professor of industrial medicine; Dr. George Shattuck, assistant professor of tropical medicine; Dr. David Cheever, assistant professor of surgery; Dr. Lloyd D. Felton, assistant professor of preventive medicine and hygiene, and Dr. James L. Gamble, assistant professor of pediatrics. Dr. James S. Stone and Dr. John Homans have been appointed instructors in surgery, and Drs. William H. Smith and Frank H. Hunt, instructors in medicine.

MISSOURI

Home for Dependent Children.—Under enactment of the state board of charities and corrections, the state home for dependent and neglected children has been located at Carrollton. The home is intended to care for all deserving homeless, neglected and dependent children of the state. No defectives are to be admitted to the institution, which will be under the direction of Mrs. Reed, matron, and Dr. C. S. Austin, Carrollton, physician.

Legislative News.—The referendum on the medical college bill (Senate Bill No. 433) passed by the last legislature, has been denied in a decision by the supreme court, which upheld the finding of the circuit court declaring the names on the petitions in the Fourth Congressional District insufficient. The supreme court discovered that there were only four names less than the required number. The petitions from the fourth district being thrown out, the entire referendum failed, because there were not enough other districts represented to meet the necessary two-thirds requirement. The law which now becomes effective permits any one whom the board refuses to license to appeal to the circuit court, and the circuit court is empowered to rule on the question of what shall constitute a medical school of good standing.——A proposal has been introduced in the Constitutional Convention, now in session, amending the bill of rights by adding "the right to administer to the sick for compensation." Another proposal makes it optional for persons to comply with any health regulations to prevent disease. A third proposal authorizes the General Assembly to provide means for safeguarding the public health and welfare.

NEW JERSEY

Additions to Hospitals.—A three-story addition will be made to the Essex County Hospital for Contagious Disease at Soho, Belleville, which has already a capacity of 379 beds.——A new nurses' home will be erected at the County Tuberculosis Hospital at Allenwood, it is announced.——The board of chosen freeholders of Essex County has authorized the preparations of plans and specifications for additional hospital buildings at Overbrook, Cedar Grove.

Physicians to Cooperate on Compensation Charges.—The Medical Society of New Jersey will cooperate with the state department of labor in deciding a just rate of compensation for services given to put into effect the amendment to the Workmen's Compensation act (The Journal, April 15, page 1134). This measure provides for medical and surgical care in excess of the former $50 limit, and hospital care in excess of the same figure in cases in which application for such additional service has been made to the compensation bureau. After a conference of the welfare committee of the medical society and the acting director of the department of labor a digest of the law and sample form of report has been issued to every member of the society. The digest stipulates that a triplicate report be made by the attending physician, one to be sent to the employer of the patient at the time of the accident and two to be given to the department of labor. One of these will be sent to the insurance carrier. To prevent overcharges for medical services, the state medical society will name a physician in each compensation district to pass on the reasonableness of medical bills in dispute. These physicians will confer with two other physicians, one to represent the employers and the other appointed by the department of labor. Drs. John Haggerty, Newark; Dr. John McCoy, Paterson; Dr. Henry B. Costill, Trenton; Dr. A. Haines Lippincott, Camden, and Dr. Samuel Cosgrove, Jersey City, are physicians suggested by the state society for this work.

NEW YORK

Personal.—Dr. George Schwartz, New York, has been appointed surgeon-in-chief of the child welfare board. The appointment was approved by Dr. Royal S. Copeland of the board of health. Dr. Schwartz will look after the interests of 9,000 widows and 30,000 orphans who come under the jurisdiction of the child welfare board.——Dr. Nathan O. Ratnoff, chairman of the American Jewish Physicians' Committee, accompanied by Drs. David J. Kaliski and Samuel J. Kopetzky, New York, sailed July 22, on the S. S. *Homeric*, for Palestine for the purpose of beginning construction of the Medical School of the Hebrew University in Jerusalem.——Dr. Harold R. Mixsell and Dr. George Gray Ward, Jr., New York, sailed for Europe, July 22.——Dunlap P. Penhallow, surgeon, U. S. P. H. S., New York, has been appointed surgeon-in-charge of the Public Health Service Hospital at St. Louis.——Dr. Menas S. Gregory, Bellevue Hospital, New York, sailed for Europe recently, to study the management of mental patients in hospitals of France, Italy and Switzerland.——Dr. Maxwell S. Blieden, Johannesburg, South Africa, is in New York for research study, visiting hospitals for this purpose.

New York City

Maternity Center Association Plans Nation-Wide Campaign.—The Maternity Center Association is publishing a series of twelve "Talks to Mothers," through which it is hoped to distribute authoritative information on prenatal care among 100,000 mothers in all parts of the United States. In the distribution of the pamphlets, the association plans to enlist state and city health departments and nursing and public health associations closely in touch with local conditions.

Alcoholic Deaths Increase.—According to the records of Chief Medical Examiner Dr. Charles Norris, deaths from acute alcoholism in New York this year have increased 27 per cent. over 1921 and 89 per cent. over 1920. The records show that eighty persons died of acute alcoholism in the first six months of 1922. These records include only those victims who died without medical attention. Dr. Norris thinks many others attended by private physicians have died from the same cause. Poisoned liquor is largely responsible for the increase.

NORTH CAROLINA

Feebleminded and the Law.—The state psychiatrist and professor of abnormal psychology at the University of North Carolina, Dr. Harry Crane, recently announced that there are 50,000 feebleminded persons in that state alone, and that 90 per cent. of the inmates of the county homes are mentally abnormal. Many of these people are producing children, often worse equipped mentally than themselves, who in turn fill the state's institutions. The state laws limit the period in which persons may be cared for, throwing the responsibility for the control and care of these people back on the community, which has made no provision to meet a contingency.

OHIO

New Hospital Superintendent.—Dr. Solomon A. Hatfield has been appointed superintendent of the University Hospital, Columbus, formerly a homeopathic institution. This is the first step toward coordinating work of the University Hospital with the Ohio State University College of Medicine. Dr. Claude A. Burrett, dean of the Homeopathic College, formerly was in charge of the hospital.

University Honors Two Donors.—Two chairs in the University of Cincinnati College of Medicine, honoring John D. Rockefeller and Andrew Carnegie, donors of munificent sums to the medical school, were founded at a meeting of the board of directors, July 19. The professorship in obstetrics will be known as the John D. Rockefeller Chair of Obstetrics and the professorship in biochemistry as the Andrew Carnegie Chair of Biochemistry. Dr. William Gillespie holds the chair of obstetrics, and Albert Prescott Mathews, Ph.D., is professor of biochemistry.

Hospital News.—A new hospital will be erected at Cincinnati which will be known as the Alms Hospital. Harry Hake of Cincinnati is the architect.——A new nurses' home will be erected at the Grant Hospital, Columbus, at a cost of $110,000. It will be a four-story building.——A site has been purchased for a new home for the Toledo Sanatorium for the feebleminded. The new institution, including several cottages, will be erected at a cost of $1,000,000. The owner and physician in charge is Dr. James A. Belyea.——The Protestant Hospital, Columbus, will be enlarged to accommodate 150 beds. Money will be raised at once for the project. It is estimated roughly that it will cost $300,000. A staff for the hospital will be elected in the near future.

PENNSYLVANIA

Hospital News.—The cornerstone of the Homestead Hospital, Pittsburgh, was laid July 28.——A comprehensive plan for improvements and additions to various city hospitals to be completed within the next year at a cost of $1,300,000 was instituted recently in Philadelphia, when Director Furbush opened bids in his office for dormitory buildings, to be used by attendants at the Philadelphia General Hospital and the administration building at the Philadelphia Hospital for the Insane at Byberry.——The contract has been awarded for the construction of the administration building at the Philadelphia Hospital for the Insane at Byberry. The cost of the building is not to exceed $112,351.——New buildings, including a nurses' home, will be erected at the Tuberculosis Hospital, Pittsburgh.——An addition will be built to St. John's General Hospital, Pittsburgh. Plans call for a three-story brick building, costing $65,000.

Philadelphia

University to Erect Graduate School.—Announcement was made, July 26, of the contemplated erection by the University of Pennsylvania of a graduate school of medicine. This was made public following the sale of the Medico-Chirurgical Hospital and College properties by the university. Some years ago, the Medico-Chirurgical Hospital buildings and the adjoining properties were transferred by the Medico-Chirurgical College and Hospital to the University of Pennsylvania, for the purpose of founding a graduate school of medicine. At that time, the erection of a new teaching hospital for this graduate school on the campus of the university was contemplated, but the prohibitive building prices during the war prevented the carrying out of the original plans.

RHODE ISLAND

Poliomyelitis in the State.—The state board of health warned physicians, July 21, that all cases of infantile paralysis must be reported both to the state board and to the health officer of the city or town wherein the case develops, forthwith on diagnosis. Infantile paralysis is spreading all over the state and many cases have not been reported, Dr. Byron U. Richards, secretary of the state board of health, states. The Pawtucket Valley and the city of Providence are the present centers of the near epidemic of this disease. Fifteen cases and four deaths are reported from Providence.

SOUTH DAKOTA

To Erect Hospital at Minot.—The Trinity Hospital Association has recently been formed for the purpose of founding a 100 bed hospital at Minot. The plans have been completed and call for a $200,000 institution. A. O. Fonkalsrud, Ph.D., formerly of Fargo, is the organizer of the project and will be superintendent of the new hospital.

TENNESSEE

Hospital News.—The contract has been let for the construction of an addition to the City View Sanatorium, Nashville, at an estimated cost of $115,000.——As a monument to the city and to the fraternity a general hospital will be erected at Chattanooga by the Masons of the district.——The Methodists have recently purchased a site in Memphis on which they will erect a hospital, the one completed in the spring having been sold to the government.——A county sanatorium will be erected at Knoxville. There will be a central administration building for offices and nurses' quarters. Several cottages for patients will be erected in the grounds.——Announcement was made, July 18, by the local antituberculosis association that more than $100,000 had been raised in a recent drive in Knoxville to build a tuberculosis hospital. Work will be commenced about September 1.

VIRGINIA

Open New Buildings.—The two new units of the modern fireproof Marshall Lodge Memorial Hospital, Lynchburg, have been completed and were opened to the public, June 24. Guests of honor for the day were the donors whose gifts made the building possible. The hospital represents an outlay of $200,000.

WASHINGTON

Graduate Medical Lectureship.—The sixth session of a series of lectures given in the University of Washington, Seattle, started July 17. Five lectures each were given by Dr. Hobart Amory Hare, professor of therapeutics, Jefferson Medical College, Philadelphia; Dr. John B. Deaver, professor of surgery, University of Pennsylvania, and Dr. Williams McKim Marriott, professor of pediatrics, Washington University, St. Louis. Single lectures were given by Dr. William Englebach, professor of medicine, St. Louis University School of Medicine; Dr. Joseph Colt Bloodgood, professor of surgery, Johns Hopkins University, Baltimore, and Dr. Walter Bradford Cannon, professor of physiology, Harvard University, Boston. The lectureship was the product of cooperation between the University of Washington, the Washington State Medical Association and the King County Medical Society, and was established in 1916.

WISCONSIN

Hospital News.—The new addition for St. Saviour's Hospital, Portage, has been completed. This includes eighteen rooms for private patients, roentgen-ray rooms and a lecture hall for the sisters.——Plans have been completed for a new building for Holy Family Hospital at Manitowoc.——A hospital will be erected at the state school for the deaf at Delavan in the near future at a cost of $75,000.——Construction work of the $1,350,000 Wisconsin General Hospital to be erected at Portage will be forwarded at once.

CANADA

Radium Institute.—It is announced by Premier Taschereau, that an institute for radium treatment will be established in connection with the University of Montreal, Quebec. Arrangements are now being completed to obtain 1 gm. of radium at a cost of $100,000, the amount necessary to commence operations. This institute will be the property of the province.

Public Health News.—In his report to the local board of health for the first six months of this year, Dr. C. J. O. Hastings, medical officer of health, Toronto, Ont., advises that the infant mortality rate is the lowest in the city's history. The rate is given at eighty per thousand births, and it is estimated that if there had been a complete registration of births the actual rate would have been sixty-eight per thousand births. The general mortality rate for June was 9.9 per thousand as against 8.8 per thousand for the same month last year. The half yearly rate was 11.5 as against 12.0 for the first six months of 1921. It is pointed out that over half the deaths registered occurred before the age of 1 month, and it is presumed that these occurred from prenatal causes. Cancer claimed the greatest number of victims, forty-eight deaths being registered from this cause in June. The death rate from communicable diseases was light. During June, 1922, not one birth, marriage or death was recorded from the town of Port Dalhousie, Ont.

Personal.—Dr. George D. Porter, director of health services at the University of Toronto, represented the Canadian Association for the Prevention of Tuberculosis at the International Union Against Tuberculosis at Brussels, Belgium, in July.——Prof. Herbert S. Birkett, dean of the faculty of medicine, McGill University, Montreal, delivered the Semon lecture at the University of London, July 12.——Dr. Willard F. Read, Digby, N. S., was recently elected president of the Valley Medical Society.——Dr. John J. Mackenzie, head of the department of pathology in the University of Toronto, is seriously ill in a sanatorium near Gravenhurst, Ontario.——Dr. T. J. McPhee has been appointed health officer of Namaimo, B. C.——Dr. Charles D. McCulloch has been appointed associate coroner for Prince Edward County, Ont.——Drs. John G. Fitzgerald and John W. S. McCullough, Toronto, recently sailed for Europe on the *Montcalm,* which ran aground near Quebec City the same day and was not released until two days later, when the passengers were transferred to other steamers.

University News.—At a special convocation of the University of Toronto, June 8, the following honorary degrees were conferred on physicians: doctor of medicine, Dr. Huerner Mullin, past president of the Ontario Medical Association; doctor of science, Dr. A. D. Macallum; doctor of laws, Sir Auckland C. Geddes, British ambassador to the United States and former professor of anatomy at McGill University, Montreal. His appointment at Washington, D. C., compelled Sir Auckland C. Geddes to resign from the position of president of McGill University to which he had been appointed.——The degree of LL.D. was conferred on Dr. Clarence L. Starr by McMaster University, recently.——Dr. Perry G. Goldsmith has been appointed professor of otolaryngology in the University of Toronto, to succeed Dr. David J. Gibbs Wishart, who resigned recently following thirty-seven years in that capacity.——Dr. William B. Hendry has been appointed professor of obstetrics and gynecology in the University of Toronto, to succeed Dr. Benjamin Watson.——Dr. William H. F. Addison has been appointed associate professor of anatomy in the University of Toronto Faculty of Medicine.——Dr. Robert D. Defries has been appointed associate professor of hygiene in the University of Toronto and will be acting head of that department until the return of Prof. John Fitzgerald from California.

PHILIPPINE ISLANDS

Culion Medical Society.—It is announced by the *Journal of the Philippine Islands Medical Association* that plans are being made to organize a medical society at Culion, Culion, in view of the many physicians stationed there. This would be the first unit of the long planned establishment of provincial branch societies of the Philippine Islands Medical Association.

Invasion by Chiropractors.—It is reported from Manila that numbers of chiropractors have recently arrived in the islands from the United States. It is announced that they have bought full page advertisements in the local papers claiming to cure almost every ailment, and that they are attempting to have a bill submitted to the legislature regulating the practice of chiropractic, and to establish a chiropractic examining board for the Philippines.

Call for Aids at Culion.—The following physicians, mostly from the University of the Philippines and the Philippine General Hospital, have accepted positions at the leper colony, at Culion, following a call for help: Drs. Jose M. Alonzo, Jose Avellana, Froilan C. Eubanas, Guillermo Fernandez, Santiago Icasiano, Dalmacio Jugueta, Gavina Limcaco, Catalino Nicolas, Eloy Pineda, Jose Rodriguez, Jose Samson, Filizberto Solis, Felix Valasco, Bonifacio Vera and W. Wade. Dr. Eliza Roxas is the only woman physician at Culion. Plans are being made to construct additional buildings at the colony, especially for the segregation of the children of the inmates who are apparently leprosy-free.

GENERAL

Thousands of Health Workers Wanted.—President Vincent of the Rockefeller Foundation states that, during 1922-1923, the United States will require the services of probably 20,000 health workers. At present the number under state, municipal, federal and county control is 10,000. Those in the employ of nongovernmental institutions or agencies may number nearly as many more.

American Relief Administration.—Thirty-three physicians and surgeons, each in charge of one of the Moscow (Russia) Hospitals, have united in signing a letter of thanks to Dr. William D. Nickelsen, medical supervisor of the Moscow district for the American Relief Administration. The letter states that, when on their last resources, the Moscow hospitals received supplies from the relief administration which have helped to check disease, and thanks the administration for its humanitarian activities and willingness to continue the work in the future.

Physicians and Druggists Protest to Revenue Bureau.—As the result of a protest to the Bureau of Internal Revenue by representatives of the drug and medical professions against the needless and burdensome regulations of the Harrison Narcotic Law and the Volstead Act, executive officials of the prohibition department have been instructed by the internal revenue commissioner to "get together" with representatives of the drug trade and to do everything possible toward effecting more agreeable enforcement measures. This was announced by the counsel for the National Association of Retail Druggists at Washington, D. C., in July. Vigorous protests were lodged against the provision requiring the confirmation by the issuing director of all druggists' permits to purchase intoxicating liquor, including alcohol, it being pointed out that this regulation, if enforced, will invariably cause needless delay to the druggists in their efforts to serve quickly the people with whom they trade. Dr. George A. Knowles, Philadelphia, chairman of the legislative committee of the Medical Society of the State of Pennsylvania, and Dr. John N. Henry, Philadelphia, president of the Philadelphia

County Medical Society, represented the medical profession at the hearing.

Bequests and Donations.—The following bequests and donations have recently been announced:

University of Chicago and Northwestern University, Chicago, a total of $200,000; American University of Washington, $25,000, by the will of Mrs. Ann M. Swift of Chicago.

St. Joseph's Hospital, Syracuse, N. Y., $100,000, for a ward in memory of his wife, by George Dohney. In addition to this bequest, the hospital receives one ninth, or about $150,000, of the residuary estate. Among other institutions included in the will are St. Mary's Maternity Home, the Maternity Hospital and Infants' Home, and the Syracuse Free Dispensary.

Sheltering Arms, the New York Society for Relief of Ruptured and Crippled, and the Nursery and Child's Hospital, $50,000 each; Tarrytown Hospital, $25,000; St. Luke's Hospital, $20,000; New York Association for the Blind, the Society for the Relief of the Ruptured and Crippled and the Church Mission, each $65,000, by the will of Mrs. Mary Kingsland.

For the erection of a memorial hospital at Albion, Mich., to be known as the James W. Sheldon Memorial Hospital, $50,000, by the will of Mrs. Leffingwell of Albion.

Newton Hospital, Newton, Mass., $20,000, by the will of Mrs. Juliet Dike of Newton.

Grant Hospital of Chicago, $10,000 and the German Old People's Home, $5,000, by the will of Mr. Herman Paepcke of Chicago.

University of Virginia Medical School, Charlottesville, a twenty-year endowment life insurance policy for $5,000, by the 1922 graduates from all departments.

Hollywood (Calif.) Hospital Company, $5,000, anonymously.

Hygeia Camp for Tuberculosis, New Orleans, $1,400, realized from a tag day.

St. Joseph's Hospital, Syracuse, N. Y., Mount Sinai Hospital and Montefiore Hospital, New York, each $1,000, by the will of Emanuel Jacobson.

Yale University, New Haven, $1,000, for study of the chemistry of the tubercle bacillus, by the National Tuberculosis Association.

Charleston (S. C.) County Tuberculosis Association Camp, twenty-four beds and equipment from various residents and organizations of Charleston.

Intelligence Service of the League of Nations—The International Health Board of the Rockefeller Foundation has entered into a cooperative arrangement with the Health Organization of the League of Nations whereby the board will provide a sum not to exceed $32,840 a year, for a period of five years, for the purpose of maintaining an international epidemiologic intelligence service. The board will also provide a sum not to exceed $60,080 a year for three years to put into effect a scheme for the international exchange of public health personnel, to be conducted under the auspices of the health organization of the league. Since the establishment, in 1921, of the intelligence service of the health organization of the League of Nations, it has conducted an international epidemiologic information service, keeping all governments informed as to the status of epidemics of typhus, intermittent fever, and cholera, which have been sweeping westward from the famine regions of Russia. It has also undertaken to promote the international standardization of vaccines and serums. It advises the league in matters affecting health and cooperates with the International Labor Organization in promoting industrial hygiene and sanitary conventions for the control of epidemics. It is expected that, by the end of the five-year period, for which funds have been provided by the International Health Board, the epidemiologic intelligence service will have become so efficient and valuable that the various national governments will regard it as indispensable and provide funds for its further maintenance. Interchange of health officials will be arranged, not only for observation but for definite periods of service, which will result in actual exchange of experience. This system of exchanges will be put into effect first in Europe and may be extended to other countries throughout the world.

LATIN AMERICA

Nicaraguan Physician Studying Sanitary Methods.—Dr. Fausto Robleto of Nicaragua, after spending one year at the Johns Hopkins University School of Hygiene and Public Health, has spent a few weeks in several counties in Alabama, studying field malaria work. Dr. Robleto is about to sail for his country to put to practical use the knowledge gained in this country.

New Medical Society in Peru.—Under the name of "Circulo Medico del Perú," there has been organized in Lima a medical society with a membership of more than 100 local physicians. The following officers were appointed: Honorary president, Dr. Ricardo Flores; president, Dr. Pablo S. Mimbela; first vice president, Dr. Guillermo Gastañeta; second vice president, Dr. Miguel Aljovín; secretaries, Drs. Francisco Graña, Ricardo Palma and Juan Voto Bernales; treasurer, Dr. Oswaldo Hercelles; librarian, Dr. Ramón Ribeyro; editor, Dr. Hermilio Valdizán, and members, Drs. J. Arce, R. Neuhaus, R. Eyzaguirre, F. Merkel, C. Monge and C. Carvallo.

Personal.—Prof. Rocha Lima, chief of the Instituto Oswaldo Cruz of Rio de Janeiro, has returned from a trip abroad.——The Academia Nacional de Medicina at Rio de Janeiro has conferred the Sampaio prize this year on the pharmacist, P. Seabra, for his work on an electric process for producing nitric acid.——The *Brazil-Medico* relates further that Dr. Barbosa Vianna, was the guest of honor at a banquet, June 23, Dr. Aloysio de Castro presiding, just before the latter left for Europe to be the representative of South America in the committee organized by the League of Nations to promote international intellectual relations.——Our exchanges mention the arrival at Rio of Prof. F. Munck of Berlin who addressed the local medical society, with slides, on the diagnosis of tuberculosis.

FOREIGN

Society News.—The third annual conference of the Gynecologists and Obstetricians of Great Britain and Ireland was held at Liverpool, June 30-July 1.——The third annual meeting of the Society for the Prevention of Venereal Disease of England was held in London, June 29, under the presidency of Lord Willoughby de Broke.

New Medical Magazine.—A new monthly magazine, edited by the Medical Society of Esthonia in Dorpat, containing articles of interest on medicine, surgery and public health, has recently been issued. The major part is written in Esthonian, with summaries in French and German. Some of the articles are written in French and German.

Closing of a Sanatorium on Account of Insubordination.—The *Policlinico* relates that the sanatorium at Eremo di Lanzo has had to be closed as some of the inmates insisted on managing the place to suit themselves. The ringleaders had to be taken away by the police. The other inmates were distributed in other sanatoriums, and the establishment was closed.

Tuberculin Controlled in Jugo-Slavia.—The Postoffice Department has announced that American postal officials have been notified by the Jugo-Slavia government that shipments of tuberculin through the regular mails to that country are prohibited except when consigned to the minister of public hygiene, the central pharmaceutical and sanitary depots and bacteriologic institutions.

Scientific Congress.—The Flemish scientific congresses will be held at Bruges, Belgium, July 30-August 7. An exhibition of medical and surgical instruments and of scientific books will be held at the same time. Many eminent scientists and physicians will deliver lectures on scientific and medical subjects, more than eighty communications and lectures being announced.

Graduate Course in Crime and Punishment.—The first graduate course in Crime and Punishment, held the last two weeks in May at the University of Birmingham, England, has been pronounced a success. The course consisted of six lectures in each of the three subjects: mental defects, insanity, and crime and punishment. Dr. Maurice Nicoll gave two special lectures. It is hoped to repeat the course next spring.

Prize for Essay on Infant Mortality.—The National Baby Week Council has approved the offer of the London *Daily News* of 100 guineas (about $500) for the best essay of 2,000 words dealing with the problem of the excessive mortality of boy babies. Awards will also be made to the statutory maternity and infant welfare committees of the districts which effect the greatest reduction in the boy baby death rate within the next twelve months.

Degree in Medical Radiology.—The *Journal de Radiologie* of Paris states that the medical faculty of the University of Toulouse, France, has decided to organize a course in electrology and medical radiology and will present a diploma to the graduates. Paris was the first French university to organize a course in radiology but this is the first in France to include electrology, although electroradiology is a single, indivisible study, at least during the first part of the course.

The Centennial of the Brussels Medical Society.—The hundred years of work of the Société des Sciences Médicales et Naturelles of Brussels was reviewed at the centennial celebration on June 22. The president remarked that we must not smile at the errors of the past, as who knows what the future may do to our own beliefs, adding that the responsibility of the physician has been immeasurably enhanced by the immense progress of science. The acting president of the society is Professor Bordet, who has contributed much to our knowledge of hormones and fixation of complement tests.

Sanitary Reorganization in Spain.—The government has introduced a bill for the prevention of avoidable diseases. The bill provides for the compulsory notification of communicable diseases; enforcement of preventive measures, especially as regards tuberculosis, leprosy, venereal diseases, malaria and infant mortality; investigation of any undue mortality; safe water supplies; creation of food and hygiene laboratories; industrial sanitation; school hygiene, and the appointment of sanitary inspectors. The present public health law in Spain goes back to 1855 and it is considered out of date.

British Medical Association.—The ninetieth annual meeting of the British Medical Association was held in Glasgow, Scotland, July 25-28, under the presidency of Dr. David Drummond, Newcastle-on-Tyne. Sir William Macewen, Glasgow, was elected president for the year 1922-1923, and Mr. Charles P. Childe, F.R.C.S., Southsea, is president-elect for the annual meeting to be held in Portsmouth in 1923. A pathologic museum was organized for the meeting in the anatomic department of the University of Glasgow. A public health exhibition was also held by the Corporation of Glasgow during the session.

The Chalmers Library.—The library of the late Dr. Albert J. Chalmers, formerly director of the Wellcome Tropical Research Laboratories (Sudan), has been presented by his wife to the Royal Society of Medicine. The Chalmers Library was formally opened, June 23. There are about 1,800 volumes in all, which includes volumes printed before the end of the fifteenth century and others in the sixteenth and seventeenth centuries. There is the first printed edition of Celsus, *De Re Medicina* (1478), a complete collection of the writings of Culpeper, a copy of *De Contagione,* by Fracastorius (1546), Turner's *Greate Herball,* printed in Cologne in 1568, and several fine herbals, including a copy of that issued by Fuchs in 1543 and Brunfels in 1546.

Personal.—A prize of 2,500 pesetas has been presented by the municipal authorities of Madrid to Dr. A. Navarro Fernández for his report of his official visit to Sweden, Norway and Denmark to study ways and means to repress the spread of venereal diseases. The authorities ordered 2,500 copies of the report to be published for distribution.——The Madrid laryngologist, Dr. Hinojar, was tendered a banquet on his return to his native town, Soria, recently, and the medical faculty of his alma mater, Zaragoza, sent a deputation with greetings.——The last lecture of Prof. Paul Bar of the chair of obstetrics at the Paris medical faculty was rendered an ovation by the crowds who came to bid him farewell on his retirement, having reached the age limit. He had declined any formal ceremony, and devoted his lecture to summarizing the results of his own and others' research on the metabolism of fat and sugar in the pregnant.——A memorial tablet to the late Prof. Raphael Lépine of international fame was recently unveiled at the medical clinic at Lyons.——A gold medal was presented by students and other friends to Professor Pentimalli of the chair of general pathology at the University of Naples.——The fortieth anniversary of Maragliano's work in the medical faculty at Genoa was celebrated with much ceremony and the foundation of a medical library, June 25, concluding with a reception on board the *Bon Voyage* in the bay, after a memorial had been unveiled to two assistants in the clinic, killed during the war.

Deaths in Other Countries

Dr. **T. Zabala,** a prominent psychiatrist of Buenos Aires, founder and director of the Instituto Charcot.——Dr. **Karl Hasse,** formerly professor emeritus of anatomy at the University of Breslau, aged 81.——Dr. **Heinrich Albrecht,** professor of pathologic anatomy at the University of Vienna.——Dr. **Julio Matos,** a psychiatrist of Lisbon.——Dr. **G. Correa Barbosa Lima** of Rio, physician to the Brazilian Lloyd Line, aged 68.——Dr. **Guilherme Taylor March,** aged 83, whose services in the city of Nictheroy were so appreciated by the people that he was known as the "father of the poor," and a tax-free house was presented to him by the populace.——Dr. **N. A. Bergenholtz** of Stockholm.

CORRECTION

Schick Test Campaign.—Concerning the item with this heading, which appeared in the New York news, July 15, we are informed that the board of health has started a city-wide campaign, that the number of physicians assigned are twelve, and the number of nurses and nurses' assistants, twenty-five. The personnel has been divided into two groups, the work being carried out under the immediate supervision of Dr. M. C. Schroder in Brooklyn, Queens and Richmond, and of Dr. A. Zingher in Manhattan and the Bronx.

Government Services

Hospitalization in Veterans' Bureau

Director Forbes of the U. S. Veterans' Bureau has submitted for the President's approval sites for two new hospitals, one at San Diego or Los Angeles, Calif., and the other at Minneapolis or St. Cloud, Minn., or Fargo, N. D. Returning from a recent western trip of inspection, he stated that he had found the administration of the Veterans' Bureau activities entirely satisfactory in Illinois, Colorado, Washington, Oregon, California and Minnesota. He declared that the construction of all twelve of the new hospitals for which Congress had recently appropriated $17,500,000 would be under way shortly. Assistant Secretary Clifford of the Treasury also announced that during the fiscal year ending, June 30, 1922, twelve new hospitals had been erected, with a capacity of 4,051 beds, located in various parts of the country, including institutions for the treatment of veterans suffering with tuberculosis, mental diseases, surgical cases and general cases. The hospitals erected under the jurisdiction of the Treasury Department during this period were as follows: Lake City, Fla., 230 beds; Whipple Barracks, Ariz., 422 beds; Little Rock, Ark., 257 beds; Fort Walla, Wash., 165 beds; Fort Bayard, N. M., 250 beds; Fort McKenzie, Wyo., 242 beds; Bronx, N. Y., 650 beds; Edward Hines, Chicago, 1,000 beds; Mount Alto, Wash., 100 beds; Dawson Springs Sanatorium, Dawson Springs, Ky., 500 beds, and Excelsior Springs, Mo., 75 beds.

Medical Reserve Corps Organizes Society

During the recent encampment of the medical, dental, veterinary and administrative officers of the M. O. R. C., Camp McClellan, Ala., July 12-26, a temporary organization of the medical section of the Fourth Corps Area was effected. Lieut-Col. Haride R. Hays, Jackson, Miss., was elected president of the organization and Major L. H. Webb, New Orleans, was elected secretary. It is hoped to organize a national reserve officers association with the medical section, to function in this organization, during the national convention of the American Legion in New Orleans in October.

Physiotherapy Course for Training of Aids

A course in physiotherapy, covering a period of one year, will be offered at the Walter Reed General Hospital, Washington, D. C., beginning October 2. The subjects will include all branches of physiotherapy, and in addition lectures on general hospital subjects. Credit will be given for previous training in physical education, nursing, physiology and anatomy, making it possible to complete the course in six months or less. Accepted candidates will be furnished quarters, rations, and laundering of uniforms, in addition to $15 a month. Graduates will be eligible for positions in the physiotherapy department in army hospitals, and are expected to serve one year.

Hospitals for Disabled Soldiers

Locations of two new hospitals for the care and treatment of disabled ex-service men were announced this week by the U. S. Veterans' Bureau, each to cost $1,000,000. The first, consisting of from 250 to 300 beds for mental cases, will be erected at St. Cloud, Minn.; while the other, with a capacity of 500 beds, will be constructed at Camp Custer, Mich. The latter will be built in lieu of the one proposed for the Great Lakes Training Station, the President having requested Director Forbes to consider the Michigan location, since Illinois already has several large hospitals.

Legislation for Disabled Naval Officers and Men

A measure introduced in the Senate by Senator Shortridge of California provides that all former emergency officers of the World War who served in the Naval Reserve forces and in the Marine Corps Reserve and who have been discharged from the service on account of physical disabilities shall have the same pay, privileges, and allowances as regular retired officers of the Navy and the Marine Corps. A similar bill for emergency officers of the Army has been before Congress for some time.

Foreign Letters

PARIS

(From Our Regular Correspondent)

July 13, 1922.

A Legacy of a Million Francs to the Academy of Medicine

Prince Albert of Monaco, who died recently, bequeathed to the Academy of Medicine, of which he was an honorary member, the sum of one million francs. A like sum was bequeathed to the Academy of Sciences.

French Vital Statistics for 1921

The secretary (minister) of labor recently published the official vital statistics for France for the year 1921. It is an unfavorable report from every point of view. The number of births is below that of 1920, while the number of deaths has increased; the number of marriages has also decreased. The excess of births over deaths, amounting to 159,790 in 1920, or forty-one for each 10,000 inhabitants, decreased in 1921 to 117,023, or thirty for each 10,000 inhabitants.

A comparison of the number of births and deaths for the years 1921, 1920 and 1913 is shown in the following table:

Year	Total Population	Births	Deaths	Excess of Births
1921....................	39,209,766	813,396	696,373	117,023
1920....................	39,209,766	834,411	674,621	159,790
1913....................	41,476,272	790,355	731,441	58,914

The number of marriages, which reached an unusually high figure in 1920 (623,869), dropped in 1921 to 456,221, but it is still appreciably higher than the number recorded in 1913 (312,036).

An examination of the report brings out the fact that, whereas the number of living births for each 10,000 inhabitants in 1920 was 213, it fell in 1921 to 207; in 1913, it was 191. The relative proportion of deaths has risen from 172 for each 10,000 inhabitants in 1920 to 177 in 1921, reaching about the same proportion that was recorded in 1913—176 for each 10,000 inhabitants.

In 1921, sixty-seven of the French departments showed an excess of births over deaths, the total amounting to 127,654, as compared with seventy-three departments in 1920. On the other hand, twenty-three departments showed an excess of deaths over births, the total amounting to 10,631, as against seventeen departments in 1920. The seven departments which, in 1920, showed an excess of births over deaths but in which the balance in 1921 was on the side of the deaths are: Aube, Cher, Côte-d'Or, Maine-et-Loire, Orne, Seine-et-Marne and Seine-et-Oise. In the department of Isère, which in 1920 showed an excess of deaths over births, the excess of births over deaths in 1921 was 292. During the year just preceding the war (1913), an excess of births over deaths amounting to a total of 86,768 for fifty-two departments was recorded, and an excess of deaths over births amounting to 27,854 was found in the thirty-eight other departments.

The departments in which the excess of births over deaths, in 1921, reached the highest figures are: Nord, Seine, Pas-de-Calais, Finistère, Moselle, Bas-Rhin, Seine-Inférieure, Côtes-du-Nord, Morbihan, Haut-Rhin, Aisne, Meurthe-et-Moselle, Ardennes and Bouches-du-Rhône. In all these departments, with the exception of Aisne, Meurthe-et-Moselle and Ardennes, the excess of births in 1921 was much less than in 1920.

The departments in which the excess of deaths over births, in 1921, was highest are: Yonne, Var, Gers, Lot, Lot-et-Garonne, Maine-et-Loire, Nièvre, Hautes-Pyrénées, Seine-et-Oise, Puy-de-Dôme, Vaucluse, Cher and Allier. In all these departments, with the exception of Puy-de-Dôme and Allier, the excess of deaths in 1921 was greater than in 1920; three of these departments, Maine-et-Loire, Seine-et-Oise and Cher, had shown an excess of births over deaths in 1920.

In 1920 (the figures for 1921 are not as yet available), Germany, exclusive of Wurttemberg and Mecklenburg, showed an excess of births over deaths amounting to 623,367; in 1919, the excess of births was 282,230, and in 1918 there was an excess of deaths over births of 299,885. In England, the excess of births for 1920 was 491,781, and for 1921, 390,355.

The State Treasury and the So-Called Indemnities of Hospital Physicians and Surgeons

In a great number of cities, the department for the collection of income tax has demanded a report from the administrative departments of hospitals in regard to the amount of "indemnities" received by the members of the medical and surgical staffs, with a view to subjecting them to taxation. *Les hôpitaux de France,* a medical journal representing the hospitals, protests against this action on the part of the government authorities, and points out that, as the term "indemnities" signifies, the sums so received have not the character of regular compensation or salaries. They cannot be compared with the salaries of a professor or a government official. Such sums are simply intended to indemnify the physician for the expenses of transportation, for time spent at the hospital and for care given to indigent patients.

The Coming Surgical Congress

The thirty-first congress of the Association française de chirurgie will be held in Paris, October 2-7, under the chairmanship of Dr. H. Hartmann, professor of clinical surgery in the medical department of the University of Paris. The subjects to be discussed at the congress are: (1) present-day results from bone grafting, by Professor Cunéo of Paris, and Dr. Rouvillois, member of the army medical corps; (2) remote results of operations affecting the trunk nerves, by Professor Leriche of Lyons, and Dr. Paul Moure of Paris, and (3) technic and results of extirpation of tumors of the large intestine (rectum excepted), by Drs. Abadie of Oran, and Okinczyc of Paris.

Parliament in Relation to the Campaign Against Alcoholism

A delegation of the Sociétés antialcooliques françaises was presented recently to the minister of public health, Monsieur Paul Strauss, by Monsieur Edouard Soulier, member of the chamber of deputies, and secretary of the "groupe antialcoolique" of that legislative body. The delegation informed the minister that the Ligue nationale contre l'alcoolisme will celebrate its fiftieth anniversary by a "semaine antialcoolique," Oct. 9-15, 1922. The representatives of the temperance movement requested the minister of public health to restore the annual appropriation of 20,000 francs (suppressed last year) with which to carry on the campaign against alcoholism. The general secretary of the Ligue nationale contre l'alcoolisme also asked the minister for his support for the establishment of a home for the treatment of inebriates.

Dangers of Intramuscular Injections of Arsphenamin

At the first congress of French-speaking dermatologists and syphilologists, recently held in Paris, the subject of intramuscular and subcutaneous injections of arsphenamin was discussed. Some time ago, Sicard stated that, with a given amount of neo-arsphenamin, injected within a certain period of time, intramuscular injections of small doses, given daily or every two days, will give a security and a therapeutic activity, together with a degree of innocuousness, that cannot be secured by weekly intravenous injections. Syphilologists (Queyrat, Milian, Pinard, Leredde), who deal mainly with recent cases of syphilis, have preferred intravenous injection of large doses; whereas the neurologists are in favor of subcutaneous or intramuscular injections of small doses, repeated and extending over longer periods of time, on the ground that they are more effective and that the danger element is thus to a great extent eliminated. The latter form of injections has met with great favor also among general practitioners. However, that the risk is really lessened has been questioned by some, and Sicard himself admits that even with this mode of treatment some cases of intolerance arise, as well as with the weekly intravenous injections; namely, when the total amount injected is very high—above 7 or 8 gm., for example. Dr. Petges of Bordeaux reported a case of grave apoplexy, occurring on the third day, and also several cases of nitritoid crises, which he had had an opportunity to observe following intramuscular injection of arsenicals. He holds that the danger from intravenous injections is less grave because it is, as it were, *"plus loyal"* (more manifest). Accidents occur usually a short time after the injection, so that the physician is ready to combat them; whereas, in the case of intramuscular injections, accidents do not manifest themselves until late—five or six hours after the injection—and hence cannot be combated successfully. Dr. Emery reports having seen grave nitritoid crises several hours after subcutaneous injection of the arsphenamins. According to Dr. Balzer and Dr. Marcel Pinard, intramuscular injections may be regarded as harmless in small doses only; beginning with 0.45 gm., the risk becomes the same as with intravenous injections.

MADRID

(From Our Regular Correspondent)

July 1, 1922.

Bone Vascularization

Professor Lexer of Freiburg recently lectured at the Madrid Medical School on the vascularization of bones. He exhibited roentgenograms of bones in which he had previously injected mercury and other opaque materials. He was thus enabled to follow the formation of the vascular system in the bones of several mammals and of man at different ages, in health and in several pathologic conditions that involved the bone system. A feature in childhood is the marked vascularization of the metaphyses, which contributes to bone formation. As growth advances, this metaphyseal vascularization decreases, being replaced by an increase in the nutrient artery, which before was barely perceptible. This intense vascularization in the metaphyses explains the abundance of pathologic processes in them. Professor Lexer showed a femur amputated for synovial tuberculosis of the knee, in which the enlargements in the branches of the nutrient artery suggested an extravascular leakage of the opaque fluid employed to make roentgenograms; and a histologic study of the specimen demonstrated afterward that this was all due to a tuberculous arteritis. The vascular engorgement apparent in some cases of joint tuberculosis shows how useless Bier's hyperemia method must prove in joint tuberculosis.

The epiphyseal vessels make their way into the bone with the interarticular ligaments and joint capsules. The metaphyseal vessels go in with the capsular and periarticular ligaments, and finally, the periosteal circulation has an enormous importance because the periosteum is essential for bone regeneration. When there is no periosteum in transplanted bones, connective tissue replaces bone, but this connective tissue does not become bone. Some writers have suggested that the vascularization of bone explains by itself the formation of callus in fractures and its changes. In ordinary fractures, a part of the bone is nourished by the nutrient artery, which may be more or less damaged but remains permeable, and the other end of the bone receives the metaphyseal, epiphyseal and periosteal vessels. Occasionally, however, the nutrient artery is impaired or destroyed, and then the vascularization of the distal fragment decreases, causing the formation of pseudarthrosis, owing to the fact that the callus is invaded by connective tissue.

The studies of bone vascularization made by Lexer change the modern conception of the reestablishment of bone mobility following fractures. It is well known that mobilization of fractured members begins almost immediately. Lexer has noted that vascularization is much more pronounced than in normal cases, during a period much longer than assumed, and that this congestion, which indicates a process of activity and regeneration, reaches its highest point in the fifth week. In order that this process of bone regeneration may suffer no interference, immobilization must be continued much longer than has been the practice lately. Patients must rest for six or eight months, and even longer. Lexer has thus succeeded in avoiding pseudarthrosis and osteoporosis, which threatened to cause the disappearance of bone, replacing it with connective tissue. Roentgenograms of bones that were losing their outline and opacity when exercised, and that recovered when allowed to rest, were the best demonstration of the correctness of Lexer's view. Bier stated that the callus of fractures was formed or stimulated by hormones from the marrow. Lexer denies this action by such hormones and attributes the formation of callus in fractures only to bone and periosteal vessels.

In concluding, he exhibited some recent patients with bone transplantations. Most of them were autotransplantations, and one was a homotransplant—a transplantation of a piece of bone from another man who had died in an accident. This bone piece "took," and the roentgenograms made two years afterward disclosed an apparently normal bone. Lexer has done wonders in bone transplantation, and many cripples, through his efforts, have gained a possibility of life and activity that seemed lost.

Disturbances in the Madrid Medical School

The Madrid Medical School has long been a focus of rivalries and jealousies that sometimes come to the surface in a most scandalous form, as happened recently. An examining board, made up of four professors of anatomy and having Cajal as its chairman, decided to recommend Dr. Villa, one of the applicants, to fill a vacancy in the chair of descriptive anatomy. While they were voting, several students, urged by other professors, created a serious disturbance, which has been fully exploited in the newspapers and has attracted much attention. The board, at a previous session, had decided unanimously to recommend Villa for the vacancy, but several professors who were interested in another applicant exercised pressure on the chairman; and when it was his turn to vote, he stated that he did not think that any of the applicants were worthy to fill the vacant chair. At that moment, vegetables were thrown at the other members of the board, and they were also called vile names. The rioting became so violent that one of the members, Dr. Porpetta, the other professor of descriptive anatomy in Madrid, was hit on the head with a cane, and his life was saved only through the action of a policeman, who fired into the air. This police interference inside the medical school has displeased the partisans of university independence, although they do not trouble themselves to explain how they would have protected the lives of the board members since the school employees were unable to check the rioters. The students have seen how some persons have been appointed professors through political influence; they have seen jealousies prevailing among the teaching staff; they have seen several of the professors come to blows, and, in addition, they have been flattered by certain professors, eager to use them for their personal purposes. All this has brought about the greatest scandal ever recorded in the medical school in Madrid.

BUCHAREST

(From Our Regular Correspondent)

July 10, 1922.

The Prosecution of Quacks

The medical society's report contains a note with regard to some recent prosecutions of persons practicing without a license or engaged in the sale of quack medicines. They exposed a man who posed as a brother of a Paris University professor and pretended that he was a collaborator with this distinguished phthisiologist in the invention of an inhalation cure for tuberculosis. He opened a sanatorium with the financial aid of several rich merchants, and he attracted a great number of patients; so he employed two registered physicians. As the results of the society's work, however, he is now in prison for extorting money from the public by false pretenses. The society recently found a diploma mill in Jassy, where for a few thousand lei false diplomas were issued. Luckily enough, the establishment was discovered before any of the impostors could enter practice.

Fight Against Trachoma

In the newly occupied territories of Roumania, and particularly in the Banal, there are a great number of trachoma cases, chiefly among soldiers and schoolchildren. This fact has induced the ministry of public welfare to employ inspectors who will visit every school as soon as possible after the regular school year begins (September 1), examining the eyes of every child for traces of the disease, which, it is hoped, will yield through the efforts of the inspectors. Children suffering from trachoma will be kept from school until they have undergone an operation or had appropriate treatment. The health department of the board of education will perform the necessary operation and administer treatment without charge. A certificate from any reputable physician that treatment has begun will obtain readmission to the child. The schoolchildren who are to undergo operation will have to wait their turn at the new trachoma hospitals in Bucharest, Cluj, and Oradia-Mare. It is believed that inspection of the children will reveal a great falling off in the number of trachoma cases. After the trachoma examination is completed, it is proposed to test the eyes of the schoolchildren for defective vision.

When to Allow Morphin in Heart Disease

Dr. Elfer, lecturer at the University of Cluj, said, at a recent meeting of the medical society of that town, that there is no reason to look on morphin in its usual therapeutic dose as a heart poison and to consider it contraindicated when a heart lesion is present. He states that sudden death may occur after the use of morphin, but that this is just as unavoidable as collapse in chloroform narcosis. Great care is, however, necessary when respiratory complications exist, especially if these are acute, and also in acute processes of the endocardium and myocardium. Morphin can be employed without fear in purely nervous disturbances, especially in nervous angina pectoris; and in organic angina small doses are indicated. The drug should never be withheld in chronic cardiac dyspnea, and in excited and sleepless patients it plays an important rôle as a sedative before digitalis therapy is begun, as advised by Grossmann in Germany.

Lessened Mortality Among Young Children

The health department of the university of public welfare has the following to say regarding the low mortality from contagious diseases of childhood and, as a consequence, the low general death rate for the country. Only one death each from diphtheria and measles, two from scarlet fever, and two from whooping cough were reported during June. Since the first of the year, there have been twenty-nine deaths from diphtheria; during the corresponding period of 1921, there were 171 deaths from diphtheria. Deaths from scarlet fever show a decrease of 47 per cent. For whooping cough, there was a mortality of 241 in 1920, and of forty-eight in 1921, a decrease of 80 per cent. The gross mortality of the four principal contagious diseases of childhood is strongly on the decrease.

Public Disinfection of Houses

Experimental and bacteriologic investigations have shown that the most effective method for use in routine house disinfection is the direct application, by means of an atomizer, of formaldehyd, five parts of a 40 per cent. solution to ninety-five parts water, approximately a 2 per cent. solution of formaldehyd gas in water, to all the surfaces of the rooms. A machine devised in the laboratory throws a finely divided stream a distance of 8 feet (2.4 meters). For each 1,000 cubic feet (20 cubic meters), an amount of the solution equal to a pint (0.5 liters) of the 40 per cent. formaldehyd is used. Tests show 100 per cent. of surface disinfection and more than 85 per cent. of test objects containing various bacteria. Because of the possible presence of protozoa in the houses occupied by smallpox patients, the foregoing process was for a time supplemented by the burning of a new substance, containing sulphur. This was finally abandoned because of the lack of means for readily determining its efficiency, and also because of its destructive effect on certain articles of furniture.

BERLIN

(From Our Regular Correspondent)

July 14, 1922.

Campaign Against the Noise Evil

When Americans visit Germany, and more particularly, Prussia, they often give expression to their displeasure over the punctilious paternal control by state and municipal officials of all movements and actions of the general public. On one occasion, I heard an American physician express his astonishment on observing that at the railway stations passengers are prevented by the station officials from boarding at the last moment a departing train. He stated that such a thing was unheard of in the United States. In response to my question as to whether there were not accidents as a result of such uncontrolled freedom of movement, he admitted that there were. We may perhaps place in the same category the attempts of the authorities to reduce to a minimum disturbing noises. We have police ordinances and court rulings on which the general public may base claims for protection against musical performances before open windows, against immoderate beating of carpets or against prolonged and disturbing use of machines; and many other noises of a disquieting nature. Some examples of the application of such ordinances are given by the chief state's attorney, Ebermayer, in the current issue of the *Deutsche medizinische Wochenschrift.* For example, the proprietor of an ocean beach hotel was restrained from allowing meat bones to be chopped up in his kitchen before 8 a. m., on the ground that the noise exerted a harmful effect on the health of nervous frequenters of the resort, who resided near by. In another instance, the operation of circular saws in a residence section in which many brain workers resided was prohibited by the authorities. From this decision, an appeal was taken to a higher court, and the judgment was reversed, it being urged by the expert witnesses that if the operation of the saws were confined to the periods between 9 a. m. and noon, and between 4 and 6 p. m., the claim that an impairment of health resulted from the inordinate noise could not be established and that therefore a prohibition covering all hours of the day was not justifiable. It is interesting to note that in the litigation of this case it was brought out that the police power can be invoked not only when the general public is disturbed but also when certain individuals are discommoded, and that it is not of material consequence whether the persons disturbed by the noise settled in the neighborhood before or after the disturbance in question was set up. By decisions of the Prussian Oberverwaltungsgericht, judgments holding that a bowling alley may not be operated after 10 p. m. and that musical renditions in a cabaret may not continue after 11 p. m. were confirmed. Another superior court decision, on the other hand, brings out certain limitations of police power: a claim that certain noises are disturbing cannot be made on the ground that a siesta following a midday meal is disturbed, that the leisure hours after the day's work are broken in on, or that mental work is interfered with by music. However, that a given noise constitutes a continued disturbance of the night's rest, which is to be regarded as beginning at 10 o'clock, is a valid cause for complaint. The ordinance forbidding prolonged beating of carpets was formerly considered applicable only to health resorts; but according to a decision rendered in 1915 by the Prussian supreme court such restraining ordinances are enforceable in Berlin as well.

The Question as to What Medical Fees Foreigners Should Be Charged

More particularly since the outbreak of the war, the reproach has been commonly heard in foreign countries that the Germans of the present day are out of tune with the rest of the world; but we have had abundant opportunity of countering with similar charges. We are sensible enough to recognize the fact that the reproach may be justifiable in many respects. Our critics, however, should beware lest they err by pointing out the mote in the eyes of their neighbors and failing to discover the beam in their own eye. In this connection, we have, for some time past, been reproached for charging foreigners higher prices than we charge our own countrymen. This applies not only to books and other scientific publications that are commonly exported, but also to other German products. It applies to the settlements between German physicians and foreign patients sojourning in Germany. German physicians are being accused of extortion and rapacity, and no attempt is made to consider the actual economic or even the psychologic basis of the situation. It is quite generally recognized that the large influx of foreigners into Germany, for the summer or a more prolonged stay, brings with it certain economic advantages, in that a considerable amount of foreign money is thus brought into the country. On the other hand, even a mere superficial observation of existing conditions reveals that there are great disadvantages associated with the advantages. The very limited supply of foodstuffs and industrial products now available in Germany is rendered still less adequate for the home-born, owing to the presence of the large number of foreigners whose demands have to be met. The foreigners buy in large quantities because everything is vastly cheaper here than in their own country. Thus, the scarcity of provisions and other products is caused, in part, by the presence of the foreigners. Another disadvantage lies in the fact that the foreigners carry about with them large quantities of the depreciated German currency, which they expend extravagantly, thus bringing about an upward tendency in the prices of all products on which the home-born are dependent. If in the hotels of the large cities and the health resorts a charge for board and room of 850 marks ($1.70, at the present rate of exchange) per day is made, or if for a night's lodging even 700 marks ($1.40) is charged, it will be admitted that these prices are ridiculously low as compared with the prices charged in the simplest hotels in the United States. Is it any wonder that the Germans try to protect themselves, at least in part, against the aforementioned evils by charging foreigners higher prices than they do their countrymen? In the case of the learned professions, another factor of a psychologic nature enters into the case. To a physician, for example, it seems degrading if he is called on to accept for a consultation given a foreigner a sum of money which, in the foreigner's native land, the elevator boy would not be content to receive as a tip. These are some of the reasons why the German physicians have of late been charging foreigners higher fees than formerly. One would suppose that Americans, above all others, since they are reputed to take a frank and open attitude toward the realities of life and do not, as a rule, allow themselves to be swayed by sentimentalities, would easily comprehend the situation. After the explanations here given have been weighed carefully, the action of the executive committee of the Berlin-Brandenburg *Aerztekammer* in supplying all physicians who desire it with the following placard (printed in four different languages), to be hung up in their offices, will be better understood:

> *To Our Foreign Patients:* In agreement with the conceptions of foreign physicians, the physicians of Berlin charge foreign patients from countries in which there has been little or no depreciation of money values the same fees for medical services that they would pay in their home country. An exception will be made in favor of such foreigners as have taken up their residence in Germany and are practicing a profession or following their calling here in this country.

It is planned to publish a pamphlet which will give the fees charged in foreign lands for various types of medical service. A distinction will be made as to whether the patient is in moderate circumstances or financially well situated; also as to whether the service was performed by a general practitioner, a specialist or an expert of first rank. In this connection, it may be well to mention the following points as brought out in the *Berliner Aerztekorrespondenz:* 1. Whenever possible, before service is rendered, an agreement should be reached in regard to the fee. 2. All bills should be made out in German marks. 3. Foreigners who have taken up their permanent residence in Germany and are earning their livelihood here, receiving their income direct in the form of German marks, will pay such fees as their financial circumstances will warrant. The same rule will apply to members of foreign commissions for whom the government is under obligations to furnish free medical service in case of illness.

Marriages

Roderick Hoffman Shippey to Mrs Stella B. Murphy, both of Long Beach, Calif., at Santa Barbara, Calif., July 3.

Frederick Hubbell Mills, Major, M. C., U. S. Army, to Miss Alice Lillian Small, at Albany, N. Y., July 8.

William Lowndes McDougall, New York, to Miss Mary Alice Thomas of Griffin, Ga., June 20.

James Edwin Purdy, Pittsburgh, to Miss Edith Funston Ballentine of Philadelphia, June 24.

Louis Francisco Ross to Miss Margaret Grubbs Starr, both of Richmond, Ind., July 19.

Edward John Gray to Miss Marjory Ramage, both of Vancouver, B. C., Canada, July 10.

James Beyel Heller, Jr., to Miss Martha Silliman Cole, both of Pottsville, Pa., recently.

Martin L. D. Meyer, Chicago, to Miss Hortense Schroeppel of Collinsville, Ill., July 25.

Charles W. L. Johnson to Miss Ella Blackiston Conway, both of Baltimore, July 12.

Deaths

Frank Barbour Wynn ⊕ Indianapolis; Medical College of Ohio, University of Cincinnati, 1885; was killed in a fall on Mount Siyeh, Glacier Park, Montana, July 17. It is reported that the fall was the result of a cerebral hemorrhage. Dr. Wynn was born in Franklin County, Indiana, May 28, 1860. He was graduated from De Pauw University in 1883, and received his medical degree two years later. In 1886 he was made master of arts by De Pauw University. From 1886 to 1888 he served as assistant physician in the Ohio Asylum for the Insane; in 1891, he served on the staff of the Northern Hospital for the Insane at Logansport, Ind. Following this work, he studied abroad, and on his return in 1893, located in Indianapolis, becoming the first city sanitarian in 1895. At this time also, he became professor of medical diagnosis in Indiana University School of Medicine, holding the position until the time of his death. Dr. Wynn was chairman of the Indianapolis Civic Commission in 1910, and was active in civic affairs in Indiana, serving as chairman of the Indiana Centennial Commission from 1911 to 1916, and as president of the Indiana Historical Society. He was formerly president of the Indiana Medical Society, and of his local medical organization. In the American Medical Association, Dr. Wynn served as a member of the House of Delegates in 1913 and 1914; he was secretary of the section on pathology and physiology in 1900 and chairman in 1901. The first scientific exhibit of the American Medical Association held in connection with the annual session was in the name of the Indiana State Association, and was organized by and conducted under the management of Dr. Wynn. This exhibit was presented at Columbus, Ohio, in 1899. Such an exhibit has been a feature of the annual session since that time, and Dr. Wynn served as director up to and including 1916. He was elected Vice President of the American Medical Association at the Boston session, holding the office during 1921-1922. At the time of his death, he was president of the American Alpine Club. During the last twenty-five years, he spent many of his vacations in mountain-climbing expeditions, and he held records for many attempts at scaling the mountains in Glacier National Park. Dr. Wynn was one of the best loved physicians in his state, and a man of broad community and scientific interests.

Philip Francis Harvey ⊕ M. C., U. S. Army, Denver; State University of Iowa College of Medicine, Iowa City, Iowa, 1864; Bellevue Hospital Medical College, New York, 1866; joined as assistant surgeon, U. S. Army, 1868; served in the Medical Corps during the Civil War, Sioux Indian Wars, the Spanish-American War and during the Philippine Insurrection; professor of surgery at the National University Medical Department, Washington, D. C., 1866-1868; retired, Dec. 4, 1908; member of the Association of Military Surgeons, Society of Foreign Wars and the Society of the Army of the Potomac; died, June 7, aged 78. Dr. Harvey, when chief surgeon of the Department of the Lakes in 1905, introduced for the first time in the Army a prophylactic system for the elimination of venereal disease.

Isadore N. Bloom ⊕ Louisville, Ky.; Medical School of Harvard University, Boston, 1881; professor of dermatology and syphilology at the University of Louisville Medical Department, Louisville, Ky.; on the staffs of the Louisville City and Jewish Hospitals; served for several terms as president of the school board; member of the American Urological Association; died, July 16, at the "Norways" Sanitarium, Indianapolis, aged 63.

Edward John Bermingham, New York; Medical Department of Columbia College, New York, 1873; founder and superintendent of the New York Throat, Nose and Lung Hospital; former president of the New York Academy of Medicine and of the Society of Medical Jurisprudence; died, July 15, aged 69, from diabetes and heart disease.

William H. Monday, Terrell, Texas; Medical College of Louisiana, New Orleans, 1871; member of the State Medical Association of Texas; Civil War Veteran; for several years president of the school board; at one time president of the Kaufman County Medical Association; died suddenly, July 16, aged 79.

Edwin R. Rasely ⊕ Uniontown, Pa.; Medico-Chirurgical College of Philadelphia, 1891; member of the American Roentgen Ray Society; was found dead in his photographic dark room, accidentally electrocuted, July 12, aged 55.

Frank W. Garrett, Liberty Center, Ind.; Medical Department, Butler University, Indianapolis, 1882; member of the Indiana State Medical Association; formerly a druggist; at one time postmaster and health officer of Liberty Center; died, July 17, aged 66, from carcinoma.

Abner S. Crocker, Oklahoma City; Medical Department, University of Louisville, 1890; member of the Oklahoma State Medical Association; died at the State University Hospital, July 13, aged 54, from a bullet wound in the lung, having accidentally shot himself.

Joseph Michael Gallen ⊕ Columbus, Ohio; Ohio Medical University, Columbus, 1907; formerly instructor of surgery at the Ohio State University College of Medicine; on the staff of St. Francis Hospital; died, July 11, aged 37, from chronic nephritis.

Aaron Hendrick Connett, Great Bend, Kan.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; member of the Kansas Medical Society; for several years county coroner, health officer and physician; died, July 17, aged 72, from paresis.

William P. Norris, Salem, Va.; Louisville Medical College, Louisville, Ky., 1892; member of the Medical Society of Virginia; for several years county coroner and health officer of Salem; died suddenly, July 23, aged 55, from heart disease.

Thomas Venable Bond, Fort Steilacoom, Wash.; University of Virginia, Department of Medicine, Charlottesville, Va., 1905; member of the Washington State Medical Association; died, June 23, aged 43, from tuberculosis.

Hyman Shlappin, Newark, N. J.; University and Bellevue Hospital Medical College, New York, 1910; member of the Medical Society of New Jersey; on the staff of the Newark Beth Israel Hospital; died, July 16, aged 38.

William Albert Gartner ⊕ Troy, Kan.; Ensworth Medical College, St. Joseph, Mo., 1914; died, June 30, at the Missouri Methodist Hospital Association, St. Joseph, Mo., aged 38, from septicemia, following an insect bite.

Peter White Cody, Boston; College of Physicians and Surgeons, Keokuk, Iowa, 1882; member of the Massachusetts Medical Society; died, July 15, aged 64, from the effects of a fall received some time ago.

John William McKone, Lawler, Iowa; University of Iowa College of Medicine, Iowa City, Iowa, 1896; member of the Iowa State Medical Society; died, July 16, aged 48, from chronic interstitial nephritis.

Louis C. Swartzlander, Omaha; John A. Creighton Medical College, Omaha, 1906; member of the Nebraska State Medical Association; died suddenly, July 17, aged 39, from heart disease.

Henry Green, Yakima, Wash. (licensed, Washington, 1888); Confederate veteran; formerly member of the state legislature; died, July 10, aged 99, from senility.

John H. Hussey, Eddyville, Ky.; Medical Department, University of Tennessee, 1883; member of the Kentucky State Medical Association; died, July 14, aged 61.

Lewis Moody, Bremerton, Wash.; Medical Department, University of Illinois, Chicago, 1900; died, May 9, aged 41, from cerebral hemorrhage.

George Lewis Day ⊕ Lone Tree, Iowa; State University of Iowa College of Medicine, Iowa City, Iowa, 1895; died suddenly, July 20, aged 51.

Britton O. Watkins, Kingston, Tenn.; Medical Department University of Tennessee, 1891; died, June 30, aged 68, from pulmonary tuberculosis.

Craig Worth ⊕ Mapleton, Iowa; University of Missouri School of Medicine, Columbia, Mo., 1906; died, July 16, at Independence, aged 42.

Samuel D. Geissinger, Elmira, N. Y.; Jefferson Medical College, Philadelphia, 1877; died, March 14, aged 73, from heart disease.

Annetta Kratz, Danboro, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1871; died, May 28, aged 75.

Isaac Newton Wear, Los Angeles (licensed, Illinois, years of practice); died, July 9, aged 70, from heart disease.

Eugenia Julia Reinhardt, Denver; Denver Homeopathic College, 1897; died, June 30, aged 55, from ascites.

W. D. Penn, Gulfport, Miss. (licensed, years of practice); died, June 14, aged 82, from senility.

Elmer Elsworth Cowdrick, Cleveland; Chicago Medical College, 1886; died, June 22, aged 60.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

ETO-SO-ERC

Intravenous Creosote Medication of T. M. Berry

A circular, signed T. M. Berry, M.D., New Orleans, recommends the intravenous use of "Eto-So-Erc" ("Creosote" spelled backward) for various conditions. It reads in part:

> "*Dear Doctor:* From my past ten years experience of intravenous medication, I feel justified in calling your attention to the potential effects of Eto-So-Erc intravenously. Eto-So-Erc is a highly purified form of Beechwood creosote, especially prepared for intravenous administration. It comes in direct contact and becomes fixed to the pathologic tissue and bacteria.
>
> "The antiseptic effects are positive.
>
> "The beneficial effects are rapid and recognized by the patient.
>
> "The administration is safe and accurate as to dosage.
>
> "There is no reaction or alarming symptoms.
>
> "Recommended in the treatment of: All stages of pulmonary tuberculosis, influenza, pneumonia, acute and chronic bronchitis, pulmonary gangrene, or any pulmonary inflammation where you feel a pulmonary antiseptic is desired. . . .
>
> "Guttmann states that Tubercle Bacilli are destroyed by blood containing one part of creosote in 2,000 and even one half that proportion arrests their development: 20 c.c. of Eto-So-Erc gives you 1 to 2000 in a 150 lb. man."

Creosote is credited with being of some value in tuberculous infections when taken orally, although even on this point clinical opinion is divided. The benefits, according to Sollmann, are to be seen only in early cases of tuberculosis, if the use is long continued and if it does not cause gastro-intestinal disturbances. It is most probable that any benefits derived may be referred to the local effect on the alimentary canal and on the bronchitis and to the antipyretic action. In such cases, the benefits would not be obtained by intravenous injections of creosote such as in the proprietary "Eto-So-Erc." In fact, the administration of creosote by other ways than mouth is said to be very much less efficacious (Cushny, "Pharmacology and Therapeutics").

The argument advanced for "Eto-So-Erc" in respiratory infections is that "Tubercle Bacilli are destroyed by blood containing one part of creosote in 2000 and even one-half that proportion arrests their development: 20 cc of Eto-So-Erc gives you 1 to 2000 in a 150 lb. man." This assertion is misleading because the tubercle bacilli in the lungs are imbedded in the tissues and therefore are inaccessible to the creosote. As the Council on Pharmacy and Chemistry pointed out in 1915, there is no evidence that creosote excreted by the lungs is in sufficient quantities to have any germicidal action.

The formula for Eto-So-Erc is not given, although it is claimed that each 160 m. (10 c.c.) ampoule contains 10 m. of creosote; of what the remaining 93 per cent. is composed we are not told.

To give creosote, a readily absorbed drug, intravenously is irrational and unscientific. The claim that "creosote comes in direct contact and becomes fixed to the pathologic tissue and bacteria" and therefore Eto-So-Erc is to be used in all pulmonary diseases, is simply playing on credulity.

International Health Drive.—At the session of the National Conference of Social Work recently held at Providence, R. I., Dr. George E. Vincent, president of the Rockefeller Foundation, in an address stated that the health committee of the League of Nations, the League of Red Cross Societies, international scientific bodies and the International Health Board are in the field. Scientific research workers are in constant communication in many national centers, and governments are sending attachés of hygiene into one another's territories. Vital statistics on an international scale are being reported more accurately. Prompt notification of epidemics is being facilitated, and outposts against plague and other diseases are being stationed and supported.

Correspondence

"THE PLACE OF VERSION IN OBSTETRICS"

To the Editor:—I was rather surprised that THE JOURNAL should publish such an unfair criticism of a book as it did of "The Place of Version in Obstetrics" by Dr. Irving W. Potter (THE JOURNAL, July 1, 1922, p. 64).

First, the critic's bias was so great and his erudition so incomplete that he lost sight of the real aims of the book, namely, a more extended use of version and an improved technic. He assumes, with the assurance and omniscience of a deity, that Potter is left handed and that that is why he uses the left hand in delivery; while, as a matter of fact, he is right handed in all his work, but has found that the left hand is the best hand with which to make all deliveries when version is employed.

The illustrations (Figs. 36, 38 and 39) "show awkwardness" only to the inexperienced eye and to the casuist who is trying to multiply his own objections in something he thinks he understands, while in reality the subject is evidently entirely new to him. If your critic ever saw Dr. Potter make a version or will try himself to make one as directed by Potter, he will find that the position of the hands, as represented in the cuts, is not awkward, but the most natural one to take and the one Potter chose after making hundreds of versions by the right and the left hand.

Again, any man who has made versions knows that the water should be retained as long as possible to facilitate the maneuver, and by breaking the membranes, high up, this is accomplished. Therefore, "Levret's insistence on rupturing the membranes, low down, at the os is not sustained in the minds of all practical obstetricians" who have learned their obstetrics at the bedside and not at the library table.

The stretching or ironing out of the vagina, although practiced by Edgar and other men, is not the technic employed by Potter, and he has called special attention to it because, in his elective version, the vaginal outlet must be dilated thoroughly, under deep anesthesia, before the delivery can be undertaken.

So far as bringing down one leg or two legs, Potter has practiced both methods many, many times, and finds, mechanically, that the two legs are the best dilating wedge, notwithstanding "Mme. du Tertre's recommendations in 1677."

"Figure 15 is not a manifest error of art," although the picture, for teaching purposes, is a little exaggerated. It has never been shown in any book on midwifery, nor has your critic ever seen such an illustration, and yet the picture is taken from life, and shows that rotation always takes place from right to left or from left to right according to the position of the child, and is shown in the plate and Plate 17, as the body descends.

His criticism as to the indications for version, which are not defined by Potter, is fairly well taken, and in this matter honest men can differ in their practice and conclusions. Potter never uses forceps except on the after-coming head; and until it is proved, in the hands of other men, that his practice is more dangerous to mother and child, the question must be left in statu quo.

Dr. Potter was honest when he said he never broke a bone but once in a living child. He does not claim that he does not have intracranial injuries, but he believes that they are less in his practice than in that of other men, a point that again must be proved by further reports.

Because a book is small and simply a reprint of journal papers is no reason it is not worth reviewing, and particularly, since it contains a practice, although revolutionary, that is gradually being accepted, in a more or less modified way, by many of the best obstetricians in the country. Dr.

Potter is certainly teaching a new method in the delivery of the shoulder and arm and many other points which are brought out in the text of his book, if read by an open minded, qualified, practical obstetrician.

No matter how much we may differ from Potter in his general use of version, he has demonstrated that version is not as dangerous as we were taught to believe, and should be more often employed; and secondly, the men who are practicing this method say that it is a great advance over any other method previously practiced by them, even if it be something old, as is your critic's contention. A just and fair criticism of a book is what all fair minded men look for, and especially in an association journal.

The history of version was compiled by one of the most thorough and reputable medical abstract companies in this country, and surely their facilities and combined intelligence ranks with your erudite critic, and they would not have slighted any great authors in the past to make it appear that Potter "de novo originated his present ideas of podalic version."

H. E. Hayd, M.D., Buffalo.

[The letter of Dr. Hayd was referred to the reviewer of the book. He replies:]

Since reading Dr. Hayd's comments on the review of Potter's book on "Version," I have reread the volume in an endeavor to see the text in the light he tries to cast on it; but my views are unchanged by the critical inspection. If any misstatements of fact had crept in I would gladly correct them; but even if corrections were possible, the basic views expressed would be unaltered—namely, it is dangerous teaching that it is as safe routinely to deliver all women by operation as to await physiologic labor. As clearly as I can see from his meager statistics, he had 0.78 per cent. of his patients spontaneously delivered: it is not definitely stated, but we are left to surmise that these nine women delivered themselves before his arrival: 82 per cent. of his 1,130 cases in his last report were delivered by version; and if version was impossible, then 8.8 per cent. had cesarean sections: some 7 per cent. more had some other operative procedure employed for extraction, and why these last eighty-three patients were not subjected to cesarean sections is not stated, any more than the noteworthy absence of indications for his sections.

If Dr. Potter had written a book whose purpose was to advocate a more frequent resort to version in contrast to high forceps and cesarean sections done for minor obstetric complications there could be no criticism. Under such circumstances, the aim of the book would be appropriately "a more extended use of version"; but an author, as well as his proponents, has poor logic when it is defended that parturient women should be treated in one of three ways—spontaneous labor for those who terminate their labors before the arrival of the attendant, version in the vast majority, and cesarean section for those in whom version is considered contraindicated. As Dr. Potter makes a routine practice of operative delivery, he cannot offer indications for his versions or his sections other than the conservation of his time and strength, and incidentally to shorten the labors. Even if indications were offered, we would hold them specious for any obstetrician to have a full 99 per cent. of operative deliveries.

To quote Dr. Hayd: "Until it is proved, in the hands of other men, that his practice is more dangerous to mother and child, the question must be left in statu quo." In Professor Rucker's report on his experience with Potter's version in the *American Journal of Obstetrics and Gynecology* (**1**:574 [March] 1921), the author is enthusiastic for the method, yet his fetal mortality was from 12.1 to 17.55 per cent. according to "group"—a gross mortality of 14.5 per cent. Professor Rucker is the first Potter enthusiast to report his results—and is still enthusiastic when his fetal mortality is from two to three times the normal experience. If this is any criterion, we may only feel that the method has been tried and found wanting in safety or rationality.

To answer all of Dr. Hayd's comments would take much space, especially as his strictures are often not compatible with scientific obstetric thought: however, with the limited space available I offer these concrete statements of fact:

1. The historical data are correct so far as they go. There is a woful absence of facts which associate the steps in the so-called Potter's version with the originators of those steps, which leaves the implication that Potter originated them de novo. There is not one detail of his procedure which could not have been found in the literature.

2. It is so self evident that resistance of the soft parts should be overcome that it is common experience of obstetricians that they have ironed out the perineum these many years. The necessity is so self evident that to mention it is trite.

3. The dictum of one man who has a peculiar facility with one hand cannot refute that common experience dictates that a sane choice of the hand is dependent on the position of the child, or some particular exigency of the case. The ready success of version is dependent on so many factors (presentation, position, indications and anatomic factors) that it is irrational to expect that one fixed, set rule of conduct will fit every condition.

4. Peu, in 1694, practiced entering the hand between membranes and uterus, which Potter implies is his method. Any elementary student knows that some interval will elapse between the rupture of the membranes and retraction of the uterus—during which interval, even an hour or two, version is readily possible. To argue that Peu's method counts for a better version than when the rupture of the membrane takes place at the internal os, Levret's teaching, is puerility. To smear the vaginal contamination, which inevitably must occur from the internal hand to the mucosa of the uterus, is not safe obstetrics.

5. Paré recommended bringing down both legs. Common sense shows that a full breech will secure more dilatation than will one leg brought down, and much more than when both are brought down; essentially, their relationship is 1 : ¾ : ½ in dilating surface. We concede that when rapid extraction is demanded, better traction may be secured by pulling on both legs than on one.

6. Version is completed with the turning: thereafter, if no indication exists the delivery may be left to Nature, or at most "manual aid" may be employed. On the other hand, when delivery is imperatively demanded, rapid extraction should be employed. As Dr. Potter operates on normal women, "manual aid" is his method. There is nothing new to this.

7. Every operator has found occasion for delivering the anterior arm first. Common experience indicates that the posterior arm, in the majority of instances, may more easily and quickly be brought down than the anterior. This is so true that practically every authority recommends it; if the anterior arm may not easily be reached, the shoulders should be rotated so that the anterior arm becomes posterior, delivering it as such. Dr. Potter, therefore, has not originated a detail by bringing down the anterior arm as such; he merely attempts to contravene common experience by being different.

8. Figure 15 depicts a distinctly abnormal breech mechanism which is observed occasionally, especially in sacral posterior positions; this conforms to the general principles of certain occiput posterior cases, forecoming head. This is due to some disturbance of pelvic configuration (of the bones or pelvic

floor), and more commonly to factors which determine the rapid descent of the posterior hip, with its anterior rotation: again comparable to anterior rotation of the occiput posterior. Later, such rotation determines that the back shall be posterior before the shoulders enter the brim. In operative cases, if the attendant is not fully conversant with abnormal mechanisms, the pulling on the posterior leg will produce this maneuver. This accident may inevitably occur, but almost invariably it is a distinct *error of art.* As most authorities attempt to depict things as they should be, this illustration is largely new: however, in Ramsbotham's book, page 250, Figure 119, fifth American edition, 1849, this position is portrayed in sagittal view; the caption is different. There would be no issue on this score if Dr. Potter had noted that the illustration showed an abnormal rotation.

9. It is refreshing to secure the admission, which we trust Dr. Hayd gives authoritatively, that the historical data were supplied by an "abstract company." Is this the explanation of the absence of those grammatical errors in the history that are present in the clinic part of the book? In any event, the explanation does not make the compilation better, and does not excuse the author from advancing it as his own.

10. Dr. Potter's statement that he only once broke a bone of a living baby is based on such empiric absence of observation that it is misleading. If Dr. Hayd will read Dr. Potter's closing remarks in the *American Journal of Obstetrics and Gynecology* (**1**:642 [March] 1921), he will see the significance of my declaration. He there states, "Nor have I X-rayed or made inquiries to know whether there were fractures because I do not think it necessary. I know there were none." Injuries and fractures have had a definite incidence in both primary breech extraction and that of secondary breech (after version) in the hands of every obstetric expert who has lived. We must therefore discredit the statement of Dr. Potter, which may come from lack of routine observation. Dr. Potter would possibly have a definite incidence of fractures to report if a thorough routine examination were made of all his new-born babies.

In conclusion, we may but reiterate what was stated in the review. "The teaching, as given in this book, is dangerous and reprehensible; a rational, sane, obstetric thought is imperatively needed if conservation of mother and child are to be realized." An obstetric operative furor does irreparable harm by destroying lives needlessly.

[Note.—While it is not customary to publish responses to book reviews, and the reviewer's reply, space is given in this instance because of the importance of checking this radical trend in obstetrics.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MODIFICATION OF ANTIRABIC VACCINE

To the Editor:—Please inform me as to the opinion of the best authorities with regard to the therapeutic efficiency (or prophylactic) of the Cummings Rabies Vaccine compared with that of the regular Pasteur antirabic vaccine, which is given in doses of increasing potency.

B. S. Penn, M.D., Humboldt, Tenn.

Answer.—In the series of special articles on biologic therapy published under the auspices of the Council on Pharmacy and Chemistry, A. M. Stimson (The Journal, Jan. 22, 1921, p. 241) wrote:

"The further treatment of the fixed virus in order to prepare the vaccine may proceed according to several recognized methods, the intent of which is either to accomplish graduation of the dosage, or to secure a further attenuation of virulence, to preserve against rapid deterioration, or merely to provide the material in a form convenient for use. Of these methods the most commonly employed are: emulsification of the virus and graded dilution in salt solution; reduction of virulence by slow desiccation for definite periods, followed by preservation in glycerin; removal of diffusible substances by dialysis [the Cummings method]; rapid desiccation in a frozen condition, and treatment by various chemicals, notably by phenol. The advocates of each of these methods can adduce arguments as to the convenience, economy or suitability for some special purpose of the method which they employ; but it is believed that there is no acceptable evidence to show that any one method is preeminently more efficacious in conferring immunity to rabies than others. Some methods have, however, been subjected to more extensive practical application than others.

"Whatever the method employed, the final substance to be used for injection consists of a liquid suspension of more or less modified fixed virus; and this is administered in a series of subcutaneous injections, given for a period of time which may vary according to the method used, up to a maximum of three weeks. It has been found possible, and is theoretically advantageous, to modify the schema of injections employed originally by Pasteur in using the virus attenuated by slow desiccation. For example, the plan of injections now employed in the Hygienic Laboratory, U. S. Public Health Service, eliminates the use of long dried and presumably inert material, while retaining roughly Pasteur's idea of administering a succession of courses of injections of increasing virulence. This schema is admittedly arbitrary, and is supported more by the evidence of long usage than by strictly scientific considerations."

ENURESIS

To the Editor:—Kindly send me any information you have as to the treatment of bed wetting in children and young adults. I would appreciate greatly some references for this condition or remedies for it.

G. N. Pease, M.D., Portland, Ore.

Answer.—A reply to this inquiry appeared in The Journal, Jan. 29, 1921, page 329.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, Sept. 5. Sec., Dr. Harry C. DeVighne, Juneau.

Massachusetts: Boston, Sept. 12-14. Sec., Dr. Samuel H. Calderwood, State House, Boston.

New Hampshire: Concord, Sept. 7-8. Sec., Dr. Charles Duncan, Concord.

Kansas June Examination

Dr. Albert S. Ross, secretary, Kansas State Board of Medical Registration and Examination, reports the written examination held at Kansas City, June 20-21, 1922. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 24 candidates examined, 22 passed and 2 failed. Twenty-two candidates were licensed by reciprocity. One candidate was licensed on government credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University		(1922)*	86
Rush Medical College		(1922)*	86.4
University of Kansas		(1922)	81.5, 81.7, 83, 83.6, 83.6. 83.8. 84.2, 84.5, 84.6, 84.6. 84.8, 85.6, 85.7, 85.7, 86.7, 86.7, 87.5
Harvard University		(1916)	**83**
Washington University		(1920) 83, (1921)	84.6
	FAILED		
Meharry Medical College		(1921)	65.9, 71

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery		(1913)	Iowa
Hahnemann Medical Coll. and Hosp. of Chicago		(1906)	Illinois
Loyola University		(1916) Missouri, (1917), (1919)	Illinois
Northwestern University		(1917), (1921)	Illinois
University of Louisville Medical Dept		(1922)	Kentucky
Tulane University		(1914)	Missouri
Barnes Medical College		(1904)	Iowa
Kansas City Medical College		(1883)	Missouri
Marion-Sims College of Medicine		(1897)	Missouri
St. Louis University School of Medicine		(1921, 2)	Missouri
Washington University		(1918)	Missouri
Creighton University		(1921)	Nebraska
University of Nebraska		(1920)	Nebraska

University of Oklahoma	(1921)	Oklahoma
Jefferson Medical College	(1921)	Missouri
Vanderbilt University	(1921)	Tennessee
Fort Worth School of Medicine	(1918)	Texas
University of Toronto	(1908)	N. Dakota

College ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Kansas City Medical College	(1898)	U. S. Army

* These candidates have finished the medical course and will obtain the M.D. degree after they have completed a year's internship in a hospital.

Delaware June Examination

Dr. P. S. Downs, secretary, Delaware State Board of Medical Examiners, reports the oral, written and practical examination held at Wilmington, June 20, 1922. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Nine candidates were examined, all of whom passed. Two candidates were licensed by reciprocity. One candidate, a graduate of the University of London in 1919, was licensed by special examination, Jan. 14, 1922. The following colleges were represented:

College PASSED	Year Grad.	Number Licensed
Johns Hopkins University	(1922)	1
University of Maryland	(1920)	1
Jefferson Medical College	(1921)	1
Temple University	(1921)	3
University of Pennsylvania	(1922)	3

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Maryland	(1919)	Maryland
University of Pennsylvania	(1919)	Hawaii

Louisiana June Examination

Dr. Roy B. Harrison, secretary, Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, June 8-10, 1922. The examination covered 12 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 46 candidates examined, 43 passed and 3 failed. Four candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Tulane University	(1921)	86, 86.6, 87, 91.4
	(1922)	77.8, 79.3, 79.8, 80.3, 82.3,* 82.7, 83.3, 83.4, 83.5, 83.6, 83.9, 84.2, 84.5, 84.8, 85.1, 85.2, 85.5, 86.3, 86.4, 86.4, 87.4, 87.5, 87.7, 88, 88, 88.1, 88.4, 88.6, 89.2, 89.2, 89.4, 89.8, 90.1, 90.2, 90.4, 91.3, 93.3
St. Louis University School of Medicine	(1921)	85.9
University of Naples	(1915)*, †	85.7
FAILED		
Meharry Medical College	(1915)	63
	(1917)	53.3
	(1921)	59.5

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Atlanta School of Medicine	(1906)	Georgia
Rush Medical College	(1909)	California
Tulane University	(1900)	Texas
University of Tennessee	(1919)	Mississippi

* Temporary licenses granted until completion of citizenship.
† Graduation not verified.

Church Missionary Society.—At a recent exhibition of the hospital facilities in lands far from civilization held in London, England, it was announced that the society now has thirty-seven mission hospitals, five of which have medical schools attached to them. There are leper establishments in connection with four of these hospitals; eight are equipped with modern roentgen-ray apparatus. Physicians are badly needed to continue the work. The hospital at Mengo, Uganda, British East Africa, contains 212 beds with separate blocks for Europeans. There is a large dispensary, pathologic laboratory, operating room and roentgen-ray room. A medical school for twenty-four students adjoins the building. A new maternity training school was recently opened and twenty young Baganda women are trained in midwifery yearly and receive a government diploma after examination as certified midwives. The Pakhoi Medical Mission Compound is situated 500 miles from Hong Kong, China, and has 210 beds, including a leper asylum containing 160 lepers, who are segregated and treated with chaulmoogra oil. One trained nurse (the only white trained nurse) is in charge of this institution, there being no physician there at present. Models of the Peshawar Medical Mission, the Cairo Mission Hospital and the Church Missionary Society's hospital at Kampele, Uganda, among others, were on view at the exposition.

Book Notices

DIE WASSERMANNSCHE REAKTION MIT BESONDERER BERÜCKSICHTIGUNG IHRER KLINISCHEN VERWERTBARKEIT. Von Dr. Harald Boas, Privatdozent an der Universität. Mit einem Vorwort von Geh.Med.-Rat. Prof. A. Wassermann. Third edition. Paper. Price, 36 marks. Pp. 176. Berlin: S. Karger, 1922.

This follows the lines of former editions. While there have not been many changes or additions, yet the extended personal experience of Boas with the Wassermann test has enabled him to draw valuable conclusions concerning the test. After a rather comprehensive historical review, Boas discusses the technic and details of the test, and describes many of the numerous modifications. He believes the simple alcoholic extract of human or beef heart the most reliable antigen, although he inclines to the belief that the cholesterolized antigens may be of value if properly controlled to rule out false positive findings. For the sake of completeness he discusses many of the tests which have been advanced as substitutes for the Wassermann test, and believes that the Sachs-Georgi and Meinicke tests are the best of these. The special merit of this little book is the discussion, based on the personal experience of the author, of the presence or absence of positive results in the various types of syphilis. From the standpoint of interpretation, Boas believes that a positive test should be regarded simply as a sign or symptom of syphilis, and that treatment should be guided by the presence or absence of positive tests. However, he warns against placing any reliance on a negative test, except when this appears after a vigorous course of treatment. In other words, a negative test cannot be understood as excluding syphilis. In the incubation period or in the initial stage of syphilis, a positive Wassermann test does not usually appear until shortly before the appearance of the secondary symptoms. In the secondary as well as in the tertiary stages, this test is almost constantly positive in the untreated cases, but may be negative in those cases in which early treatment has been given. In latent syphilis the results are variable, Boas inclining to the view that only the positive reactions have any diagnostic value. The same situation is found in tabes and in general paralysis, although the reaction tends to be positive in a greater percentage of cases than in the latent types of syphilis. As to the influence of treatment on the Wassermann test, Boas states that most cases gradually assume a negative condition under protracted treatment, but that treatment may, in some cases, render a negative case positive or strengthen the positivity of the reaction. Further, some cases assume a "Wassermann-fast" state under certain lines of treatment, so that such treatment must be replaced by other measures.

SURGICAL AND MECHANICAL TREATMENT OF PERIPHERAL NERVES. By Byron Stookey, A.M., M.D., Assistant Surgeon, New York Neurological Institute. With a Chapter on Nerve Degeneration and Regeneration by G. Carl Huber, M.D., Professor of Anatomy and Director of Anatomical Laboratories, University of Michigan. Cloth. Price, $10 net. Pp. 273, with 225 illustrations. Philadelphia: W. B. Saunders Company, 1922.

This is the first real effort that has been made to place the surgery of the peripheral nerves on the same plane with that of the brain and spinal cord. It is a thoroughly complete work, being based primarily on the fundamentals of anatomy, embryology and physiology. On every point the evidence has been formed from the best and most recent experimental work, and the conclusions have been drawn only after a careful analysis of the literature. The anatomy of peripheral nerves is dealt with in minute detail, particular stress being laid on their embryologic development. This is followed by a chapter on nerve degeneration and regeneration by G. Carl Huber, in which the progress of the experimental work is reviewed completely and clearly and so fairly that the reader can scarcely fail to secure a clear understanding of this field. The methods of nerve repair are ushered in by criticism of the old treatments and methods, after which the author elaborates in detail on the technic of nerve suture, nerve crossing and nerve transplantation. The methods of bridging a nerve gap, perhaps the most important subject in nerve surgery from the practical point of view, are then reviewed and carefully analyzed. One is impressed with the vast amount of painstaking work that has been done on tubulization by Huber, whose researches since 1895 have so completely altered surgical methods along that line. The clinical aspect of the subject is then presented in all its phases, with the utmost care as to minute details. As stated in the author's preface, the various syndromes, motor, electrical and sensory, so elaborately treated by Tinel and Anasthasio-Bénisty, are not particularly emphasized, the great stress being laid on surgical and mechanical procedures suitable to the treatment of peripheral nerve injuries. Following an introductory chapter on indications for operation and the time to operate, the various nerves are taken up separately, and a most thorough analysis made of the various means of repairing injuries to them. One is constantly impressed with the close adherence to the experimental side and its bearing on the conclusions drawn. The facial nerve, the brachial plexus, the musculospiral, musculocutaneous, median, ulnar, lumbosacral plexus and sciatic nerves are dealt with in order, and in connection with each the normal anatomy, development, anomalies, types of injuries and detailed phases of the operative and mechanical treatment are beautifully presented. The remainder of the work is devoted to a brief discussion of the nerves less frequently injured, such as the recurrent laryngeal, spinal accessory, long thoracic, subscapular, anterior crural, obturator and gluteal, followed by a treatise on nerve tumors, causalgia and amputation neuromas. The author deserves unlimited credit for this careful reorganization of the subject of peripheral nerve surgery. If any criticism could be fairly made, it would be that there is a lack of clinical end-results to substantiate the principles on which the work is based.

Lehrbuch klinischer Diagnostik und Untersuchungsmethodik für Studierende, Medizinalpraktikanten und Aerzte. Von Prof. Dr. Theodor Brugsch, Oberarzt der II. med. Univ.-Klinik in Berlin, und Prof. Dr. Alfred Schittenhelm, Direktor der med. Klinik Kiel. Fifth edition. Paper. Price, 390 marks. Pp. 968, with 432 illustrations. Berlin: Urban & Schwarzenberg, 1921.

This edition comprises almost 1,000 pages of closely printed and compact material covering every method of clinical and laboratory examination. One is reminded in perusing this volume of the monumental work of Sahli. The first part is devoted to general topics, such as anamnesis and physical examination. All the well known and latest mechanical means for diagnosis, as electrocardiography, phonocardiography and roentgenology, are discussed. The remainder is devoted to special methods used in the diagnosis of diseases of the various systems. The subject of immunology and infection is given considerable space. The attempt of the authors to cover as much ground as they do leads to an imbalance. It is impossible to enter into differential diagnosis, or to consider in more than the briefest manner the outstanding features of all diseases. This defect in the present edition might have been made less apparent by the elimination of a large number of tests which have outlived their usefulness, and the substitution of clinical data for them.

A Laboratory Manual for Comparative Vertebrate Anatomy. By Libbie H. Hyman, Department of Zoölogy, University of Chicago. Cloth. Price, $2.50, net. Pp. 380, with 69 illustrations. Chicago: University of Chicago Press, 1922.

This book meets a great need, for comparative anatomy teaching has not been well supplied with laboratory guides. It is a pity that the course outlined, or one equally good, is not part of the curriculum of all students preparing for medicine. The pedagogic policy followed is sound. The problems and needs of the student have been considered with exceptional care and breadth of view. Experience with different methods has proved that laboratory guides cannot be too definite. The success of a course is largely proportional to the thoroughness of the organization of the instruction. The experienced and open minded instructor will appreciate the effort made in this book to facilitate the acquirement of anatomic knowledge every student should have before beginning a medical course. The methods employed in this book do not appear to be inconsistent with the spirit of research. The student should be stimulated in scholarly ambition by the success which such a book should help him to attain. It is possible that, in brief courses, the average student may find too much detail. It may be necessary for the instructor in a short course to make limited selections. The so-called comparative plan, involving an arrangement by systems of organs rather than by types, is followed. The importance of a good knowledge of the skeleton is recognized, and there is a commendable phylogenetic point of view. There is much supplementary material, including a good glossary and a complete index. The reader's convenience is recognized usually, but not always, in the use of complete terms instead of letters in labeling illustrations.

The Child and the Home. Essays on the Rational Bringing-Up of Children. By Benzion Liber, M.D., Dr.P.H. Cloth. Price, $2.50. Pp. 253, with 2 illustrations. New York: Rational Living, 1922.

The fundamental text of Dr. Liber's book is the plea for absolute freedom of will to the child. He particularly attacks the cult of obedience, stating that the child is not the property of the parents, and owes them nothing, except friendship and affection if they deserve it. Presumably the judgment as to whether or not they deserve it rests entirely with the child. The writing is marred by frequent uses of involved Germanic constructions. The opinions are original, but too radical to be safe. There are two prefaces, one at the front of the book by Upton Sinclair, and one at the back of the book by teachers in the Modern School of Shelton, N. J. There is also a supplementary advertisement of Dr. Liber's independent magazine called *Rational Life,* which is devoted to such subjects as "Birth Control," "Drugless Treatment of Diseases" and "Vegetarianism." Most rational persons would differ with Dr. Liber's conception of the rational up-bringing of children.

Miscellany

SHEPPARD-TOWNER MATERNITY ACT REJECTED BY MAINE

The governor of Maine has rejected, on behalf of the state of Maine, the Sheppard-Towner Maternity Act. His rejection holds good at least until the next legislature convenes. In a proclamation, issued July 17, he said, in part:

"I believe the time has come for the states of the Union to hold to a principle and to carefully scrutinize all offers of 'federal aid' before accepting them. Having no doubt as to what my duty is in this matter, I decline to accept the Sheppard-Towner bill, and this state for the time being will stand with New York, Massachusetts and Rhode Island, the three states that have rejected it. The state of Maine will not sell its birthright; and principle, not expediency, has been the determining factor with me in the solution of this problem.

"The people of Maine are willing and able to care for their own mothers and children, and I have faith to believe that Maine men and women will do this rather than accept so-called gratuities from a federal bureau.

"The Sheppard-Towner bill is to be attacked in the courts by the commonwealth of Massachusetts, and eminent lawyers are of the opinion that the federal government has no power over the states in maternity and child welfare matters. There also is grave doubt as to whether or not the governor of a state has the power to accept the bill in question, even though Congress attempts to confer that power upon him. The governor of a state does not derive his authority from the federal government, and a federal bill that seeks to confer new power upon him is of questionable standing.

"The existing provisions of the Sheppard-Towner bill are reasonably moderate, but it properly may be assumed that attempts will be made to broaden its scope so as to further restrict the state's control over its own affairs. It is apparent that the present bill is but an entering wedge for more radical legislation, and Maine's delegation in Congress, our senators and representatives, should be urged to resist all further encroachments upon the states by the federal government. Maine will loyally support the Union in all matters that come under the provisions of the federal constitution, but the time has arrived when the people of this state will jealously guard the rights inherent in them as a sovereign people, and will accept the responsibilities the possession of such rights imposes.

"In years gone by the state of Maine has not hesitated to stand for great principles, and it is well for the forty-four states that have accepted the Sheppard-Towner bill to know that Maine neither asks for, nor for the time being accepts, federal aid for its mothers and children."

DRINKING WATER ON TRAINS

The Interstate Quarantine Regulations require common carriers to provide water for drinking and culinary purposes that is of satisfactory sanitary quality; further, that cooled water shall be handled in such a manner as to prevent contact with the ice. The drinking water supplied in trains in the coach yards of Chicago and of other terminal cities of the Middle West was recently studied by A. E. Gorman, assistant sanitary engineer, U. S. Public Health Service. He found that the railroad companies in nearly every instance were making an honest effort to meet the requirements of the quarantine regulations. However, owing largely to a lack of understanding of sanitary practices, some yard and coach foremen were permitting serious insanitary practices. The most dangerous filth common to coach yards is fecal matter apparently dropped from the toilets of cars. These droppings are altogether too common, and when eliminated, a big factor in jeopardizing the drinking water supplied cars will be removed. Yard trainmen and other employees, Gorman recommends, should be forbidden to use the car toilets. Water tanks are filled usually by means of the ordinary garden hose, which in some yards is dragged along the ground from car to car with no protection to the ends. The hose is often leaky, or the free end may be frayed, and while it is being dragged, filth may enter the hose or contaminate the ends. In sterilizing water coolers, Gorman found that the cooler was often placed on the ground, over a short piece of air hose. Steam lines were seen in two instances in Chicago actually lying in fecal deposits. The steam table used by some yards is commendable. Handling ice for water coolers is difficult, and employees sometimes put small pieces of ice in the coolers that have not been washed after falling to the ground. Separate ice and water compartments will, when generally used, remove much of the danger from contaminated ice. But even when separate compartments were in use, ice was found in many cases in both compartments. Separate openings should be provided for filling ice and water compartments in coolers. Gorman believes that health officials and railroad officials should confer on the matter of standardizing coach yard design, and the manner of handling ice and water.

CONFERENCE ON VENEREAL DISEASES

The Northern European Red Cross Conference, which met in Copenhagen in May, 1921, and which comprised delegations from England, Germany, Holland, Denmark, Norway, Sweden and Finland, adopted, among others, the following resolutions:

> The questions of compulsory notifications and of compulsory treatment, being dependent on the experience, resources and psychology of the people concerned in each country, must be decided by individual nations.
>
> The regulation and official toleration of professional prostitution have been found to be medically useless as a check on the spread of venereal diseases, and may even prove positively harmful, tending as they do to give official sanction to a vicious traffic.
>
> Enlightenment of the general public on lines which are best calculated to minimize exposure to infection, and which emphasize the necessity of thorough treatment, is an essential part of any scheme for the combating of venereal diseases. Instruction should particularly be addressed to parents and teachers in such a form as will enable them to give clear information on the reproduction of life and impress on adolescents the importance of individual responsibility to future generations. In the training of teachers, special courses on these subjects should be provided.

Medicolegal

Osteopath's License Held Properly Revoked

(Harlan v. Alderson et al. (Calif.), 203 Pac. R. 1014)

The District Court of Appeal of California, First District, Division 1, in reversing a judgment that annulled an order of the board of medical examiners which revoked respondent Harlan's license to practice osteopathy in that state, says that in 1916 he was granted a reciprocity certificate to practice osteopathy, and early in 1920 proceedings were initiated before the board by a verified complaint against the respondent, charging him with a violation of the ninth subdivision of Section 14 of Chapter 354 of the Statutes of 1913, as amended in 1915, 1917, and 1919. The uncontradicted evidence introduced at the hearing showed that he wrote prescriptions and performed both minor and major surgery and engaged in the unlicensed practice of medicine and surgery. The question presented to this court was whether or not the case fell within the provisions of Subdivision 9 of Section 14 of the Act of 1913, which provides what shall constitute misconduct which shall warrant the board of medical examiners in revoking a license granted under the provisions of this act, and which reads:

> Ninth. The use, by the holder of a "drugless practitioner certificate," of drugs or what are known as medicinal preparations, in or upon any human being, or the severing or penetrating by the holder of said "drugless practitioner certificate" of the tissues of any human being in the treatment of any disease, injury, deformity, or other physical or mental condition of such human being, excepting the severing of the umbilical cord.

The court thinks it did so fall. The well-settled definitions of osteopathy, both in the decisions and in the dictionaries, uniformly hold that the system of osteopathy "uses no drugs. . . . It administers no drugs; it uses no knife. . . . As a remedy a form of manipulation is used." Wherefore, under the present classification, there can be no doubt that one holding an osteopath's license issued prior to the act of 1913, or subsequent thereto on the basis of a previously secured license from another state, would, if originally licensed in California since the Act of 1913, be licensed as a "drugless practitioner." And, by virtue of Section 21, proceedings for the revocation of a reciprocity certificate must be had under the section under which such certificate would have been issued if originally issued under the provisions of this act.

A hearing was denied by the Supreme Court of California.

Opinions of What Might Be Expected from Injuries

(Posch v. Payne, Director General of Railroads (Minn.), 186 N. W. R. 132)

The Supreme Court of Minnesota says that the plaintiff on alighting from a train, Oct. 25, 1919, fell on a sloping platform. A physician was called to attend her, and, mainly from complaint of pain, diagnosed the principal injury as an impacted fracture of the right leg. The plaintiff was treated accordingly. The evidence on the trial made it reasonably clear that the leg was not broken at all. Then, in June or early in July, 1920, the plaintiff became pregnant, and there was a miscarriage in September, which she claimed was a natural and proximate result of the injury. She also claimed that, as a result of her injury, which affected her nerves, she lost in a measure the sense of hearing in her left ear, although by the fall she suffered no injury to the ear, nor to her head, so far as the evidence showed. She was given a verdict for $10,000 damages. In reversing an order denying a new trial, the supreme court holds that it was prejudicial error to refuse requested instructions withdrawing the items of miscarriage and deafness from the consideration of the jury on the question of damages. That the accident or fall on the station platform so injured or disarranged the internal organs of the plaintiff as to render miscarriage more likely to result from pregnancy subsequently occurring was not shown by any reliable evidence, and the opinion of the medical expert to that effect was altogether too speculative and conjectural to furnish a basis for legal liability against the original wrongdoer. The case would be entirely different had pregnancy existed at the time of the accident. And whatever deafness she experienced was but theoretically traced by her medical expert witness to the nervousness brought on as one of the results of the accident.

The opinions of medical experts as to conditions naturally to be anticipated and expected to follow from given personal injuries are of great value to courts as aids in the determination of questions of that character, and entitled to serious attention and consideration in the pronouncing of judgment thereon. Such opinions, however, are not controlling on the court, and the value and probative force thereof diminishes in proportion as the evidence indicates clearly to the practical lay mind a professional entry for support into the field of theoretical uncertainties and doubts. Such the court believes the field drawn from in this case by the expert, who attributed the plaintiff's subsequent ailments in the particulars stated as a probable consequence and result of the accident in alighting from the train at the time in question. For the error in submitting to the jury the elements of damage referred to, there must be a new trial.

Physician Entitled to Jury Trial on Claim

(In re Stein's Estate (N. Y.), 193 N. Y. Supp. 298)

The Supreme Court of New York, Appellate Division, Fourth Department, says that in December, 1918, a physician presented a verified claim against the estate of one Stein, deceased, for $81,461.01, for professional services rendered to said Stein under a contract. In April, 1919, the executor rejected the claim by written notice served on the claimant. More than a year elapsed, and nothing was done by the executor toward settling the estate or adjusting this claim; and in May, 1920, the claimant began a proceeding in the surrogate's court for an accounting. There was much delay on the part of the executor in filing his account, and many adjournments were had. Finally, a formal written demand for a jury trial of the issues was filed by the claimant. The surrogate determined that the claimant was entitled to have the issues tried by a jury as a matter of right, and made an order accordingly, which order is here affirmed. The claim was for professional services alleged to have been rendered by the claimant as a physician and based on a contract, and so long as he made claim for a sum of money only, the granting to him of the right to have the controverted issues of fact tried by a jury on the judicial settlement was simply affording a procedure in the surrogate's court similar to the procedure a claimant had always been entitled to adopt in a common law action in the supreme court of New York. The demand for a jury trial in this case was seasonably made and was never waived. The claimant had a right to bring his action in the supreme court within the time provided by statute, or have a trial in the surrogate's court on the judicial settlement of the estate; but with equal rights to a jury trial in both cases.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Minneapolis, Sept. 19-23. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Sec'y.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Albany, N. Y., Sept. 19-21. Dr. James E. Davis, 111 Josephine Ave., Detroit, Secretary.

American Electro-Therapeutic Association, New York, Sept. 19-22. Dr. A. Bern Hirsh, 71 W. 94th St., New York, Secretary.

American Roentgen Ray Society, Los Angeles, Sept. 12-16. Dr. H. E. Potter, 122 S. Michigan Ave., Chicago, Secretary.

Indiana State Medical Association, Muncie, Sept. 27-29. Dr. Charles N. Combs, Terre Haute, Secretary.

Missouri Valley, Medical Society of the, St. Joseph, Mo., Sept. 21-22. Dr. Charles W. Fassett, 115 E. 31st St., Kansas City, Mo., Secretary.

Utah State Medical Association, Salt Lake City, Aug. 31-Sept. 2. Dr. W. L. Rich, Boston Bldg., Salt Lake City, Secretary.

Washington State Medical Association, Tacoma, Sept. 5-6. Dr. C. H. Thomson, 508 Cobb Bldg., Seattle, Secretary.

Wisconsin, State Medical Society of, Green Lake, Sept. 6-8. Dr. Rock Sleyster, Wauwatosa, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Neurology and Psychiatry, Chicago

July, 1922, 8, No. 1

*Chronic Epidemic Encephalitis. W. F. Schaller and J. Oliver, San Francisco.—p. 1.

*Sugar Content of Blood and Spinal Fluid in Epidemic Encephalitis. W. Thalhimer and H. Updegraff, Milwaukee.—p. 15.

Xanthochromia Due to Acute, Purulent Spinal Meningitis. G. Horrax, Boston.—p. 24.

*Use of Dyes in Localization of Spinal Cord Tumors at Operation. L. Selling, Portland, Ore.—p. 27.

*Cerebrospinal Fluid and Blood in Multiple Sclerosis. J. B. Ayer and H. E. Foster, Boston.—p. 31.

Symptomatology of Epidemic Encephalitis. F. Kennedy, T. K. Davis and G. H. Hyslop, New York.—p. 40.

*Exogenous Causes of Multiple Sclerosis. L. F. Barker, Baltimore.—p. 47.

*Multiple Sclerosis from Standpoint of Geographic Distribution. C. B. Davenport, Cold Spring Harbor, L. I., N. Y.—p. 51.

*Statistics of Multiple Sclerosis. I. S. Wechsler, New York.—p. 59.

Chronic Epidemic Encephalitis.—The case of epidemic encephalitis reported by Schaller and Oliver, representing both clinical and anatomic examinations, is of particular interest because of the persisting inflammatory brain changes after fourteen months, and also because complaints of abdominal pain, muscle spasm and gastric distress thought to be due to local causes ultimately led to an exploratory laparotomy. This exploration revealed no pathologic condition to account satisfactorily for the abdominal symptoms, and the final analysis of the case explained these symptoms as being due to brain lesions.

Sugar in Blood and Spinal Fluid in Epidemic Encephalitis.—Thalhimer and Updegraff found that in epidemic encephalitis the sugar content of the blood and spinal fluid is increased, but only after a certain level of blood sugar has been reached. At present hyperglycorrhachia can be used chiefly to differentiate epidemic encephalitis from the two conditions with which it is most likely to be confused—tuberculous meningitis and early poliomyelitis.

Localization of Spinal Cord Tumors by Dyes.—The method described by Selling consists of two steps: first, the demonstration of spinal subarachnoid block, by the Ayer method; second, the injection of a dye into the cisterna magna, or into the lumbar subarachnoid space. The injection is made immediately prior to operation. Assuming that the lumbar route has been used, the dye will diffuse through the subarachnoid space up to the lower pole of the tumor. The existence of a subarachnoid block will prevent its going beyond this point. If the laminectomy opening is below the tumor, on opening the dura a deep blue stained fluid will be encountered. The laminectomy must then be extended upward. If, on the other hand, the laminectomy has been above the level of the tumor, on opening the dura a colorless fluid will be encountered. The opening must then be continued downward.

Cerebrospinal Fluid in Multiple Sclerosis.—The spinal fluid findings in thirty-eight cases of multiple sclerosis, together with certain blood examinations in a number of these, are given by Ayer and Foster. They state that there is no single fluid test of paramount value in the diagnosis of multiple sclerosis. However, correlation of all tests ordinarily performed on the spinal fluid indicates that it is seldom entirely normal, and that in 50 per cent. of the cases of this series findings unusual in other diseases were obtained. This group of findings, which the authors consider important, is as follows: fluid of normal appearance, obtained under normal or low pressure as registered by the manometer, showing a slight increase in cells (lymphocytes and arachnoid mononuclears); total protein normal or only slightly increased; globulin, a slight trace or absent, and a paretic colloidal gold curve with a negative Wassermann reaction. Correlation with the clinical picture suggests that this type of fluid indicates a progressive stage of multiple sclerosis. Conversely, normal or nearly normal fluids were found primarily in patients in whom no clinical progress had recently been apparent. Results of certain chemical studies designed to show disorders of metabolism in this disease, performed on blood and spinal fluid, were normal.

Exogenous Causes of Multiple Sclerosis.—The possible exogenous causes considered by Barker are: (1) the influence of earlier infections; (2) the influence of intoxications; (3) thermal and electrical influences, and (4) trauma. If the exogenous factors mentioned play any rôle at all in the etiology of the disease, Barker says, they must act either as predisposing influences for the true cause or as aggravators of a disease already started by the true cause.

Geographic Distribution of Multiple Sclerosis.—The results of the tabulation of multiple sclerosis as one of the defects found in drafted men are plotted by Davenport and the results discussed. It shows that the maximum rate for this disease was found in Michigan and Minnesota, in which there were eighteen persons with this disease per 100,000. Excepting Delaware and the District of Columbia (whose rates depend on one and two cases, respectively), the next highest ratio is that for Wisconsin, fourteen per 100,000. That these states with a high ratio for multiple sclerosis are adjacent states, bordering on the Great Lakes, is regarded by Davenport as of great interest. In discussing the etiology of this disease Davenport suggests that the factor of heredity cannot be left out of consideration.

Statistics of Multiple Sclerosis.—Wechsler's study is based on the records of 1,970 cases of multiple sclerosis and includes the infantile, congenital, familial and hereditary forms and the mental and psychic symptoms.

Archives of Occupational Therapy, Baltimore

June, 1922, **1**, No. 3

Psychology of Occupational Therapy. E. Bowman, Baltimore.—p. 171.
Scope of Occupational Therapy and Requirements for Training of Occupational Aides. E. G. Brackett.—p. 179.
Training of Occupational Aide. J. D. Adams, Boston.—p. 187.
Industrial Case from Accident Back to Job. H. B. Goodman, Milwaukee.—p. 193.
Experience with Tuberculous Patients. G. Sample.—p. 205.
Report of Round Table on Wood-Work and Their Finishings. A. H. Dean, St. Louis.—p. 215.
Fifth Annual Meeting of National Society for Promotion of Occupational Therapy.—p. 219.

Boston Medical and Surgical Journal

July 6, 1922, **187**, No. 1

Endometrial Hematomas of Ovary. J. V. Meigs, Boston.—p. 1.
*Social History in Relation to Heart Patients. W. D. Reid, Boston.—p. 13.
Modern Aspects of Acute Empyema. W. Whittemore, Boston.—p. 16.
Acute Ethmoiditis with Orbital Abscess. Case Report. H. J. Gibby, Worcester, Mass.—p. 19.
Heart Disease in Industry. W. I. Clark, Jr., Worcester, Mass.—p. 21.
*Infantile Heart in Adult Life. L. F. Bishop, New York.—p. 23.

Social History in Heart Disease.—Four cases are cited by Reid illustrating the importance of the social history in patients of an outpatient heart clinic. The social history often discloses why certain patients fail to make an expected improvement. At times the skilful utilization of such data greatly increases the therapeutic success achieved. The social history may contain information of value in the diagnosis of that type of patient held to have an "irritable heart." Attention to the social history opens up a big, broad, humanitarian side of the practice of medicine. Further justification of emphasis of the social history is found in that it keeps alive the fact that patients are not mere medical cases, but living human beings.

Infantile Heart in Adult Life.—The infantile heart, Bishop says, is met with as a recognizable condition from the tenth year onward. The man with an infantile heart can go as far as he will, without injury to the heart, because his wind gives out and he must stop. The syndrome of an infantile heart is a right predominance, sinus arrhythmia, a history of palpitation, and a soft blowing murmur above and to the left of the middle of the sternum. The fluoroscope usually shows besides a centrally located heart shadow, a fairly definite predominance in the region of the conus. An interesting problem has been the recognition of this condition in later life. On several occasions, Bishop says, he could surmise that this condition had existed in the early life of people who later developed extremely high blood pressures (230 and 240, and the like), which could not be accounted for in any way, and which were carried with an unusual degree of tolerance. They differ from the ordinary high blood pressure cases in that their hearts are not markedly the subject of a left predominance. There may even be a right predominance at an advanced age. A certain number of infantile hearts seem later to conform to the normal type. In other words, in popular language, the condition is outgrown.

California State Journal of Medicine, San Francisco

June, 1922, **20**, No. 6

Accomplishments and Problems of Medical Society of State of California. J. H. Graves, San Francisco.—p. 179.
Governmental Activities and Tendencies in Health Field. W. V. Brem, Los Angeles.—p. 181.
What General Practitioner Can Do to Improve Diagnosis and Treatment of Diseases of Children. L. Porter, San Francisco.—p. 185.
*Common Parasitic Dermatoses in Southern California. M. Scholtz, Los Angeles.—p. 190.
Factors Contributing to Success or Failure in Group Medicine. E. V. Frederick, Reno, Nev.—p. 192.
*Basic Diets in Treatment of Nephritis. W. D. Sansum, Santa Barbara.—p. 194.
Cardiac Dyspnea or Rather Cardiac Shortness of Breath. H. Spiro, San Francisco.—p. 198.
Place of Pathology in Practice of Medicine. W. V. Brem, Los Angeles.—p. 201.

Common Parasitic Dermatoses in Southern California.—Ectogenous parasitic dermatoses, according to Scholtz, make up about 30 per cent. of the total number of skin diseases in Southern California. The most widespread in the order of frequency are streptodermias, tinea, scabies and staphylodermias. Scholtz urges that a more thorough isolation of skin lesions caused by streptococci, staphylococci, tinea and scabies should be enforced in schools and in homes. A sanitary inspection of domestic animals, particularly dogs and cats, in all homes from which cases of tinea are reported, is highly desirable, as these animals seem to be the main agencies in spreading tinea. Cases of tinea and scabies should be reportable.

Basic Diet in Nephritis.—Sansum asserts that by the employment of what he terms a "basic diet," the urinary acidity may easily be reduced to a p_H of 7 or better. On such diets patients with chronic interstitial nephritis appear to improve, as evidenced by a decrease in blood pressure, albumin and casts in the urine and other symptoms of nephritis and arterial hypertension.

Endocrinology, Los Angeles

May, 1922, **6**, No. 3

Diabetes Insipidus; Its Pathogenesis and Therapeutics. T. Stenstrom, Lund, Sweden.—p. 365.
Pseudohermaphritic Cock. C. J. and C. Parhon, Roumania.—p. 383.
*Clinical Study of Patient Suffering from Intense Thirst and Polyuria (Diabetes Insipidus) and Presenting Roentgen-Ray Evidence of Malignant Processes in Cranial Bones, Possibly Late Metastases of Mammary Carcinoma. E. S. Cross, Baltimore.—p. 387.
Changes Produced in Larval Brain of Rana Pipiens by Thyroid Feeding. W. B. Cooksey, Lawrence, Kan.—p. 393.
Some Factors Which Modify Epinephrin Reaction. J. B. Collip, Toronto.—p. 402.

Diabetes Insipidus Symptoms Coincident with Breast Cancer Metastasis in Skull.—Cross' patient was a woman, aged 58, who complained chiefly of excessive thirst, of very frequent urination, of weakness, of peculiar morning vomiting and of marked disability in the lower part of the back. At 48 the left breast was removed by a competent surgeon because of a tumor, supposed to be a carcinoma. The present illness had its beginning seven months before consultation. Summing up the situation, the principal features were as follows: (1) loss of weight and strength; (2) gastric symptoms, including nausea, morning vomiting and anorexia; (3) polyuria and polydipsia; (4) disability of the spine. Of these, the fourth was easily explicable, apparently, on the basis of roentgen-ray findings of infectious arthritis of the spine. No local cause had been found for the gastric symptoms. Urinary studies, blood findings and blood pressure were all rather against the polyuria being a manifestation of chronic nephritis, and there was nothing to suggest that it was of hysterical origin. Roentgen-ray studies of the skull showed scattered through the cranial bones, particularly in the parietal and frontal regions, numerous rarefied areas of bone destruction, showing no evidence of new bone formation; the process in the bones was apparently invasive in character, in every way resembling the changes in malignancy. The patient died on the third day of coma. Cross regards the case as one of multiple, malignant metastases in the bones of the skull, at the base of the brain, and, possibly, also in the lumbar spine. It is probable that the involvement of the base of the brain affected the mechanism regulating water metabolism, so that symptoms of mild diabetes insipidus developed. The origin of the metastases is uncertain, but it is quite possible that they were secondary to the breast cancer removed ten years before.

Florida Medical Association Journal, St. Augustine and Jacksonville

May, 1922, **8**, No. 11

Preventable Deformities of Lower Extremity. H. C. Dozier, Ft. Sheridan, Ill.—p. 195.
Diagnosis of Chronic Cholecystitis. R. R. Sullivan, Lakeland, Fla.—p. 207.

June, 1922, **8**, No. 12

Roentgen-Ray Treatment of Tonsils and Adenoids. L. W. Cunningham, Jacksonville.—p. 213.
Epilepsy Report of Cases of Apparent Cure Surgically. L. C. Fischer, Atlanta, Ga.—p. 214.
Trachoma and Conjunctival Folliculosis. A. K. Wilson, Jacksonville.—p. 219.

Indiana State Medical Association Journal, Ft. Wayne

May, 1922, **15**, No. 5

Streptococcic Osteomyelitis of Temporal Bone. H. Boyd-Snee, South Bend.—p. 147.
Some Problems in Syphilis. R. V. Hoffman, South Bend.—p. 152.
What General Practitioner Can Do in Otology. D. O. Kearby, Indianapolis.—p. 155.
Sand Bur in Larynx. G. F. Keiper, Lafayette.—p. 161.
Medical Sermon. F. E. Jackson, Indianapolis.—p. 163.

June, 1922, **15**, No. 6

Osteitis Fibrosa Cystica. V. H. Moon, Indianapolis.—p. 185.
Puerperal Eclampsia. J. Ketcham, Indianapolis.—p. 187.
Operative Injury of Hepatic and Common Bile Ducts. H. K. Bonn, Indianapolis.—p. 192.
Ludwig's Angina. W. F. Molt, Indianapolis.—p. 196.
Physical Inequality of School Children. G. W. Spohn, Elkhart.—p. 200.

Journal of Infectious Diseases, Chicago

June, 1922, **30**, No. 6

*Occurrence of Endameba Histolytica with Tissue Lesions in Testis and Epididymis in Chronic Dysentery. A. S. Warthin.—p. 559.
*Excretion of Spirochaeta Pallida Through Kidneys. A. S. Warthin.—p. 569.
Staining of Spirochetes in Cover Glass Smears by Silver-Agar Method. A. S. Warthin and A. C. Starry, Ann Arbor, Mich.—p. 592.
*Unusual Case of Nocardiosis. G. R. Callender and J. F. Coupal, Washington, D. C.—p. 601.
Peculiar Failure of Hemolytic Action in Strain of Hemolytic Streptococcus. E. Valentine, New York.—p. 610.
Bacteriologic Studies of Gastric Fractions Obtained by Rehfuss Method. N. Kopeloff, New York.—p. 613.
Precipitin Reaction in Determination of Infectivity of Gonorrheal Discharges. M. F. Kelley.—p. 623.
*Ameba-Like Organism in Kidneys of Child. L. Jackson, Chicago.—p. 636.
Bacteriophage Phenomena with Staphylococcus Aureus. B. R. Callow, New York.—p. 643.
Hydrogen-Ion Studies. III. Hydrogen-Ion Changes in Agglutination of Bacteria by Immune Serum. E. F. Hirsch, Chicago.—p. 651.
Id. IV. Changes in Reaction Accompanying Precipitation of Colloidal Gold by Spinal Fluid (Lange Test). E. F. Hirsch.—p. 658.
Id. V. Changes in Reaction of Blood in Experimental Infections. E. F. Hirsch and J. L. Williams, Chicago.—p. 664.
Id. VI. Hydrogen-Ion Changes on Precipitation of Human Serum by Immune Serum. E. F. Hirsch, Chicago.—p. 666.
Production of Lung Hemorrhages and Associated Phenomena in Rabbits and Guinea-Pigs. S. E. Branham, Chicago.—p. 670.

Endameba Histolytica in Testes in Dysentery.—Warthin's case presents the unique occurrence of the metastasis of *Endameba histolytica* to epididymides and testes with definite, though slight, local lesions in these organs, in a patient affected for many years with amebic dysentery, at the time of death nearly completely healed, with disappearance of amebas from the stools. It is the first recorded instance of such a localization of *Endameba histolytica,* and presents additional evidence of the mildly pathogenic character of this parasite, in the slight tissue destruction caused by it and its phagocytosis of red blood cells and spermatozoa. A point of some interest is the localization of the small lesions in the rete testes and tubuli efferentes, with long streaming clots extending upward into the epididymis, the amebas being held within these clots. In the dilated semen filled portions of the epididymis the organisms were found in greater numbers and free in the semen. Their commensal character is shown by the phagocytosis of red blood cells in the clots, and by that of spermatozoa in the semen particularly; that is, they show the same tendency in the semen to feed on substances contained in it as they do on the substances in the intestinal contents.

Excretion of Spirochete by Kidneys.—In three cases of congenital syphilis studied by Warthin, one of a child dying at birth, another dying eight days after birth, and the third at 3½ years of age, the kidneys presented an unusual degree of spirochete localization with definite lesions. In two cases of acquired syphilis, those of a young man with a roseolar eruption and a young woman with maculopapular eruption, both dying from arsphenamin poisoning, a similar localization of spirochetes in the kidneys with positive evidences of excretion through the renal epithelium into the tubules was observed. Identical conditions and changes were present in all five of these cases. No arsphenamin treatment had been administered to the patient with the congenital case dying soon after birth or to the child of 3½ years; but it had been given to the child dying at 8 days of age, and the death was supposed to have been due to the treatment. The child of 3½ years of age had albuminuria and symptoms suggesting poliomyelitis; the young woman of 23 years had casts and albuminuria; the urine of the young man had not been examined. He was suppo edly in good condition, except for the chancre and the roseolar eruption.

Nocardiosis of Lung.—The patient whose case is cited by Callender and Coupal, two years before death, inhaled into his right bronchus a chicken vertebra. He minimized the importance of the size of the bone and repeated roentgen-ray examinations failed to reveal it. A few months after the accident the patient had a severe attack of "influenza" with pneumonia, which was especially localized on the right side. A year later there was a train of symptoms of the same character. During the interim the patient was in comparatively good health. Following this second attack until his death (a period of seven months) the patient gradually failed. He had a cough, high temperature, pain in the right side and shortness of breath. Bacteriologic examinations were negative but physical examination and roentgenograms indicated a tuberculous process. Two weeks before death there was evidence of embolic processes as indicated by the cerebral attack and the abscess on the leg. Signs were found of old tuberculosis of the apexes. It is impossible to determine accurately the exact onset of the infection with nocardia. It seems not unreasonable to suppose that the focus of diminished resistance produced by the bone in the bronchus gave a satisfactory lodging place for this organism, which probably came from the mouth and that it slowly developed during the last seven months of the patient's life, then by its formation of abscesses it gained access to the blood stream and produced a nocardial pyemia during the last two weeks. The organism belongs to the streptothrix group and is a rather unusual type in that it is apparently an absolute anaerobe.

Ameba in Kidneys.—An ameba-like organism, the apparent cause of an acute parenchymatous nephritis, was found by Jackson in the kidneys of a child, 15 months old, who died suddenly in a convulsion. Neither the gross nor histologic examination of the tissues revealed any other apparently sufficient cause of death. Three reports are found in the literature of the occurrence of somewhat similar organisms in the kidneys, twice in syphilitic fetuses and once in a stillborn, nonsyphilitic child.

Journal of Urology, Baltimore

June, 1922, **7**, No. 6

Some Disputed Points Regarding Prostatectomy. A. L. Chute, Boston.—p. 417.
Pneumoperitoneum in Kidney Diagnosis with Special Reference to Detection of Retroperitoneal Masses. L. R. Sante, St. Louis.—p. 451.
Extension of Hypernephroma by Way of Renal Vein. L. D. Keyser and G. S. Foulds, Rochester, Minn.—p. 463.
Relation of Colon Bacilli of Fenal Infections to Strains from Other Sources and Observations on Hemolytic Colon Bacilli. R. D. Herrold, Chicago.—p. 473.
Pyelitis of Pregnancy. W. G. Sexton, Marshfield, Wis.—p. 481.
New Sign in Diagnosis of Ureteral Stones. B. Lewis, St. Louis.—p. 487.
Human Bladder Muscle Under Increased Tension. J. C. Baldwin, Baltimore.—p. 499.
Scrotal Bandages. C. W. Collings, New York.—p. 501.

Michigan State Medical Society Journal, Grand Rapids

June, 1922, **21**, No. 6

Hygiene, Public Health and Physical Education at University of Michigan. J. Sundwall, Ann Arbor.—p. 235.
*Complications of Diabetes Mellitus. P. L. Marsh, Ann Arbor.—p. 238.
*Case of Portal Cirrhosis in Child, with Operation (Talma-Morrison). M. B. Kay and N. Ginsburg, Detroit.—p. 244.
Actinotherapy in Infection. A. E. Schiller, Detroit.—p. 247.
*Convalescent Human Serum in Treatment of Severe Cases of Scarlet Fever; Review of Literature. B. Bernbaum, Detroit.—p. 249.
*Treatment of Diphtheria by Intravenous Injections of Diphtheria Antitoxin. H. K. Sachs, Detroit.—p. 252.
Quartz Light Therapy in Pelvic Inflammation. L. C. Donnelly, Detroit.—p. 254.

Complications of Diabetes Mellitus.—The more important complications of diabetes mellitus are discussed by Marsh. It is pointed out that some of the complications are important because of their effect on the diabetes, some because of the effect of the diabetes on the complications and some because they are distressing to the patient and may be fatal. The importance of prophylaxis of most of these complications by thorough dietetic treatment of even the mildest cases of diabetes is emphasized. Attention is called to the fact that success in the treatment of complications may be expected only if the diabetes is kept under control.

Portal Cirrhosis in Child with Operation.—The case reported by Kay and Ginsberg is one of the undoubted cases of alcoholic cirrhosis and in addition is a presentation of the only case of cirrhosis of the liver in childhood that has been treated by the Talma-Morrison operation (though with a fatal outcome). The boy, aged 11, developed the habit of taking drinks of an alcoholic beverage, which he described as vodka, stating that it was very strong and hard to take at first, but he soon became accustomed to it and learned to take it and enjoy it, receiving a small glassful three times a day. He never reached the stage of intoxication. His drinking periods extended over three months a year for three years. The father noticed that the boy's abdomen began to enlarge and as he aptly put it, "the belly got bigger and the boy littler." The size of the abdomen increased steadily. During this period the boy had periodic attacks of vomiting. On one occasion hematemesis occurred. Emaciation had been continuous and rather marked, accompanied by an increasing cachexia.

Convalescent Human Serum in Treatment of Scarlet Fever.—Bernbaum reports on an analysis of thirty-nine cases of scarlet fever treated at the Herman Kiefer Hospital with convalescent serum for the year ending July 1, 1921. Thirty-two patients lived and seven died. Of the seven who died, two were practically moribund, one died within twenty-one hours and the other eighteen hours after entrance; one after eight days of acute hemorrhagic nephritis, one after eight days of septic complications. Three died of toxemia. Two of these received only 10 c.c. of serum and one 20 c.c. Of the thirty-two surviving cases, twenty were toxic and twelve had septic complications. The average dose was from 10 to 35 c.c., intramuscularly. The serum was administered from the third to the eighth day of the disease. Children responded as well as adults. Eighteen cases were treated so far the fiscal year, beginning July 1, 1921. These were the most severe of all cases of scarlet fever admitted since that date. Of these eighteen, five died. One died of pneumonia and sepsis after two weeks. One died in twenty-four hours from myocardial failure. One died of general sepsis following extensive adenitis. One was sick one week before entrance, came into hospital almost moribund and died within fourteen hours. One died of toxemia, but had received only 30 c.c. of blood, which is equivalent to about 10 to 12 c.c. of serum. Even some of these cases showed improvement after the administration of serum. Of the thirteen recovered cases, four were of the pure toxic type. The blood was taken from healthy donors, Wassermann negative in the fourth or fifth week of the disease. The serum was injected intramuscularly in all cases. The blood was obtained from the median cephalic vein of the donors by the syringe method or into a mouth suction bottle. Fresh whole blood, citrated whole blood, centrifuged citrated blood, serum from defibrinated blood, citrated blood run through a Berkefield filter and decanted serum after standing were used. The effect from the serum obtained in any way was identical.

Diphtheria Antitoxin Administered Intravenously.—Sachs states that antitoxin should be given intravenously only in severe cases in which there are present excessive membrane and toxemia.

New York Medical Journal and Medical Record

July 5, 1922, **116**, No. 1

Radium Therapy in Certain Gynecologic Conditions. S. Tousey, New York.—p. 1.
Uses of Radium in Gynecology. T. H. Cherry, New York.—p. 6.
*Two Complicated Deliveries Requiring Cesarean Section. J. C. Applegate, Philadelphia.—p. 9.
Once Cesarean Always Cesarean. E. B. Piper, Philadelphia.—p. 10.
Résumé of Some Recent Advances in Gynecology. W. T. Dannreuther, New York.—p. 12.
*Carcinoma of Cervix Uteri in Nulliparous Woman. F. C. Hammond, Philadelphia.—p. 14.
Suppurating Uterine Myoma. W. E. Darnall, Atlantic City, N. J.—p. 17.
Etiology of Eclampsia. W. L. Culbertson, Philadelphia.—p. 19.
Ascertaining Viability of Fetus. L. Drosin, New York.—p. 20.
Natural Limit of Duration of Human Gestation. J. Oliver, London, Eng.—p. 22.
Tuberculosis and Pregnancy. H. Schwatt, New York.—p. 24.
Gonorrhea in Women from Aspect of Focal Infection. F. W. Langstroth, New York.—p. 26.
*Ovarian Therapy in Involutional Melancholia. E. A. Strecker and B. L. Keyes, Philadelphia.—p. 30.
One Hundred Cases of Postpartum Hemorrhage. M. Hornstein, New York.—p. 34.
*Case of Pregnancy Following Menopause. M. L. Brandt, New York.—p. 38.
Plea for Oophorotomy on All Pathologic Ovaries and Resection of Disease Tissue. S. Rottenberg and G. Schwartz, New York.—p. 39.
New Virgin Vaginal Speculum. G. E. Garnes, Herkimer, N. Y.—p. 40.

Two Cases of Cesarean Section.—One of Applegate's patients had a large uterine fibroid, the nature of the dystocia being undetermined in the beginning; the other case was a breech presentation in a primipara with a pelvis below normal in dimensions and a fetal head oversize and greatly out of proportion to the pelvis.

Carcinoma of Cervix in Nullipara.—Hammond reports nine cases. Only one of the patients was under 30. He urges that a careful history be taken of every case of pelvic disease, more especially when bleeding is a symptom, and, the physician must not be influenced by the age or social status of the woman; when making a pelvic examination, the patient must be approached with the firm determination of making a positive diagnosis.

Ovarian Therapy in Involutional Melancholia.—Although no definite connection between any of the symptoms of so-called involutional depression and ovarian function has been determined by Strecker and Keyes, it seems probable that in a limited number of patients the injection of ovarian extracts exerts a favorable influence on the general physical status and perhaps more particularly it lowers and stabilizes the blood pressure, while possibly in a small group a corresponding helpful influence is exerted on the course of the psychosis. The most important and definite physical changes resulting from experiments made on all fourteen patients were a drop in diastolic blood pressure and in eleven patients a drop in systolic pressure; ten patients gained in weight, six improved markedly in appetite, six showed improvement in quantity and quality of sleep, one reestablished menstruation after an absence of seventeen months, in one there developed a decided improvement in troublesome menstrual manifestations, and eight showed rise in the percentage of eosinophils. No one patient is any worse than before medication started and there is a noticeable improvement in the general physical condition of the group as a whole.

Pregnancy Following Menopause.—Brandt found only five other authentic cases of pregnancy occurring after menopause in the literature. His patient was 46 years of age. Her last menstrual period occurred in June, 1916. In May, 1919, she was delivered of a male child weighing 9 pounds. Incidentally, this child showed all the signs of achondroplasia. Ten months after the birth of the child, the patient, after weaning the baby, began to menstruate and had three normal periods. The menses have not returned since then.

Philippine Islands Medical Association Journal, Manila

March-April, 1922, **2**, No. 2

*Incidence of Diabetes Mellitus Among Filipinos. I. Concepcion.—p. 57.
Ruptures of Gastro-Intestinal Tract. M. P. Mendoza-Guazon.—p. 63.
Induced Abortion from Medico-Legal Point of View. M. Tolentino and G. Rustia.—p. 66.
Bilateral Optic Atrophy Associated with Certain Meningitic Symptoms; Report of Case. F. Nicolas.—p. 70.
Edema of Vulva in Labor. A. Villarama.—p. 73.

Incidence of Diabetes Mellitus Among Filipinos.—Concepcion shows that the mortality of diabetes mellitus in the city of Manila has gradually been increasing from year to year, especially within the last few years. This increase is only apparent, due to a greater accuracy of vital statistics. There is no reason to believe that increased consumption of sugar is one of the main factors responsible for the greater frequency of diabetes in the last few years. At least this supposition will not hold true in the city of Manila as there is no corresponding increase in mortality from diabetes due to the increased consumption of sugar per capita. The incidence of diabetes in the Philippines is very much less than in other countries, including Japan. The disease is most frequent between the ages of 40 and 50 among Filipinos. This is also true among Japanese and Chinese. Among Europeans it occurs most commonly between 50 and 70. The slight difference may be explained by the early maturity of Orientals as compared with Europeans. Diabetes mellitus as it occurs among Filipinos is of a milder type than among Europeans and Americans. The mortality of those suffering from it is very low and only a small percentage die of diabetic coma. The low incidence of diabetes mellitus among Filipinos and other Orientals may be explained as due either to greater power of assimilation for sugar among these people compared with Europeans and Americans, or to the fact that they are less exposed to continuous nervous strain on account of their peculiar modes of living. It may also be due to some peculiar racial tendency or characteristic. This point is of interest, as in the Philippines the diet is largely carbohydrate; for that reason diabetes should be more frequent here than in other countries which, however, was found not to be the case.

Public Health Journal, Toronto

June, 1922, **13**, No. 6

Public Health Organization. J. Roberts, Hamilton, Ont.—p. 241.
System of Follow-Up Work for Tuberculosis. .Z. Keifer, Toronto.—p. 251.
Drosophilids in Milk. E. A. Bruce, Agassiz, B. C.—p. 259.

Rhode Island Medical Journal, Providence

July, 1922, **5**, No. 7

Cancer of Stomach: End Results in Sixty-Five Cases. P. E. Truesdale, Fall River, Mass.—p. 269.
Diagnosis of Diseases of Scalp. R. Blosser, Providence, R. I.—p. 271.

Southwestern Medicine, Phoenix, Ariz.

June, 1922, **6**, No. 6

Gastric Polyposis. L. Bryan, San Francisco.—p. 223.
Perthe's Disease. Report of Case. R. J. Stroud, Temple, Ariz.—p. 227.
Ruptured Tubal Pregnancy; Report of Four Cases. C. E. Yount and H. T. Southworth, Prescott, Ariz.—p. 233.
Possibilities of Early Diagnosis of Tuberculous Kidney. B. Wright and G. Turner, El Paso, Tex.—p. 237.
Blood Chemistry: Report of Fifty Examinations. E. A. Newton, Los Angeles, Calif.—p. 240.
Fetal Dystocia from Faulty Attitude and Faulty Position. H. A. Reese, Bisbee, Ariz.—p. 245.

Surgery, Gynecology and Obstetrics, Chicago

July, 1922, **35**, No. 1

*Jejunal Ulcer Without Previous Gastro-Enterostomy. E. P. Richardson, Boston.—p. 1.
*Surgical Treatment of Perforated Ulcers of Stomach and Duodenum. G. Hromada and S. S. Newman, Vienna, Austria.—p. 11.
*Marginal Ulcer After Modified Polya Operation. J. P. Houguet and L. G. Cole, New York.—p. 19.
Megasigmoid, Megarectum, Fecal Bolus. F. G. Corbin, Mendoza, Argentine Republic.—p. 23.
*Recurrent Dislocation of Patella: Wilth Report of Sixteen Cases. W. R. MacAusland and A. F. Sargent, Boston.—p. 35.
Endeavor to Evaluate Chronic Sepsis in Pregnancy. J. E. Talbot, Worcester, Mass.—p. 42.
Ileostomy Following Resection of Colon. E. S. Judd and F. W. Rankin, Rochester, Minn.—p. 50.
Total Transposition of Viscera. H. H. Sherk, Pasadena, Calif.—p. 53.
*Germicidal Character of Emanations from Colloids of Certain Silver Salts. E. G. Ballenger and O. F. Elder, Atlanta, Ga.—p. 57.
Test of Labor. W. G. Lee, Chicago.—p. 63.
Roentgenography in Obstetrics. D. A. Horner, Chicago.—p. 67.
*Addison's Disease Complicating Pregnancy, Labor, or Puerperium. G. Fitz-Patrick, Chicago.—p. 72.
Adolescent Rickets. Report of Cases; Osteotomy for Genu Varum and Valgum. P. Lewin, Chicago.—p. 77.
*Chronic Bone Abscess. Its Treatment by Simple Evacuation Through Drill Hole. W. M. Brickner, New York.—p. 84.
Repair of Tendons in Fingers. S. Bunnell, San Francisco.—p. 88.
Posterior Dislocation of Foot with Posterior Marginal Fracture of Tibia and Uusually with Pott's Fracture of Fibula. T. T. Thomas, Philadelphia.—p. 98.
Self-Retaining, Easily Removable Drainage Tube. M. Ballin, Detroit.—p. 102.
Utilization of Pectineus Fascia in Certain Forms of Inguinal Hernia. W. D. Wise, Baltimore.—p. 103.
Use of Electric Cautery in Laryngeal Tuberculosis. G. B. Wood, Philadelphia.—p. 104.
Squamous-Cell Epithelioma of Lip. Its Surgical Indications. J. H. Shephard, San Jose, Calif.—p. 107.
Cholecystostomy or Cholecystectomy — Which? M. F. Porter, Ft. Wayne, Ind.—p. 110.

Spontaneous Jejunal Ulcer.—Twelve cases of spontaneous occurrence of peptic ulcer in the jejunum are cited by Richardson, ten being taken from the literature. Of the twelve cases, nine occurred between the ages of 45 and ten were in men. In five necropsies in which the condition of the whole bowel is mentioned, the jejunal ulcer was the only one present in the intestinal tract, excluding for these cases a general ulcerative process. In the remaining cases, only one intestinal ulcer was actually demonstrated although more might exist. In six cases, confirmed five times by necropsy, and once, in Richardson's case, by operative evidence and roentgen ray, the stomach and duodenum were apparently negative. Two cases showed a lesion of the duodenum or stomach. In four cases the condition of these organs is uncertain. The most frequent situation for the ulcer was within a few inches of the end of the duodenum, occurring there five times. The other ulcers lay between this point and the middle of the jejunum, or possibly lower. The ulcer in seven cases showed evidence of chronicity, and was associated three times with a definite stricture of the bowel. In two cases the ulcer seemed acute; in the remaining case the point is not clear. Perforation occurred ten times in the twelve cases. No definite etiology may be assigned to these cases. Richardson suggests the possibility that disturbance of pyloric control may lead to gastric contents reaching the jejunum without neutralization, and so to the formation of true peptic ulcer. For ulcers situated lower in the intestinal tract, this cause seems improbable. Since syphilis produces a form of intestinal ulceration which affects the jejunum more readily than the ileum, and also has a tendency to cicatricial contraction and perforation, it must be considered as a possible cause of ulceration in some of these cases, although definite confirmatory evidence is lacking. Two points are of particular importance in future cases: a careful microscopic study of the lesions, including if possible the mesenteric lymph nodes, and the determination of the presence or absence of syphilis.

Surgical Treatment of Stomach and Duodenum Ulcers.—Nineteen cases are reported by Hromada and Newman. Five patients died. All were admitted to the hospital showing clinically wide-spread, acute peritonitis. In all of the cases, the cause of illness was diagnosed before operation. In all cases resection of the stomach was done, and more than two-thirds of the stomach was removed, in two cases following the Billroth method and in the rest the Kroenlein-Mikulicz method. The duration of time between perforation and operation was from one and one-fourth to thirty-six hours. All patients were given as little anesthetic as possible, morphin and ether being used. All other details—history, condition of patient, findings at operation, condition after operation, and reexamination—are mentioned in the report of cases. The ages ranged from 24 to 56 years, and the patients came from all walks of life—which has a bearing on the general state of the patient—nourishment and strength. The cases in which a good prognosis could be made were treated by nonradical resection, within the first twelve hours after perforation. Local anesthesia has no advantage. One patient died of an unusual complication—thrombosis of the subclavian artery with subsequent gangrene of the upper extremity—after having fully recovered from the peritonitis. The intestinal function was fully restored on the second day after operation, the patient did not vomit, he could even take fluid diet, and he had no pain whatever in the abdomen.

Marginal Ulcer Follows Polya Operation.—Hoguet and Cole assert that this is the only case of a marginal ulcer following a Polya operation recorded in literature. The clinical course of the formation of the second ulcer could be followed closely.

Recurrent Dislocation of Patella.—MacAusland and Sargent make eight operations as follows: An incision through the center of the patella tendon from the patella to the tubercle, cutting it off at this point on the outer half. This half is then quilted with chromic catgut No. 3, turned in under the inner remaining half and sutured in a bony groove as far as possible to the inner side, on the inner face of the tibia. The periosteum is then pulled over this insertion and the thin capsule pulled over these tendons.

Germicidal Value of Colloidal Silver Salts.—Colloidal silver salts, notably the chlorid, according to Ballenger and Elder, give off definite germicidal emanations. These emanations prevent the growth of micro-organisms on Petrie agar plates in the immediate area surrounding the sealed glass tubes containing the colloidal silver chlorid. A 1 per cent. preparation has a germicidal value about equal to pure phenol yet when sealed in the anterior urethra for five hours is without pain, even with much stronger preparations. No irritation is produced when applied to mucous membranes such as bladder, nose, throat, sinuses, etc. Good results followed its application to abscess cavities, fistulous tracts, and also when used as a wet dressing for infected wounds, mastoid incisions, etc. Diluted 4,000 times, a 5 per cent. preparation killed the spirochetes from a foul mouth in four minutes. Given intravenously to rabbits artificially infected with the staphylococcus, 1 c.c. of a 1 per cent. preparation cured the rabbits, sterilizing their blood within twenty-four hours, while controls, untreated, died within forty-eight to seventy-two hours with multiple abscesses of the liver, kidney, heart, and other organs.

Addison's Disease Complicating Pregnancy.—To eleven cases recorded in the literature Fitz-Patrick adds one case. The Pirquet and tuberculosis complement fixation tests were negative.

Treatment of Chronic Bone Abscess.—In cases of chronic bone abscess in which clinical signs—daily mild elevation of temperature, slowly increasing pain and tenderness—indicate that the pus is not sterile but that the virulence of the organisms is slight, Brickner suggests that simple evacuation through a small opening is well worth a trial, provided the patient is under close observation. It must be remembered that, although the bone opening is relatively small, drainage is provided.

Tennessee State Medical Association Journal, Nashville

June, 1922, **15**, No. 2

Lateral Sinus Thrombosis Complicating Mastoditis. W. G. Kennon, Nashville.—p. 87.
Management of Infectious Diarrhea. O. H. Wilson, Nashville.—p. 93.
Synergistic Analgesia. F. Smythe, Memphis.—p. 97.
Granuloma Inguinale. P. G. Morrissey, Nashville.—p. 105.
Dignity and Value of Organized Medicine. T. R. Ray, Shelbyville.—p. 107.
Principles of Endocrinology. L. E. Bisch, Asheville, N. C.—p. 110.

Texas State Journal of Medicine, Ft. Worth

June, 1922, **18**, No. 2

Plea for Establishment of State Psychopathic Hospital. T. J. Bennett, Austin.—p. 73.
What Every Doctor Should Know About Cancer. J. C. Bloodgood, Baltimore.—p. 77.
Medical Side of Cancer Problem. A. C. Scott, Temple.—p. 81.
Divine Antitoxin. T. V. Neal, El Paso.—p. 84.

Virginia Medical Monthly, Richmond

June, 1922, **49**, No. 3

Work of State Board of Health. E. G. Williams, Richmond, Va.—p. 113.
Syphilis of Inner Ear and Eighth Nerve. G. W. Mackenzie, Philadelphia.—p. 120.
Roentgen Ray in Dermatology. C. A. Simpson, Washington, D. C.—p. 122.
Appendicitis. S. McGuire, Richmond, Va.—p. 125.
Nature and Treatment of Hemorrhagic Fever. C. Thompson, Jacksonville, N. C.—p. 127.
Transuterine Pneumoperitoneum. J. J. Mundell, Washington, D. C.—p. 130.
Digitalis in Treatment of Cardiac Decompensation. L. E. Stubbs, Newport News, Va.—p. 132.
Trend of Healing Art. A. B. Greiner, Rural Retreat, Va.—p. 135.
Management of Normal Labor and Puerperium. A. M. Showalter, Cambria, Va.—p. 136.
Pericarditis with Effusion. W. B. Porter, Roanoke, Va.—p. 140.
Sarcoma of Long Bones. J. W. Gibbon, Charlotte, N. C.—p. 142.
Advantages and Methods of Making Labor Easy. I. Procter, Raleigh, N. C.—p. 147.
Submerged Tonsil. D. L. Rawls, Suffolk, Va.—p. 150.
Sinusitis; Report of Case. N. J. Gould, Norfolk, Va.—p. 151.
Venereal Diseases from Army Standpoint. M. C. Sycle, Richmond, Va.—p. 155.
Acute Appendicitis—Acute Salpingitis—Acute Pyelitis Differential Diagnosis. F. D. Worthington, Charlotte, N. C.—p. 158.
Relation of General Practitioner to Venereal Diseases. J. A. Keiger, Greensboro, N. C.—p. 160.
Hydrops Dyspnea Not Relieved by Aspiration: Report of Case. A. G. Brown, Jr., Richmond, Va.—p. 161.

July, 1922, **49**, No. 4

*Primary Carcinoma of Gallbladder. S. H. Waits, University.—p. 175.
Surgical Treatment of Facial Paralysis. C. C. Coleman, Richmond.—p. 180.
Protein Sensitization in Bronchial Asthma, Hay-Fever, and Allied Conditions. With Report of Author's Own Case. G. T. Brown, Washington, D. C.—p. 188.
Pneumonia Etiology and Diagnosis. P. Davis, Roanoke.—p. 193.
Symptomatology and Treatment of Pneumonia. G. B. Lawson, Roanoke.—p. 195.
Some Phases in Treatment of Pneumonia. G. G. Howery, East Radford.—p. 199.
*Hernia of Liver and Intestines in New-Born. E. L. Caudill, Narrows.—p. 201.
Submucous Ulcer of Bladder. Report of Cases Treated by Excision. T. J. Hughes, Roanoke.—p. 202.
Treatment of Diphtheria. T. K. McKee, Saltville.—p. 203.
Technic in Mixing and Administering Arsphenamin. J. J. Giesen, Radford.—p. 206.
Empyema of Maxillary Sinuses, Secondary to Extraction of Teeth. A. Hooks, Bristol, Va.—Tenn.—p. 211.
Tonsillary Hemorrhage. L. L. Jones, Portsmouth.—p. 214.
Cesarean Section: Its Indications and Limitations. R. P. Kelly, Lynchburg.—p. 215.
Program for Malaria Control in Virginia. R. K. Flannagan, Richmond.—p. 219.
Tumors of Mammary Gland. N. D. Bitting, Durham, N. C.—p. 222.

Primary Carcinoma of Gallbladder.—Among 525 operations performed for various affections of the gallbladder and biliary passages there were twenty cases of primary cancer of the gallbladder, a percentage of 3.8. The association of gallstones with primary carcinoma of the gallbladder is very striking. In the twenty cases diagnosed primary carcinoma at operation, stones were demonstrated in ten cases, 50 per cent., but in many of these cases the gallbladder was so involved in growth that stones could not be demonstrated, even though present. Investigations of others seem to show that gallstones are associated with primary cancer of the gallbladder in from 70 to 95 per cent. of cases.

Hernia of Liver and Intestine.—Caudil relates two cases. In one the greater part of the small intestine, the cecum, appendix, ascending and transverse colon, had escaped through an opening at the umbilicus, apparently no larger than a twenty-five cent piece. The umbilical cord had been completely divided to the point of litgation. The extrusion occurred while the mother was in the third stage of labor. In the second case, the baby was well developed and normal at birth with the exception of a large hernial protrusion from the umbilical region. The mass was the size of a large orange and very hard and extended from the umbilicus to the ensiform cartilage, the umbilical cord coming off from the lower portion of the mass. The hernia was covered with a thin glistening membrane. The anterior abdominal walls were well developed, the hernial mass being very much constricted at point of emergence from the abdominal cavity. The hernia contained nothing but the liver which was apparently very much enlarged.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

April-June, 1922, **19**, Nos. 220-222

Severe Blood Diseases of Childhood. F. J. Poynton, H. Thursfield and D. Paterson.—p. 57.
Causation of Postural or Orthostatic Albuminuria. F. P. Weber.—p. 81.
*Case of Aneurysm of Ductus Arteriosus. R. Hutchison.—p. 85.
Purpura Fulminans Following Measles. E. H. Kelly.—p. 86.

Aneurysm of Ductus Arteriosus.—A girl, aged 6 years, died from a sudden and profuse hemoptysis. There was a history of measles followed by diphtheria five months previously, and six weeks later she suffered from "pleurisy" and had not been well since. On admission she was complaining of pain in the left side of the chest with cough and feverishness. There was a soft systolic murmur at the apex and over the sternum. Examination of the lungs showed some dulness in the left infraclavicular and suprascapular regions with diminution of the breath sounds and some crepitation over the right apex in front. As the case progressed, the dulness at the left apex became more pronounced and the apex beat extended further to the left. The short systolic murmur disappeared. The temperature remained moderately elevated (from 100 to 101 F.) throughout. The necropsy disclosed a rupture of an aneurysm of the ductus arteriosus into the lung.

British Medical Journal, London

June 24, 1922, **1**, No. 3208

*Duodenal Tube in Diagnosis and Treatment of Biliary Diseases. J. Meakins.—p. 983.
Spread, Probable Mode of Infection, and Prophylaxis of Leprosy. L. Rogers.—p. 987.
*Acute Inflammation of Large Diverticulum of Jejunum with Perforation. G. W. Christie.—p. 990.
Temporosphenoidal Abscess. J. Adam.—p. 991.
Carbonic Oxid in Tobacco Smoke. H. E. Armstrong.—p. 992.
*Amebicidal Action of Conessine. H. C. Brown.—p. 993.
*Modification of Operation of Cholecystenterostomy. A. Fullerton.—p. 995.
Erythema Nodosum Associated with Acute Rheumatism. H. Wetherbee.—p. 995.
Recurrent Vesicular Eruption After Influenza. A. W. Panton.—p. 995.
Cancer of Tongue: Excision of Tongue: Cancer of Stomach 34 Years Later. J. S. Manson.—p. 996.

Duodenal Tube in Diagnosis and Treatment of Biliary Disease.—Apart from its value as a diagnostic measure, Meakins asserts that the use of the duodenal tube lends itself to treatment. In cases of biliary stasis independent of complete obstruction it is advisable to promote free and periodical emptying of the gallbladder and passages. This is of particular importance when the stasis is associated with some chronic inflammatory process. If cholelithiasis is present, and there is good reason to avoid an operation, if possible, much in the way of amelioration may be expected. This hope is especially warranted when it is realized that in practically every case of cholelithiasis, a chronic infection of the biliary passages is present, which infection perpetuates and is perpetuated by biliary stasis in the manner of a vicious circle. Several cases in point are cited.

Acute Jejunal Diverticulitis.—Christie's patient complained of acute pain in the left side of the abdomen, below the umbilicus. At the site of the pain there was distinct tenderness on palpation and a suspicion of slight rigidity. On deep inspiration a round mass could be felt somewhat larger than a tennis ball, about midway between the umbilicus and the symphysis pubis, just to the left of the middle line. The lump was hard and of the consistence of a uterine fibroid, though it was extremely tender. Vaginal examination did not offer any assistance in diagnosis, and per rectum no fullness could be felt through the pouch of Douglas. The swelling was not particularly mobile, though it was circumscribed. Operation was performed fourteen days after the onset of the acute phase of her illness. On opening the peritoneum, a quantity of serous peritoneal fluid escaped. About the center of the abdomen, to the left of the middle line, was a mass somewhat larger than a tennis ball and entirely covered with a thick layer of omentum. When the swelling was denuded of its omentum, there was exposed a large spherical mass, tense and fluctuating, about the size of an apple, springing from the antimesenteric border of a loop of small intestine. A large gangrenous patch was disclosed on the fundus of the swelling, with a perforation in its center through which very foul smelling pus and semisolid contents escaped. It was obvious that this was a condition analogous to acute inflammation of a Meckel's diverticulum, which had perforated soon after the commencement of her illness but which had fortunately been successfully dealt with by the omentum. The origin of the diverticulum from the jejunum about 9 inches below the duodenojejunal junction was established.

Amebicidal Action of Conessine.—Conessine, an alkaloid having the formula $C_{12}H_{20}N$, which has been isolated from several members of the family of *Apocynaceae,* is shown by Brown to exert a very strong inhibitory action on the growth of free living amebas; in fact, exactly equal to that of emetin. Infusions of the seeds of these plants have for many years been used in India with marked success in the treatment of chronic dysentery. Although when administered subcutaneously conessine produces an area of necrosis at the site of inoculation, it can be administered by the mouth or intravenously in suitable doses without producing symptoms. It is approximately 50 per cent. less toxic than emetin. A diminution of the inhibitory action on free living amebas of solutions of emetin and conessine which have been in contact with intestinal mucus is shown. The serum of patients receiving full and repeated doses of emetin has apparently no amebicidal action; hence it is unlikely that the presence of conessine in blood serum could be detected by its effect on amebae. The drug was used in the form of the sulphate. The subcutaneous M. L. D. of conessine for a mouse is approximately 3 mg., and of emetin 2 mg. The intravenous M. L. D. is 0.45 mg. and 0.3 mg., respectively, or, in other words, as far as these observations go emetin is approximately 50 per cent. more toxic than conessine.

Modified Cholecystenterostomy.—The following procedure is advocated by Fullerton: The gallbladder is opened and cleared of its contents. A light clamp is placed near the neck, and the greater part of the viscus is removed. The small remaining portion is anastomosed to the duodenum, so that when the operation is completed the cystic duct opens into the duodenum without the intervention of any sac which might harbor gallstones or regurgitated intestinal contents. Just enough of the gallbladder is left to enable the anastomosis to be accomplished satisfactorily.

Glasgow Medical Journal

June, 1922, **15**, No. 6

What Is Heterophoria? A. J. Ballantyne.—p. 321.
Fundamental Points in the Diagnosis of Pulmonary Tuberculosis. J. Crocket.—p. 329.
*Tay-Sachs' Disease: Symptomatology and Pathology of Three Atypical Cases. H. W. Torrence.—p. 341.

Tay-Sachs Disease.—The cases described by Torrance, being the youngest in the list, most closely resemble the infantile Tay-Sachs group, with regard to the age incidence. Histologically, they also resemble it, but possessing the typical pathologic picture of degeneration of optic nerves, nerve fiber layer, and ganglion cells (a triple syndrome). They present fewer additional variations to the accepted triple syndrome than the other cases. Of these additional irregularities, most certainly the degeneration of rods and cones may be discounted, owing to postmortem change and method of fixation. In the elder cases (i. e., Ichikawa and Wandless) the retinal destruction is most complete. This may be due to the patients having lived longer than in the infantile group, and so allowing the final stages of degeneration to take place.

Indian Journal of Medical Research, Calcutta

April, 1922, **9**, No. 4

Indian Calliphorinae. VI. How to Recognize Indian Myiasis-Producing Flies and Their Larvae, Together with Some Notes on How to Breed Them and Study Their Habits. W. S. Patton.—p. 635.

Id. VII. Additional Cases of Myiasis Caused by Larvae of Chrysomyia Bezziana Vill., Together with Some Notes on Diptera which Cause Myiasis in Man and Animals. W. S. Patton.—p. 654.

Indian Aphiochaetae. Aphiochaeta Xanthina Speiser. (Repicta Schmitz; Circumsetosa de Meijere; Ferruginea Brunetti), Whose Larvae Cause Cutaneous and Intestinal Myiasis in Man and Animals, and Aphiochaeta Rufipes Meigen, Whose Larvae Occasionally Cause Cutaneous Myiasis in Animals. W. S. Patton.—p. 683.

Bacteriologic and Laboratory Technic. V. W. F. Harvey.—p. 692.

Virulence of Micro-Organism and Its Dependence on Culture Medium. W. F. Harvey and K. R. K. Iyengar.—p. 726.

Virulence of Organism as Factor in Efficacy of Prophylactic Vaccines. W. F. Harvey and K. R. K. Iyengar.—p. 730.

Immunizing Properties of Allied Organisms and Nonspecific Organisms. W. F. Harvey and K. R. K. Iyengar.—p. 736.

Immunization or Response of Immunized Animals to Small Dose of Antigen Administered at Long Interval After First Immunization. W. F. Harvey.—p. 740.

Relapsing Fever in Punjab (Preliminary Report). C. A. Gill.—p. 747.

*Visceral Infections Due to Higher Fungi. F. P. Mackie.—p. 781.

*Correlation Between Chemical Composition of Anthelmintics and Their Therapeutic Value in Connection with Hookworm Inquiry in Madras Presidency. J. F. Caius and K. S. Mhaskar.—p. 787.

*Delayed Cures in Treatment of Hookworm Infection. K. S. Mhaskar.—p. 799.

Demonstration of Capsules of Pneumococcus by Modification of Benian's Relief Stain. R. H. Malone.—p. 804.

Septic Tank Latrines in Relation to Hookworm Disease. J. B. McVail.—p. 806.

Cultural Phases of Leishmania Donovani. B. Mohan das Gupta.—p. 809.

Position of Genus Hemocystidium (Castellani and Willey, 1904); Description of Two New Species. H. E. Shortt.—p. 814.

Two Hemogregarines of Persian Lizards. H. E. Shortt.—p. 827.

*New Serum Test for Kala-Azar. L. E. Napier.—p. 830.

Formalin Test as Applied to Diagnosis of Kala-Azar. P. S. Mills.—p. 847.

*Gaté-Papacostas Reaction in Leprosy. D. A. Turkhud and C. R. Avari.—p. 850.

Examination Into Degree of Efficacy of Antirabic Treatment. W. F. Harvey and H. W. Acton.—p. 852.

Visceral Infections by Fungi.—The following cases are cited by Mackie: one case of pulmonary aspergillosis complicating kala-azar; and two cases of streptothrix infection of the brain.

Chemistry and Therapeutic Value of Anthelmintics.—According to Caius and Mhaskar, salicylic acid has no anthelmintic properties, but esterification with methyl alcohol results in the formation of a compound with well marked vermicidal properties Esterification of either thymol or betanaphthol results in the loss of the vermicidal and vermifugal properties of those two very potent anthelmintics.

Delayed Cures in Hookworm Infestation.—In addition to its immediate vermicidal action, Mhaskar says, an anthelmintic may also have a remote action on the worms. This remote action brings about "delayed cures." Except in proved cases of reinfection, a treatment which is known to be efficient need not be followed by any other.

New Serum Test for Kala-Azar.—The technic of the test described by Napier is similar to that described by Gaté and Papacosta as the formol-gel test for syphilis, but the specificity of the test is in no way dependent on the gel formation but on the accompanying formation of a white opacity. Napier terms this the "aldehyde test." About 5 c.c. of blood is withdrawn from the patient's arm and allowed to stand for a sufficient time for the serum to separate. One c.c. of clear serum is then placed in a small test tube ½ inch in diameter; to this one drop of 30 per cent. liquor formaldehyd in the form of commercial formalin is added, the serum is immediately well shaken and placed in a test tube rack at laboratory temperature. The serum from an untreated case of kala-azar will immediately become viscid; within a minute or two it will have "set," so that the tube can be inverted without the serum being spilled, and will begin to become whitish and opalescent. Within from three to twenty minutes, the time varying with different cases, the whole of the serum will have become absolutely solid and opaque like serum coagulated by heat or the "white" of a hard boiled egg. If the serum is hemoglobin stained the coagulated serum will have a pink tinge which will turn chocolate brown after twenty-four hours.

Formol-Gel Reaction in Leprosy.—One hundred and sixteen serums from cases of leprosy not specially selected—nodular, anesthetic and mixed cases were included indiscriminately—were tested by Turkhud and Avari by the formol-gel method of Gaté and Papacosta. Every case gave a definitely positive reaction. The test was carried out in every instance with inactivated serum only. From these observations it appears that the Gaté-Papacostas reaction is likely to prove a valuable serologic test in the diagnosis of leprosy.

Indian Medical Gazette, Calcutta

June, 1922, **57**, No. 6

India's Debt to Medical Research. J. Cunningham.—p. 201.

Detection of Anthrax Spores in Shaving Brushes. A. D. Stewart.—p. 204.

Malignant Disease of Retained or Imperfectly Descended Testis. F. P. Connor.—p. 205.

*Mass Treatment of Hookworm Infection. K. S. Mhaskar.—p. 208.

Adhesion and Retention of Membranes. W. S. Willmore.—p. 210.

Case of Fibroma Molluscum. D. F. Michael.—p. 219.

Mass Treatment of Hookworm Infection.—Thymol and betanaphthol in a maximum dose of 50 grains mixed with 25 grains of light magnesium carbonate, given without purgatives, according to the apparent age of the person, is recommended by Mhaskar as being a simple, effective and safe treatment.

Lancet, London

July 1, 1922, **2**, No. 5157

Osteo-Arthritis. A. G. T. Fisher.—p. 1.

*Etiology of Rickets in Infant. H. Chick, E. J. Dalyell, M. Hume, H. M. M. Mackay and H. H. Smith.—p. 7.

Roentgen-Ray Diagnosis of Rickets. H. Wimberger.—p. 11.

*Malignant Melanoma of Gum. M. J. Stewart and J. Phillips.—p. 12.

*Agglutinating Serum for Certain Strains of Tubercle Bacilli. J. Smith.—p. 13.

*Diagnosis of Suprarenal Insufficiency. S. Wright.—p. 14.

Etiology of Rickets.—The observations on the etiology of rickets reported on by Chick et al. disclosed that rickets developed during winter and spring under excellent hygienic conditions in infants receiving a diet composed of fresh milk from stall-fed cows and to which sugar was added, and was prevented in the case of children receiving a diet containing cod liver oil, more milk, and less carbohydrate. Both milks were low in vitamin A content. Rickets did not develop in summer on either diet. Rickets can be cured by codliver oil and by exposure to sunlight, or to the radiation of the mercury vapor quartz lamp. The first six months of life is a period of special susceptibility to the onset of the disease. Rickets may develop in an infant whose general condition is good or improving, and healing of the bones may occur independently of improvement in the general condition.

Melanoma of Gum.—Stewart and Phillips relate a case which is interesting as an example of melanoma arising in an unusual situation, the alveolar margin of an edentulous upper jaw. The patient's attention had only been drawn to the part ten days before she sought medical advice, and the denture itself was not roughened. A small projecting spicule of bone was found at operation, growing from the jaw immediately beneath the tumor.

Agglutinating Serum for Tubercle Bacillus.—By injecting into rabbits a nonvirulent strain of living human tubercle bacilli in increasing doses at five day intervals, Smith secured a high titer serum. After the sixth dose, the titer of the serum against the homologous strain was 1 : 1,600. Of eleven strains of human tubercle bacilli tested against the serum seven reacted to a 1 : 200 dilution, five to a 1 : 1,600 dilution.

Diagnosis of Suprarenal Insufficiency.—It is shown by Wright by an investigation of 100 healthy subjects that the white line of Sergent is a phenomenon occurring in a large proportion of normal subjects and is without pathologic significance. A number of analogous physiologic responses are described. The white line is not related to suprarenal insufficiency or to abnormally low systolic or diastolic pressure. The white line is produced by local emptying of the capillaries from the active contraction of some elements in their walls, and is quite independent of the condition of the arterioles. A nervous mechanism of the nature of an axon reflex may be involved. The bearing of this investigation on the clinical recognition of suprarenal insufficiency is discussed.

Archives de Médecine des Enfants, Paris

June, 1922, **25**, No. 6

*Foreign Bodies in the Duodenum. V. Veau and R. Doubrère.—p. 321.
Case of Lymphogranulomatosis. H. Barbier et al.—p. 338.
Congenital Occlusion of Small Intestine. A. Rendu and P. Wertheimer.—p. 349.
*Acute Articular Rheumatism. P. Gautier.—p. 354.
Crossed Intercostal Zona After Pleurisy. G. Schreiber.—p. 357.
*Familial Hypertrophy of Bones: Pleonosteosis. J. Comby.—p. 360.

Foreign Bodies in the Duodenum.—Veau exposed the duodenum of an 11 months infant who had a safety pin arrested at the spot, the point upward. He did not venture to cut into the duodenum, but merely manipulated it to dislodge the safety pin and squeeze it shut. Attempts to force it along failed. The safety pin was found in the stool the sixty-fifth day after the operation, the eighty-third after it had been swallowed. He summarizes 21 operative cases from the literature, and 10 others in which the foreign body was found in the duodenum at necropsy. The foreign body was a safety pin in only 4 of the cases, and only 8 of the patients were children. In 7 cases the duodenum was incised, with one death. A gastro-enterostomy completed the operation in one case. In the 6 cases with peritonitis already installed, 50 per cent. died. With infants, an incision across the fibers of the rectus gives more material for suturing. Evisceration should be avoided in infants, as this entails shock. The suture threads should be left unusually long, up to twenty-one days. The foreign body was worked back into the stomach in 6 cases, with recovery in 4; in the fifth case the perforation of the duodenum had escaped detection.

Complications of Acute Rheumatism.—The boy of 6 was discharged the fifth week after the onset of acute articular rheumatism, during the course of which there had been endocarditis, pericarditis, pleurisy and chorea. He had been given 3 gm. of sodium salicylate daily for two weeks and then smaller doses for ten days, with digitalis and ice to the head as needed. The only relic left of the whole is a mitral insufficiency.

Familial Disease of Ossification.—The family described here was reported by Léri last year, as summarized in The Journal at the time, Nov. 5, 1921, p. 1526.

Bulletin de l'Académie de Médecine, Paris

June 6, 1922, **87**, No. 23

*Uterine Fibromas. T. Tuffier.—p. 599.
Experimental Anaphylactic Shock by Respiratory Apparatus. F. Arloing and L. Langeron.—p. 604.
Center for Boarding Out of Infants under Medical Supervision. Guinon et al.—p. 607.
*Clamps in Abdominal Surgery. Abadie and Argaud.—p. 612.
*The Soil in Tar Cancers. G. Roussy.—p. 617.
Case of Adams-Stokes Disease. O. Josué.—p. 621.
Mechanism of Acceleration of the Pulse. W. Janowski.—p. 625.

Uterine Fibromas.—Tuffier insists that roentgen castration is contraindicated for women still in the child-bearing age. He argues that enucleation should be given the preference always except when conditions otherwise justify hysterectomy. The one great objection to enucleation has been the danger of recurrence, but now that irradiation can combat any recurrence, this objection is removed.

Clamps in Abdominal Surgery.—Abadie and Argaud used the Mayo and other clamps in their experimental research on dogs, and announce that the crushing—instead of killing the tissue cells, as they expected—seemed to inspire them to more active repair than when the tissues were merely sutured without being clamped. The denuded portions healed over more rapidly. Linen thread tore through sometimes, but chromecized catgut 00 answered all requirements. The Martel technic gave more regular and prompter results than the Mayo.

The Soil in Tar Cancer.—Roussy obtained tar cancers in 38 per cent. of sixty adult mice by the end of 240 days. Benign tumors had developed in 26 per cent., and 23 per cent. had shown no signs of a tumor. In nineteen of the sixty mice multiple tumors developed, malignant in fourteen. The difference in the outcome must be ascribed to the soil.

Journal d'Urologie, Paris

May, 1922, **13**, No. 5

*Genito-Urinary Reflex Phenomena. J. M. Bartrina (Barcelona).—p. 337.
*Renorenal Reflexes. Lanzilotta.—p. 343.
*Hematuria with Hydronephrosis. Z. Mitsinkidès.—p. 349.
*Cystoscopy with Chyluria. Hartmann-Keppel (Suez Canal).—p. 359.
Another Case of Syphilis of the Bladder. A. Cosacesco.—p. 365.
Danger of Ordering a "Twenty-Thousandth Solution" or the Like. J. Janet.—p. 367.

Reflex Phenomena of the Genito-Urinary Apparatus.—Bartrina reported last year a case in which the abnormal position of one kidney checked the functioning of both kidneys, and the menacing uremia was cured only by removal of the malplaced kidney. But the other kidney is not the only organ that suffers from an inhibiting reflex starting in the urinary apparatus. The genital and the digestive apparatus may feel the effect, as also the other elements in the urinary system. Among these reflexes, pain or tenesmus in the bladder early in renal tuberculosis is exceptionally instructive. Disturbances in the urethra and prostate are common with calculi in kidney or ureter. This "false urethritis" with unsuspected calculi in the kidney often proves misleading. There is pain or smarting in the urethra, and there may be secretion, but the gonococcus is not found. The ordinary bacterial flora may then set up inflammation, or the local treatment applied on a mistaken diagnosis may start it.

The neuralgia character of the pain stamps these reflex cases as a group apart. They persist refractory to treatment until the calculus ceases to give further trouble. Pain in kidney or urethra may be noted in gout, diabetes, phosphaturia, etc., probably from some old damage of the kidney with which it still has to contend. The kidney often suffers in the uric acid, oxalic acid and other diatheses. There may be no symptoms in the kidney itself, but its intimate nervous connection with the genital apparatus may readily explain certain instances of impotency, spermatorrhea, and other functional disturbances, as of reflex origin. Intestinal disturbances traceable to reflex action from unsuspected kidney stones range from simple constipation to pseudo-occlusion and spasmodic pains. One of his patients with known kidney calculi sometimes had to take enemas a dozen times a day to relieve his returning colic. Another barely escaped a laparotomy for ileus by the discovery of a few erythrocytes in his urine. In all these bowel cases, the complete cure followed the clearing out of the calculi from the kidney. Pain spreading from the bowel to the rectum and anus is particularly suggestive of a kidney calculus. Injection by the rectum of an anodyne relieves the pain with true kidney colic better than by ingestion or hypodermic.

Renorenal Reflex.—Lanzilotta reports five cases in which the pains from a diseased kidney were localized exclusively in the other kidney which was sound. After removal of the calculi or of the whole kidney, there was no further pain on the other side.

Profuse Hematuria with Hydronephrosis.—Five cases are described. They had mostly been mistaken for cancer, but recovery followed nephrectomy.

Cystoscopy in Chyluria.—The cystoscope revealed that the chyluria was not as independent as assumed. In the three cases described, treatment with hexamethylenamin and uva ursi was followed by an exceptionally rapid cure.

Médecine, Paris

June, 1922, **3**, No. 9

*Progress in Electroradiology and Physiotherapy. A. Zimmern.—p. 645.
*Static Electricity in Treatment of Knee. E. J. Hirtz.—p. 660.
Radiotherapy in Cancer of Uterine Cervix. R. Ledoux-Lebard.—p. 666.
Operating for Calculus Under Roentgen Control. F. Arcelin.—p. 668.
Recent Progress in Locating Gallstones. H. Béclère.—p. 672.
Relations Between Doctor, Radiologist and Patient. Lehmann.—p. 678.
*Electric Accidents. A. Zimmern.—p. 684.
*Electricity in Treatment of Urethra Disease. Heitz-Boyer.—p. 690.

*The Galvanopsychic Reflex. J. M. Lahy.—p. 696.
Indications for Mineral Waters in Chronic Rheumatism. A. Florand. —p. 702.
Manual Treatment of Functional Spasms. L. Durey.—p. 709.
The Doses in Radium Treatment. R. Weill.—p. 714.
Electrotherapeutics in Constipation. A. Berthomier.—p. 719.

Radiotherapy.—Zimmern exclaims that every day is recording new progress in technic, in diagnosis, in therapeutic application of radiant energy, so that radiology is establishing more and more its position as one of the strongest pillars of the medical sciences. The deep roentgen-ray treatment is nothing new, he says, but the logical development of our knowledge of the properties and biologic action of the roentgen rays. In pruritus and radicular neuralgia, roentgenization of the roots involved, where they emerge from the spine, has cured in a number of rebellious cases, as also in radiculitis of the sciatica or lumbago type. With deep roentgen therapy, there seems to be an optimal dose for each kind of affection, but this may vary with the individuals in each class. In diagnosis, Sicard obtained instructive findings by injecting an opaque iodin compound into the epidural space or spinal canal, as it worked its way into the sacral culdesac. For pyelography, a 30 per cent. solution of sodium bromid has been found efficient, while it has the advantage of being nontoxic.

Hydrarthrosis of the Knee.—Hirtz relates that a prompt cure was effected by roentgen exposures plus static electricity in all but one of twenty-four cases of acute or chronic hydrarthrosis, and great improvement was realized even in this one case. A tuberculous element is probably responsible for the partial failure in this patient. The list includes several cases of gonococcus origin.

Prophylaxis of Electric Accidents.—Zimmern urges that children in school should be systematically taught the danger of placing the hand on a gas or water faucet when an electric wire is held in the other hand.

Electricity in Treatment of the Urethra.—Heitz-Boyer recapitulates the many uses for static electricity, diathermia, spark treatment, *étincelage,* in acute and subacute affections of the urethra, and in sclerosis by *étincelage* or electrolysis, and in destroying polyps and other mild tumors. In short, he adds, there is scarcely any lesion in the urethra that is not amenable to some form of electric treatment.

The Galvanopsychic Reflex.—Lahy discusses the differences in the galvanometer readings when connected with a human body and generator. The resistance of the body to the electric current varies even with mere emotions, and this galvanopsychic reflex is thus one of the most sensitive means at our disposal for investigating emotion. It is significant that the response is most pronounced when the electrodes are placed on a region where sweat glands most abound.

Revue de Chirurgie, Paris

1922, **60**, No. 1

*Burns and Their Treatment. A. Kotzareff.—p. 5.
Angles of the Colon in the Fetus and the Newly Born. P. Descomps and R. Ducastaing.—p. 30.
*Dead Bone Implants. C. Girode.—p. 60.

Burns and Their Treatment.—Kotzareff recalls that animals die from burns just the same whether the nerves innervating the region have been severed or not. They succumb to poisons generated in the burned tissues unless they can manufacture antibodies or have them supplied from without promptly enough to annul the toxic action. Serum from a guinea-pig that had been burned, and had produced antibodies, when injected into another guinea-pig, protected it against fatal harm from a burn experimentally induced afterward, even when more than half of the body was gradually subjected to a burn of the third degree. Fourteen series of experiences in this line are reported, with other data, which all demonstrated, he says, that serotherapy is capable of warding off the toxic action from a burn, the toxemic shock, which is the main factor in the fatal outcome of burns. He urges the systematic production and use of an antiburn serum. It can be obtained from patients convalescing from burns or can be prepared from animals. Two clinical cases are described in which the recovery of the boys of 8 and 5½ is ascribed to the intramuscular injection of 5 or 8 c.c. of serum from other children convalescing from burns. The reaction to a severe burn is manifest in fifteen minutes by the eosinophilia in the lungs. This is not special to burns, being found in all endogenous and exogenous intoxication from destruction of animal tissues. This destruction, however, entails an immunizing process in time, and this we can hasten by injecting an antiburn serum. The question now is merely the production of an antiburn serum so it can be readily available at all times.

Disadvantages of Dead Bone Implants.—Girode writes from Delbet's surgical service to describe the experience with a dead bone implant in treatment of fifteen cases of pseudarthrosis or fracture of the neck of the femur. The bone was taken from the tibia or the ulna of just slaughtered cattle, and was kept in alcohol. The results were extremely unsatisfactory, for a number of reasons. Delbet has returned to his former method of taking a strip from the patient's own fibula for the purpose, without periosteum.

1922, **60**, No. 3

*Recurring Inguinal Hernia. Oudard and G. Jean.—p. 143.
*Mixed Tumors in the Parotid Region. E. Forgue and G. Roux.—p. 181.

Recurring Inguinal Hernia.—Oudard and Jean tabulate from the navy surgical records 145 out of a total of 183 cases of known recurrence of inguinal hernia after operative treatment. The recurrence was external oblique in 131 instances, direct in 13, and internal oblique in only one case. No method of treatment was exempt from recurrence, even when done under the most favorable auspices. These experiences teach the necessity for supporting the wall after the primary herniotomy if the tissues are exceptionally flabby; not with a pad, merely an elastic band. The sac should always be amply opened up to see that there is no adhesion, and any epiploic fringe should be resected. The percentage of recurrence with the various methods of operating ranged from 1 to 10 per cent. The number of recurrences with the Bassini operation have convinced them that this method should be definitively abandoned. The Championnière method is as good as the most complicated for ordinary hernias of the congenital type, with a long narrow canal. With hernia of other types, they commend a modification of Halsted's first method.

Mixed Tumors of the Parotid.—Forgue and Roux review twenty-two cases.

Archivio Italiano di Chirurgia, Bologna

May, 1922, **5**, No. 3

*Pseudocyst in the Radius. L. Baccarini.—p. 233.
Accessory Interrenal Body Removed at Herniotomy. U. Stoppato.—p. 253.
*Chronic Primary Pancreatitis. D. Calzavara.—p. 265.
*Limits of Prostate Operability. G. Roello.—p. 289.
*Tuberculous Peritonitis. C. Decio.—p. 311.

Pseudocyst in the Radius.—The head of the radius was resected in the boy of 6, and the findings suggest that some injury of the vessels had allowed the escape of blood into the bone, these repeated small hemorrhages prying apart the lamellae. They drop into the marrow cavity and are absorbed. This sequence may occur from trauma; but more often it is the result of some toxic or developmental anomaly of the artery wall. This explains best the gradual regular increase in the size of the cystic cavity. Scraping out the cyst removes the altered bone tissue and the abnormal vessels and leaves a clean cavity, and there is a chance it will fill up with normal compact bone. These pseudocysts appear during the period of most active growth of the long bones, and in the region of the bone close to the epiphysis, where the growth process is most active. The lesion is usually single and is cured by simple curetting, if the safeguarding of the region can be counted on during the months of the repair process.

Chronic Pancreatitis.—Calzavara relates that the woman of 31, after a hearty meal, experienced a sudden intense pain in the epigastric region which did not spread. The pain ceased suddenly and spontaneously in two hours, but it returned again for seven days, either from two to four hours after eating, or during fasting. There was no vomiting, fever or jaundice. There was a free interval for three years, and then the pains returned as before, recurring during two weeks. A year later they reappeared for three and later for seven days, the interval finally becoming only one month. At the last attack there was vomiting and a slight tendency to jaundice. An operation showed a chronic, evidently primary, circumscribed interstitial inflammatory process in the head of the pancreas. He did not attempt resection, and merely provided an ample outlet for the bile by suturing the fundus of the gallbladder to the anterior wall of the stomach in the prepyloric region. There has been no return of the disturbances during the more than a year since and the general health has been perfect. The case confirms that a primary pancreas disease may simulate gallstone colic. The lack of spreading of the pains helps to differentiate the pancreatitis. There were foci of fat necrosis in the omentum in this case, with atrophy of the adipose tissue with polyblastic infiltration.

The Limits of Operability with Prostate Disease.—Roello analyzes 520 operative cases of hypertrophied prostate in Lasio's service since 1909. With the Freyer operation, 469 were cured and fifty-one died, but the mortality has been constantly declining, from over 14 in 1909 to 4.55 per cent. in 1921. There are no contraindications to the Freyer operation, he says, except grave valvular or heart disease with lost compensation, or tabes or myelitis interfering with the innervation of the bladder, or extreme wasting disease or acute infectious disease. Under all other conditions the operation at one or two sittings has every prospect of success.

Surgical Treatment of Tuberculous Peritonitis.—Decio relates that 19 are still living of the 31 operative cases he describes in detail. The outlook seems to be promising for a combination of radiotherapy or heliotherapy with operative measures. In over two thirds of the cases the peritoneal tuberculosis subsides after the laparotomy, especially the serous form of tuberculous peritonitis. Of course, the patient may succumb to tuberculous lesions elsewhere, after clinically normal conditions have been restored in the peritoneum. He analyzes recent literature on the subject. The 31 cases cited are the only ones he has been able to trace of the 50 operative cases during the last ten years in Ferroni's service at Florence. The patients were all women between 22 and 55 except 2 girls of 15. The age seemed immaterial for the results, as also whether a drainage tube was left or not. In his latest series he closed the abdomen completely after the exposure of the peritoneum to the light and air during the laparotomy. He compares the various theories that have been advanced to explain the action of the simple laparotomy, inclining to ascribe the effect to the "modification of the humors" by the operation.

Riforma Medica, Naples

May 22, 1922, **38**, No. 21

*Indol in Pulmonary Disease. O. Cantelli.—p. 481.
*Evils of Taxis for Hernia. R. Botteselle.—p. 483.
*Hydatid Cyst of Liver. O. Cignozzi.—p. 485.
Primary Soft Chancres on Tongue. G. Martini.—p. 490.
Preventive Treatment of Neurosyphilis. G. Pellacani.—p. 491.
Lumbago and Sciatica. E. Aievoli.—p. 493.

Formation of Indol in Destructive Pulmonary Lesions.—Cantelli's research on rabbits in 1915 confirmed that indol was excreted through the skin after injection of indol. His research here reported on patients with pulmonary lesions apparently establishes that indol in the breath and in the sputum is a sign of a suppurating and destructive lesion in the lung. It was never found with pulmonary or bronchial lesions not accompanied by suppuration, and it seems to be responsible for the fecaloid odor in the destructive process. Indol in the urine warns of a suppurating and putrefying process somewhere in the body.

Evils of Taxis of Hernia.—In the case reported, the strangulated hernia was reduced by taxis without the strangulation being corrected or even suspected. This is the great danger of taxis except as a preliminary when all is prepared for an operation. In this case the man was a deafmute, and the symptoms of ileus were all that was known of the circumstances.

Operative Treatment of Echinococcus Infection of the Liver.—Cignozzi reports 2 deaths and 3 cases of recurrence in his 50 operative cases of hydatid cysts in the liver and 8 in the lungs. In 4 other pulmonary cases, no operation was attempted. This experience has demonstrated the advantages of suturing the cyst to the abdominal incision, with capillary drainage. The extensive defect left can be readily corrected with a plastic operation. In one case in which the hepatostomy opening is illustrated, the cyst measured 16 cm. in depth. Notwithstanding this large size, the cyst was easily reached through a pararectal incision and marsupialized. The cyst cavity is packed with dry gauze for ten days and then with gauze dipped in an acid alcohol solution. The cyst membrane shrivels and is cast off spontaneously in from eighteen to twenty days. The temperature usually runs up after the fifth or six day, from resorption, but returns to normal after the membrane has been cast off. The gauze aids in stimulating granulation so that the healing is complete in from seven to eighteen weeks. A plastic operation to close a large defect has been applied in 140 cases, and always with most satisfactory outcome. The fluctuation is rendered evident as the patient lies on his side on the table or bed, without a pillow, and the physician places his right fingers on the lower part of the liver region while with the other hand he depresses the wall, 4 or 5 cm. above, telling the patient not to breathe. By this means a wave of fluid can be dashed back from hand to hand, a constant and pathognomonic sign of the cyst below. The cyst tends to spread forward wherever its origin. Eosinophilia is found in 60 or 80 per cent. of the cases, and the intradermal reaction in 90 per cent. but the fixation of complement test is positive in about 93 per cent. The urine sometimes contains albumin and tube-casts.

May 29, 1922, **38**, No. 22

The Serum Proteins in Pulmonary Tuberculosis. F. Durand.—p. 505.
Histology of Experimental Benzol Poisoning. G. Brandino.—p. 506.
Stovain Spinal Anesthesia. I. di Pace.—p. 508.
Stab Wound of the Mesentery. F. de Gironcoli.—p. 510.

June 5, 1922, **38**, No. 23

*Early Diagnosis of Apical Disease. I. Jacono.—p. 529.
*Surgical Treatment of Tabetic Gastric Crises. D. Giordano.—p. 530.
*Epigastric Pain with Hemoptysis. C. Cantieri.—p. 531.
*Spastic and Plethoric High Blood Pressure. C. Trunecek.—p. 534.
*Inheritance of Disease. P. Mino.—p. 535.

Early Diagnosis of Apical Disease.—Jacono adds palpation through the axilla to Boeri's four signs of incipient apical disease; namely, the auscultation findings after massage of the apex; tenderness of the chest wall in the apex region; defective or excessive development of the muscles in the region, and the pupil phenomena. Jacono pinches the muscles through the intercostal spaces, in and below the axilla, on both sides. In health this gentle pinching is scarcely noticed but, with apical disease below, it causes lively pain. If the glands feel large and tender, this is further evidence of a lesion in the apex. These changes might be explained by toxic neuritis, reflex neurotrophic disturbance, or involvement of the pleura.

Surgical Treatment of Tabetic Gastric Crises.—In Giordano's patient the gastric crises were essentially motor disturbances, and he severed the vagus at the diaphragm, supplementing this with gastro-enterostomy and dilaceration of the sympathetic fibers accompanying the celiac trunk nerve. The young woman had been confined to bed for a year, the gastric attacks returning every two or three weeks, and lasting from three to ten days. The rebellious vomiting had sapped all her strength. After a two months' interval, the vomiting attacks returned, but the food was passed on and retained, and the attacks could be arrested with chloral. Of late they have been growing less severe and less frequent, but pains in the legs have been growing more severe.

Epigastric Pain with Hemoptysis.—Cantieri warns that this combination of blood issuing from the mouth and pain in the epigastrium is liable to be mistaken for a bleeding ulcer in the stomach or duodenum. In one young woman, intermittent epigastric pain, tenderness, dyspepsia, and blood issuing from the mouth accompanied the menstrual periods. Finally râles and blood streaked sputum corrected the diagnosis. In another case the epigastralgia and dyspepsia were not accompanied by any signs of tuberculosis, but the conditions under which the hemorrhage appeared testified to its hemoptysis nature, corroborated by the ultimate fatal course of the case. The epigastralgia disappeared after a few months. The solar plexus evidently suffers from the tuberculous toxins and decalcification. This plexus is also liable to be compressed by tuberculous suprarenals. In another case, the patient was sometimes waked in the night by blood in her mouth and a tickling in the throat; occasionally this occurred in the daytime. An apical affection had been diagnosed, but the persisting good general condition during the year finally led to search elsewhere, and a varicose vein was found in the throat. The young woman was hysteric, and had varicose veins on the legs and varices in the vagina. When the temperature rises and keeps high after the hemorrhage, this tips the scale in favor of a tuberculous process. The lack of physical symptoms should not mislead the physician. Blood in the stools is no criterion, as blood from the lungs may be swallowed. Radiography may give the clue when all else fails. The gastric pain in these hemoptysis cases may deceptively simulate the classic pain with gastric ulcer. He warns against the unconscious tendency of the patient and family in such cases to mislead the physician away from the idea of the more serious lung disease, by emphasizing the gastric ulcer features of the case.

High Blood Pressure.—Trunecek discusses the type in which the high blood pressure is the result of spastic contraction of certain parts of the blood vessels, and the type for which a plethora of blood is responsible. In both these forms, food that leaves toxic waste should be avoided, and hygiene in general enforced. If this does not cure, then the acids in the blood should be neutralized with a harmless alkaline solution. For this he commends the fluid known as Trunecek's serum. It is a combination of all the alkalines normally in the blood serum, and in the same proportions. From five to ten injections, each of 2 or 5 c.c. of this, repeated twice a week are generally successful. In older persons with long chronic high pressure of these types, the course must be longer. In prophylaxis, a course of chlorid and bicarbonate mineral waters, once or twice a year for two or three weeks, and iodids to promote oxidations may be useful, with Trunecek serum at need.

The Mendelian Laws in Inheritance of Disease.—Mino remarks that at present all that can be done is to accumulate data in this line, for the deductions of a following generation. But the individual must compile the data with criteria and methods which will render their utilization possible.

Crónica Médica, Lima, Peru

April, 1922, **39**, No. 706

*Biosociologic Progress in the Americas. R. J. Fosalba.—p. 111.
Stenosis of Larynx Following Smallpox. A. Flores.—p. 136.
*Amebic Interstitial Hepatitis. C. Monge.—p. 139.
*The National Public Health Service in Peru.—p. 157.

Synthetic Program for Biosocial Research.—This is Fosalba's inaugural address on election to the Academia de Medicina of Peru. He states that the compulsory physical training which was introduced in Uruguay fifteen years ago has already increased the average height of the young by 17 mm. Up to 15, the height surpasses that of corresponding ages in Europe and the United States. He adds that Uruguay has made a greater reduction in the death rate from tuberculosis than has been realized in European countries. The efforts have been concentrated mainly on the "pretuberculous," striving to eradicate the predisposing factors. He describes what has been accomplished to date in concrete biosociology in the Latin American countries and the results of his own investigations.

Amebic Hepatitis.—Monge classifies hepatitis in six groups, the acute, the jaundice-inducing, the chronic, the tuberculous, the syphilitic and the toxic. He describes a case of acute interstitial hepatitis in a man of 32, who had lost 30 pounds in weight during the eight months of agonizing pains in the enormously large liver. Repeated punctures were negative, and cancer of the liver had seemed certain. Notwithstanding the absence of amebas in the stools, Monge gave tentative emetin treatment, and a complete cure followed in less than a month. Before the end of the month he found some encysted amebas in the stools. He does not know of any similar case on record of amebic hepatitis, simulating cancer.

The Problems Before the Public Health Service in Peru.—This is the letter of acceptance of Dr. Henry Hanson, an officer of the United States Public Health Service, when he was recently appointed chief of the national public health service in Peru.

Revista Española de Urología y Derm., Madrid

March, 1922, **24**, No. 279

*Stigmata of Chronic Gonorrhea in Women. L. del Portillo.—p. 113.

The Stigmata of Chronic Gonorrhea in Women.—Portillo gives a list of seven stigmata liable to be found in the vulva of women who have had gonorrhea at some time; six in the vagina, and four in the urethra. He lists among the vulvar stigmata adhesion of the opposite walls. This is very rare; it follows only severe inflammation. Papillary excrescences may be found in the vulva, vagina or urethra, and although these may be due to other causes, yet the presumption is in favor of irritation from chronic gonorrhea, as a rule. Cysts in the wall of the vulva or vagina can be felt as small torpid bunches, never causing pain, but they may grow to quite a size and they may become infected and rupture. They must not be confounded with bartholinitis. Hyperesthesia of the vulva and hypertrophy of the walls of the vulva and vagina, are further suggestive, as also narrowing of the passage in either, a phlegmon in the vaginal wall, and vaginism. Partial stenosis of the vagina or urethra is also suggestive of irritation from chronic gonorrhea. The relics of gonorrhea in the uterus and adnexa are familiar to all, from metrorrhagia, cysts, adnexitis refractory to vaccines, and sterility to the complications of childbirth.

Semana Médica, Buenos Aires

April 27, 1922, **1**, No. 17

The Indications with Emergency Delivery. T. A. Chamorro.—p. 657.
*Arterial Anesthesia. B. N. Calcagno.—p. 661.
*Bacteriophagia. C. E. Pico.—p. 675.
Surgical Treatment of Chronic Hydrarthrosis. J. Moreno.—p. 679.
Pay Patients in Public Hospitals. J. G. Ruiz.—p. 681.
Prophylaxis of Cancer. F. Igea.—p. 691.

Arterial Anesthesia.—Calcagno trephined an osteomyelitic focus in the tibia of a boy of 16, under the anesthesia induced with 0.2 gm. of stovain in a 0.5 per cent. solution, injected directly into the femoral artery, through the skin. He sometimes expels the blood from the limb by winding it from the toes to the root beforehand. In one man of 52 the anesthesia was complete with only 0.12 gm. of procain, allowing amputation of the leg for syphilitic gangrene. He describes a number of other major operations on the legs done under arterial anesthesia. For the arm, it is safer to expose the artery before making the injection, or a retrograde injection might be made in the radial artery. The only contraindication is infection in the region where the artery is to be injected. The needle hole closes spontaneously afterward.

Bacteriophagia.—Pico's experiments are the first to be recorded, he says, in which the bacteriophagic action was induced with pancreatin, trypsin or papain, instead of a filtrable virus, as in the experiments of others. The bacteriophagia is thus a transmissible autolysis of micro-organisms, accelerating the normal autolysis of the bacteria. The regeneration of the lytic principle at the expense of the disintegration products of the bacteria explains the serial character of the autolysis. This, he explains, may serve as the basis for a new bacteriologic therapeutics, a lysinotherapy, based on a more general conception of the bacteriophagic phenomenon than d'Herelle visioned.

Deutsche medizinische Wochenschrift, Berlin

May 19, 1922, **48**, No. 20

Place of Vitamins in the Nutritional Therapy of Children's Diseases. E. Schiff.—p. 651.
Heredity and Constitution. K. H. Bauer.—p. 653.
Allergy Experiments on Bacteria. A. Schnabel.—p. 654.
*Syphilitic Hydrocephalus in Children. Cassel.—p. 655.
*Drinking Water and Goiter Incidence. E. Miesbach.—p. 657.
Multiple Neuritis During and Since the War. A. Knapp.—p. 659. Conc'n No. 21, p. 692.
Case of Homosexuality Cured by Implantation of Testis. E. Pfeiffer. —p. 660.
Palliative Treatment of Hay Fever. C. Dietsch.—p. 662. Begun No. 19, p. 631.
Causal Morphology and Practical Medicine. G. Ettisch.—p. 662.
Gallstones and Gastric Ulcer. G. Ledderhose.—p. 664.
Intra-Uterine Technic in Diagnosis and Treatment. H. Freund.—p. 666.

May 26, 1922, **48**, No. 21

Significance of Tuberculous Allergy for Proteotherapy and Inflammation. K. Zieler.—p. 685. Reply. H. Selter.—p. 686.
Observations of Practitioner on Arsphenamin and Mercury. Kromayer. —p. 686.
Curvature of the Diaphragm in Roentgenogram. E. Thomas.—p. 688.
Treatment of Lung Gangrene, with Special Reference to Arsphenamin Therapy. F. Peemöller.—p. 690.
Ileocecal Tuberculosis Perforating into Bladder. Reh.—p. 692.
Multiple Neuritis During and Since the War. A. Knapp.—p. 692. Conc'n.
Cyst of Sheath of Ulnar Nerve. J. P. zum Busch.—p. 694.
Freezing in Staphylococcus Infections. Bockenheimer.—p. 694.
Simple Method of Determining Leukocytes in Urine. Tannenbaum.—p. 695.
Quartz Glass and Rock-Crystal in Bacteriology. Jungblut.—p. 696.
"New Thoughts on Treatment of Carcinoma." J. Wolff.—p. 697.
Acute Peritonitis. G. Ledderhose.—p. 698.
Hemorrhages in Gynecologic Practice. H. Freund.—p. 699.

Chronic Hydrocephalus in Children.—Cassel has found the prognosis of syphilitic hydrocephalus, as a rule, unfavorable. A number of children succumb to the cerebral symptoms without securing any benefit from energetic antisyphilitic treatment. A complete cure is rarely accomplished. Most patients retain at least mental defects that are more or less marked; many become grave neuropaths that are a great burden to their family. However, in spite of the unfavorable prognosis in most cases, in no case should energetic treatment be neglected.

The Iodin Content of Drinking Water in Relation to Goiter.—Miesbach has conducted investigations in Bavaria which lead him to believe that the lack of iodin in the drinking water in certain regions may possibly be the cause of the increased incidence of goiter in those sections.

Klinische Wochenschrift, Berlin

April 1, 1922, **1**, No. 14

Bases and Significance of Physicotherapy for Internal Medicine. Goldscheider.—p. 665.
The Intravenous Injection of Drugs in Oil. Lepehne.—p. 670.
Myoelectric Researches on Affections of Corpus Striatum. E. Rehn. p. 673.
Scoliosis and Abnormal School Postures. H. Maass.—p. 675.
Partial and Total Rhinoneoplasty. J. Joseph.—p. 678.
Inflammation, Allergic Immunity and Anaphylaxis. Klinkert.—p. 680.
Effect of Quartz Lamp Irradiation on the Susceptibility of the Skin to Pain. F. von Gröer and W. von Jasinski.—p. 683.
Bulbocapnin Catalepsy. H. de Jong.—p. 684.
Isolated Paralysis of the Axillary Nerve Due to Carbon Monoxid Poisoning. E. Mendel.—p. 685.
Indications for Therapeutic Hypnosis. F. Lange.—p. 686.
Treatment of Soft Chancre. C. Bruck.—p. 689.

Medizinische Klinik, Berlin

June 4, 1922, **18**, No. 23

Infectious Gastro-Enteritis in Infants. A. Reuss.—p. 717.
*Sterility in Women. H. R. Schmidt.—p. 722.
*The Initial Pains with Ulcer. S. Jonas.—p. 723. Conc'n No. 24, p. 761.
Warning Against Attempt to Tie Up Natural Openings by Tunneling Skin. E. Sachs.—p. 727.
*Swine Erysipelas in Man. Gestewitz.—p. 729.
Polyvalent Anticatarrh Liniment. F. Grossmann.—p. 729.
*Cultivation of Tubercle Bacilli. Meyer and Fitschen.—p. 730.
*Thallium and the Endocrine System. A. Buschke and B. Peiser.—p. 731.
*Convulsions in Infants. K. Blühdorn.—p. 733.
Treatment of Various Genito-Urinary Affections. E. Portner.—p. 734.
*Present Status of Protein Therapy. J. Voehl.—p. 736.

Sterility in Women.—In the course of this dissertation on the prospects of treatment of sterility, Schmidt says that when stenosis of the cervix seems to be responsible for the sterility, the best results have been attained by Fehling's rinsing treatment. A fenestrated glass tube, the size of a lead pencil and about 5 cm. long, is introduced into the cervix. It is slightly curved, and a glass plate prevents its slipping into the uterus. It is worn for three days, and then the uterus cavity is rinsed out with a 1 per cent. solution of liquor formaldehydi. The tube is replaced for three days, and this is repeated two or three times, rinsing the uterus in this way at each change. This induces a moderate astringent action on the mucosa, and the os is mechanically and permanently enlarged, and the uterus accustomed to mechanical irritation. Pregnancy followed in a recent series in 27 per cent. of the fifty-six cases, and in 35.5 per cent. of another series of thirty-one cases.

The Initial Pains with Ulcer.—Jonas' analysis of a long series of cases demonstrates that a sensation of oppression or cramp occurring in the stomach daily or almost daily for weeks, showing some connection with intake of food, and followed by long periods of freedom from disturbances, the whole displaying a seasonal character, suggests incipient gastric or duodenal ulcer. A period of excessive peristalsis precedes the actual ulceration in stomach or duodenum.

Treatment of Swine Erysipelas in Man.—Gestewitz concludes from six cases of this kind that the disease in man is comparatively mild and local. It may heal under ordinary salves, but if not, the antiserum should be administered. In one of his cases certain general symptoms followed the eating of the well cooked meat of the diseased hog, but it is a question whether they were referable to serum sickness or to food anaphylaxis.

Cultivation of Tubercle Bacilli.—Meyer and Fitschen report almost invariable success with the Dorset egg culture medium, shaking up the yolk and white together, and adding one-fifth part of water, and slanting the test tube in the incubator till it hardens. The usual preliminary treatment with an alkaline caustic kills off the accompanying bacteria. They close the tube with paraffin and stain a smear from the culture the fourth day, and every two or three days thereafter.

Thallium a Specific Poison for the Endocrine System.—Young rats fed with bread dipped in a 1 : 5,000 solution of thallium acetate lost all their hair in a month. The growth was stunted, and the animals presented a cretin-like appearance. When the drug was injected, the toxic action was pronounced and often fatal. The endocrine glands showed a selective toxic effect, and the whole organism suffered secondarily through intermediation of the ductless glands. Buschke and Peiser do not know of any other substance that acts thus almost exclusively on the endocrine system. Experiments on tadpoles with thyroid treatment to counteract the thallium, and experiments on the frog heart have been confirmatory.

Treatment of Convulsions in Children.—Blühdorn recalls that the convulsions of spasmophilia occur scarcely ever outside of the winter and spring, and that breast-fed infants escape as a rule. Infants overfed with milk, with a tendency to hard stools, are the predisposed; rachitis and spasmophilia have much in common. Overheating and prevention of radiation of heat are also liable to induce convulsions. An ample supply of fluids is imperative, poured into the stomach or rectum or infused subcutaneously. If chloral fails to relieve the spasmophilic convulsion, there is probably some organic cerebral process. Calcium treatment combats the spasmophilia effectually and the child can be fed as indicated. He prescribes it in the form of 10 parts calcium chlorid; 2 parts anisated solution of ammonia; 1 part gum acacia; saccharin to taste, and water to 200 parts. The dose is 10 c.c. six or eight times a day at first and then three times a day, kept up for a long time. Spasmophilia may accompany and aggravate organic disease, as in a recent case of convulsions in whooping cough. The electric and other tests were negative, and the convulsions seemed to herald the fatal termination. As a last resort, 20 c.c. of an 8 per cent. solution of magnesium sulphate was injected, and the benefit was amazing. In all organic cases, therefore, it is well to give tentative treatment for possible spasmophilia, to eliminate this factor, at least.

Protein Therapy.—Voehl's summary of recent literature on parenteral protein therapy mentions chronic joint affections and skin affections as the fields in which this method of treatment is proving most effectual. Although there is no general agreement, yet the testimony already available is very encouraging, although we must not forget, he adds, that, with any new treatment, the favorable results are more liable to be published than the unfavorable.

Münchener medizinische Wochenschrift, Munich

May 19, 1922, **69**, No. 20

Modern Aspects of Diabetes. K. A. Heiberg.—p. 731.
Problems and Aids in Urology. Pflaumer.—p. 733.
Intravenous Use of Salicylic Acid. E. Herzfeld.—p. 735.
Neo-Silver-Arsphenamin in Treatment of Syphilis. Zeller.—p. 737.
Operation for Cancer of Rectum. T. Köhler.—p. 738.
*Roentgen Irradiation for Hypophysial Tumors and in Gynecologic Affections of Hypophysial Origin. Blumberg.—p. 739.
Silicic Acid in Infantile Tuberculosis. Klare and Budde.—p. 741.
Pepsin in Treatment of Leukoplakia. G. Trautmann.—p. 742.
Case of Lingual Goiter. K. Zehner.—p. 747.
Three Cases of Extragenital Syphilis. E. Schardon.—p. 748.
Invasion of Bronchial Tree by Contrast Medium. Förster.—p. 748.
Methods of Recording Heredity Statistics. W. Weinberg.—p. 748.
Accidents of Operations for Hernia. A. Krecke.—p. 750.

Mesothorium Treatment of the Pituitary.—Blumberg has applied mesothorium irradiation to the hypophysis in four cases, one case of hypophysial tumor, in which the result was very satisfactory, and three cases of dysmenorrhea of hypophysial origin, in two of which considerable improvement was effected, while in the third case no effect was noticeable. Since the sella turcica constitutes, as it were, the roof of the sphenoidal sinus, he applies the mesothorium to the roof of the cavum pharyngonasale, as the most accessible point in close proximity to the hypophysis. He describes his technic in detail.

Wiener klinische Wochenschrift, Vienna

May 18, 1922, **35**, No. 20

Proteotherapy and Vaccinotherapy. B. Busson.—p. 451.
Action of Arsenicals, Adaptation of the Organism Thereto and Poisoning Therefrom. K. Ullmann.—p. 455. Cont'd.
*Immunization of Guinea-Pigs Against Typhus. E. Weil and F. Breinl.—p. 458.
An Error in the Prophylaxis of Stuttering. L. Stein.—p. 461.
Description of the Ionometer. J. Christiansen.—p. 461.

Inoculation of Guinea-Pigs with an Attenuated Typhus Confers Active Immunity on the Passively Immunized Guinea-Pigs.—Weil and Breinl report their successful search for a method by which they are able by regulation of the dosage of virus, applied to guinea-pigs, to produce an "unapparent" infection which, however, results in active immunity. They think that the method will probably be applicable to man, for Nicolle has already shown that the immune serum of guinea-pigs has a prophylactic effect on man. On the other hand, it can doubtless be assumed that convalescents' serum is effective. It is also fully established that guinea-pig virus will infect man. In both of their virus strains, the infective doses which, following an afebrile course of the infection, produced a definite active immunity, lay between 0.001 and 0.0001 gm. of brain substance. The smaller amount would infect most of the controls but would not produce an active immunity in the passively immunized animals. [Weil's name is familiar in the Weil-Felix test for typhus. His untimely death from laboratory infection was recorded recently.]

Zentralblatt für Chirurgie, Leipzig

April 8, 1922, **49**, No. 14

*Lymph Drainage in Elephantiasis. Haubenreisser.—p. 474.
*Gradual Dilatation of Stricture of Urethra. Hammesfahr.—p. 475.
*Recurrences After the Bassini Operation. J. Schwartz.—p. 476.
Mocny's Method of Treating Vessel Injuries. F. Mocny.—p. 480.
"Is the Extirpation of Suprarenals in Epilepsy Justified?" Comment. H. Kersten.—p. 482.

Payr's Lymph Drainage in Elephantiasis Cruris.—Haubenreisser reports two cases of elephantiasis cruris, in one of which lymph drainage by the Payr method accomplished a complete cure, and another case in which the same method brought about an almost complete cure.

Gradual Dilatation of Stricture of Urethra.—Hammesfahr states that in two cases of extreme narrowing of the posterior portion of the urethra following, in one instance, an operation and, in the second instance, trauma, he was able to effect a cure by passing a small ureter catheter or wire by way of the cystotomy wound through the bladder into the urethra. By this "endless" method he was able to pass rubber tubes of increasing caliber.

Recurrences Following the Bassini Operation.—Schwartz discusses a series of 500 operations for inguinal hernia by the Bassini method. In 207 cases in which reexamination was possible after from one to eleven years, there were eleven recurrences, or 5.3 per cent. Other series refer to from 10 to 20 per cent. recurrences. He describes the slight modification of the Bassini method that Friedemann employs.

Zentralblatt für Gynäkologie, Leipzig

April 8, 1922, **46**, No. 14

*Collection of Cancer Statistics. G. Winter.—p. 529.
*Sedimentation of Blood Corpuscles. G. Linzenmeier.—p. 535.
Impregnated Ovum in Relation to Corpus Luteum. Hofstätter.—p. 542.
Etiology of Corpus Luteum Cysts. K. von Oettingen.—p. 548.
Spontaneous Transformation of a Face Presentation into an Occipital Presentation, in the Pelvic Cavity. W. Walz.—p. 554.
Ovarian Therapy in Climacteric Toxicodermias. J. Hofbauer.—p. 558.

New Basis for Cancer Statistics.—The introduction of roentgen and radium therapy has made it necessary to adopt entirely different rules for cancer statistics, it being especially important that new statistics make possible a comparison of the results of operation with the outcome of irradiation. Winter has drawn up a carefully worked out scheme for statistics on the modern cancer problem. He gives the outlines of his plan.

Speed of Sedimentation of Blood Corpuscles.—Linzenmeier emphasizes again the diagnostic value of the determination of the suspension stability of blood corpuscles in gynecologic practice. If the sedimentation time is accelerated; that is, if it is less than thirty minutes, acute inflammatory processes affecting the genital organs may be suspected. The changes in the sedimentation velocity will often furnish desired information when changes in the temperature leave us in the lurch. In the differential diagnosis between recently disturbed ectopic pregnancy and acute adnexal and peritoneal affections, slow sedimentation points with a high degree of probability to tubal pregnancy. Sedimentation serves also as an excellent indicator as to the time for operative intervention in fixed retroflexion, chronic adnexal tumors and similar affections. If sedimentation occurs in less than one hour, virulent infective agents may still be present, and we had better wait with the operation; if sedimentation requires two hours or more, it is safe to go ahead with a laparotomy; latent infection need no longer be feared. The buffy coat or crusta phlogistica of the physicians of earlier centuries has again come into honor through Fåhræus' revival of a well known diagnostic principle.

Zentralblatt für innere Medizin, Leipzig

April 8, 1922, **43**, No. 14

"Stuttering in Relation to Asthma." Reply. L. Stein.—p. 233.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

April 22, 1922, **1**, No. 16

Rhinopharyngitis Mutilans from Yaws. B. M. van Driel.—p. 1604.
*Standard of Nutrition for Children. C. J. van der Loo.—p. 1611.
Action of Procain on Muscle Tonus. S. de Boer.—p. 1621.
*Flatfoot. D. Brocx.—p. 1627.
Ovarian Metastasis of Cancer. J. A. van Dongen.—p. 1630.

Standard of Nutrition in Children.—Van der Loo gives the formulas for the ten different methods in vogue for assessing the physical fitness of children, and points out the fallacies of all of them, from Pirquet to Dryer. He then describes his own method which, he affirms, comes nearer to the ideal than any of the others for sifting out the undernourished. It is based on a standard table showing the normal weight and chest measure for a given height. The difference between the chest measure and the normal figure is multiplied by —2.5 for each centimeter, and the difference in weight is multiplied by 4, 3 or 2 for each kilogram. His table is made up from several thousand normal Amsterdam children. His index is 100 times the weight divided by the square of the diameter of the chest, multiplied by the height. The circumference of the chest is 3.75 times the diameter. He explains, for example, that a child 114 cm. tall, with a chest measure of 54 cm., weighs 16.6 kg. The normal figures he gives for a child 114 cm. tall are, chest, 55.6 cm.; and weight, 19.2 kg. The child is thus 2.6 kg. too light and its chest 1.6 cm. too narrow. Multiplying —2.6 by 4, and adding —1.6 multiplied by —2.5 = 6.4. We thus get $\frac{6.4}{4}$ = 1.6 kg. as the loss from underfeeding and 2.6 — 1.6 = 1 kg. the loss in weight from the narrow chest.

Prophylaxis of Flatfoot.—Brocx has been impressed in his sixteen years of sickness insurance practice with the number of cases in which flatfoot develops after some accident to the foot or sickness confining to bed for a time. When the patients get up after this, flatfoot develops. He ascribes this insufficiency of the foot to the weakening of the muscles from disuse, but above all to the fact that when the patient gets up, he wears loose, old shoes or slippers at first. The weight-bearing, with the muscles thus weakened, invites flatfoot, but it can be warded off by having a special supporting sole in each shoe. Walking is the best exercise to restore normal tone to the muscles, but until this is realized, the arch of the foot should be supported.

April 29, 1922, **1**, No. 17

*Bacilli Carriers. H. Aldershoff.—p. 1680.
*Simple Treatment of Hemoptysis. J. Geers.—p. 1688.
*Induced Fever in Treatment of General Paresis. A. Gans.—p. 1693.
Sachs-Georgi Versus Wassermann Reaction. D. E. Cohen.—p. 1698.
Case of Abdominal Contusion. A. E. Nordholt.—p. 1704.
Intragluteal Injection of Turpentine in Treatment of Gonococcus Arthritis. K. A. Rombach.—p. 1707.

Bacilli Carriers.—Aldershoff warns that in the attempt to detect bacilli carriers and bacilli holders it is very easy to overdo, and bring discredit on preventive medicine in general. He advises to restrict the search to the cases in which the epidemiologic findings indicate a carrier of virulent germs. It should then be legally possible to take the necessary measures. Their aim should be to keep the carriers and holders out of occupations in which the danger for others is especially great. "Until we know of some simple and reliable method to distinguish between virulent and nonvirulent germs, there is no use or sense in wholesale examinations on a large scale for carriers."

Treatment for Hemoptysis.—Geers is chief of the public sanatorium at Joure, and until 1917 had usually from 18 to 24 severe cases of hemorrhage from the lungs each year, with more than twice as many mild cases, and there was always at least one fatal case of hemoptysis during the year. Since that year he has not had a single case of hemorrhage from the lungs, and he ascribes this success to the practice then introduced of giving milk by the rectum, as a readily absorbable solution of calcium. Milk by the mouth clots, and its salts cannot be readily absorbed. Solutions of calcium salts given internally or subcutaneously often fail. The milk enema was the last resort at the twenty-third hemorrhage in his first case, after failure of the whole arsenal of other measures. There seems to be a certain periodicity about hemorrhages from the lungs, and by study of the pulse, the filling of the blood vessels, the color of the face, the size of the pupils and the subjective symptoms, it is not difficult to tell when hemoptysis is impending. Then he begins at once with the enema of 250 gm. of tepid milk every evening, having it retained as long as possible. All the milk in the institution is always heated to 90 C. The enema may be given mornings, too, if necessary. In special cases a subcutaneous injection of gelatin may be advisable, but he has not found this necessary more than twice in the last four years. He has had no opportunity to try this treatment in hemophilia, but it proved useful in a bleeding gastric ulcer case. He advises the practitioner to inject the gelatin first and then follow with the milk enemas. He warns against morphin as inviting aspiration pneumonia after hemoptysis.

Therapeutic Inoculation with Malaria in General Paresis.—Gans reports the application in nine cases of general paresis of Wagner-Jauregg's method of inducing a fever by inoculating with malaria. It has been described as a system of therapeutic "driving out the devil with Beelzebub." Gans' experience was favorable, confirming Wagner's statements. The effect in three of his cases, he says, was remarkable; the others were too far advanced for any hope of benefit. In a comment on this article by G. C. Bolten (page 2107) he mentions that he had two patients with general paresis who had fever from tuberculosis, but this fever did not modify their general paresis. He also mentions that in the East Indies malaria is common in Chinese workmen, but they often develop general paresis and tabes.

May 6, 1922, **1**, No. 18

*Pulmonary Tuberculosis in Children. Cornelia de Lange.—p. 1768.
Electrochemical Research on Cancer. N. Waterman.—p. 1780.
Active Immunization Against Diphtheria. Hulshoff Pol.—p. 1789.
The More Recent Literature on Rachitis. L. Havinga.—p. 1793.
A Pioneer Insane Asylum; 1442. H. Schade.—p. 1803.

Diagnosis of Pulmonary Tuberculosis in Children.—De Lange deplores the too frequent tendency of practitioners to decide that in a child, with a tuberculous lesion anywhere, a process in the lung must necessarily be of a tuberculous nature. Even chronic lung processes with negative tuberculin tests are regarded as tuberculous, when in fact there is merely some infiltration and tendency to bronchiectasia. As the lung clears up in time, the case is reported as an example of a brilliant cure under the treatment that had happened to be used at the time. It is a grave blunder to send such children to a tuberculosis sanatorium. A child under 8 with physical findings of such extent would rapidly succumb, if they were actually of a tuberculous nature. There may be a small tuberculous focus with an encircling nonspecific infiltration. The French "splénopneumonie" is one form of these chronic nontuberculous affections of the lung in children. A chronic pneumonia may entail retraction, and in asthenic children the right subclavicular fossa is often sunken in. Apical processes are rare in children, while a faulty attitude may induce deceptive physical findings. The difference in the size of the two lungs may also prove misleading. Extensive chronic lung processes in children under 8, which clear up or remain stationary, are not pulmonary tuberculosis. She describes several typical cases in which only the ultimate recovery corrected the diagnosis.

Hygiea, Stockholm

June 15, 1922, **84**, No. 11

*Phlegmonous Conditions in Digestive Tract. R. Roman.—p. 433.

Phlegmonous Inflammatory Conditions in Digestive Tract.—Roman gives the tabulated details of 271 cases that he has compiled, and tabulates separately the group of 41 cases in which the intestinal wall was involved. In the 41 intestinal cases, 9 were saved of the 12 treated by radical operation, but all died under medical treatment or palliative operation alone. Fourteen cases were in the duodenum, all fatal, but one patient was cured by resection of the bowel involved in the 6 jejunum cases, and 6 of the 8 ileum or cecum cases. Two others were cured by resection of the colon. MacCallum, Dowd and Taylor-Lakin are the only Anglo-Saxon surgeons cited. Death occurred in twenty-four hours up to thirty-nine days, the average duration being from two to five days. In a case personally observed, the acute phlegmonous sigmoiditis proved fatal in one week. In a second case, the phlegmonous inflammation extended over a long stretch of the ileum, and the man of 25 recovered after this segment had been resected. The sudden onset of diarrhea, without pains, in the first case, contrasted with the severe colic pains and chills in the second case, without diarrhea or vomiting. The young man returned to work for four days, but the pains and tenderness kept up and a laparotomy on the presumptive diagnosis of appendicitis revealed the phlegmonous changes and allowed the complete cure. Both the men had been supposedly in perfect health before. In the total 271 cases, 180 were men and 73 women; the sex of the others was not specified. The mortality was 91.2 per cent. in the 217 cases of phlegmonous gastritis, but was 100 per cent. in the sigmoid, transverse colon, duodenum and esophagus cases. The acute onset and rapidly severe general symptoms are common to all localizations, and there seldom had been any symptoms before to call attention to the digestive tract.

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SOCIALISTIC TENDENCIES IN MEDICINE *

JAMES A. GARDNER, M.D.

BUFFALO

It is not my object to decry the benefits to humankind and to civic life which have come from some of the progressive movements brought about by sincere effort; but, in recent years, under cover of promoting the welfare of society or some part of it, there have been permitted to be inaugurated many so-called reforms which, in reality, are little more than the outcome of the emotional desires of restless faddists or of the ideas of extreme and radical discontents.

The contention is sane that all reforms of whatever nature should be made only after patient and scientific investigation of the causes and the cure of the evil sought to be corrected, and that the desire to bring about such reforms presupposes knowledge obtained by serious investigation and careful research, unhampered by emotion or prejudice.

It is not an exaggeration to state that, in many instances, sincere and enthusiastic advocates of social and welfare legislation, so-called, are not familiar with the full purport or essential details of the measures they advocate. It is not at all uncommon for boards of directors or other governing bodies, after a few moments' consideration, to announce support or opposition to legislation which has required weeks of study by men conversant with the subject before they are willing to pass judgment upon it. Propagandists, through well-meaning people, have been doing much work among our law making bodies which, in the near future, will have to be undone.

PROPAGANDISTS IN THE FIELD OF MEDICINE

The field of medicine has been a fertile one for the agitator and the propagandist. The physician has always been ready to aid in measures for the betterment of humanity. It is fair to assert that no other profession has been so lacking in self-interest. It is perhaps due to this willingness to help in every movement for physical and moral advancement that the reformers and uplifters have been allowed to invade, unopposed, the practice of medicine and surgery, until the time has arrived for raising the danger signals. The peril of the situation becomes more urgent when it is realized that the public is being educated to believe that the socialization of the medical profession will bring higher standards of health. The fact is that, with the initiative and individuality of the physician removed, the profession will cease to attract to it men of energy, ability and ambition, who are now keeping American medicine in the front rank of intellectual and scientific achievement.

The drift toward paternalism and pauperization is strong. Beneficent social workers have been working overtime to give us our Sheppard-Towner maternity bill, which will cost the taxpayers about $6,000,000 for five years. Also, a bill was introduced for the formation of a national board of health, with a seat in the cabinet providing for federation of all state, municipal, and county health officers, and placing them under a secretary of health at Washington. It provides for a suitable central office for each health division and for regional hospitals and sanatoriums, to be supported jointly by the state and the federal government, so that adequate free facilities may be provided for all those suffering with infectious diseases, particularly tuberculosis, as well as surgical diseases, in order that these diseases may be cured and eradicated. Only $63,000,000 is needed to develop this idea.

In New York State, we have managed to escape the fetters of public health insurance for the time being, but we expect, each year, that it will appear in the legislature under another name. I shall not refer to the bills of this type that were introduced in the last Congress.

CHARITABLE INSTITUTIONS

In the field of medicine, we find an increased number of public hospitals and charitable institutions; and there is an ever increasing attempt to build up, under governmental control and support, medical charities, in the nature of health centers, diagnostic clinics, bureaus of health insurance, compensation acts, and other like public activities for the purpose of caring for those who supposedly are unable to pay. These medical charitable institutions, however, are not confining their care to needy charitable cases, but, increasingly, by skilful advertising and other effective means, are bringing under their care those who are able to pay for medical treatment.

The slogan of "free health" has an alluring sound; but it is false in its concept. The public needs protection; but primarily it needs education. If the public were educated and knew what it is receiving, there would be no lodge practice or splitting of fees, and chiropractors and the other medical isms would disappear. Faith in human nature leads many people to accept ideas from friends or take too seriously what they read. It has always been an amazing anomaly that a man seeks and willingly pays for the highest degree of legal skill to protect his property, while he is willing to barter his life away to mediocrity.

Prevention and education need the aid of the government; but the state should not compete with individual skill and superior knowledge and efficiency in the care of those who have money to pay and so should not be treated at public expense. The evil results are twofold: The medical profession will lose its motive and impetus to go forward, and, consequently, its standard will be lowered and its progress cease; and the patients who are treated free by the state will sacrifice their self-respect in their willingness to be pauperized.

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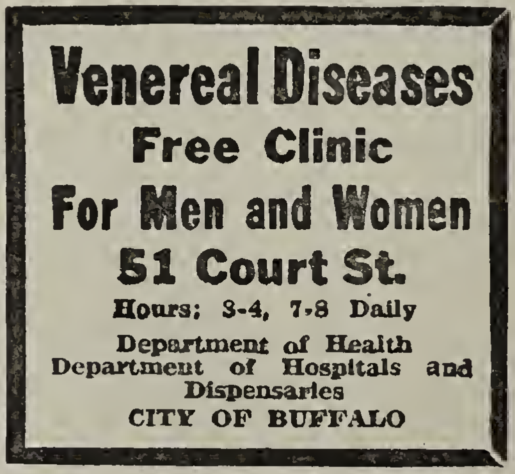
* Chairman's address, read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

The needy poor have always been cared for cheerfully by physicians, and it is reasonable to believe that this policy will not change. Many hospitals, and scientific laboratories have been established and the best facilities available have been installed to care for the sick when they are unable to pay. This class of patients is also desired by the college hospitals, where students are instructed by the best trained teachers. The college hospitals open their doors to the poor for this reason, and patients have the benefit of treatment by the most skilful physicians and surgeons in the community.

In the municipal or state-owned hospital, with its large financial backing, we find many positions for willing workers. Large buildings must be provided, with many beds, the more the merrier. Of course, if the management cannot keep these beds full, the number of employees must be cut down, so there is every inducement to care for as many patients as possible. Rivalry exists among these state-owned institutions to see which can hold the largest clinics. Naturally, the boards of trustees and the superintendents, if they have the money, will make every effort to develop large clinics; and the mere fact that a patient has plenty of money with which to compensate his family physician or a specialist for any treatment he may require will not interfere with his treatment free of charge if he is an "interesting case."



Venereal Diseases
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Department of Hospitals and Dispensaries
CITY OF BUFFALO

Fig. 1.—An appropriation of $2,500 a year was made by the city to carry this insertion in four of the daily papers.

HEALTH CENTERS

In Buffalo, the health center has been developed, and we have had ample opportunity to watch its growth. The department of hospitals and dispensaries is a well organized machine; 25 per cent. of our physicians are serving with or without compensation, some on full time at from $1,500 to $3,000 a year.

In the urologic department, there has been a very rapid growth. By the expenditure of $2,500 a year for advertisements in the daily press, stating that patients are cared for free of charge, the treatments given were increased from 100, in 1916, to 24,949, in 1921. Urologists are employed at $760 a year for part time. One of our city urologists stated that he saw from fifty to seventy patients in a two-hour period three times a week. He accounts for the number of cases cared for by the excellent system. Gonorrheal patients irrigated themselves, the orderly massaged them and a nurse prepared the arsphenamin, so the urologist's only job was to insert the needle. There was no laboratory attached, and no smears or urine were examined. If the physicians wished these examinations made, the patients were sent to the city laboratory and reports made at a later date. Does any one think that these patients are getting service, even if it is free? There is no official dividing line between those whom they care for as free patients and those who are refused because of their ability to pay. An announcement has been made from time to time that any one making more than $20 a week will not be cared for. Therefore, those who came to the clinic in their automobiles never had an income of more than $20 a week.

With the necessity of seeing so many patients in such a short period, the dispensary physician must neglect his most important duty, that of advising the patient of the great danger of infecting others while he is still an active carrier of disease. He loses the personal touch with his patient which is the successful element in the treatment of disease. In private practice, the physician is not only a physician, but more often a friend also, and the relationship with his patient is a very personal one. Wholesale or commercial methods cannot succeed in medicine. The treatment of the sick is individualistic, and the state should not try to assume this function.

The private physician must compete with the government employee, the latter having offices, equipment and free drugs to aid him in procuring patients. He is content to accept the princely salary of from $75 to $150 a month. The private physician who cares for a venereal case is supposed to furnish his competitor, the government, the name and address of his patient.

This kind of interference would never be countenanced in the business world; but it must be remembered that the physician prides himself on not being a business man; therefore, he permits it.

Why not pay the laborer a living wage that would permit him to live and pay for his medical attendance, rather than ask the physician to make up the deficit in so-called charity hospitals and dispensaries? We want to give the needy poor better care than they have ever received before; but this cannot be done if we have to care for those who can afford to pay.

THE VENEREAL PROBLEM

Public health is the musical instrument easiest for the welfare worker to play, and the softest chord is the venereal problem. They not only are able to stir the sympathies of the public, but also can arouse it to supporting the movement through fear of infection. The government has given considerable encouragement to this movement since the beginning of the war, together with semiprivate charities which have sprung up, claiming that they stand between the venereal clinic and the specialist with regard to the cost to patients.

The question whether or not free treatment and the ease with which it can be procured does not encourage the patient "to take a chance," rather than stamp out the disease, has yet to be answered.

The urologist, I believe, will, in a short time, be stripped of his venereal work so far as private practice is concerned. In the more technical field, the cystoscopic examination and diagnosis, together with surgery of the urinary tract, the encroachment will be less rapid, but nevertheless progressive.

RESULTS OF "FREE HEALTH"

To show how insidious is this virus of free health under the guise of medical charity, let me quote from the announcement circulated in the health week campaign, by the council of the Medical Society of the County of Erie, the campaign headquarters being at the Buffalo City Hospital:

> Throughout the week members of the Medical Society of Erie County will be in attendance for diagnostic and advisory purposes, free of charge, regardless of financial standing of patient. All reports will be mailed to physicians designated by applicants.

This was a free campaign—free movies, free exhibits and free medical examinations. In the amusement column of the daily press, immediately above the announcement inserted by the Christian science church, appeared the advertisement presented in Figure 2.

If we draw attention to the fact that physicians who are not on public payrolls will have difficulty in making a living should this so-called "free health" reach its logical outcome, the public may not be sympathetic until the awakening comes. When, however, the physician's success becomes dependent on political preferment and the principle of medical socialism is substituted for the keen rivalry which now exists, and which calls for the best brains and the highest resource to achieve actual and deserved success, the patient will come to know that free health is at first a meaningless and then a dangerous term. Health can be obtained and preserved through education and by the exercise of knowledge and skill. It cannot be procured or maintained by the construction of palatial hospitals at public expense, and by the haphazard treatment of disease by physicians who are without personal interest in their patients, and whose reward is received from the public treasury and not in the consciousness of duty performed, with the incident recognition and success which such performance brings to the individual. Socialized medicine can no more succeed than socialized industry has succeeded. Its failure is as sure as its consequences are appalling. There can be no such thing as free dispensaries and free clinics—they are bought and paid for by every member of the community. They are expensive, as is everything conducted by the government, and the care given by the state to the sick has been and always will be inefficient. Taxpayers have a right to protest against paying medical bills for those who are financially able to defray their own expenses. It is making liars and cheats of numbers of people.

AMUSEMENTS. AMUSEMENTS.

ERIE COUNTY HEALTH WEEK CAMPAIGN
TUESDAY TO SATURDAY. OCTOBER 18-22, 1921.
CONDUCTED BY
The Medical Society of the County of Erie, State of New York
IN CONJUNCTION WITH ITS
CENTENNIAL CELEBRATION
FREE HEALTH LECTURES by Physicians and Dentists
FREE HEALTH MOVIES. FREE HEALTH EXHIBITS.
FREE MEDICAL AND DENTAL EXAMINATIONS. Physicians and Dentists will be in attendance throughout the week for diagnostic and advisory purposes. All reports will be mailed to Physicians or Dentists designated by applicants.
BUFFALO CITY HOSPITAL
NO. 462 GRIDER STREET, 2:00 TO 10:00 P. M. DAILY

FIRST CHURCH OF CHRIST, SCIENTIST,
IN BUFFALO, NEW YORK, ANNOUNCES A
FREE LECTURE
ON
CHRISTIAN SCIENCE
BY
MR. JOHN J. FLINN, C. S. OF EVANSTON, ILLINOIS
Member of the Board of Lectureship of the Mother Church—The First Church of Christ, Scientist, in Boston, Mass.
ELMWOOD MUSIC HALL, Virginia and Elmwood Ave.
ON FRIDAY EVENING, OCTOBER 21st. 1921
AT 8:15 O'CLOCK — THE PUBLIC IS CORDIALLY INVITED

Fig. 2.—The upper advertisement, which appeared in the Buffalo Express, Oct. 21, 1921, was authorized by the council of the Erie County Medical Society. To pay for this advertising campaign, $1,600 was collected from milkmen, instrument houses and druggists.

Many have come to believe that this free service, for which they should be made to pay, should be extended to the matter of street car fares, and of gas and electric light.

It is not wise for a state to pauperize its people, nor is it fair to the medical profession to deprive it of its legitimate livelihood.

The man who takes up the study of medicine in New York State must spend, after he leaves high school, the equivalent of two years in college and four years of the hardest kind of study in a medical school, and at least one year's, or more often two years', internship in a hospital. Before he can begin to earn his living, he must spend seven or eight years in study and work.

The physician has always been too busy looking after the needs of his patients to give much time to his own interest. As we view the changed conditions in the last few years, unless he awakens to the drift of the tide, there will soon be little inducement for a young man of real ability to enter the medical profession. Even now, after he has finished his hospital internship, he finds that the cost of opening an office and waiting for a practice is appalling. If he accepts a municipal or a state position, which gives him an income of $500 or $1,000 a year, it will help to tide him over a few years. Habits are easily formed. He receives a slight increase as years pass, but he loses the courage to break away and strike out for himself. His ambition and incentive have been lost. The young physician, ambitious to rise in his profession, and realizing that only by hard work and conscientious study can he accomplish this end, finds that, while he is improving himself, he incidentally is making himself a better public servant. If his incentive and ambition are taken away by some government job, will he be any different from the clerks that we find now who have held the same position for years, and who, if they lose their positions, are unable to support themselves?

Throwing aside all consideration of the medical profession, a very serious outlook confronts us. Without realization of the outcome, a dependent class is being formed, a class which will next demand other benefits without pay or effort. It is my belief that the time has come for action on the part of physicians who are proud of their profession. We have been quiescent and complaisant, until the political doctors and doctor politicians have gained a foothold which will be hard to break. They make an insidious plea for public support and a seductive argument to gain the good will of honest and fair-minded people. They have patronage which they distribute judiciously among those whose help may be desired either within the medical profession or among outside political or other influential circles. The medical profession cannot be free and uncontrolled with these medical machines, powerful and active with their advocates and defenders, spread over a city or a state, with jobs to distribute and with power to destroy a private practice built up after years of struggle and faithful service.

It will not do to scoff at the danger or minimize its importance. In its inception, it was harmless. In its spread, it has become a menace to medical men in their standing, ideals and progress. If we do not destroy socialism in medicine, it will destroy us.

The field of social welfare or social reform has developed to such an extent in recent years that it is now a recognized profession, remunerative and popular. The inauguration of a particular reform movement is usually followed by the formation of an organization with a membership more or less inactive but supplying funds to one or more secretaries to carry on active propaganda.

Let me add that I deplore this general and growing tendency to ask the government to do it rather than to do it ourselves. This inclination has been in direct ratio to the increase in our unassimilated aliens. They have always been directed or driven by some one who thought for them. It may have been for good or for bad. This class is easily influenced by propaganda to believe in the socialization of everything. We are being standardized, and sterilized and uplifted to the point of stupidity.

SOLUTION OF THE PROBLEM

The solution of this problem may be stated under three heads:

1. There should be a social service ably trained to make real and thorough investigations and competent to distinguish between the needy poor and those possessing the ability to pay.

2. There should be an awakening of the medical profession to the realization that it is equally responsible for this pauperization. There should be censorship of the services of the physician by some responsible body like the county medical society, as has been done in contract practice, so that patients able to pay should not be cared for gratuitously.

3. There should be education of the public to an understanding that if the standards of medicine are lowered through the loss of impetus and initiative in the young physician, the public will be the chief sufferer.

General Electric Building.

Ultimate Fate of Syphilitic Children.—A series of investigations, extending over twenty-five years, into the ultimate fate of children born of syphilitic parents—all in the better class of the population—gave the following results: There were 139 families with 569 children. The 139 women had 263 syphilitic infants born alive, 253 dead babies and fifty-three living, nonsyphilitic children. Of the 263 syphilitic children born alive, fifty-five died before the age of 4 years. Of the 208 individuals who were the subjects of prolonged observations, 25 per cent. remained alive and without attacks; 14 per cent. died within the first year. All the other children have shown symptoms of disease directly traceable to syphilis. Apart from manifestations on the skin and the mucous membranes, affections of the nervous system, together with moral insanity, were most frequent. According to the statistics of hospitals with their badly fed, unhealthy applicants, 70 per cent. of all syphilitic babies die in their first year.—*Hochsinger: Ultimate Fate of Patients with Hereditary Syphilis Among the Better Classes.*

DETECTION OF TYPHOID CARRIERS

REPORT OF FOUR OUTBREAKS [*]

J. N. GEHLEN, M.D.
Epidemiologist, Minnesota State Board of Health
MINNEAPOLIS

Formerly, field investigations of typhoid fever were seldom undertaken by the Minnesota State Board of Health, except in the presence of an outbreak of considerable proportions, usually traceable to a polluted water supply. Since 1911, epidemiologic field investigations have been made, as far as possible: (1) when a physician or health officer requested investigation; (2) when data furnished by the attending physician or health officer, alone or when associated with previously collected data, have indicated some local source of infection, or (3) in the absence of pertinent data, whenever time and funds have permitted, many investigations being made while the investigators were in the field primarily for some other investigation, often weeks or even months after the occurrence of a single typhoid case.

Before going into the field, the epidemiologist looks up the history of typhoid fever in the locality to be investigated, as recorded in the files of the division of preventable diseases. Our files contain physicians' original case reports and all data previously obtained from physicians and health officers and collected by epidemiologists, together with original records of laboratory examinations of blood, feces and urine, including records of Widal examinations since 1896. In addition, the records of the division of sanitation, concerning city and village water supplies, sewerage systems and certain creameries and pasteurization plants are also accessible.

In the detection of typhoid carriers, carefully collected data, supplemented by the work of the laboratory, are necessary, as suggested below.

1. Detailed case data, with special reference to source of milk and cream, to places where patient partook of food during three weeks prior to illness and to changes in personnel in the home during the same period.
2. Widal specimens from all handlers of food and milk partaken of by patient or patients in the home and elsewhere, and from all members of patient's household.
3. Feces and urine specimens from all such food and milk handlers giving a history of typhoid or continued fever, and from those in whose blood the Widal reaction is present or atypical.
4. Feces and urine specimens from any person or persons to whom data point as a probable source of infection, even though Widal reaction and history of typhoid or probable typhoid fever are absent.

Since Jan. 1, 1913, the division of preventable diseases has identified and placed under supervision eighty-six carriers of typhoid (seventy-two) and paratyphoid (fourteen) bacilli. Four hundred and sixty cases and thirty deaths have been traced epidemiologically to these carriers, two of whom have meanwhile died.

Four outbreaks which illustrate different phases of the carrier problem have been selected for report at this time. In reality, two outbreaks each are reported under Outbreaks 3 and 4.

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[*] From the Division of Preventable Diseases, Minnesota State Board of Health.

[*] Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

FIRST OUTBREAK

No cases of typhoid fever had been reported from D., a village of about 250 inhabitants, since 1913, when Dr. W. P. Greene, then epidemiologist of the state board of health, traced thirteen cases, which had occurred during the three preceding years, to a woman who had had typhoid fever in 1910, and subsequently sold milk in the village. March 4, 1921, a telegraphic request for assistance in an outbreak in children was the first information received by the division of preventable diseases that typhoid fever had reappeared in this village.

Immediate investigation showed that eleven cases, eight in children, three in adults, in four families, as shown in Table 1, had occurred between Dec. 27, 1920, and March 2, 1921, the early cases having been diagnosed as influenza, pneumonia and "nervous breakdown." The three adult patients, and the two young children, aged 2 and 3 years, respectively, in the P. family, had attended "Ladies' Aid" meetings, attended by numerous other women and children, where light refreshments, with coffee, and milk for the younger children, were served. Except for these meetings and the usual frequent visits of close neighbors, there had been no visitors in these families, and the infected persons had not partaken of food away from home. There was no history of previous typhoid fever in the well members of the four families, and the Widal reaction was absent in blood specimens from all. Three families used water from a spring, and one used cistern water.

TABLE 1.—DATA OBTAINED IN FIRST OUTBREAK

Case	Family	Sex*	Age in Years	First Symptoms	Widal Reaction	Water Supply	Milk Supply
1	R.	♂	2	Dec. 27†	March 18 +	Spring	S. Dairy
2	P.	♀	2	Jan. 7†	March 7 +	Spring	S. Dairy
3	P.	♂	7	Feb. 14	March 5 +	Spring	S. Dairy
4	P.	♀	3	Feb. 24	March 7 +	Spring	S. Dairy
5	H.	♀	23	Jan. 13†	March 10 Atyp.	Cistern	S. Dairy
6	H.	♀	21	Feb. 1†	March 10 +	Cistern	S. Dairy
7	H.	♀	14	Feb. 23	March 11 +	Cistern	S. Dairy
8	H.	♂	10	Feb. 28	March 10 +	Cistern	S. Dairy
9	B.	♀	39	Feb. 19†	March 7 +	Spring	S. Dairy
10	B.	♂	11	Feb. 25	March 5 +	Spring	S. Dairy
11	B.	♀	8	Feb. 28	March 11 +	Spring	S. Dairy

* In this column, ♂ indicates male; ♀, female.
† Approximate.

All four families took milk from the S. dairy. Mr. S., aged 63, who had moved to the village in September, 1920, had had typhoid fever forty-three years previously. His wife, aged 62, their four children, three of whom were away from home, and one granddaughter living with them, gave no history of previous typhoid. A hired man developed typhoid fever in 1918, while working on their farm. Mr. S. did the milking, and Mrs. S. handled the milk and milk utensils, which were never sterilized.

At the time of the investigation, six families, two of which were free from infection, bought milk from the S. dairy. A seventh family used milk from this dairy from September till November, 1920, without becoming infected. The Widal reaction was present in blood taken, March 6, 1921, from Mrs. S., who gave no history of typhoid or other continued fever, and was absent in blood from her husband and the other members of the family living at home. *B. typhosus* was isolated from feces from Mrs. S., March 16.

It might be concluded that all cases in this outbreak were due directly to consumption of infected milk, since only one patient denied drinking or otherwise consuming raw milk or cream, at least occasionally.

A study of the incidence of cases by onset, as presented in Table 1, along with that of the data obtained, suggests that all but the first two (in very young patients, both milk drinkers) may have been secondary cases, and that there may have been but one lot of polluted milk distributed. In Case 5, in the H. family, who denied consumption of raw milk or cream, the patient may have been infected through its use in cool coffee or tea or on desserts, or she may have been infected through direct contact with the patient in Case 2, who attended "Ladies' Aid" meetings while sick, typhoid fever not having been suspected.

Cases 9, 10 and 11 in the B. family, and Cases 2, 3 and 4 in the P. family, were intimately associated, the B. family obtaining their drinking water (spring water) from the P. family's kitchen. It seems probable that Mrs. B. (Case 9) obtained infection from contact with the P. family, and that the remaining cases in the P., H. and B. families were but indirectly due to infected milk. The fact that there was no history of previous typhoid fever in the carrier's children and that no cases had occurred among her customers in D. village for a period of three months, combined with the observation that she appeared to be a very neat housekeeper, rather favors this supposition.

SECOND OUTBREAK

April 30, 1921, assistance was requested in a typhoid epidemic in a well settled farming community in northern Minnesota. On investigation, May 1, it was found that fourteen men, all heads of families except one, had developed typhoid fever between April 10 and April 25. One secondary case developed later; and in five of the primary cases death ensued. The cases were in three townships and were from 2 to 5 miles (3.2 to 8 kilometers) apart. Each of the men had lived on his own farm for a number of years, having his own water and milk supply. Well members of but one family gave a history of previous typhoid fever. Five well members in the family of Case 8 gave a history of having had typhoid fever two years previously. (In blood from three, the Widal reaction was positive; one set of discharges from each was examined, May 12, with negative results.) There was no history of previous typhoid fever in well members of the remaining thirteen families. All fourteen men, after careful questioning, denied having eaten away from home, except two who had had one and two meals, respectively, at different restaurants, in two villages.

May 3, on inquiry as to farm sales, each recalled that he had attended a sale, April 1. About 100 persons were present at this sale. The men were served a cold lunch, consisting of pork, hog's head cheese and cheese sandwiches, cookies, friedcakes and coffee. The women and the auctioneer were served a hot meal without sandwiches.

Four women prepared the food. Three denied having had typhoid fever; and the Widal reaction was negative in the blood of two, but positive in the blood of the third woman. Two sets of feces and urine specimens from this woman were examined with negative results. Further specimens were unobtainable. Blood from the fourth woman, aged 65, who had had typhoid fever thirty-three years previously, gave a positive Widal reaction, May 2, and *B. typhosus* was found in nearly pure culture in a specimen of feces received June 7, after six days in transit. Three of her seven children gave a history of typhoid fever. This carrier had prepared the hog's head cheese in her own home. It is probable that this meat was infected by the carrier in removing it from the bones, a hand process, performed before the meat becomes cold. A considerable mass of this warm chopped meat cooling slowly would act as an incubator for typhoid bacilli, if present. All who became sick had eaten meat sandwiches, although most of the men, very ill at the time of investigation, were unable to state whether head cheese or pork sandwiches had been consumed by them. Of two brothers who received head cheese sandwiches, one threw the meat away, while the other ate the entire sandwich. The former remained well; the latter developed typhoid, and died.

TABLE 2.—DATA OBTAINED IN SECOND OUTBREAK

Case	Sex	Age in Years	First Symptoms	Positive Widal Reaction	Comment
1	♂	58	April 8	May 9	
2	♂	29	April 10	April 29	Died, May 4
3	♂	55	April 15	May 2	Died, May 14
4	♂	29	April 15	May 11	Died, May 22
5	♂	69	April 17	May 9	
6	♂	33	April 17	May 9	
7	♂	30	April 18	May 2	Died, May 16
8	♂	38	April 20	May 2	Died, May 7
9	♂	30	April 21	May 2	
10	♂	28	April 21	May 4	
11	♂	30	May 21	May 9	
12	♂	19	April 21	May 2	
13	♂	29	April 25	May 2	
14	♂	34	April 26	May 9	
15	♀	11	May 29	June 11	Secondary to Case 12

The severity of this outbreak, attested by five deaths, which occurred among fourteen cases, may be accounted for by the ingestion, probably, of a massive dose of typhoid bacilli, such as might be expected to be present in food handled under conditions favoring bacterial development. The apparently long incubation period in the majority of these cases does not seem consistent with the incidence of cases in certain food outbreaks, and I believe that the actual dates of first symptoms in most of the cases were from seven to ten days earlier than the obtainable data indicated. Robust and stolid types of men are liable to throw out of account slight symptoms of illness such as occur early in the course of typhoid fever. At the time of investigation, the men were too ill to give much desired data.

THIRD OUTBREAK

Between October 28 and November 19, 1920, five cases of typhoid fever, two in adults, three in children, in four families, as shown in Table 3, developed in a small village in northern Minnesota. The epidemiologic evidence pointed to the S. restaurant as the source of infection, all patients having had several meals there during three weeks prior to first symptoms. Mrs. S., aged 54, who had had typhoid fever fifteen years previously, did all the cooking and handling of food, while her husband, aged 45, who had had typhoid thirteen years previously, occasionally helped in waiting on the table. The Widal reaction was positive in blood from both, December 6. *B. typhosus* was isolated from the urine of Mr. S., December 20. One set of urine and feces specimens from Mrs. S. was examined, with negative results. About this time, the husband left the state, and his wife continued the restaurant business. She refused to submit discharges for further examinations. Again, during October and November, 1921, six cases of typhoid fever, three in adults, three in children, in six families, as shown in Table 3, developed in the village. Again, the epidemiologic evidence pointed to this restaurant as the source of infection. All except Patient 11, who nursed Patient 10, had partaken of food prepared by Mrs. S., either at the restaurant or on some social occasion, within a period of three weeks prior to the first symptoms. Since 1905, when Mrs. S. had typhoid fever, six cases had occurred among her relatives, her husband, two sons, a daughter, a daughter-in-law (Case 8) and one granddaughter (Case 2), all cases being directly traceable to her.

TABLE 3.—DATA OBTAINED IN THIRD OUTBREAK

Case	Sex	Age in Years	First Symptoms	Widal Reaction	Comment
1920 Outbreak					
1	♂	41	Oct. 28	Nov. 8, +	
2	♀	4	Nov. 1	Nov. 17, +	
3	♀	10	Nov. 12	Dec. 4, +	Sister to Patient 5
4	♂	35	Nov. 15	Dec. 4, Atypical	
5	♀	6	Nov. 19	Dec. 4, +	Sister to Patient 3
1921 Outbreak					
6	♀	11	Oct. 9	Oct. 17, +	
7	♀	7	Oct. 30	Nov. 14, +	
8	♀	17	Nov. 1*	Dec. 9, +	
9	♀	4	Nov. 4	Dec. 9, +	
10	♀	24	Nov. 4	Dec. 9, +	
11	♀	20	Nov. 29	Dec. 9, +	Secondary to Case 10

* Approximate.

TABLE 4.—DATA OBTAINED IN FOURTH OUTBREAK

Case	Sex	Age in Years	First Symptoms	Positive Widal Reaction	Comment
1920-21 Outbreak					
1	♂	63	Sept. 15, 1920	May 1921	
2	♂	15	Oct. 31, 1920	Nov. 1920	
3	♂	16	Nov. 10, 1920	May 1921	
4	♂	27	Jan. 1921	Feb. 1921	Secondary case
5	♀	29	Jan. 1921	Feb. 1921	Secondary case
Later 1921 Outbreak					
6	♂	41	Aug. 1, 1921	Nov. 1921	
7	♂	3	Aug. 10, 1921	Oct. 1921	
8	♀	37	Aug. 20, 1921	Oct. 1921	Secondary case
9	♂	14	Sept. 15, 1921	Oct. 1921	Secondary case
10	♂	13	Sept. 15, 1921	Oct. 1921	Secondary case
11	♂	5	Sept. 22, 1921	Oct. 1921	Secondary case
12	♂	39	Oct. 1, 1921	Oct. 1921	Secondary case
13	♂	7	Nov. 1, 1921	Nov. 1921	Secondary case
14	♀	47	Sept. 15, 1921	Oct. 1921	Secondary case
15	♂	6	Oct. 13, 1921	Oct. 1921	Secondary case
16	♂	9	Sept. 13, 1921	Oct. 1921	Secondary case

Under duress of immediate closure of her restaurant, Mrs. S. submitted specimens, and *B. typhosus* was isolated from both urine and feces received, December 6. Mrs. S. was compelled to give up the restaurant business.

FOURTH OUTBREAK

In Dakota County, two cases of typhoid fever in one family in a rural district, reported in January, 1921, were not known to have any relationship to a third case, which had been reported from an adjoining township in November, 1920. Data on these cases were given to Dr. J. A. Carter, a graduate student at the University of Minnesota, who had been assigned to the division of preventable diseases for practical field work; and, on investigation, May 25, 1921, he found that five undoubted cases of typhoid fever, involving three families, had occurred between September, 1920, and January, 1921, as shown in Table 4.

In Case 1, not previously diagnosed, the patient had had the first symptoms of typhoid fever about three weeks after the arrival of a new houskeeper, Mrs. S. Case 2 was that of a boy who developed typhoid fever while working in the home of Patient 1, where he took one meal a day. The patient in Case 3, unreported, son of Patient 1, lived at home and after becoming sick visited Patients 4 and 5, his brother and sister-in-law, respectively.

Mrs. S., aged 50, gave a history of prolonged illness, with symptoms of typhoid fever during the early part of 1920. Though the Widal reaction was positive in her blood in May, 1921, four specimens each of feces and urine were examined with negative results.

First knowledge of a second outbreak in two townships in the vicinity of the preceding one was received in October, 1921, when blood specimens from members of three families gave a positive Widal reaction in eight persons, six of whom had had first symptoms in August and September. Investigation disclosed that eleven cases had occurred between August 1 and November 1, as shown in Table 4. The first, Case 6, developed about four weeks after Mrs. S. entered the home as housekeeper. Patient 7, a child in the neighborhood, visited Mrs. S. daily, and consumed food prepared by her.

The remaining nine cases, including six members of the family of Patient 7 and three persons in two neighboring families, were closely associated one with another, and were but indirectly traceable to Mrs. S. The Widal reaction was again positive in blood from Mrs. S., and at this time *B. typhosus* was isolated from urine.

SUPERVISION OF CARRIERS AND NEED FOR THEIR COMPENSATION

The state board of health, directly through its own representatives or through the local health officer, gives such instructions to be followed by the carrier and members of his family as are necessary for their protection and that of other associates, and explains the state law, which forbids a carrier to engage in the handling of any part of the public's food supply which may be consumed without being cooked after handling.

The local health officer is charged to keep the state board of health informed as to any change in the carrier's residence or occupation, and, as long as the carrier obeys directions, all publicity is avoided. In one instance only has it been necessary to prosecute a carrier for illegally returning to a forbidden occupation.

Three of the four carriers herein reported, one a dairy woman, another a restaurant keeper, and the third a practical nurse and housekeeper, were forced to abandon their chosen occupations, the nurse-housekeeper having no income aside from her earnings for the support of herself and one dependent. Such restrictions of individual rights and liberty are necessary to protect the public against these innocent distributors of disease and death.

Since 1915, the Minnesota State Board of Health has been entrusted by the legislature with the disbursement of a special fund for the support of a typhoid carrier who, after unauthorized newspaper publicity, was unable to obtain work. Should not the state offer compensation to carriers who must give up their chosen occupation in order to protect its citizens?

ABSTRACT OF DISCUSSION

Dr. James J. Durrett, Memphis, Tenn.: Persons with chronic tuberculosis should not handle foods, and, if state compensation is given to one, the other should participate; also carriers of other diseases might have a just claim. The aggregate compensation thus distributed would be large, and, as we have in most places trouble getting adequate funds for recognized public health work, we should not ask for money for this purpose just yet. Formerly, when the death rate for typhoid was from 30 to 40, cases of typhoid were so numerous that small outbreaks caused by carriers were masked entirely, or made obscure and difficult to trace. With the typhoid death rate below 10, cases are sufficiently few to make even a small, sudden increase in the number stand out clearly if not conspicuously. I believe that this causes us to trace relatively more cases to carriers at this time than formerly. Sanitation that purifies our water and safely disposes of excreta goes a long way toward protecting us against carriers of the typhoid bacillus who do not handle foods. Those carriers who prepare food and handle raw milk constitute a special problem, and when detected they should be compelled to abandon this type of work, and they should be taught personal hygiene.

Dr. Joseph N. Gehlen, Minneapolis: With higher standards of water purification and with partial supervision of milk supplies in the larger cities and villages of Minnesota during the last few years, most of our outbreaks have been caused by carriers, although we have not always been able to trace the source. The question is what to do with carriers after we find them. We keep food and milk handlers out of business, and it does not seem fair to have their usual method of livelihood taken away from them without some form of compensation.

NUTRITION IN SCHOOLCHILDREN [*]

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It is not the purpose of this paper to discuss nutrition from the standpoint of calory requirement, relative protein nutritive value, vitamin content or metabolic processes. Our inquiry is directed more particularly to certain phases of nutrition work now being widely attempted in the schools, and which may affect, for better or for worse, 20 per cent. of the total population, representing the approximate school enrolment of a given community.

For untold generations, men and women have been born, "had their being," and died at a ripe old age, without thought of the state of nutrition or the character of the food ingested other than that inspired by a catholic appetite. But, within the last few years, all has changed, and the popular conception of malnutrition is—shall I say?—so inaccurate that the veriest tyro in public health work, after placing a child on a scale and noting comparative results, gravely announces the percentage of malnutrition in a given population group, and, in addition, prescribes the remedy.

Nutrition, or rather its opposite, malnutrition, bids fair to become a fad with large numbers of people of limited training and experience in health matters, although such men as McCollum, Mendel, Osborne, Hess and Unger in this country and many investigators in other lands as yet but "see through a glass darkly," despite the great advances made by them in the knowledge of metabolic processes and relative food values.

REPORTED PREVALENCE OF MALNUTRITION IN SCHOOLCHILDREN

The percentage of "malnutrition" (underweight) in schoolchildren reported by different observers varies widely, not only for children residing in the same locality, but also for those residing in urban as contrasted with rural communities.

According to Emerson,[1] approximately one third of the schoolchildren of the country suffer from malnutrition. In New York City, there seems to have been a progressive decline in the percentage of malnutrition observed in schoolchildren, as shown in Table 1.[2]

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[*] Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Emerson, W. R. P.: Nutrition and Growth in Children, 1922.

The data first reported for New York City are based largely on estimates of nutrition according to the Dunfermline scale. Later, however, the relationship of weight to height was considered also in estimating nutrition status.

Walter S. Cornell,[3] director of medical inspection of schools, Philadelphia, reports that from 5.6 per cent. to 22.3 per cent. of 12,817 schoolchildren recruited from the poorer districts of that city are 10 per cent. or more underweight, as shown in Table 2.

TABLE 1.—MALNUTRITION IN NEW YORK SCHOOLCHILDREN

Year	Number Examined	Percentage of Under-nourishment
1917	171,691	21.6
1918	184,374	19.0
1919	248,064	20.0
1920	241,064	17.7

Of 26,318 schoolchildren examined in Cleveland, 1921-1922, L. W. Childs, director of health education for the board of education of that city, reports that 3,914, or 14.8 per cent., were 10 per cent. or more underweight, according to the Emerson scale.[4]

During the present school year, 17.9 per cent. of the schoolchildren of Detroit were found to be 15 per cent. or more underweight.[5]

In a survey made by the Elizabeth McCormick Memorial Fund,[6] Chicago, in 1920, 57.7 per cent. of the children attending a school situated in a "comfortable semiurban neighborhood" were reported as malnourished, and but 16.2 per cent. of those attending a school of the stockyard district were so classified. According to those reporting, this seems to indicate that, so far as these children are concerned, underweight is not altogther a question of either the quantity or the quality of the food supplied.

Reports of underweight observed in rural schoolchildren vary even more widely than do those for the cities. Service officers engaged in field investigations in child hygiene have, for a number of years, directed comparative studies of underweight in the schoolchildren of several states, as a part of these investigations. Following are some of the reported observations:

In Missouri, 1920-1921, of 9,214 schoolchildren examined in twenty-two towns, 38.3 per cent. of them were 7 per cent. or more underweight, as compared with 34.5 per cent. of the 1,698 children examined in the schools of three rural communities.

In five Mississippi counties, of 11,270 white schoolchildren and 5,840 negro schoolchildren weighed and measured in 1920 and 1921, 5,436, or 48.2 per cent., of the former, and 3,111, or 53.2 per cent., of the latter were 7 per cent. or more underweight, respectively. However, these percentages may not accurately represent the prevalence of underweight among the schoolchildren for the state at large, because the counties selected for study are notably affected by hookworm and malaria.

Of 1,841 children attending school in a favorably located and prosperous county in Florida, who were weighed and measured in 1921 and 1922, 591, or 32.1 per cent., were 7 per cent. or more underweight.

WHAT IS MALNUTRITION?

In view of the varying and alarming percentages of malnutrition reported by different observers, one might well pause to inquire whether malnutrition is a distinct pathologic entity or merely a symptom. If the former, is the very great reported prevalence due to a newfound ability to recognize a disorder that has been of common occurrence for years past, or to change in the quantity, quality, selection and preparation of foods in common use? On the other hand, may not the widely varying percentages be due, in very large part, to the use of inexact standards for measuring nutrition, and, in instances, to defective and inaccurate apparatus?

I am not prepared to accept the popular conception of malnutrition as a distinct pathologic entity, and I believe that it is a symptom due to manifold causes operating either singly or in combination. This point of view is very succinctly set forth in a statement by Sir George Newman, quoted by Frank A. Manny, special investigator of the New York City Bureau of Welfare of School Children:

> In endeavoring to estimate a child's nutrition or its opposite (viz., malnutrition), we must think not only of bulk and weight of body but of ratio of status to weight; of the general balance and "substance" of the body and of its carriage and bearing; of the firmness of the tissues; of the presence of subcutaneous fat; of the condition and process of the development of the muscular system; of the nervous and muscular system as expressed in listlessness or alertness, in apathy or keenness; of the condition of the various systems of the body, and, speaking generally, of the relative balance and coordination of the functions of digestion, absorption and assimilation of food, as well as of the excretion of waste products. It is obvious that these are data which are likely to lead to a much more reliable opinion than the consideration of any one factor or ratio, however, expeditiously obtained or convenient in form or practice, and these data will demand a wider as well as a more careful and accurate observation of the whole physique of the child. Nor can an ultimate opinion always be formed at one inspection at any given moment. For nutrition, like its reverse, malnutrition, is a process and not an event.

TABLE 2.—WEIGHTS BELOW NORMAL IN PHILADELPHIA SCHOOLCHILDREN

No. Weighed	9.9 per Cent. Under-weight		From 10 to 12.9 per Cent. Under-weight		13 per Cent. or More Under-weight		Total No. 10 per Cent. or More Under-weight		
	No.	%	No.	%	No.	%	No.	%	Comment
470	382	81.0	59	12.5	29	6.0	88	19.0	Poor and colored
862	709	82.2	67	7.8	86	10.0	153	18.0	Poor textile workers
922	795	86.0	97	10.5	30	3.0	127	14.0	Poor textile workers
1,000	898	89.6	53	5.4	51	5.0	104	10.4	Moderately poor, American and German
505	454	89.9	35	6.9	16	3.2	51	10.1	Poor, Jewish and colored
1,079	1,002	92.8	36	3.3	41	3.9	77	7.2	Jewish and poor
867	810	93.4	20	2.3	37	4.3	57	6.6	Rowdies, white and colored
213	201	94.4	6	2.8	6	2.8	12	5.6	Poor, white and colored
906	704	77.7	..	....	..	....	202	22.3	Colored
1,067	902	84.5	..	....	..	....	165	15.5	Poor native whites
949	755	84.3	..	....	..	....	194	15.7	Poor native whites
1,473	1,259	85.5	..	....	..	....	214	14.5	Native whites
468	407	87.0	..	....	..	....	61	13.0	Moderately poor, white and colored
1,143	1,010	88.4	..	....	..	....	133	11.6	Poor, colored
891	818	91.8	..	....	..	....	73	8.2	Jewish, poor
12,817	11,107	....	..	....	..	....	1,711		
Average.....		86.7	..	....	..	....	.....	13.3	

Many factors are conducive to underweight. Of these may be mentioned causes relating to the diet, to personal and general hygiene, to lack of exercise or to overexercise, to defect and disease, to possible inherited

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2. Month. Bull. Dept. Health, New York City, May, 1921, p. 109.

3. Cornell, W. S.: Personal communication to the author.

4. Childs, L. W.: Personal communication to the author.

5. Week. Health Rev. Dept. Health, Detroit, Feb. 18, 1922.

6. Wood, Mrs. Ira Couch: Nutrition Classes in the Chicago Schools, Mod. Med. 2: 388 (May) 1920.

tendencies and to environment, all modified in varying degree by the economic and educational status of individual parents, and the disciplinary control exercised by them over their offspring. Furthermore, is weight alone a true measure of nutrition? Is it not possible to fatten a child, as, for example, an infant fed for a prolonged period on condensed milk, and yet fail to promote proper skeleton growth or increase in vital stamina? Is it not possible, by regulating the diet and daily routine, to cause a child to take on fat, even in the presence of a grave pathologic lesion, and this without removing the cause? Underweight, or malnutrition, if you please, is a distinct medical problem that must be combated by medical measures.

STANDARDS OF NUTRITION

A number of different standards of physical development have been advanced for use as a measure of the state of nutrition. Practically all of them estimate nutrition in terms of weight. The standards most generally used in this country are two; one devised by W. R. P. Emerson of Boston and the other by Thomas D. Wood of Teachers' College, New York. Both of these standards are based on weight in relation to the standing height according to sex, with the difference that Wood's tables consider the height and weight in relation to age. The more recent tables promulgated by Emerson also take into consideration the age factor. The chief objections to these tables are:

1. The standing height, which is subject to wide individual variation, is used.
2. They represent the average measurements of large numbers of children, it is true, but include children who are undernourished, or who are suffering from physical disability in varying degree; no doubt, including the measurements of a number with spinal curvature and other deformities which materially affect stature.
3. A percentage deviation from the average is arbitrarily adopted to represent undernourishment, ranging from 7 per cent., according to Emerson's standards, to 10 per cent., according to those advocated by L. Emmett Holt.
4. They fail to take into consideration hereditary factors which influence stature, on the assumption that the height-weight index applies to all races. This may be true, but has not yet been conclusively proved.
5. They are confessedly approximations.

BALDWIN'S TABLES

For a number of years, the child research station of the University of Iowa has been making a series of observations of special groups of children, under the direction of Dr. Bird T. Baldwin.[7] These children have been examined from year to year, and carefully measured and weighed, and the results have been embodied in tables that represent probably the most scientific study of this problem which has yet been made in this country.

Objections to Baldwin's tables are based on the ground that these measurements represent a selected group of children who, because of the very fact of their being weighed and measured periodically, are subjected to special bettering influences; a group which probably becomes more select through the falling out of the unfit from year to year. Furthermore, although these data were collected in widely separated communities, the number of children included are relatively few as compared with the total for the country as a whole. Considering the reported sources of the data used, the measurements of certain age groups may not be representative because based on a larger or smaller amount of data from single localities, with possible complicating race factors.

FOREIGN STANDARDS

Considerable interest in two foreign standards of nutrition has been manifested in this country within the last two years: Pirquet's pelidisi index, and Dreyer's assessment of physical fitness.

Pirquet's Index of Nutrition.—In contradistinction to the conception that energy exchange stands in definite relation to skin area, Pirquet of Vienna conceived the idea that the intestinal area, representing the surface which governs the amount of food absorbed, affords the proper basis for the determination of normal food requirements. In calculating the intestinal area, he used the observation made by Henning, in 1821, that the length of the intestine in centimeters is ten times the sitting height in centimeters, and, "as deduced from various observations on intestinal volume," that the width of the intestine is equal to one tenth of the sitting height, both measured in centimeters. On this basis, the area of the intestine is expressed as $10\,\text{Si} \times \frac{\text{Si}}{10} = \text{Si}.^2$

However, the food requirements of individuals differ widely, owing to many factors. In this connection, Pirquet worked out an index of nutrition based on the weight-sitting height ratio, the so-called pelidisi; namely, ten times the weight in grams divided by the cube of the sitting height in centimeters. A well nourished child, according to Pirquet, will register 100 per cent. In the practical application of his system to the feeding of many thousand Austrian children by the American Relief Administration, all the children that registered 94 per cent. or less were considered undernounrished.

Furthermore, Pirquet does not rely on the weight-sitting height ratio alone in estimating the state of nutrition and the food requirements of individual children, but classifies them under four headings, according to the results of physical examination; namely, sanguis (blood); crassitudo (fat); turgor (water-contour); and muscularis (muscle).

Using the first consonants in each of these four words as a skeleton; namely, s, cr, t and m, and inserting after each of these symbols the proper vowel, "a," representing normal, "e" and "i," moderately and greatly increased, and "o" and "u," moderately and greatly decreased, respectively, Pirquet coined the word "sacratama" to indicate a child in normal nutrition. By substituting other vowels to form, for example, the word "socrotemo," this would indicate a slightly anemic, moderately thin, fairly rounded out child of moderate muscular development.

Pirquet's system is probably more useful in connection with feeding large groups of children. Serious objections have been offered to the application of the system to individual children, because it is based largely on theoretical premises.

In a comparison of "pelidisi" with percentages by the Wood tables, in a series of 984 Los Angeles schoolchildren, Faber[8] found that approximately one half of them would be graded as undernourished by the Pirquet scale, in comparison with one fifth and one ninth as 7 per cent. and 10 per cent. undernourished, respectively, by Wood's tables.

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[7] Baldwin, B. T.: Physical Growth of School Children, Extension Div. Bull. No. 59, University of Iowa, Dec. 1, 1919.

[8] Faber, H. K.: The Pirquet System of Nutrition and Its Applicability to American Conditions, J. A. M. A. 77: 1837 (Dec. 3) 1921.

Representing the results of his study of these two scales by frequency graphs, Faber was able to show that, of the entire series of 984 cases, only 24.2 per cent. showed comparable indices of nutrition. Commenting on these findings, Faber declares that "from a statistical study of this sort, it is impossible to decide which method is at fault."

Dreyer's Assessment of Physical Fitness.—John Hutchinson, as far back as 1846, observed that patients suffering from pulmonary tuberculosis showed a lessened vital capacity. Inspired by Hutchinson's observation and stimulated by his experience during the World War, when vital capacity was made an important consideration in the selection of candidates for the British flying service, Georges Dreyer,[9] professor of pathology, Oxford University, made a series of intensive studies of carefully selected groups of persons, varying widely in age and physical development, and apparently he has been able to establish a definite relationship between vital capacity and certain body measurements, and to express the vital capacity as a function of these measurements.

According to Dreyer, when the weight in grams raised to the two-third power (or more accurately 0.72) is divided by the vital capacity, a normal constant for persons of the same class (occupation, mode of living, etc.) will be obtained, irrespective of age, weight or height. Some of his other formulas are as follows, V. C. being equal to vital capacity in cubic centimeters, N equal to 2, K equal to a constant, L equal to sitting height in centimeters, and Ch equal to chest circumference in centimeters:

$$\frac{L^2}{V.\ C.} = K^3$$

$$\frac{Ch^2}{V.\ C.} = K^4$$

$$\frac{L \times Ch}{V.\ C.} = K^5$$

By the use of these formulas, Dreyer has prepared a series of tables, for both males and females, of weight in relation to sitting height, chest circumference and vital capacity.

Weight is classified as: (1) possibly abnormal when it is found to be 5 per cent. above or below the calculated normal; (2) probably abnormal when it differs from the normal by 10 per cent., and (3) certainly abnormal when the deviation is as much as 15 per cent. from the normal calculated for a given sitting height, chest circumference or vital capacity.

Different persons, all apparently in good health, exhibit great differences in vital capacity, depending on the occupation and mode of life. This difference in normal persons, according to Dreyer, has nothing to do with fundamental bodily deficiencies, because it can be remedied by exercise and other measures.

I have long considered the sitting height a more reliable measurement than the standing height for determining physical standards, and I believe that Dreyer's methods and results should be carefully studied for comparison with the standards now in more or less general use in this country.

THE DUNFERMLINE NUTRITION SCALE

The Dunfermline scale, introduced by Dr. Alister MacKenzie of the Carnegie Dunfermline Trust, at Dunfermline, Scotland, distinguishes four nutritional groups on inspections:

1. "Excellent" means the nutrition of a healthy child of good social standing.
2. Children whose nutrition falls just short of this standard are classified as "good."
3. Children "requiring supervision" are on the borderland of serious impairment.
4. Children "requiring medical treatment" are those whose nutrition is seriously impaired.

The use of this scale presupposes medical training and experience. Following are some of the comparative results of the application of this scale by medical officers of the U. S. Public Health Service, modified as to terminology, to 9,973 schoolchildren, largely of Anglo-Saxon stock, residing in Delaware, Maryland, New York, South Carolina and Virginia.

TABLE 3.—PERCENTAGES OF 9,973 CHILDREN CLASSED AS OF FAIR, OR OF POOR NUTRITION

Age	Both Sexes	Boys	Girls
6	17.6	18.6	16.6
7	19.9	20.1	19.6
8	20.7	22.1	19.2
9	18.8	18.0	19.6
10	18.0	17.1	19.1
11	18.9	19.0	18.9
12	15.1	16.4	13.9
13	12.8	13.1	12.5
14	12.4	11.7	13.0
15	9.0	12.3	5.7
16	7.1	8.4	6.2

1. The percentage of defective nutrition in children classified according to clinical evidence other than weight was highest at 8 years of age, decreasing with age, as shown in Table 3.
2. From the fact that the mean measurements of the children classified as of fair or of poor nutrition were constantly less than those classified as of good or of excellent nutrition, the children classified as malnourished from clinical evidence other than height and weight, are shorter and lighter, and have a smaller weight-height index.
3. Differences in height are much less significant in judging nutrition than in judging differences in weight.
4. In comparing the percentage distribution of the two groups classified as of good or of poor nutrition, according to clinical evidence other than height and weight, it is found that, while on the average the children in the latter group weigh less than those in the former, some of the children in the poor group weigh more than some of the children in the good group. This is additional evidence that weight measurements alone are not sufficient for determining nutrition, but that these must be supplemented by medical examinations.

PROPOSED STUDY OF PHYSICAL STANDARDS BY U. S. PUBLIC HEALTH SERVICE

The Public Health Service is now making some careful studies of the physical development of schoolchildren in cooperation with the divisions of child hygiene of several state boards of health. It is purposed to extend these studies and to secure the cooperation of other state and municipal boards of health, in order that special measurements may be obtained of selected classes of children residing in both urban and rural communities, in sections of the country more or less homogeneous in population and subjected to practically the same climatic conditions.

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[9] Dreyer, Georges, and Ranson, G. T.: The Assessment of Physical Fitness, London, Cassell and Company, Limited, 1920.

The measurements will be made in the case of certain racial groups; namely, children who may be considered of native American stock, native born children of foreign born parents, according to race stock, and of foreign born children, according to race stock. They will be made in identically the same manner, with instruments that have been standardized, and recorded on a special form. The special measurements will be used in calculating standards for comparison with those already in use, both in this country and elsewhere, and as the basis of standards applicable, if not to the country as a whole, at least to the different sections of the country from which the data were obtained. In fact, it is a question in my mind whether we can hope to adopt a standard which will be applicable to the country as a whole, owing to the effect of the wide geographic distribution of our population whose various elements are thus subjected to varied climatic influences and, therefore, different food supplies; and also because of the impress which necessarily must have been made on physical development by the tremendous alien immigration to which this country has been subjected in the last twenty or more years.

RELATION OF PHYSICAL DEFECTS TO UNDERWEIGHT

During the present scholastic year, one or more physical defects were noted in 74.9 per cent. of 8,887 schoolchildren in Detroit who were 15 per cent. or more underweight. No outstanding defect was observed in 25.1 per cent. of them.[5]

The reported percentages of defects found in greatest frequency were: enlarged or infected tonsils, 50.8 per cent.; defective teeth, 22.7 per cent.; faulty vision, 9.3 per cent.; mouth breathing, 9.2 per cent.

A comparison of gain in weight by children without nasalpharyngeal obstruction and those recommended for operation in a study made by the bureau of educational experiments, New York City [10] showed that 68.87 per cent. of thirty-two children without this defect made gains in excess of the normal, as compared with 55.1 per cent. of those without correction. In comparing the relative gain, however, only 6.1 per cent. of those having defects showed over 100 per cent. gain in excess of the normal, as compared with 31.3 per cent. for those without defects.

In April, 1920, a study of 200 underweight Baltimore schoolchildren from 7 to 14 years of age was made by officers of the U. S. Public Health Service, to determine the effect of the removal of physical defects on the rate of growth as represented by height and weight.[11] These children were exempted from nutrition instruction and from any special hygiene other than the correction of their physical defects. The higher percentage of monthly increase in weight noted may be largely, if not wholly, attributed to the correction of the physical defect.

It was found that the percentage monthly increase in the weight of boys and girls from 7 to 10 years of age was 0.47 per cent. and 0.27 per cent., respectively, before the operation for diseased tonsils and adenoids, as compared with 1.80 per cent. and 2.05 per cent. after the operation. In the case of children from 11 to 14 years of age, the percentage of increase was 0.47 per cent. and 0.84 per cent., respectively, before the operation and 2.04 per cent. and 1.99 per cent. after the operation. It is safe to assume that underweight in the case of these children was due largely to toxic absorption rather than to improper feeding. Expected percentage increase per month in weight computed from tables of average weights is presented in Table 4.

TABLE 4.—EXPECTED PERCENTAGE INCREASE PER MONTH IN WEIGHT COMPUTED FROM TABLES OF AVERAGE WEIGHTS

Tables	Age	Boys	Girls
Emerson	7 to 10 years........................	0.78	0.77
U. S. P. H. S.	7 to 10 years........................	0.72	0.79
Emerson	11 to 14 years......................	0.83	0.97
U. S. P. H. S.	11 to 14 years......................	0.82	0.97

TENDENCY OF STAPLE CROPS TO MODIFY NUTRITION

It is doubtful that more than a few children in this country are undernourished because of too little food.

According to McCollum,[12] "low vitality, low resistance and inefficiency, and a tendency to cumulative fatigue" result from adherence to a faulty diet, and a diet of cereals, tubers and muscle-tissue meats is inadequate. Furthermore, the cereal grains, which are incomplete foods, are coming into more extended use because of the tendency of farmers, owing to ease of production and probable relative low cost of production, to plant larger and larger acreage to these grains, which are so materially reduced in nutritive value by faulty milling. It is necessary to supplement the bread, meat and potato diet with milk and green leafy vegetables in order to supply mineral and accessory food factor deficiencies. In actual practice, however, the application of this thoroughly sound knowledge will be followed by failure unless at the same time other causes of malnutrition are looked for, considered and controlled. Of what avail is it to advise the underweight schoolchild to use milk when there is no milk? or to prescribe the leafy vegetables when the cereal grains and cotton form the staple crops in large areas of our country, even to the exclusion of products of the garden plot? Here nutrition becomes a matter of general education and of change in community custom and habit, involving time; and of state and federal guidance. It is not merely a question of weighing and measuring.

NUTRITION WORK IN RELATION TO REGULAR SCHOOL ROUTINE

So serious are the demands made on the time of both pupils and teachers by those engaged in or wishing to engage in sundry forms of welfare work, and by others with newly devised schemes for the general uplift which they wish first to try out in the schools, that any great extension of such activities, it seems, will leave but little time for instruction in the three R's. It is for this reason, all basically related forms of school health work should be united and harmoniously fitted to the general plan of health instruction and health supervision, utilizing the combined wisdom of both the educational and health authorities for such purpose.

Courses in health should be prescribed and given weight in the school curriculum corresponding to major subjects. Such instruction naturally should be adapted to the intellectual capacity of the different age groups. As regards nutrition, teaching in the early grades should be concerned more with the importance of milk, vegetables, fruits, cereals and the like, in the diet, from the standpoint that they help to make the child grow up to be strong. The teaching of the principles of nutrition and nutritive values should be reserved for the older grades.

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[10] Health Education and the Nutrition Class, a report of the Bureau of Educational Experiments, New York, p. 57.

[11] Correcting Physical Defects in School Children, Pub. Health Rep. **37**, No. 15 (April 21) 1922.

[12] McCollum, E. V.; Simmonds, N., and Parsons, H. T.: Supplementary Protein Values in Foods, J. Biol. Chem. **47**: 111, 139, 175, 207, 235 (June) 1921.

Instruction in nutrition should not be reserved for and given only to a special group of children, either underweight or otherwise, but should include all children attending school, else we shall not find succeeding generations attaining the best possible physical development. Such instruction is necessary for the guidance of the potential parents of future generations, and to overcome the ignorance now so commonly observed concerning these principles and values.

Special nutrition classes for malnourished children are unnecessary in a well conducted school system providing proper health supervision. Children judged to be undernourished, by whatever standard, are candidates for open air classes and open air schools, where everything possible may be done to restore them to normal, including supplementary feeding, examination for and correction of physical defects, special instruction and graduated exercises, rest periods and a follow-up system reaching into the homes.

Weighing and measuring should be considered a necessary measure in every physical examination, and, in the case of children who fail to gain or lose weight steadily, the causes should be investigated and corrected.

The character of the school lunch should receive careful attention, especially in rural schools, where many children frequently come long distances after a hurried breakfast, bringing a hastily prepared, poorly selected lunch, or none at all, and remain all day. Aside from the question of the effect on health, an underfed child is no more fit for mental effort than is the laborer for physical tasks.

I do not wish to convey the impression that I can find no good in the nutrition work now being done by so many earnest, and, at times, inexperienced workers, because, for the most part, the measures recommended by them, if carried out, will be helpful in overcoming defective nutrition, no matter what may be the underlying cause. Furthermore, their persistent activities have served a very useful purpose in stimulating thought and action by those in positions of responsibility and qualified by training and experience to advise in such matters. Among the objections to unsupervised and indiscriminate nutrition work may be mentioned:

1. The tendency of the popular fancy to make a fad of a serious problem.
2. The danger that the enthusiasm of untrained workers will cause them to lose sight of the fact that nutrition and its opposite are medical problems requiring the best obtainable medical advice in individual cases.
3. The creation of a false sense of security in the mind of the parents of underweight children, by the temporary improvement following the application of well known principles of hygiene to ailing children, with potential diastrous after-effects, unless the treatment provided is based on medical advice.

CONCLUSION

I wish to emphasize that, in calling attention to the need of proper supervision of lay and nursing workers in nutrition, I must also call attention to the apathetic, and in many instances, indifferent attitude of the medical profession to the danger signals that have been so prominently brought to the front by the lay workers, and urge the importance of physicians' displaying more active interest in nutritional problems and giving more hearty support and cooperation in solving them.

ABSTRACT OF DISCUSSION

Dr. Borden S. Veeder, St. Louis: Every pediatrician has reached the point of view that malnutrition is an individual problem and not a group problem. There are a number of causes for malnutrition, among which may be mentioned physical defects, economic conditions, the environment of the child, and health habits. If you take a group of malnourished children, you will find one who has cardiac disease; a second with hyperthyroidism; a third who does not have the proper amount of sleep; a fourth who does not get the proper amount or, perhaps, the proper kind of food, and so on. In other words, in nearly every case of malnutrition, there is some one or more causes, and consequently malnutrition cannot be looked on or treated as a disease, but must be regarded as a symptom which may be produced by a number of causes. In order to understand an individual case properly, it must be studied from all sides, not only the physical but the environmental. The physician who sits in his office and tries to treat malnutrition by physial examination of the child alone, without entering into the life and habits and environment of the child, will not get very far, nor will the nutritional worker who tries to treat malnutrition by diet without understanding the physical background. If one tries to reach the malnourished children in groups, each group must be small, so that the individual child can be studied. I think that the study of malnutrition has led us all to the conclusion that one of the chief factors is overfatigue. The child who does not get enough rest, whether it is from lack of sleep, or from overexcitement, overwork or something that has to do with its habits, is not a healthy child and is usually malnourished, whether or not there are any physical defects present. The unfortunate thing about the subject of malnutrition is that it has been made a fad, and a good deal of the malnutrition which is said to exist in many of our schools, as a result of weighing children, is actually nonexistent. We find that malnutrition is more common in the lower grades than in the higher grades, although no efforts have been made at all to correct conditions. If one leaves a large percentage of the malnourished children alone for a year or so, a very large number of them will seemingly get well, no matter how one treats them. Although the amount of attention and notoriety that has centered about undernourished children and malnutrition in the last few years has probably done a lot of good by calling attention to the physical condition of the child, still it is my feeling and, I know, the feeling of many pediatricians, that a grave mistake has been made by a great many persons in regarding it as a group problem rather than a problem of the individual.

Dr. John Dill Robertson, Chicago: Lafcadio Hearn said years ago: "God never repeats His work." An individual once removed will never return or be duplicated through the eternity of eternities. In other words, no two individuals, even in the same family, are exactly alike. This being the case, it is difficult to make standards for the purpose of determination of so-called malnutrition. The condition cannot be determined by the same standards. In other words, we have no proper standard for easy determination of the condition of nutrition. By use of the yard stick, the age and the scale, thousands of children throughout America have been labeled as suffering from malnutrition without the history of their forebears being taken into consideration. In the majority of instances, a child follows the hereditary course of one or more of his ancestors. There is undoubtedly much malnutrition. This can be determined only by careful physical examination by an expert physician who is qualified to check up not only his digestive, respiratory and nervous systems, but every other system of his body. This cannot be done in the school, for it is necessary to check up on the blood and urine, and to make other laboratory tests. To say that a child is underweight and therefore must be fattened up, without a thorough examination, is to grope in the dark. Would it not be better to investigate heart, lungs, kidney capacity, etc., before advising Willie to put on a few more pounds, which will require more blood vessels perhaps, than heart can accommodate, perhaps more tissue than the excretory organs can care for ? The so-called nutrition clinics in our public schools, during the last three or four years, have run the course of all fads, and, like every other fad, will disappear and be replaced by a sane program. This program cannot be carried out by nurses or by physicians not specially trained. In other words, the grocery clerk system of weighing, aging and measuring must be abandoned for one conducted by trained medical men.

Dr. Allen J. Hruby, Chicago: The fad of the nutritional clinic has run its course in the public schools of Chicago, under the supervision of teachers and club women. Our work in the Municipal Tuberculosis Sanitarium has shown us that some very careful work is necessary before we can adopt any standard. Dr. Grace S. Wightman, with a committee of dispensary physicians, was selected to take charge of a group of schools, to see whether they could adopt a standard for nutrition by a careful anthropologic study of the children. The final conclusion is that a careful clinical history and physical examination must be made, together with a study of the economic and sociological conditions; also a complete laboratory examination and an investigation of the condition of the internal secretions, before any conclusions can be arrived at. We have concluded in Chicago that all these points must be taken into consideration before we can make a diagnosis of malnutrition.

Dr. W. L. Holt, Knoxville, Tenn.: I have been much interested in this problem of malnutrition in the South. One of the things I noticed was the shortage of milk. I take 6 quarts of milk in my own family, so that as a health officer I practice what I preach. I found a great deal of malnutrition in Knoxville. In one school in the poor district not less than 28 per cent. of all children were 10 per cent. or more underweight; and we found a great difference between the boys and the girls, 18 per cent. of the boys and 35 per cent. of the girls being 10 per cent. or more underweight. That is one thing I am particularly interested in, and I should like to ask Dr. Clark or any one else what his explanation is regarding this difference in percentage between boys and girls. I also want to ask Dr. Clark what a reasonable amount of milk is for the average schoolchild. I believe that a quart is reasonable, but some men think a pint and a half.

Dr. Isaac D. Rawlings, Springfield, Ill.: I have been much interested in this paper because in Illinois we have felt that when weighing and measuring of schoolchildren is done without any physical examination, this procedure is more or less of a fad. We have been really concerned over the possibility of doing harm by labeling children as sufferers from malnutrition, and giving them milk that is not made safe by pasteurization. In 1911 we passed a law that no municipality could require tuberculin testing of the cattle supplying milk to the municipality, so we have no testing of tuberculous cattle except by virtue of the accredited herd act. I have found by consulting the newspaper clippings that the various clubs throughout Illinois have organized a plan of weighing and measuring children and have then fed these children. I understand that the milk is often not pasteurized, and I am afraid that it is not safe and that the children are really in danger from it. As to their physical condition and the need of food, it seems to me that this feeding is ill advised unless measures are taken to see that pasteurized milk is supplied when it is necessary to feed these children. If it cannot be obtained, commercially pasteurized, some method should be instituted whereby it is pasteurized at home or at school before being given to the children.

Dr. Florence Meredith, Philadelphia.: In Philadelphia, and perhaps everywhere, there is a tendency to overemphasize what may be done by merely weighing and measuring children and increasing the caloric intake. Malnutrition is a medical diagnosis, often most difficult for the physician to make. Weight offers only one diagnostic point: increasing the number of calories is only one remedial measure. The technic of the lay nutrition worker, valuable as it is, should be supplementary to thorough medical work wherever possible. Ideally, each case of malnutrition should be handled individually as to diagnosis and treatment. The nutrition class has met a certain need, because of the large number of children to be dealt with. But it is certainly not possible to do as good work with a group as with individuals. The sooner we are able to treat malnutrition as a medical problem and an individual problem, the better. All honor to those who have been successful with the class method, however. For a long time yet it will be the only possible method of dealing with a great deal of the malnutrition.

Dr. James Stewart, St. Louis.: I cannot say that I regard the question of nutrition and the selection of children supposedly suffering from malnutrition as being entirely a fad. In St. Louis, we have established a very efficient and conservative system. We felt that the question of nutrition should not be in the hands of the teachers or school principals. We believe that weighing or measuring of children should be entirely in the hands of the school physician or school nurse. We were fortunate in having a demonstration carried on by the Pubic Health Service in St. Louis a few years ago, and through that experiment we gained information that was so satisfactory that the board of education asked us to continue the work. The school hygiene division asked that a college course in nutrition, of two credits, be given to all school nurses. This has been completed within the last few weeks. We selected a group of children in the open-air schools, who were put on a regular routine of diet and health habits. Those who were found to be physically impaired had their defects corrected and the home surroundings improved by conferences with the father or mother or the one responsible for the child. With that cooperation, we believe that the work has been well done. It is our object that all school systems throughout the land will leave that work in the hands of the school physician or the school nurse, because, with the experience of the physician and the nurse, these children will be brought up to the proper standard, and because of the child's improved physical condition he will be able to go through school and graduate with less effort, possibly, on the part of the teacher and of himself. That is an economic advantage that should be recognized. In our open-air schools, the number of undernourished children and of cases of contagious diseases has been very low as compared with the regular elementary schools. That shows what these health habits and the building up of the child suffering from malnutrition accomplish when children are brought up to a special standard and their resistance has been increased to such an extent that contagious disease in these schools is practically nil.

Dr. Taliaferro Clark, Washington, D. C.: The object of my paper is not merely to call attention to nutrition work by untrained agents, but to sound a warning that they must not let their enthusiasm run away with them to the extent that they lose sight of the fact that malnutrition is a health problem. On the other hand, I must also sound a warning to those in authority and to practicing physicians that unless they wake up and take notice of underweight as a danger signal, the lay workers are going to continue this work unsupervised and with potential unhappy results. In regard to standards of physical development, I believe that it will be rather difficult to accept or adopt a standard that would be applicable to every child in every part of the country. Many factors must be considered in the preparation of such a standard. The Public Health Service at present is beginning a nation-wide study of the physical development of children that takes into consideration numerous factors bearing directly on this problem. One of the first steps considered was the standardization of the apparatus to be employed, so that measurements made by different persons in widely separated communities would be exactly comparable. Incidentally, it was found that the accuracy of scales and other forms of anthropometric apparatus varied greatly. This serves to call attention to the possibility of serious error in judging the state of nutrition, not only because of the selection of an arbitrary standard of deviation from the normal to represent underweight, but also because the instruments themselves, unless carefully standardized, may vary to the extent represented by such arbitrary standard.

ACCESSORY MUSCLE MOVEMENTS IN DELTOID PARALYSIS *

LEWIS J. POLLOCK, M.D.
CHICAGO

The preservation of certain movements, the loss of which is supposed to result from injury to particular nerves, has been observed for many years. Sherren [1] called attention to the fact that Swan, in 1834, was astonished at observing how much a rabbit could move its leg after experimental section of its sciatic nerve. Later Letíevant [2] studied this phenomenon and termed it supplementary motility. Since that time, numerous investigators have observed its presence in various peripheral nerve lesions.

Supplementary motility producing abduction of the arm in cases of complete paralysis of the deltoid muscle has been observed in a number of cases. Few reports dealing specifically with supplementary motility in deltoid paralysis are found in English literature, and mention of it is often included in contributions dealing with broader subjects. It therefore seems that it is of value to confirm and emphasize this observation.

The first case reported was found in the almost inexhaustible fund of observations of Duchenne.[3] Since then the condition has been noted by Robert Kennedy, August Hoffman, Loewe, Kron, Rothmann, Wendenburg, Oppenheim, Ross and others, and more recently by Sherren, Forrester Brown and most of the students of injuries to the peripheral nerves sustained in the late war, including Coleman, Ingham and Arnett, and Benisty.

The frequency of supplementary motility in deltoid paralysis may be seen from the report of Bunts,[4] who, in 1903, found that in nineteen cases of circumflex nerve paralysis, seven patients recovered function; of the seven, four recovered function in the absence of the deltoid muscle.

I have observed four cases showing this supplementary motility:

REPORT OF CASES

Case 1.—S. J., a man, aged 33, was struck on the head by a cable block, Oct. 5, 1920, and sustained a fracture of the surgical neck of the right humerus. When he regained consciousness, he noted that he was unable to abduct the arm to the side or to extend it backward. About six months after the injury he observed that he could abduct the arm in a direction slightly and obliquely forward. He was examined by me, July 13, 1921, when it was found that there was a complete paralysis of the deltoid muscle, with complete reaction of degeneration and a marked atrophy of this muscle. There was an analgesia of the area of skin ordinarily supplied by the circumflex nerve. He was able to abduct the arm obliquely forward to the horizontal position, and from this position to complete the process of abduction to a vertical position. It was observed that the infraspinatus was hypertrophied. During abduction the arm was rotated outward, and the pectoralis major became tense, apparently assisting in fixation of the head of the humerus into the glenoid cavity. Rotation of the scapula occurred early, and it could not be determined with any accuracy how much real abduction of the humerus occurred during the first phase of movement. The last phase was completed by the pectoralis major, supraspinatus and coracobrachialis. Abduction backward was impossible.

Case 2.—A. T., a man, aged 23, was injured, Jan. 15, 1921, when a box weighing about 500 pounds fell 60 feet, striking him on the shoulder. He sustained a fracture of the scapula, of the humerus and of the radius and ulna at the elbow. Following the injury he was unable to move the upper extremity in any way. When examined, Jan. 27, 1922, he had a brachial plexus lesion involving the musculospiral, musculocutaneous and circumflex nerves. In addition to this he had a severe injury to the ulnar and median nerves as the result of a lesion in the forearm. For the purpose of this communication it is unnecessary to describe in detail the brachial plexus lesion; it is sufficient to note that the deltoid, biceps and coracobrachialis were paralyzed. The supraspinatus, infraspinatus, serratus magnus, trapezius and rhomboidei were conserved. He noted that about six months following the injury he was able to abduct the arm completely when he rotated the humerus outward at the beginning of the movement. It was observed that abduction was performed by first rotating the humerus outward by the infraspinatus; then a strong contraction of the supraspinatus, pectoralis major and triceps pressed the head of the humerus into the glenoid cavity, when the scapula was rotated by a strong contraction of the trapezius, serratus magnus and rhomboidei. In this manner the humerus was abducted to an angle of about 100 degrees, when internal rotation occurred and the pectoralis major and probably the supraspinatus completed the abduction. There was complete reaction of degeneration, and almost complete atrophy of the deltoid muscle. Abduction backward was impossible.

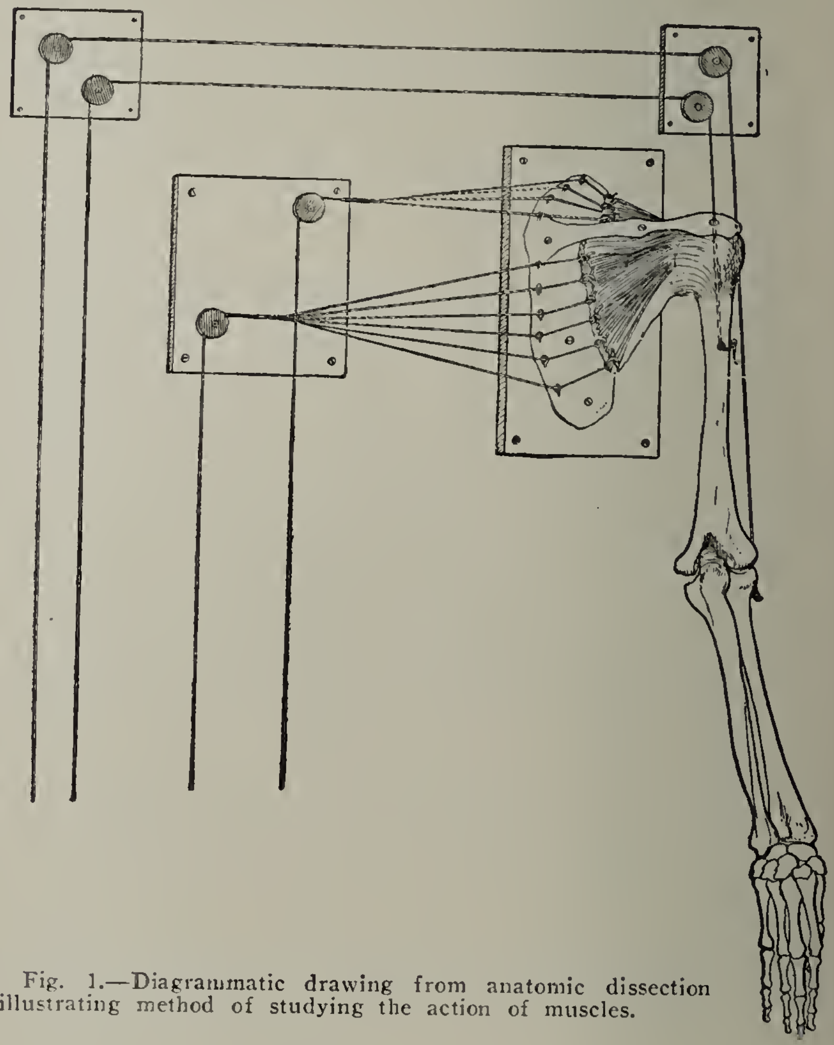

Fig. 1.—Diagrammatic drawing from anatomic dissection illustrating method of studying the action of muscles.

Case 3.—N. T., a man, aged 37, was injured, July 9, 1921, by falling a distance of 12 feet, landing on his shoulder and the side of the head. Immediately afterward he found that he was unable to lift the arm, and subsequently noted that he was unable to abduct the arm except in a forward direction to a very limited degree. About five months after the injury he was able to abduct the arm to the horizontal position but in an obliquely forward direction. I examined him, Jan. 23, 1922, when there was a complete paralysis of the right deltoid muscle with extensive atrophy, complete reaction of degeneration, and an analgesia occupying the area innervated by the fourth and fifth cervical segments. Abduction was performed in three phases. During the first phase

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*Read before the Section on Nervous and Mental Diseases at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Sherren: Lancet **1**: 726 (March 17) 1906.
2. Letievant: Traités des sectiones nerveuses, quoted by Sherren (Footnote 1).
3. Duchenne: Physiologie des movements, 1867, p. 78.
4. Bunts: Tr. Am. S. Soc. **21**: 521, 1903.

the humerus was abducted, apparently by the supraspinatus, the infraspinatus, producing outward rotation of the humerus, and perhaps the coracobrachialis and long head of the biceps. At about an angle of 60 degrees the scapula was rotated, as occurs normally, and the third phase was completed by the supraspinatus, pectoralis major and coracobrachialis. Abduction in a backward direction was impossible.

Case 4.—E. D., a man, aged 45, was caught in a line shaft twenty-five years ago, and sustained a bilateral dislocation of the arms. Following this he noted that he was unable to abduct the right arm. At the end of a year he began to draw it up along his side, shifting it backward so that he could get it into his trousers pocket. About three years afterward he could abduct the arm to a right angle, but could not flex and extend the forearm while the arm was in this position. He continued to improve until the present date, when he stated that he experienced no disability or handicap because of the condition of his arm in the pursuit of his ordinary occupation. On examination, the deltoid muscle was completely atrophied. The head of the humerus was covered only by skin and subcutaneous fat. The capsule of the joint was lax, and a considerable space could be observed above the head of the humerus. He was able to abduct his arm completely to the side and in flexion. He could approximate the palms with his arms abducted fully above his head. Abduction was performed in three phases, during the first of which the arm was abducted by the long head of the biceps, the supraspinatus, and in part by the infraspinatus and coracobrachialis. When the arm was abducted in the position of external rotation, he was unable to relax the biceps. When the arm was abducted in the position of internal rotation, the biceps was seen to be flaccid, whereas the triceps became tense. The second and third phases of abduction were completed about as in a normal person. Abduction in a backward direction was impossible, although the patient was able to slide his hand backward and upward so as to reach his hip pocket.

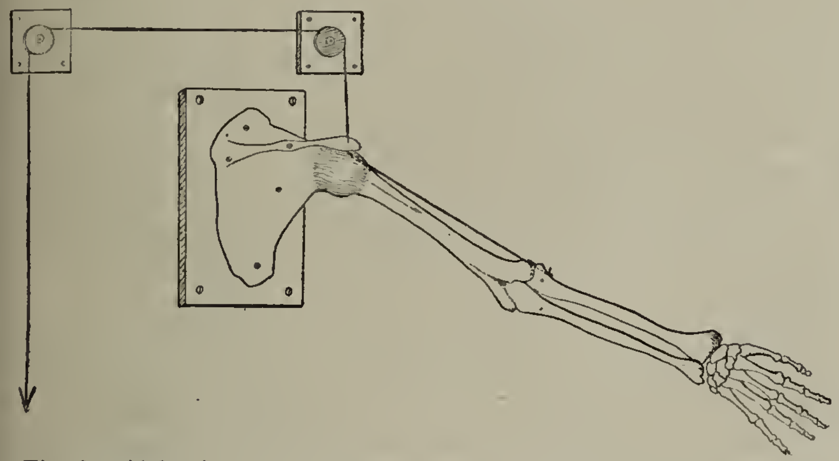

Fig. 2.—Abduction of arm to an angle of 60 degrees by the long head of the biceps.

PHYSIOLOGY OF SHOULDER MUSCLES

The physiology of movements of muscles about the shoulder is somewhat complex, and current conceptions are obscure in some particulars and controversial in others.

Until recently it was the accepted view that in raising the humerus to a straight angle, the deltoid elevates the arm approximately to a right angle, after which elevation is completed by scapular rotation. This view will probably be modified through the investigation of Stookey,[5] who showed that the first cycle of elevation is accomplished by the action of the deltoid and supraspinatus, raising the humerus to about 60 degrees and accompanied by slight rotation of the scapula. The second cycle is accomplished principally by rotation of the scapula due to the action of the serratus magnus, trapezius, rhomboidei and levator anguli scapulae, which raises the arm to approximately 115 degrees, and is accompanied by slight elevation of the humerus. The third cycle is accomplished by elevation of the humerus from 115 degrees to a straight angle due to the action of the supraspinatus and deltoid, in which there is only slight rotation of the scapula. He pointed out that the coracobrachialis and the clavicular head of the pectoralis major were associated with the deltoid in the final stage of elevation.

The importance of the supraspinatus muscle was emphasized by Codman,[6] who believed that the deltoid could not act as an abductor of the arm unless accompanied in its action by the supraspinatus, whose power furnishes a fulcrum for the action of the deltoid, a view expressed in part by Winslow, in 1749. As pointed out by Stevens,[7] the subscapularis, the infraspinatus and the teres minor act as tractors to pull the head of the humerus into the glenoid, fixing it firmly; and, beyond a certain point, the infraspinatus and teres minor behind and the subscapularis in front may possibly take on an added function, although it is probably to a limited extent, namely, that of abductors as aids of the deltoid.

Thus far we have seen that, in the first phase in which the deltoid is motofacient, it is supplemented by the supraspinatus and probably the infraspinatus and subscapularis, and in the third phase by the coracobrachialis and clavicular head of the pectoralis major.

ABDUCTION OF ARM IN PARALYSIS OF DELTOID MUSCLE

How has the abduction of the arm in cases of complete paralysis of the deltoid muscle been explained? Duchenne showed in his case that it was the supraspinatus, the serratus and the trapezius which supplied the power; Kennedy[8] pointed out, in addition, the influence of torsion of the vertebral column. Hoffman[9] considered the pectoralis major of prime importance. It is the opinion of Kron[10] that the pectoralis should, with the supraspinatus, pull the head of the humerus into the glenoid, while the serratus by rotating the scapula elevates the arm. Loewe[11] attributed the action to the supraspinatus and trapezius. Kron gained the impression that in his cases the upper part of the pectoralis major acted as a direct elevator of the humerus, aided by the supraspinatus and trapezius. In one of his cases some assistance was given by the coracobrachialis and the infraspinatus.

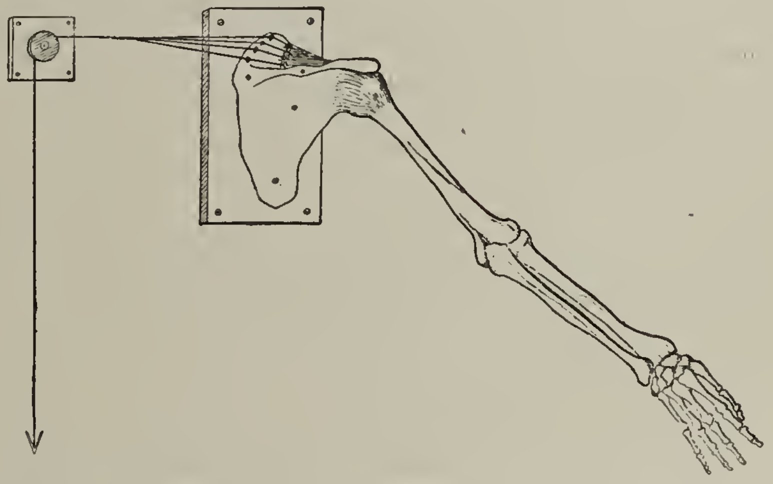

Fig. 3.—Abduction of arm to an angle of 45 degrees by the supraspinatus.

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[5] Stookey, B.: Motofacient and Nonmotofacient Cycles in Elevation of Humerus, Arch. Neurol. & Psychiat. 4: 323 (Sept.) 1920.

[6] Codman: Bursitis Subacromialis, or Periarthritis of the Shoulder Joint, Tr. Massachusetts M. Soc., June 9, 1908, p. 13.

[7] Stevens: Am. J. M. Sc. **138**: 870 (Dec.) 1909.

[8] Kennedy: Brit. M. J. **1**: 1513 (Jan.) 1898.

[9] Hoffman: Neurol. Centralbl., 1899, p. 113.

[10] Kron: Deutsche Ztschr. f. Nervenh. **15**: 133, 1899.

[11] Loewe: Aerztliche Sachverständigen Zeitung, 1899, p. 302.

To recapitulate, the accessory muscles were the supraspinatus, pectoralis major, coracobrachialis, infraspinatus, serratus magnus and trapezius. No effort has been made to determine which muscles participate in any particular part of the movement of abduction.

The function of each individual muscle under normal conditions is not an indication of its limitations in vicarious function. For example, the coracobrachialis and the clavicular head of the pectoralis major, acting in the first phase of abduction, would act as flexors of the humerus advancing it forward; but if the forward movement be counteracted by the infraspinatus, it is possible that they may act with it to produce abduction.

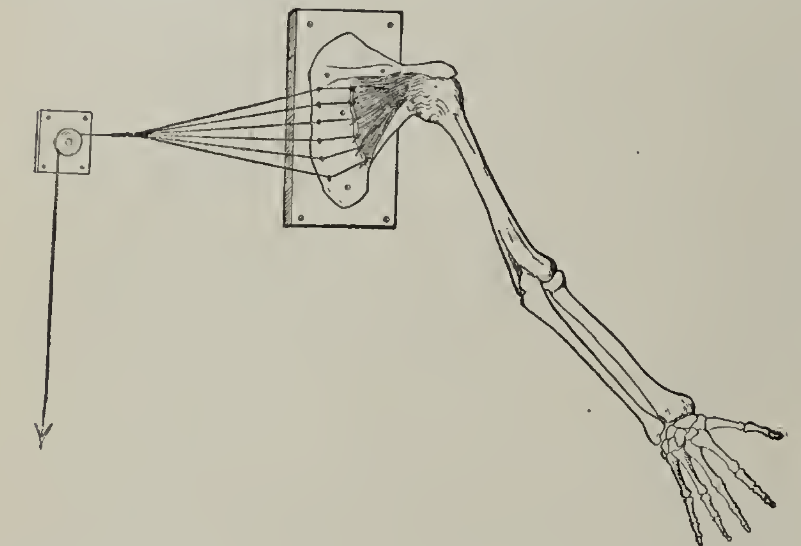
Fig. 4.—Abduction of arm to an angle of 35 degrees by the infraspinatus.

In an effort to understand the action of these various muscles, an anatomic preparation was made. The various muscles about the shoulder and arm were resected, leaving stumps at their origin and insertion, and the joint capsule preserved intact. Silk ligaments were constructed, attached to the insertion of the muscles and passed through rings at the point of origin, then through pulleys permitting traction in the direction of the normal action of the muscles. The shoulder blade was then screwed firmly to a support (Fig. 1). It was postulated that the contraction of a muscle could produce a movement only so extensive as would be shown by the angle remaining between the humerus and a vertical line after the muscle had been subjected to strong traction, and the humerus abducted passively to the vertical and slowly allowed to fall to the position at which the stretched muscle would support it. It was seen that the long head of the biceps acted as a direct abductor to an angle of 60 degrees; that the supraspinatus acted as an abductor to an angle of about 45 degrees; that the infraspinatus produced an abduction of 35 degrees, accompanied by an outward rotation of the humerus and slight backward movement, and that the coracobrachialis brought the arm obliquely forward and upward to an angle of about 30 degrees. The combined action of these muscles elevated the arm to an angle of about 65 degrees. It was found that when the infraspinatus and coracobrachialis acted together, the former tended to counteract the forward action of the latter. It was further found that when the arm was passively abducted to a position sufficient to permit the tuberosity of the humerus to pass under the acromial process, and when both the coracobrachialis and the infraspinatus were pulled on, the humerus retained this position; when the coracobrachialis was released, the arm fell to an angle of 35 degrees, and assumed a position of outward rotation (Figs. 2, 3, 4 and 5).

From the observation of the clinical cases and the anatomic model, it would appear that there are two distinct types of supplementary motility which permit abduction of the humerus in complete paralysis of the deltoid muscle. Of course, the movement of torsion or bending of the spine need not be included, since it only increases the distance between the dependent hand and the ground, and in no way abducts the humerus.

The movement of abduction backward seems never to be supplemented, so that such a movement as is necessary to put one's hand in the hip pocket is impossible, although Kron stated that the teres major can supplant the action of the posterior belly of the deltoid. His description of the resulting movement is unconvincing.

The first type of supplementary movement is that in which the head of the humerus is firmly fixed in the glenoid cavity, probably by the subscapularis, the infraspinatus, the pectoralis major and the supraspinatus. During this phase, external rotation of the humerus occurs. The serratus magnus and trapezius, with the rhomboidei, and levator anguli scapulae, then produce a rotation of the scapula, elevating the humerus; some actual abduction may likewise occur. Thus, the first and second phases of abduction are combined, but the second phase overshadows the first. The third phase may be concluded by the supraspinatus, the clavicular head of the pectoralis major and the coracobrachialis (Cases 1 and 2).

The second type is that in which the first phase of abduction of the humerus may occur as the result of the combined action of the supraspinatus, the infraspinatus probably acting in conjunction with the coracobrachialis and possibly the long head of the biceps; the second phase of abduction occurs as in the normal by the action of the serratus magnus, trapezius, rhombodei and levator anguli scapulae; the third phase is completed by the coracobrachialis, the clavicular head of the pectoralis major and the supraspinatus (Cases 3 and 4). Of course, any one or more of these muscles may not participate in a given case.

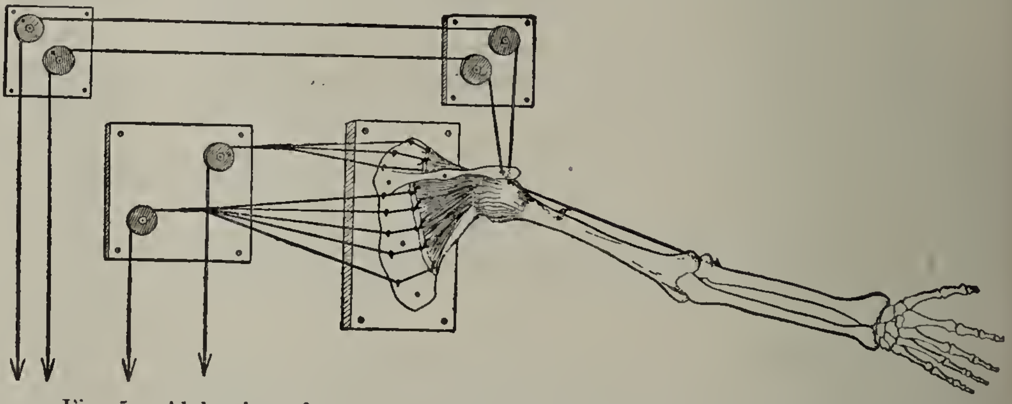
Fig. 5.—Abduction of arm to an angle of 65 degrees by the combined action of the coracobrachialis, long head of the biceps, supraspinatus and infraspinatus.

25 East Washington Street.

Fixing the Mental Status of an Antivivisectionist.—"I have no hesitation in calling him—Pasteur—the greatest charlatan of the last century." This is the matured opinion of Pasteur held by Dr. Walter Hadwen of Gloucester, England, the leading antivivisectionist of Great Britain, who recently made a tour of propaganda in the United States. It will be found in the *Starry Cross*, October, 1921, p. 154.

DETERMINATION OF DISABILITY AS TO LOSS OF HEARING, AND THE IMPORTANCE OF VERTIGO

IN INDUSTRIAL ACCIDENT CASES *

HAROLD A. FLETCHER, M.D.
SAN FRANCISCO

A review of the files of the Industrial Accident Commission of California reveals the fact that during the last few years more than $60,000 has been awarded as compensation for disability due to accidents involving the ears. These files convince one that the average specialist either considers his reports to the commission or insurance company as unimportant, or that he has no conception of what is wanted by them.

If a man has an injury of his ears and is to receive compensation for it, a report must be sent to the commission or to the insurance company. The report must give certain facts before the company will pay the compensation. Briefly these facts are:

1. A diagnosis of the trouble.
2. What the cause of the trouble is or was, particularly whether caused by the alleged accident.
3. The loss of function, if any, estimated in such a way (percentage preferably) that the accident commission can rate the man and the man be paid for his loss.

If the specialist will try to fulfil these three things in his reports, the patient and the insurance company will both receive fairer play.

In regard to estimation of the loss of hearing, I find that at present it seems to be pure guesswork. I have found reports on the same case from three different physicians differing as widely as 65 per cent. when each physician was using the same tests.

TABLE 1.—TESTS OF HEARING AFTER CONCUSSION INJURY TO LEFT EAR

Right ear	Left or injured ear
5 meter watch at 3 meters	5 meter watch on contact
Whisper, more than 5 meters	Whisper, 50 cm.
Voice, more than 5 meters	Voice, more than 5 meters
Rinne, plus	Rinne, plus
Air conduction greater than bone conduction	Air conduction greater than bone conduction
Bone conduction normal.	Bone conduction slightly shortened.

Weber referred to right.

Tuning fork test, averaging all forks:

Right	Left
C = 48%	C = 55%
C_0 = 50%	C_0 = 40%
C_1 = 60%	C_1 = 55%
C_2 = 50%	C_2 = 10%
C_3 = 50%	C_3 = 40%
C_4 = 80%	C_4 = 70%
C_5 = 100%	C_5 = 0%
Average, 60%	Average, 40%

Differing from the estimation of the loss of vision there has been, so far as I know, no method of determining the percentage loss of hearing.[1] The recent developments [2] of the audiometer and the electric acoumeter may eventually become practical in this respect We have certain tests on which we base our judgments, namely, the watch or the acoumeter, the spoken voice, the whisper, the Galton whistle, tuning forks, monochord, etc., and the Weber, Rinne, Schwabach and other tests, which give us a line on how much a man hears, and whether it is a middle or internal ear condition. It is difficult, however, to take the results of these tests and fairly estimate what percentage of hearing has been lost.

I believe that there should be some system used in estimating these cases, and that such a system should be universal. I have gradually worked out a plan which I am using and which is best explained if applied to an actual case.

TABLE 2.—ESTIMATION OF LOSS OF HEARING IN LEFT, OR INJURED, EAR

Normal Hearing	Patient Hears	% Loss		Weight		Total
Watch 5 meters	on contact	99.8	×	10	=	998.0
Whisper 5 meters	50 cm.	90.0	×	30	=	2,700.0
Voice 5 meters	5 meters	0.0	×	50	=	0.0
Forks 100%	40%	60.0	×	10	=	600.0
				Total	=	4,298.0

4,298/100 = 42.9, or 43% loss of hearing.

A patient who had a concussion injury of his left ear was tested, with the results given in Table 1.

With these data I roughly estimated his loss of hearing at 57 per cent. in the left ear. I did this by averaging all the tests on an equal basis.

If a man loses his hearing in one ear, he obviously loses 100 per cent. in one ear. If, however, he hears with his injured ear watch on contact, instead of 5 meters, whisper at 50 cm. instead of 5 meters, and hears the tuning forks 40 per cent. of the normal, how are we to arrive at his actual disability? For the watch, his loss is 99 per cent.; for the whisper, 70 per cent.; for the voice, 0; for the tuning forks, 60 per cent. Averaging them gives us 57 per cent. loss of hearing. This is much too high, as the watch tick, which is only one unimportant test, brings up his disability, whereas the spoken voice and the whisper, which are the important things in his daily life, do not show great enough impairment to cause great disability. A machinist who adjusts delicate machinery needs much more accurate hearing than the laborer or mine worker who needs his ears for spoken orders and as a protection for himself and others against dangers. It occurred to me that a scale of weights could be used, rating the man on the different hearing tests, but putting more weight on the important ones. One patient may hear a 5 meter watch tick only on contact, and hear a whisper at 5 meters. Another hears a watch at 25 cm., and hears a whisper only at 2 meters.

By a scale of weights is meant the taking of a total of ten or a hundred as the total for a man's hearing, and then dividing this into different parts according to the importance of the tests as far as his work is concerned. Thus, if 100 is the total, the voice being the most important, 50 could be made the weight for the test, the whisper being next could be placed at 30, and the watch and tuning forks at 10 each. Taking this as the normal we would estimate the foregoing case as in Table 2.

Multiplying the percentage loss by the weight given to each test, and dividing the sum of these by 100, gives 42.9 or 43 per cent. estimated loss of hearing.

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* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Holt, E. E.: Economics of the Eye, Ear, Nose and Throat, Tr. Am. Acad. Ophth. & Oto.-Laryng., 1914.

[2] Dean, L. W., and Bunch, C. C.: Results Obtained from One Year's Use of the Audiometer in the Otological Clinic, Laryngoscope **31**: 137 (March) 1921. Dean, L. W.: Studies in Otology, Using the Pitch Range Audiometer, ibid. **31**: 743 (Oct.) 1921. Bunch, C. C.: Demonstration of Improved Methods of Measuring the Tonal Range, Showing Progressive Development of the Apparatus, ibid. **31**: 760 (Oct.) 1921. Guttman, John: A New Method of Measuring Hearing Power by Means of an Electric Acumeter, ibid. **31**: 960 (Dec.) 1921.

Figuring out the right ear on this basis, we find 8 per cent loss of hearing (Table 3).

In this patient the loss of hearing due to the accident should be based, not on normal hearing, but on what he could be supposed to have heard before the accident. In other words, the hearing in his right ear should be considered his normal hearing. Thus, the loss of hearing due to the accident would be 43 per cent. minus 8 per cent., leaving 35 per cent. loss of hearing in the left ear due to the accident. This I believe to be a much fairer estimate of what this man lost, as far as his disability is concerned in his particular work. It will be noted that I originally estimated this at 57 per cent.

TABLE 3.—LOSS OF HEARING IN RIGHT EAR

Normal Hearing	Patient Hears	% Loss		Weight		Total
Watch 5 meters	3 meters	40	×	10	=	400.0
Whisper 5 meters	5 meters	0	×	30	=	0.0
Voice 5 meters	5 meters	0	×	50	=	0.0
Forks 100%	60%	40	×	10	=	400.0
				Total	=	800.0

800 divided by 100 = 8 per cent. loss of hearing.

The main point to be borne in mind is, that we should have one system by which to figure the percentage of disability, and then use that system in all cases. I submit this not as an absolute final scheme, but for discussion. There is to be decided first normal hearing and then what weight should be given to each of the various tests. Furthermore, a watchmaker or an adjuster for delicate machinery should probably have a greater weight put on the watch tick and the tuning fork test at the expense of the weights on voice and whisper.

VERTIGO

The next point is the symptom of vertigo following head injuries, such as fractured skull and concussion of the brain. These patients often complain of several major symptoms lasting for a long period, namely, vertigo and instability, headaches, weakness, deafness, nervousness and a great many minor troubles. Unless these patients are found to have definite evidence of an organic neurologic condition, they are placed in a class of functional disorders, namely, traumatic neurosis. Until recently the otologist has not been consulted enough in these cases.

The point that interests us as otologists is the fact that quite a number of these cases which are otherwise neurologically negative show very definite evidence of organic disturbance along the vestibular pathways. The neurologic examination, therefore, should not be considered complete without a thorough neurotologic examination. If the examination shows definite evidence of disturbance along the vestibular pathways, these findings may be of the greatest help to the neurologist in differentiating between the functional and the organic cases.

There are certain things to be kept in mind in making a neurotologic examination in these cases. 1. Careful technic must be employed and any abnormal responses must be checked up. 2. We must be guarded in the interpreting of our result. One of the greatest criticisms of these tests, and justly so, is that otologists have attempted to go too far in their interpretations.[3] 3. A great many of these cases show a big neurotic element, and it is well to remember that there have been a goodly number of cases reported in which abnormal reactions have been hysterical manifestations.[4] Malingerers are encountered, and certain responses in these tests can be faked.

REPORT OF CASES

The cases here reported were cases of head injuries which were neurologically negative, and therefore suspected of being functional or true traumatic neurosis, in which positive evidence of organic trouble was found as far as the vestibular apparatus was concerned.

Case 1.—V. S. T., a man, received severe head and body injuries in June, 1918. He was referred in September for rating for hearing. He complained at this time of headaches, weakness and dizziness which had been pronounced a part of a traumatic neurosis by several other physicians. Neurologic examination was reported negative.

Hearing was reduced in both ears, of the nature of middle ear rather than internal ear type.

Neurotologic examination revealed: (1) spontaneous rotary nystagmus to right and to left when looking in those directions; (2) spontaneous past pointing of the right arm 2 inches to the right and of the left arm 1 inch to the right; (3) turning to right, long continued past pointing but correct direction; (4) turning to left, long continued past pointing to *right;* (5) caloric test, right ear, responses within normal limits; (6) caloric test, left ear, past pointing to *right* and a perverted nystagmus; (7) right arm, no past pointing to left on any stimulation.

These responses I believe to be evidence of an intracranial, rather than a peripheral disturbance. These would also be evidence of an organic cause for his complaint of vertigo and instability.

Reexamination in December, 1920, disclosed practically the same abnormal responses except that the spontaneous nystagmus had disappeared.

In May, 1921, the patient still showed the same abnormal responses.

In October, 1921, he still showed the same abnormal responses.

During this time the patient was improving generally as to the neurotic element and ability to negotiate work, and his dizziness bothered him less.

Case 2.—M. W., a man, received severe head and body injuries in April, 1921. He was referred in September, 1921, when his chief complaint was dizziness and headaches when attempting to do even light work; also constant tinnitus of the right ear.

Neurologic examinations by three neurologists were practically negative.

Examination revealed marked impairment of hearing in the right ear of internal ear type, and slight impairment of hearing in the left ear of middle ear type.

Neurotologic examination revealed that: (1) there was spontaneous past pointing of the right arm to the right; (2) turning tests could not be carried out, as the patient could not hold himself in the chair; (3) responses to caloric stimulations were somewhat delayed; (4) stimulation of the right vertical canals caused spasmodic twitching of the body and extremities, which was more marked on the right side; (5) stimulation of the right horizontal canal caused nystagmus to the *right*, and a tendency to conjugate deviation of the eyes to the right; (6) stimulation of the left vertical and left horizontal canals produced past pointing of the *right* arm to the *right*, and subnormal past pointing of the left arm to the left; (7) the right arm could not be made to past point to the left on stimulation of any canal.

Reexamination in March, 1922, revealed practically the same responses, although the patient was still neurologically negative. He still complained of dizziness, instability and headaches.

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[3] Weisenburg, T. H.: Traumatic Neurosis in War and Peace, J. A. M. A. 73: 596 (Aug. 23) 1919.

[4] Sewall, E. C.: Demonstration of Case of Hysteria Simulating Brain Tumor, Tr. Western Sec. Am. Laryngol., Rhinol. & Otol. Soc., Feb. 23, 1922.

In March, 1922, examination by Dr. F. C. Lewitt revealed practically the same abnormal responses that I found.

Case 3.—A. W., who received severe head and body injuries in May, 1919, was referred in August as a possible malingerer.

Examination revealed complete loss of hearing in the right ear, and normal hearing in the left.

Neurotologic examination revealed: (1) spontaneous rotary nystagmus to the right on looking to the right, and to the left on looking to the left; (2) spontaneous past pointing 2 inches to the right with the right arm only; (3) turning test: subnormal nystagmus; perverted past pointing of the left arm on turning to the right; subnormal and perverted past pointing of the left arm on turning to the left; falling after turning, much impaired in both directions; (4) caloric test of right ear, reactions absent except that stimulation of right horizontal canal caused a past pointing of the left arm to the *left;* (5) caloric test of left vertical canals, absent, nystagmus and past pointing after five minutes; left horizontal canal, normal responses.

Reexamination in October, 1919, gave findings the same except that there was no spontaneous nystagmus. The Wassermann reaction was positive at this time. A thorough examination by a neurologist at the time was negative. Nothing gave definite evidence that syphilis was complicating the injury.

It is to be noted that Weisenburg[5] has reported a case similar to Case 2 in which the symptoms cleared up on settlement for damages. It was not stated whether later neurotologic examination was made. This is important, I believe, for the reason that as yet we do not know how long these abnormal reactions remain in these cases. Further, we do not know, as yet, the exact relation these responses bear to the symptoms of vertigo and instability in these cases. Lump sum compensation in the true traumatic neurosis case will often clear up a great many of the symptoms.[6] If settlement will clear up the symptoms in cases in which evidence shows central organic disturbance, as in the foregoing cases, then we must revise our ideas as to what constitutes evidence of organic disturbances. These things we do not know yet; but these tests, repeated over long periods, will clear up the question. No matter what the answer, these tests must be considered important and should be made more often in these cases.

CONCLUSIONS

1. More thorough examination, deeper thought and more careful analysis of industrial injuries involving the ears, and more comprehensive reports to the insurance companies should be the physician's endeavor.

2. It is believed that the hearing can be more fairly estimated by a system of weights proportionate to the value of the tests for hearing.

3. The neurotologic examination should be made of all patients with head injuries complaining of vertigo, as the findings in these examinations may be the only evidence by which the neurologist can differentiate the traumatic neurosis from those cases in which there are central organic disturbances.

4. These patients should be reexamined over a period of years, if possible, to determine the relation of the duration of the symptoms to the duration of his abnormal reactions.

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ABSTRACT OF DISCUSSION

Dr. Charles G. Stivers, Los Angeles: With the growth and development of industrial medicine, insurance companies and state accident commissions have demanded that physicians estimate the loss of function systematically and accurately. Otologists are behind in this particular work, as they have not as yet produced any method by which it is possible to estimate the percentage of hearing lost. Offhand, this would seem difficult to do, as our judgment of hearing is based on several different tests, each of which has a different value; but practically it is interpreted in terms of the amount and quality of function required in a given occupation compared to what remains in any given case. This paper is an attempt to arrive at a fair estimate of what a patient has lost. Any method must be purely an estimation; but such an estimation should rule out "guesswork" as far as possible. Furthermore, it should be simple and clear. So far as I know, there has never been any such method produced. This plan would seem to me to be a reasonable and fair one; it is easy to follow out, no matter what the tests used. It has the advantage, furthermore, that the weights used can be changed in certain cases in which a man's occupational efficiency is more dependent auditorially on certain sounds, in the upper, middle or lower tone scale; for instance, in machinists, stenographers, salesmen, watchmakers, musicians and teachers appreciation of the difference in upper and lower tone scale is necessary. The second part of the paper deals with the importance of vertigo following head injuries. If the neurologist can get definite evidence of organic disturbance in the brain in these cases, it helps him to separate these disturbing cases. The importance of careful vestibular examination in such cases is demonstrated in the examples shown. These cases were otherwise neurologically negative. It is to be noted that Dr. Fletcher has not attempted to localize the lesions, but has confined himself to saying that evidence points to an intracranial rather than a peripheral disturbance. This, I believe, is both safe and conservative. Systematic examination of the amount of hearing, as well as eyesight and other evidences of physical condition of all employees, would seem to be necessary to find out what the real loss from injury is in a given case. It might become necessary to have such a record of every employee when starting to work.

Dr. John A. Donovan, Butte, Mont.: As Dr. Stivers has said, from the economic standpoint you have to put in another factor—occupation. I had a railroad dispatcher sent to me for examination because the chief thought that the man was not able to hold his postion. I suggested that he be taken away from the telephone and be given service as a telegrapher. With a certain kind of voice he was unable to hold his position, but in telegraphy that factor did not come in. Dr. Fletcher is aiming to get under ordinary conditions, with ordinary people, just what hearing they have lost. His propositions appear to me quite reasonable. But the big factor about the paper is that it gives us a key to start working, and in a few years we can arrive at something quite definite.

Dr. George E. Shambaugh, Chicago: This is by no means a simple problem. I have had a good deal of experience in examining patients who were supposed to have sustained injury to the hearing. It is important in such cases to remember, first, that it is a very common thing for people to believe that by feigning a defect in the hearing they will be able to get damages for supposed injuries; another is, that when we come to examine the hearing, even when we are convinced that there is a defect, we must always take into consideration the question as to whether there has been some defect previous to the injury. Dr. Fletcher tries to work out a system by which this can all be checked up. I was stationed at Camp Grant during the most active demobilization period, and I was called to pass on a great many cases in which there was some apparent defect in the hearing, and to determine whether this defect could be the result of war injuries. There are two ways by which the hearing may be injured by traumatism: One is by concussion, that is, explosions near the ear; the other is by an injury from a blow on the head. Now let us consider a moment what is the nature of the injury to the ear in these two conditions. Concussion may or may not rupture the drum membrane. Explosions near the ear may result in a partial or complete loss of hearing. After an injury of this sort, a partial or a complete restoration of the hearing may take place. When there is a defect due to a fall or blow on the head, we may again have a rupture of the drum membrane or an injury to the internal ear. In cases resulting from a rupture in the drum membrane, only a temporary slight impairment is experienced. The big question in most of these cases is whether or not the head injury has resulted in a traumatism to the labyrinth. My own opinion is that an injury to the labyrinth from a blow on the head is always the result of a basal skull fracture. Such injuries destroy completely and permanently the function of the internal ear so that the patient experiences not only a total loss of hearing in that ear immediately after the accident, but also a marked disturbance of equilibrium, vertigo and nausea. I have never been convinced that a blow on the head can result in only a partial loss of hearing. As far as the intracranial lesions are concerned which may affect the hearing center, these are still more problematic than the supposed injuries to the labyrinth resulting in partial loss of hearing. I studied one case rather carefully at Camp Grant, in which the patient had an injury in the temporal region from a bullet wound, and I was convinced that an injury to the hearing center in the cerebral cortex was the cause of the defect in the hearing.

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[5] Weisenburg, T. H. (Footnote 3); Equilibrium and the Vestibular Apparatus, Arch. Neurol. & Psychiat. **7**: 210 (Feb.) 1922.

[6] Schaller, W. F.: Diagnosis in Traumatic Neurosis, J. A. M. A. **71**: 338 (Aug. 3) 1918.

Dr. J. W. Charles, St. Louis: I want to disagree with Dr. Shambaugh that a blow on the head causes entire loss of hearing. A young girl fell on the ice. She was not unconscious, but dizzy. She came the following day with a bloody infusion into the middle ear. This promptly cleared up and gave her absolutely normal hearing with no internal ear inflammation. On the day I first examined her there was no discoloration of the skin back of the ear. This appeared the following day and persisted for several days. I was very glad to hear Dr. Fletcher present this paper because I think this subject is one on which we need enlightenment and possibly some way of coming to conclusions on which to base our findings to the industrial commission in accident cases. I had a case of a structural iron worker who was struck on the head by a beam and was unconscious for several hours. He recovered, but still complained of dizziness. Brain tests were normal, but he still complained of dizziness, and certainly it was impossible for him to undertake any such hazardous occupation as that of structural iron worker. Dr. Fry of Vienna was here at the time and I had him see the man. He brought out the point that if the injury had been complete, so that there was a complete loss of function of the labyrinth on one side, the man ultimately could have engaged in his occupation; but since the injury was not complete, but only irritative, the probability was that his dizziness would never disappear.

Dr. William House, Portland, Ore.: The neuropsychiatrists are a forgiving group. Years ago the oculists took our headache cases and the gynecologists took the female half of our practice among the insane. Then the dermatologists started to cure our paretics and tabetics, and now it looks as if the otologists were trying to take what little we have left. This time I think that most neurologists are in sympathy with them, believing that they are the right people to make the tests under discussion. The otologist alone has the correlated knowledge of the labyrinth which is essential if one is to make these tests correctly. But I think that we need these tests in relatively few cases. Dr. Fletcher has presented an idea that seems worthy of further investigation. Many patients with head injuries have no neurologic symptoms excepting vertigo. This vertigo is increased by bending the head forward or backward, and I believe that it may be due to alterations of tension of the cerebrospinal fluid. The head-neck articulation is in close proximity to the anterior and posterior cisterns, which are filled with cerebrospinal fluid, and it is quite likely that changes in position may cause alterations of tension which may extend along the sheath of the auditory nerve or possibly to the endolymph of the semicircular canals themselves. Of course, if there is any injury in the region of the canals or at the base of the brain, it could readily influence the sensitiveness of these parts to changes in position. If the Bárány tests are to be used in traumatic cases, care should be exercised. The tests themselves may constitute additional trauma in neuropathically inclined persons, and such results may be construed as due to the original accident. Especially when suit is to be instituted they should be cautiously used or not at all, at least until their value has been determined in traumatic cases not in litigation. I congratulate Dr. Fletcher on giving us a new thought that there may be a relation between traumatic neurasthenia with its attendant vertigo and the vestibular apparatus which may be cleared up by the Bárány tests. I shall try to apply his observations in some of my own cases.

Dr. M. A. Goldstein, St. Louis: As I understand Dr. Fletcher's paper, he is endeavoring to develop a system of calculation of the percentage of hearing. That percentage is possible in some of the tests, as, for example, in the voice, but I am not enough of a mathematician to follow his calculations of the percentage of hearing in the use of the tuning fork. There are no two men who handle the tuning fork alike, and before you can get a definite percentage calculation in the use of the tuning fork you must standardize the tuning forks and their methods of use.

Dr. Harold Fletcher, San Francisco: In reply to Dr. Shambaugh, of course this paper presupposes that you have made a careful examination and taken a careful history. In these cases we must take a particularly careful history as this may be of greatest importance in deciding whether the accident caused the deafness. Dr. Shambaugh states that it is his opinion that a blow on the head will cause either complete loss of hearing or no loss at all, with the exception of deafness due to concussion through the middle ear. I think that if one will look over the reports of head wounds during the war one will find that complete or partial loss of hearing has followed wounds of the head without destruction of the vestibular apparatus. I had three of these cases myself. The length of time vertigo remains after destruction of the labyrinth or eighth nerve has been pretty well worked out and is comparatively short. In traumatic neurosis cases, following head injuries, however, vertigo is complained of for as long as three or four years. Most of these cases show no evidence of organic intracranial lesions as far as the neurologic tests are concerned. Some of them do as in the cases mentioned. These tests, then, are of greatest importance in differentiating between those having an organic basis for the vertigo and those which are purely functional. Certain abnormal responses to these tests have been taken to mean organic intracranial lesions. If the vertigo clears up after settlement in these cases, we shall be forced to revise our opinions. As to the tuning fork tests that Dr. Goldstein mentioned, this of course presupposes that one is making careful tests and one knows one's own tuning forks. The growth of industrial medicine and the compensation of injured employees is making more demands on the medical profession. If otologists report that a man has a loss of hearing due to an accident the commission is promptly going to ask, "What per cent.?" The ophthalmologist has produced methods for estimating loss of vision. It is up to otologists to do the same for hearing; otherwise we are put in a very poor light.

Factors of Safety.—Every normal individual has within himself large factors of safety. If much of the normal margin of safety is consumed before injury, then so much the more readily does the wound produce what is called shock. On the contrary, a soldier wounded soon after his arrival at the front, while he is still fresh, may show no immediate shock—for shock appears only after the factors of safety have been consumed; just as the Marathon runner is not exhausted at the beginning, but at the end of the race. Tens and hundreds of thousands of troops en bloc may be in a state of chronic exhaustion or in a chronic state which predisposes to shock. It may take a serious wound and the lapse of hours to reduce a fresh soldier to the shock level of the battle-exhausted soldier without a wound. There is probably no ultimate difference between the exhaustion produced by the privation and stress of war, and that produced by the bodily injuries of war.—G. W. Crile, "A Physical Interpretation of Shock, Exhaustion and Restoration," 1921.

NEED OF STANDARDS OF TRAINING

FOR SPECIALISTS, GENERAL PRACTITIONERS AND TEACHERS OF SPEECH CORRECTION *

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LOS ANGELES

Every one whose practice has anything to do with children realizes that the time is ripe for the development of a program for the study of the problems of defective speech, for about 5 per cent. of all children have some form of speech disorder. Institutions, boards of education and child welfare centers everywhere are asking for physicians to enlighten them on the prevention and correction of speech disorders.

Disorders of speech are increasing, partly because of the great revival of interest in education since the World War, as our system of public school training favors the production of more crowding, more psychoneuroses and more defects of all kinds, including speech disorders. Many foreigners in the larger cities who are learning to speak English at school are forced to speak their native language at home; this conflict often produces some form of speech defect. The World War has been followed by a large number of psychoneuroses, many with some form of speech defect, and this condition has helped to focus attention on the prevalence of speech disorders in adults, and compelled a better understanding of their frequency and importance.

There are about 1,000,000 children with speech defects in the United States, and the problem is a serious one because these children must go to school while having corrective methods applied. But at present there is no agreement among teachers as to the best methods to use, and physicians are not yet, as a body, sufficiently qualified to establish standards of diagnosis, pathology, prognosis and treatment.

In the training of physicians to diagnose and treat these conditions, it is evident that some form of differentiation must be made in the amount and character of the training: 1. What shall the medical college offer the undergraduate? 2. What shall constitute or be considered an adequate amount of time to be devoted by a physician who wishes to become a specialist in speech, and of what particular subjects shall his training consist? 3. How shall teachers of speech correction be trained?

It is suggested that the premedical period of study should contain more psychology, introductory, general and genetic, with a survey of mental development in children and adolescents. Abnormal psychology, including mental deficiency, truancy, mental measurements and the psychology of backward and abnormal children—there are 5,000,000 abnormal children in the United States, according to Lightner Witmer—must also be a part of the special training. Where in the curriculum these subjects can be introduced, in the premedical or undergraduate school, I do not attempt to say. That is a question for a committee to decide. I suggest only what I consider to be necessary training.

The specialist requires, in addition to general knowledge, a much more intensive training than would be necessary for undergraduate students who should be required to know something about the diagnosis, prognosis and treatment of a case of disordered speech, but should not, unless specially trained and of proper original endowments, undertake the cure by corrective training methods. The specialist should be a physician who has had some special training in artistic voice and speech production, and in the diagnosis and treatment of the functional derangement as well as the pathologic conditions of the voice and speech producing organs. The present lack of competent advisers is responsible, in a large measure, for the great number of untrained voice teachers who ruin untold numbers of voices and cut short many a promising vocal career. There are many physicians whose language and temperament unfit them for special corrective work with children with speech troubles. For instance, a foreigner who speaks English with a foreign accent is not a good example for children to imitate. Especially is this true in cases of lisping, substitution and oral inactivity. The specialist should have had in his premedical training a thorough course in psychology, and, in his special work, he should become proficient in the diagnosis and treatment of the diseases of the nervous system, especially in children, and of the affections of the ear, nose and throat, since the psychology of speech is a linking together of the psychology of the phonatory, articulatory, respiratory and auditory systems. Because of the very large numbers of backward, subnormal and deficient children who have defective speech, the training in both normal and abnormal psychology is absolutely necessary for the specialist.

The intelligence tests employed in the World War showed that 45 per cent. of those who were examined, or about one half of the total male population, had a mental capacity or natural ability that would never develop beyond the stage normal to a 12 year old child. They are doomed to remain forever subnormal.[1] As there are many millions of our population who are mentally deficient, every medical graduate should be able to recognize mental deficiency in his practice, for several reasons, one of which is that a large number of subnormal persons have speech defects. It is essential that persons with speech defects be graded mentally in order to do them justice in a social sense, so that the corrective methods applied to them, which may be followed by an anticipated result for speech training, will not be expected either to raise or to lower mental capacity. Medical schools should teach the relation of the teeth to phonetics, the rôle of dental irregularities, and the relation of malocclusion and cleft palate to language ability.

Recent studies reveal speech difficulties in the fields of orthopedics and pediatrics. My investigations show that there are twice as many cases of speech disorder among physically handicapped children as among normal children of school age. The speech training of these children will demand teachers who have special knowledge of physiotherapy and vocational guidance, and a comprehensive knowledge of the application of systematic training as a means of reaching mental levels. Teachers who wish to apply corrective methods should have the following qualifications:

1. They should be graduates of a normal school, college or university in which there was sufficient instruction in normal and abnormal psychology to prepare them for the understanding of the problems of defective speech.
2. They should be naturally endowed with an aptitude for handling nervous children.

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* Read before the Section on Otology, Laryngology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922, in connection with the film, "Development of Speech and the Use of Speech Drill in Orthopedic Cases."

[1] Berman, Louis: The Glands Regulating Personality.

3. They should be quick in auditory perception, should have well trained voices, and should be able to impart their knowledge to others.

4. They should be possessed of poise, patience and a love for the exacting demands of their careers.

5. They should be trained in corrective gymnastics and be able to diagnose the commoner forms of bad posture, notably, faults in spinal alinement and foot and leg conditions, and they should be able to apply their knowledge of corrective exercises in the curing of respiratory and developmental faults.

6. They should understand phonetics both in the organic and the acoustic sense, and they should have some training in diction, dramatics, public speaking, elocution and class management.

We acknowledge the fact that it is better to prevent than to attempt to cure; so it is recommended that large cities have child welfare centers, preferably connected with, or the work supervised by a staff of, a university medical school or hospital. A speech clinic, as an integral part of such a center, should have as director a physician who has been trained as a specialist in the diagnosis and treatment of speech disorders. The consulting staff working with him should consist of specialists: a pediatrician a neuropsychiatrist an ophthalmologist an ear, nose and throat specialist; a dentist with special knowledge of orthodontia; an orthopedic surgeon, and an endocrinologist, who might also be the pediatrician.

Our language, English with American modifications, changes from generation to generation. A word may have one sound today and a totally different one in fifty years, or a modified sound in different parts of the United States, because there never can be any arbitrary standard for pronunciation for the whole country. Our aim, as speech defect specialists, must be to provide a standard of correct speech production, so that the children of today may have the ability to express their ideas in fluent English, and have no hesitation over word utterance. We must cooperate with boards of education to obtain these desired conditions. Accordingly, it would be wise to have a teacher of normal speech associated with a group of speech specialists. The corrective methods should be applied by assistants, either men or women, with the necessary natural endowments already referred to, trained in the practical application of corrective methods, including the reeducation of the deaf.

It will be necessary for those of the medical profession who are now trained as specialists of speech disorders to agree among themselves, after conferences, discussions and trials of methods, on a program for a comprehensive study of the entire field of oral expression. After this is accomplished, they must interest the men in the medical profession, as a body, by showing the need for a better understanding of the problems of defective speech, in a national campaign for better training of all physicians, specialists and teachers. When medical schools realize that the demand exists, they will inaugurate courses in this field, and the training of physicians in this specialty will no longer be subject to the criticism it now merits, because of its lack of recognized, accepted and practical standards. So-called schools which guarantee to cure speech defects, if the students live up to every one of the multitude of rules and restrictions, usually impossible to follow, will be replaced by standardized methods. The stammerer especially will be taught by reeducation and training to adapt himself to his home surroundings, not sent away to be "cured" and then returned to his home to become again a stammerer.

SUMMARY

The time is favorable to the development of a program, by the medical profession, for the study of the serious aspects of, and the correction of, speech disorders.

Five per cent. of all children have speech defects, calling for correction.

Speech defects are increasing, owing to revival of interest in primary education, with overcrowding, competition, psychoneuroses and foreigners.

The World War has produced many psychoneuroses; many with speech difficulties.

The orthopedic and psychiatric fields furnish many cases.

The medical profession, as a whole, is not qualified as yet to establish standards of speech correction.

It is necessary for those now trained in the theory and practice of speech correction to agree on standards, to begin a program of education of the men in the medical profession, and to secure cooperation of educators.

When medical colleges realize that a need exists, adequate facilities for training will be offered to undergraduates, specialists and teachers.

The nature and scope of the training must be determined by committees, conferences and discussions.

406 Auditorium Building.

ABSTRACT OF DISCUSSION

Dr. M. A. Goldstein, St. Louis: This is the first time I have ever had the opportunity of seeing corrective speech demonstrated when it could also be definitely studied with a slow motion camera. I was much impressed in Washington a few weeks ago at the work done experimentally on the labyrinth of animals and the splendid demonstration by the slow motion camera of the removal of the labyrinth under different conditions, and the action of the slow motion camera in the study of this unusual series of changed musculature. I congratulate Dr. Stivers on the philosophy he has presented in the relationship of individual spastic muscle conditions to the general muscle contraction that one finds in so many of the larger groups of crippled children. I should like to know what proportion of the patients Dr. Stivers examined have defects in speech. The medical man in his study of speech defects and their correction not only must consider the mechanical element of correction, but also ought to be a fairly universal specialist in the study of his cases. He must study the psychology; he must know anatomy, physiology and speech machinery; he must know the relation of breathing to the muscles of the mechanics of speech; he must know the peculiar adaptability of the defective child to its defects, and he must know the pedagogy with which these defects are definitely improved. It is not such an easy thing to go into a room where corrective speech patients are being given instruction, make a few observations, and go away feeling that one has studied the situation thoroughly. One cannot make an expert in handling corrective speech cases over night, any more than one can make an expert otologist over night. An expert, whether teacher or physician, should know anatomy, physiology and pathology, besides the mechanics that go into the correction of the speech defect.

Dr. Elmer L. Kenyon, Chicago: I have had a little experience with the spastic child with reference to the speech problem. The problem is prodigious, and I congratulate Dr. Stivers on having had the courage and intelligence even to attempt to tackle it on a large scale. I should like to ask him to state more definitely what results he is able to get with children who are distinctly spastic in the mouth region. Dr. Stivers' demonstration points clearly to the fact that speech disturbance is not a laryngologic problem alone. Dr. Goldstein brought out that point. I venture to say that etiologically 90 per cent. of the cases of speech defect have their cause in the brain. They go into the field of the psychologist, the psychiatrist and the child specialist. If we focus our attention too closely on the mere treatment of disorders of speech, we may forget the larger problem, the distinctively medical problem, i. e., etiology and prevention. We are developing a most interesting system in the public schools of treating defects of speech, a most valuable thing; and yet if we are not careful it will be so superficial that we shall have largely to do it over. The foundations of defects of speech have occurred long before the school age. These defects should usually be attacked when they are beginning. It seems to me that we as physicians should endeavor to strive to advance speech problems largely from an etiologic standpoint and a preventive standpoint, and that for the largest success the psychiatrist and the pediatrician must be brought definitely into the problem.

DR. DENNIS J. MCDONALD, New York: Years ago I was one of the commissioners of education in New York and introduced this work in public schools, and today I am much pleased and take new heart because of the work of James Sonnet Greene. He has founded a national hospital for the cure of speech defects. This is a wonderful demonstration we have had today. It is a work for the nation, and for the women.

DR. LOUIS K. GUGGENHEIM, St. Louis: I want to subscribe most heartily to the statement that this is a tremendously important subject; but I want also to sound a note of warning. This work is not for the otolaryngologist. A few years ago, feeling the necessity for some one to do something for these patients, I went to Europe to study the subject, naively ignorant of the size of the problem. I was going to practice otolaryngology, and in my spare time treat speech cases. I opened a clinic at Washington University, and had a sign painted "Speech Defects." Being connected with the ear department, I could spare only three afternoons a week for the speech clinic. I had two patients to begin with; the next week there were five, the next ten, then fifteen and finally I was overwhelmed. This was not because I knew anything about speech defects, but simply because so many persons were afflicted. The thing became a Frankenstein monster, and I had to give it up. The treatment of speech cases is not for otolaryngologists, and I doubt very much whether it is for physicians at all. It is a woman's job. We have neither the patience nor the time. I think that Dr. Goldstein has really solved the problem, and he certainly deserves the support not only of St. Louis but also of the whole country. This demonstration may give an erroneous impression. There are thousands of cases of spastic speech defects that have nothing to do with general spastic conditions; also these patients impressed me as being mentally subnormal children. There are innumerable bright persons who are stutterers, and thousands of orthopedic patients that have no speech defects.

DR. J. A. STUCKY, Lexington, Ky.: Laryngologists have been using too many sprays and too much electricity in the larynx for the correction of speech defects, when the trouble was not there. I should like to ask the author about one point in which I am much interested, and that is about the endocrine insufficiency. What test did he make to determine this? My experience has been that we usually find hypopituitary and hypothyroid conditions, but I am not satisfied with the tests I am making.

DR. CHARLES G. STIVERS, Los Angeles: Not knowing anything about endocrinology, but having in my office an endocrinologist, I turn these patients over to him and he gives them proper examination and treatment. We have in this series two or three cases of endocrine dysfunction, and they are hypothyroid and hypopituitary cases. I limited my statements about speech to the fact that speech production proceeded from stored muscle memories. I did not say that speech began with the motor areas. I said that one can move a muscle only if one has an inherent muscle memory which has been stored in the brain at some previous time. A clearing up of most of the questions will be found in the paper itself, which I did not read. The paper itself is an academic discussion of the need for education of physicians and others who are to take up the work. This film is a practical demonstration of the application. I heartily agree with what Dr. Goldstein said. In the whole treatment of the spastic child I refer to the child who has other expressions of spasticity—not the spastic stutterer, which is a purely central manifestation. The case is first approached by the orthopedic surgeon to make a diagnosis and apply corrective treatment—operations, surgical dressings, braces, etc.—and to get the child into proper condition in which it can be given these exercises for the building up of muscle tone. One of the best results we obtain in the treatment of the mouth and throat is the disappearance of the drooling. This disappears when we build up the tonicity of the mouth muscles. The work is so new and has gone on such a short time that we are not able to state definitely what we can do except with the vowels. We have worked very little with the consonants, because the spastic cases tend to overact and we do not wish to pursue any line of treatment or exercise that would call for any more exercise of the muscles than is absolutely necessary. The speech defect specialist is not only an otologist. He also needs training in otolaryngology and ophthalmology, because speech may be both written and heard. There is also a lot of psychology and neuropsychiatry and pediatrics, as well as study of how to produce articulation that can be interpreted by others, and there one has the problem of knowing something about pedagogy. I am perfectly willing to have young women of the right personality and manner to do the training and merely act as adviser, leaving this active treatment work to the young women themselves.

IS DEATH IN HIGH INTESTINAL OBSTRUCTION DUE TO LIVER INSUFFICIENCY? *

AXEL WERELIUS, M.D.
CHICAGO

Death in acute intestinal obstruction is almost generally conceded to be due to a toxemia derived from absorption of toxic products accumulated in the intestine above the obstruction. The higher the obstruction, the greater the supposed toxicity, and the more rapid the fatal issue. In order to examine this toxic material, segments in various parts of the intestine have been tied or sectioned off. The results are practically the same as in ordinary obstruction.

If the duodenum in a dog is ligated, or sectioned above and below, the animal dies in from twenty-four to forty-eight hours. For several hours subsequent to the operation (sometimes twenty-four hours) the animal shows nothing abnormal; then the symptoms are ushered in rather suddenly with signs of increasing weakness and extreme sluggishness. There is no restlessness, no irritability, no convulsions. The animal lies down and refuses to come when called. It does not seem to suffer. As a rule, after twenty-four hours the temperature becomes subnormal with increased pulse and respiratory rate. Very rarely is there any vomiting, and then only after something has been eaten. Constipation is complete. The outstanding feature is a progressive asthenia.

Death, then, occurs very rapidly and, as above, is thought to be due to absorption of highly toxic products in the loop of the duodenum. If this were the true explanation, there would be some excuse for reasoning that if these toxic products would be drained out of the loop of the duodenum, the life of the animal, if not saved, would at least be somewhat prolonged or, in other words, death would be delayed. However, in

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* From the South Shore Hospital Laboratory.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

thirty dogs, the loop was drained, and all died within the same period of time with the same symptomatic phenomena as do dogs with undrained loops.

These experiments of draining the loop, if not disproving the presence of a toxemia, at least throw great doubt on absorption of toxic products from the loop as the cause of death. It is doubtful whether very much, if any, absorption takes place in this region of the intestinal canal. It is probably more of a receptor of only partly digested food products not ready for absorption until farther down the intestine, after having been acted on by the bile and pancreatic juice. In other words, there is really not much need for absorption in this area.

In obstruction farther down, absorption does of course take place; but, at any event, the presence of toxic substances in the blood in cases of obstruction has yet to be demonstrated. In four normal dogs, intravenous injection of from 10 to 20 c.c. of blood taken from bowel-obstructed moribund dogs showed no untoward symptoms whatever. Toxemia has been produced by intravenous injection of the contents of an obstructed intestine, and the result in this case has been used in favor of the toxic absorption theory. Undoubtedly the intravenous injection of normal bowel contents will also cause a toxemia.

It is suggested that most of the offending toxin is absorbed from the cells of the mucosa of the obstructed loop. If this supposition is correct, it would explain the inefficacy of draining the obstructed loops. Extract from mucosa of these loops, injected intravenously into normal dogs, should then obviously reproduce the supposed toxemia in bowel-obstructed animals. In three dogs, however, such extracts, injected intravenously, caused not the slightest disturbance. Toxin in sufficient amount to kill the animal is not absorbed from the cells before gangrene has taken place, as the animal can be saved by operation in this period.

The deadly damage must occur, apparently, in the period of gangrene, which would then be a necessity for systemic dissemination of the deadly toxin. That, however, is not so, since animals with drained loops that die with identical symptoms show no sign of gangrene or, in fact, any other pathologic change. Furthermore, absorption from mucosa cells is hardly possible, coffer-dammed as they are either by a bowel wall with complete vascular stasis or a bowel wall disorganized by gangrene.

Ellis,[1] who reviews the entire literature of obstruction research, asserts that he has isolated a toxin from the intestinal contents and from the mucosa of the obstructed loop. The toxin injected intravenously in dogs with no intestinal obstruction reproduces the clinical symptoms of obstruction, which Ellis says are vomiting, retching, diarrhea and tenesmus. I have never seen diarrhea as a clinical symptom of obstruction either in men or in dogs. Constipation, on the other hand, is a constant and universally observed symptom.

The toxin described by Ellis was isolated from the mucosa of the obstructed loop. As the toxin was taken after, or shortly before, death, it was obtained from an abnormal pregangrenous or gangrenous mucosa.

Ellis stated that extract from nonobstructed intestine, that is, from normal intestinal mucosa, did not cause disturbance such as was caused by extract from obstructed intestine. Extracts from normal and abnormal, especially gangrenous, tissues would not be likely to have similar effects. Extracts from gangrenous intestine farther down, or from other gangrenous tissues, should be used as a control. I would not be the least surprised if injection of such extracts would cause clinical and pathologic manifestations simulating those caused by the toxin described by Ellis.

It has been asserted also that the toxin is bacterial and that the action of bacteria on necrotic tissue is the main factor in these deaths. That bacterial activity plays a deciding rôle in acute intestinal obstruction seems exceedingly doubtful because death comes on rapidly in high obstruction in a region practically void of bacteria, and death comes on much more slowly in obstruction of the lower intestine, teeming as it is with a multitude of various organisms. If the action of bacteria was a determining factor, the reverse ought to be true.

Dragstedt[2] and his co-workers, who advocate this theory, washed the loops with either alcohol or compound solution of cresol, aiming to destroy bacteria present. Such treatment should, of course, be most effective in the duodenum, almost void as it is of bacteria. In fact, duodenal loops with both ends open caused no trouble whatsoever in some of the animals, showing conclusively how harmless or nonpathogenic the organisms must be in this region. In spite of this favorable condition for antibacterial treatment, the animals died in about the same period as did those with unwashed loops, that is, in shorter time than in any other region of the intestine—a peculiar result, indeed, if bacteria were playing an important rôle.

To defend the rather disappointing results, Dragstedt and his co-workers suggested that in this high region of the intestine the secretion greatly overbalanced the absorption. This reasoning would fit splendidly to the results in experiments on a lower part of the intestine when all the animals died from rupture of the intestine, but it certainly does not explain the results in experiments on the duodenum when only half of the animals show a rupture at death.

Lower down in the intestine, by washing the loops with ether, life was prolonged not by interference with bacteria, but by delaying overdistention and consequent rupture. Here all fatalities were caused by rupture of the intestine. The washing of loops with ether delayed overdistention, by damaging the secreting cells of the mucosa, inhibiting, or at least interfering with, cell function. Hence there was less secretion and delayed rupture and death.

In some of the animals, undoubtedly, the cells were permanently destroyed. Consequently no overdistention took place, and the animal lived indefinitely.

Dragstedt and his co-workers state that bacterial activity plus necrotic tissue, or the absorption of toxic products resulting from the action of putrefactive bacteria on necrotic tissue, is the important factor in these deaths. This, however, I decidedly dispute.

Dragstedt asserted that necrosis of mucosa favored absorption. In these loops, not only the mucosa but also the entire intestinal wall was necrotic or threatened to become so. As necrosis is a direct result of complete stasis, how could stoppage of circulation possibly favor absorption? In our drained loops, there was absolutely no necrosis; in fact, the intestine was perfectly normal macroscopically and microscopically; still the same rapid deaths occurred.

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[1] Ellis, J. W.: Cause of Death in High Intestinal Obstruction. Ann. Surg. **75**: 429 (April) 1922; abstr. J. A. M. A. **78**: 1665 (May 27) 1922.

[2] Dragstedt, C. A.; Cannon, P. R., and Dragstedt, L. R.: Intestinal Obstruction, Study of Influence of Bacterial Flora on Toxemia of Acute Obstruction, J. Infect. Dis. **27**: 139 (Aug.) 1920.

Some years ago I performed the necropsy on an infant, aged 3 days, that died from a complete stenosis in the lower duodenum. Except for this anomaly, the examination was entirely negative. The structure of the duodenum was normal. There was no sign of necrosis, and I doubt whether there were any bacteria; at least there was no visible evidence of their activity.

On practically all Dragsted's experiments, an end to end anastomosis was made behind the loop, reestablishing the continuity of the intestine, thus doing away with the condition for which the research was done, namely, intestinal obstruction. If one studies obstruction, one must obviously deal with an actual obstruction. An isolated loop with continuity of the intestine established beyond is not an obstruction. In such a case with an isolated segment, we remove the most important factor, the interference with peristalsis. Without such interference we have no real obstruction, and conclusions drawn from the work cannot but be erroneous.

Drained or undrained duodenal loops give, as we have seen, exactly similar results; but in draining it was possible to make the interesting and important observation that in about twenty-four hours the bile secretion completely stopped and was replaced by a clear mucoid or, at times, a reddish fluid. In every instance the test for bile was negative. The cessation of bile secretion heralded the onset of untoward symptoms, and from that time on the animal rapidly lost ground, and the fatal issue was not long delayed.

The stoppage of bile was of the gravest possible prognostic significance in every one of the thirty-three animals used. In eight of the animals, bile was drained directly from the gallbladder, and in the others it was drained through the duodenum. Stoppage of bile meant death. It is seemingly a pathognomonic prognostic sign in high obstruction.

What did stoppage of bile secretion signify? Would it not be permissible to suspect that with the cessation of bile secretion all the other functions of the liver were suspended simultaneously? It is very unlikely that the liver just ceased the manufacturing of bile and that its other functions continued undisturbed.

The stoppage of bile rather indicated grave intrahepatic disturbances with possibly a complete standstill of the entire liver activity, in other words, a hepatic insufficiency or a condition that might be termed "ahepatism." Then death would be due to hepatic insufficiency. It is not impossible that other unexplainable deaths following upper abdominal operations might be traced to the same source.

In connection with the stoppage of bile and the suspected hepatic insufficiency, it is interesting and rather confirmatory of this work to read statements from Dr. W. J. Mayo[3] and Dr. Crile.[4]

Crile, in a paper on gallbladder surgery says: "If it is noted that the bile is becoming more scanty in amount and paler in color, the prognosis becomes correspondingly grave." He observed this distinctly in one patient who died.

Mayo says: "I venture to predict that the next few years will bring forth productive research demonstrating that the causes of the changes in vital organs which lead to death do not primarily originate in the nervous system, heart, lungs or kidneys but are the results of a hepatic insufficiency."

What, then, would cause the hepatic insufficiency? Would the tying or sectioning of the intestine cause a reflex inhibition of liver function? No, because anastomosis of the loop into neighboring intestine with gastro-enterostomy saves the animal.

Is a substance (hormone) secreted in this part of the intestine the absorption of which is required to stimulate hepatic activity? No. Resection of this part of the intestine is compatible with life.

Is it the simultaneous loss of bile and pancreatic secretion? No. Resection of the duct-bearing area of the pancreas and the biliary fistula do not cause rapid death.

Is death due to interference with peristalsis? At the root of the whole situation is of course the mechanical obstruction itself. This is one fact we cannot dispute. The obstruction interferes mostly with peristalsis, which is absolutely essential to life; possibly the greater the amount of nonperistaltic intestine, the graver is the danger.

In high obstruction, more intestine is nonperistaltic; therefore the danger is greater. When the entire intestine is nonperistaltic, death is not far off, and even in the lowest obstruction death is preceded by aperistalsis.

By the aid of the fluoroscope, peristalsis is seen at first to be very active in the occluded loop. Later peristalsis becomes less marked and stops completely in from ten to twenty hours. This cessation of peristalsis precedes the stoppage of bile, as a rule, by several hours. It is very possible that the liver needs this peristalsis as a reflex stimulus for its continued activity. Undoubtedly the entire gastro-intestinal system, with the liver and pancreas, is entirely dependent on these muscular waves for continued functions.

Peristalsis below the obstruction seems to stop almost at once. One observes only for some time spastic contractions here and there. Bismuth injected below the obstruction moves very little or, usually, not at all, showing complete aperistalsis.

Injection of the rectum in late cases shows no peristalsis. In fact, aperistalsis precedes death in all cases of obstruction.

Proximal to the obstruction we have noticed a to-and-fro peristalsis covering about 4 or 5 cm. and completing its cycle in about three minutes. A real antiperistalsis was never seen.

Seemingly the duration of life after intestinal obstruction bears a direct relation to the amount of intestine rendered nonperistaltic. In low obstruction, for instance, death comes on more slowly because there is only a small amount of intestine made inactive, that is, less intestine is nonperistaltic. Death is preceded by stoppage of peristalsis of the rest of the intestine. At first the intestine becomes paretic from overdistention; then paralysis sets in.

If the intestine is drained proximal to the obstruction before paralysis has become complete and the paralyzing distention is prevented, peristalsis is again established and life is saved because a sufficient amount of intestine is again made active. If the drainage is low enough, life may be prolonged indefinitely.

The danger of overdistention is a real one in that it causes paralysis of the peristaltic or active intestine proximal to the obstruction, thus rendering the entire intestine nonperistaltic. The Mayos especially recognized this, and in all cases in which the intestine had been subjected to marked surgical insult they averted the dangerous acute dilatation of the bowel by prophylactically instituting an outlet for the distending gases.

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[3] Mayo, W. J.: Surgical Significance of Hepatic Incompetency (Murphy Oration in Surgery), Surg., Gynec. & Obst. **33**: 463 (Nov.) 1921.

[4] Crile, G. W.: Technic of Gall-Bladder Surgery in Presence of Jaundice, Surg., Gynec. & Obst. **33**: 469 (Nov.) 1921.

From these observations it seems possible that the liver activity might be dependent on peristaltic waves traveling across the upper bowel, because stoppage of bile is always preceded by cessation of peristalsis. If a dog with intestinal obstruction is operated on soon after bile secretion has ceased and the ligatures are loosened, the bile soon reappears, probably with the reestablished peristalsis. This we demonstrated in two animals. It might be possible that cessation of peristalsis causes inhibition of liver function, and death in high obstruction would then be due to liver insufficiency.

CONCLUSIONS

It is doubtful whether death in intestinal obstruction is due to absorption of toxic products from obstructed intestinal contents or from its mucosa.

Bacteria do not play any special rôle in the cause of deaths from obstruction unless rupture takes place, when the bacteria cause peritonitis.

In all drained duodenal loops, bile secretion stops before death.

It is possible that with the cessation of bile secretions all the other functions of the liver stop simultaneously (liver insufficiency).

Acute dilatation of the active peristaltic intestine proximal to the obstruction is the primary danger in acute obstruction of the intestine.

Peristalsis stops before cessation of bile secretion.

Death is always preceded by complete aperistalsis.

It is possible that the amount of intestine rendered nonperistaltic bears a direct relation to the duration of life after the obstruction.

EXPERIMENTAL WORK

Some of the observations recorded were made years ago when Dr. James Moorhead and I did extensive research work on the duodenum for Dr. S. A. Matthews at the University of Chicago.

The present work was done under the most favorable conditions possible, as it was done in one of the operating rooms at South Shore Hospital with the assistance of interns and nurses.

Sixty-five animals were used: Twenty-seven animals with obstruction of part of, or entire, duodenum with drain; nine animals with obstruction of part of, or entire, duodenum without drain; eight animals with separate drain in the gallbladder; three animals with obstruction of the duodenum and jejunum with drain; five animals with obstruction of the duodenum and jejunum without drain; three animals with obstruction in the midgut; three animals with obstruction at the ileocecal valve; three dogs injected with mucosa extract, and four dogs injected with blood from obstructed dogs.

The laboratory examinations, by O. Olson, included urinalysis, observation of temperature changes, leukocyte count, blood sugar determination, blood urea determination, carbon dioxid combining power of blood plasma and tissue examinations. Roentgenologic examinations included fluoroscopy and radiography.

On a series of ten dogs with obstruction of entire duodenum with drain, the foregoing laboratory examinations were made. The rectal temperature invariably fell from an average of 102 F. before operation to an average of from 96 to 97 F. twenty-four hours after obstruction.

Urinalysis revealed albuminuria after operation, and an uncertain reduction of Fehling's solution in some cases.

Other laboratory findings were: a moderate leukocytosis averaging 20,000 after twenty-four hours; in most instances, decreased blood sugar varying from 10 to 80 per cent. of the original amount; an insignificant reduction in the carbon dioxid combining power of the blood plasma, and an invariable increase in blood urea.

Tissue examinations revealed a normal mucosa in the obstructed loop with drain. The liver invariably showed a congestion. Other organs were normal.

The decrease in blood sugar may be explained in the dysfunction of the liver. As the liver is the great reservoir of carbohydrates, its dysfunction resulted in an inability to transform the glycogen into glucose, with a consequent decrease in blood sugar.

The increase in blood urea may apparently contradict the theory of hepatic insufficiency. It is asserted that in acute yellow atrophy there is an increased ammonia content and a decreased urea content in the blood. The increase of ammonia is considered to be due to accumulation, as the liver is not able to convert it to urea.

Recent investigation has shown, however, that the liver is not the only organ concerned in the production of urea as a nitrogenous end product; many other tissues of the body are able to perform this function. Is it not reasonable to suppose, therefore, that an increased ammonia formation would be taken care of by these tissues in the absence of liver function, with a consequent increased blood urea content?

In a case of acute yellow atrophy, which diagnosis was confirmed by postmortem findings, repeated blood examinations were made and a progressively increasing blood urea was observed, the percentage increase corresponding very favorably with our figures.

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ABSTRACT OF DISCUSSION

Dr. Barney Brooks, St. Louis: Dr. Werelius is familiar with the literature, and is therefore familiar with the fact that some of the conclusions he reached are in absolute contradiction to some which I published a number of years ago. I will not take time in discussing points he made with which I am in entire accord, but will call attention to a few facts which I do not believe are in strict accord with one of the conclusions which he has reached. An experimental animal will die from intestinal obstruction, whether the loop be high, whether the loop be low, whether it be isolated from the intestinal tract so as not to interfere with the normal continuity of the intestinal tract, or whether the normal continuity is interfered with. There accumulates within the lumen a toxic substance which can be isolated and which, injected into a normal dog, causes death. This toxic substance cannot be recovered from the normal intestine. It is possible to produce an experimental obstruction in such a manner that the animal may live for a month, and the loop of obstructed bowel may contain many hundred times the lethal dose necessary to kill this animal, without that animal showing symptoms. If, however, this loop of obstructed intestine has its mucosa damaged, the animal succumbs rapidly. I feel, therefore, that we are forced to conclude that, after intestinal obstruction, symptoms and death are due to an intoxication. But the thing I want to call your attention to particularly is that, in order to have an animal show symptoms, the toxin must not only be produced but must be absorbed. I regard Dr. Werelius' observations as an important contribution to the study of intestinal obstruction, because he has brought forward the first evidence of any demonstrable explanation of how this toxin affects the body. Dr. Werelius has brought forward very suggestive evidence that death in intestinal obstruction is accompanied by hepatic insufficiency, and he asks the question, Is death due to hepatic insufficiency? and answers "Yes." I would go one step farther and say, Is the hepatic insufficiency due to an intoxication? and I would answer, "Yes." All experimental work which has been done on intestinal obstruction teaches that the most important thing in the handling of a case of intestinal obstruction is early diagnosis and early surgical treatment. When the lethal dose has been produced within the intestine and has been absorbed into the circulation, there is at present no known method of saving life. The toxin has already been introduced into the circulation. It has already combined with the liver cell and produced an hepatic insufficiency.

Dr. James J. Moorhead, Terre Haute, Ind.: I have long been engaged in a study of acute intestinal obstruction in the experimental animal. So far as we were able to determine from a large number of experiments, bacterial activity, plus necrotic tissue, or the absorption of toxic products resulting from the action of putrefactive bacteria on necrotic tissue is the important factor in the rapid death in simple closed intestinal loops. An attempt to immunize the experimental animal against the poison contained in such loops proved futile. It is well known that the functions of the liver are seriously disturbed by experiments such as those mentioned by Dr. Werelius. Some work now going on will probably give us more light on this important topic.

Dr. Thomas G. Orr, Kansas City, Mo.: Drs. Whipple, Brooks, Stone and others have created quite a discussion in the last few years in regard to the cause of death and the toxic element in intestinal obstruction. I have recently become interested in this subject by the study of three cases. The first two were not cases of true intestinal obstructions but gastro-enterostomies. The other case was a straight case of intestinal obstruction. The gastro-enterostomies had very pronounced reactions, with rise in temperature, rapid pulse, dry tongue and everything that goes with that sort of condition. Dr. R. L. Haden made blood and urine studies in these cases. Blood and urine chemistry disclosed that, instead of there being an acidosis, there was an alkalosis. He further found that these patients had retention of chlorids, very much like that found in pneumonia. He found, in addition, that they had a marked increase in the non-protein nitrogen. The significance of the chlorid retention we are not able to determine at present. Whipple, of course, thinks that the toxic substance in intestinal obstruction comes from a protein of some nature. Whipple also thinks that there is a change in the kidney which prevents the elimnation of chlorids. We believe that the chlorids are retained in the tissues, as in pneumonia. In these gastro-enterostomy cases there must have been a partial obstruction to the duodenum. The symptoms lasted only a short time, and both patients recovered and did well after a few days. I think there was some mechanical interference at the stoma, which produced symptoms very much like those of intestinal obstruction. This may give some idea of the nature of the trouble that sometimes occurs in the convalescence after gastro-enterostomy. A few patients have reactions, and others go on and have no more trouble than with the interval removal of an appendix. I believe it quite probable that some very valuable therapeutic points may be found in the study of the blood chemistry of these cases. That is, of course, one of our chief interests. I should not be surprised if the liver is very markedly affected in these obstruction cases, when there is such a toxic element absorbed as we know exists in the duodenum. I should be surprised if all the parenchymatous organs were not involved very materially by this general intoxication.

Dr. Axel Werelius, Chicago: Dr. Brooks makes a good objection. He says that in draining the loop one cannot get all the toxin. That is possible, as only a small amount may be required to kill the animal. However, if that should be so, let us trace the poison further. In order to be absorbed, it must pass through the mucosa, and only a small amount is needed. An extract of mucosa of the entire loop must surely contain enough of the toxin. The intravenous injection of such an extract, however, in normal dogs caused no disturbance whatsoever. This surely speaks strongly against absorption from the lumen. Furthermore, so far no one has ever isolated any toxic substance in the blood in intestinal obstruction in man or in animal. Dr. Moorhead says that gangrene of the mucosa favors absorption. In these occluded loops, not only mucosa but also entire bowel wall is necrotic. As necrosis is a direct result of complete stasis, how could stoppage of circulation possibly favor absorption, and, further, in drained loops in which animals die exactly the same, there is absolutely no pathologic change of the duodenum. Consequently, gangrene of mucosa means nothing, one way or the other.

RELATION OF ANESTHETIC TO PULMONARY ABSCESS FOLLOWING NOSE AND THROAT SURGERY *

C. N. CHIPMAN, M.D.
WASHINGTON, D. C.

During the last few years, there has been so much discussion about pulmonary abscess following nose and throat surgery, especially tonsillectomy, that many surgeons believe lung abscess to be the most important and dangerous complication that may occur. It is my firm conviction that the rate of lung abscess per thousand nose and throat operations is no greater than it was twenty years ago. In considering any complications following nose and throat surgery today, we must not loose sight of the fact that tonsillectomy, in proportion to the total number of operations for all conditions, is far more frequent than ever before. In some hospitals doing general surgery, about 30 per cent. of the total number of operations each year are for nose and throat conditions.

An examination of thousands of cases in which anesthetics are given in nose and throat surgery, especially tonsillectomy, reveals that nose and throat operations are performed not only by the nose and throat specialist, but also by the general surgeon and by the general physician who makes no claim of any specialty. Therefore, we should expect to have more complications.

Only during the last few years has it been admitted that an abscess may and does occur in the lung as readily as in any other part of the body. Richardson,[1] as late as 1912, reported the first lung abscess following tonsillectomy. Osler reported lobar pneumonia as a complication. Abscess of the lung occurred clinically in seventy-six among 12,030 cases (0.63 per cent.); and at necropsy, it was found in twenty-eight of 1,294 cases (2.1 per cent.), a frequency which can by no means be ignored, showing that only about 25 per cent. of the abscesses were recognized before necropsy. During the recent influenza epidemic, lung abscess was a frequent complication. During the last four months, two lung abscesses have been reported to me, one following an operation for intestinal obstruction, the other following an operation for chronic appendicitis.

Dr. Harry Wessler, associate roentgenologist to Mount Sinai Hospital, New York, in 1920 reported twenty-eight cases of lung abscess and gangrene, eight of which followed tonsillectomy.

Following a nose and throat operation, with such symptoms as pain in the lung, cough, chills, irregular temperature and foul sputum, the diagnosis of lung abscess should be easy; in fact, it is hard to see how any one can consider any other diagnosis. If there is any doubt about the condition, the roentgen ray and fluoroscopic examination will clearly reveal the abscess.

CASES REPORTED

Eleven surgeons, whom I interviewed, have treated twenty-four lung abscesses. Twenty followed tonsillectomy, two followed submucous resection of the septum, and two followed frontal sinus operation. Tewksbury has had a total of thirty-five cases. Ten cases were untreated (that is, artificial pneumothorax was not produced); six patients died; three recovered, and one was lost track of, so that the results could not be reported. Among twenty-five patients in whom Tewksbury compressed the lung, twenty were cured, one improved, and four died. Twenty-one lesions were in the right lung near the hilum; four were in the left lung near the hilum. Tewksbury informs me that, in producing artificial pneumothorax, he now obtains much better results by injecting a smaller volume of gas at each sitting than he first used.

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* Read before the Section on Miscellaneous Topics at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Richardson, C. W.: Washington M. Ann., May, 1912.

Kendlemen[2] reports two cases. Lewis[3] states that he has had seven clinical cases. Thomas Klein reports one case. Fisher and Cohen[4] reported seventy-three cases last year; five of the patients were admitted to their services after operation had been performed elsewhere. The other case reports had been compiled by: Bossin, nineteen cases; Manges, ten cases; Frank, eighteen cases; Tewksbury, fifteen cases; Dodd, two cases; J. W. Williams, one, and Clendenning, one. Porter reports two cases of lung abscess following local anesthesia.

The total number of cases reported above is 145, but twenty-one cases have been reported both by Tewksbury and the operator, so that this leaves a net total of 124 patients having pulmonary abscess following nose and throat operations. In thirty-three cases the right lung was involved twenty-seven times, and the left lung six times. The right lung is involved much more frequently than the left because the right lung is larger, and because the right bronchus is larger and straighter than the left, so that the entrance for the infected material in the right lung is more direct and easier than in the left lung.

My paper had been completed when Moore[5] published an analysis of 202 cases of pulmonary abscess following operative work about the upper respiratory passages. I refer to his analysis because the conclusions are very similar to mine. He reports the anesthetic used as ether, 151 times; local, thirty-nine times, and gas, eight times. When patients were treated in the upright position, ether was used twenty-nine times, and local anesthesia, thirty-nine times. In about 70 per cent. of the cases, the right lung contained the abscess. Suction was not used in ninety-three cases; this, to me, seems inexcusable. I infer from his reports that no one is attempting to sterilize the mouth, pharynx and tonsils. Now that the ice is broken with a report of thirty-nine cases under local anesthesia, we may expect treatment to be more impartial and intelligent. Allowing for duplications, we have about 300 cases in the two reports.

DANGER OF LOCAL ANESTHESIA

Local anesthesia per se, especially when cocain is used, is more likely than nitrous oxid-oxygen or ether anesthesia to cause the sudden death of the patient during the operation. The committee on the advantages and disadvantages of the various local anesthetics,[6] composed of Mayer, Skillern and Sonnenschein, report twenty immediate deaths from local anesthesia, two from nose operations, and eighteen from throat operations. Such a large number of deaths from local anesthesia, for what many consider minor operations, cannot be lightly passed.

French[7] reports that a girl, aged 12 years, met death in forty seconds from a hypodermic injection of 12 drops of a 4 per cent. solution of cocain.

Gibson[8] reports a case of poisoning occurring after two applications of a 2 per cent. solution of cocain to the throat and tonsils. Last summer a New York daily newspaper contained the news item: "Mrs. H., a young woman 28 years of age, died on the operating table during an operation for removal of the tonsils under local anesthesia, from uremic convulsions." The probable cause of the convulsions and death in the foregoing case was cocain poisoning.

A large number of sudden deaths have been reported from injection of cocain solution in the urethra to pass sounds or cut a stricture, and death even has resulted from a few drops of 5 per cent. solution of cocain, dropped in the eye for some minor operation.

With these facts undisputed, many still assert that local anesthesia is safer than ether or nitrous oxid-oxygen anesthesia. The literature nowhere contains any such number of sudden deaths from ether or nitrous-oxygen anesthesia, during nose and throat operations. A live patient with lung complications following ether anesthesia is better than a dead patient following cocain anesthesia.

TYPE OF ETHER ANESTHESIA TO BE USED

It is admitted by those advocating local anesthesia that ether anesthesia per se does not cause pulmonary abscess; also, it is well known that lung complications occur most frequently when ether anesthesia is used. In explanation, there are a number of conditions to be considered. The first is deep ether anesthesia. In nose and throat surgery, only light ether anesthesia is required, and yet one frequently sees the patient profoundly narcotized with the pupils widely dilated. Such a condition makes it easy for blood and infected material to be carried into the lungs, especially the right lung, by inspiration. When the reflexes are completely abolished, there is nothing to prevent fluids from entering the larynx and lungs, and nothing to warn one that they are doing so. With the reflexes not abolished, when fluid enters the larynx, the patient will attempt to expel it. In other words, why do we cough when not anesthetized? Because there is something in the bronchi which we wish to expel. We know that if a body is removed from the water shortly after drowning, the lungs will not contain water; on the contrary, if the body is placed in the water after death, the lungs will contain water, because there were no reflexes to protect them.

Another condition that invites aspiration under deep anesthesia is having the head level with the body or elevated, so that there is nothing to prevent blood and mucus from entering the larynx. During a tonsil operation, when the patient is wearing a tracheotomy tube, if the head is not lowered and blood is allowed to collect in the pharynx, some of the blood will be expelled through the tracheotomy tube.

CONDITIONS THAT MAY CAUSE LUNG ABSCESS

Those methods of operating that unduly tear and crush the tonsils, thus filling the pharynx with caseous material, and not infrequently liquid pus, aid in producing lung abscess. Also, it is admitted by all that the mouth and pharynx comprise one of the most extensively infected fields for an operation, and yet but few make any attempt to cleanse and sterilize the teeth and tonsil region. There was an epidemic of lung abscess following the recent influenza epidemic. There were more lung abscesses during 1919 than during several years preceding the influenza epidemic. At that time, the hemolytic streptococcus was the prevailing organism found in the tonsils. Nichols and Bryan[9] recovered hemolytic streptococci from the crypts of 75 per cent. of 100 pairs of extirpated tonsils.

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[2] Kendlemen, W. H.: J. Iowa State M. Soc., June, 1920, p. 168.

[3] Lewis, Dean: J. Iowa State M. Soc., June, 1920, p. 170.

[4] Fisher, Lewis, and Cohen, A. J.: Pulmonary Abscess in Adults Following Tonsillectomy Under General Anesthesia, J. A. M. A. **77**: 1313 (Oct. 22) 1921.

[5] Moore, W. F.: Pulmonary Abscess, J. A. M. A. **78**: 1279 (April 29) 1922.

[6] Mayer, Emil; Skillern, R. H., and Sonnenschein, Robert: Anesthesia in Nose and Throat Work, J. A. M. A. **75**: 315 (July 31) 1920.

[7] French, J. M.: Am. J. Clin. Med., June, 1908.

[8] Gibson, A. G.: Lancet, Feb. 26, 1910.

Cajigas,[10] in 1919, found hemolytic streptococci present before operation in 170 out of 200 cases, or in the tonsils of 85 per cent. of the patients examined. Many observers have found hemolytic streptococci present in normal throats in from 4 to 30 per cent. of patients examined. It is possible that, if more attention were given to streptococci infection of the tonsils, the result would be a smaller number of lung abscesses.

ORIGIN OF LUNG ABSCESS

Is lung abscess due to aspiration or embolism? It is an undisputed fact that many lung abscesses, both in operative and nonoperative conditions of various parts of the body, are of embolic origin. It would be very convenient if we could feel as sure as Fisher and Cohen that lung abscess following nose and throat surgery is of embolic origin, for then it would make little difference if local or any one of the various forms of general anesthesia should be used. It is difficult to see how the cause can frequently be other than aspiration, when we consider that, out of thirty-three cases, the right lung was involved near the hilum twenty-seven times. Embolic abscess is most frequently found near the edges, rather than the center of the lung. When all facts are taken into consideration, we must conclude that lung abscess is caused both by aspiration and by the infective embolus, carried to the lung by the blood stream or lymphatic system.

It has been my aim in this brief paper not to try to disprove the occurrence of lung abscess, but rather to present evidence that lung abscess does occur, and far too frequently. For this condition, the anesthetist, the surgeon and the methods of procedure used, rather than the anesthetic, are to blame.

HOW TO PREVENT LUNG ABSCESS

1. A patient should not be operated on within seven days after an attack of tonsillitis, or when there is acute bronchitis or a fever from any cause.
2. The patient should be in the hospital at least six hours, or better, twenty-four hours before operation.
3. The mouth and teeth should be thoroughly cleansed, before the operation, with some antiseptic solution.
4. Only light anesthesia should be used.
5. The head should always be down, and by suction the pharynx kept free from infective material.
6. The tonsils and pharynx should be painted before operation with 50 per cent. tincture of iodin; also the cavity should be swabbed with iodin after removal of tonsils.
7. Bleeding should be stopped at once by suture or ligature rather than prolonged sponging, thus reducing the anesthesia and obtaining a dry pharynx.
8. In all nose and sinus operations, a posterior nasal plug should be used.
9. The patient should be returned to his room on his side, with the head down.
10. After operation, the foot of the bed should be elevated until the patient has fully reacted, unless the patient has high blood pressure.
11. Last, but not least, nose and throat operations should receive the same care and skill by both the surgeon and the anesthetist as are given to an abdominal operation; and there will be fewer lung abscesses to report.

ABSTRACT OF DISCUSSION

Dr. A. H. Miller, Providence, R. I.: The most common cause of lung abscess in general is pneumonia, and lung abscess frequently follows postoperative bronchitis or pneumonia. For these reasons we cannot consider postoperative lung abscess separately from other pulmonary complications. In the pulmonary complications occurring in the lower lobes and following operations on the upper part of the abdomen, the infection may be carried through the lymphatics. In multiple postoperative complications the condition may be embolic. But in the majority of the cases we believe that the pulmonary complications are of inspiratory origin, and as a result of inspiration of infectious material either bronchitis, pneumonia or abscess may develop. We find these complications following every type of anesthetic and any class of operation. There are conditions which favor the occurrence of these. complications. One surgeon reports a series of lung abscesses during a limited period, while other surgeons will have no such cases. In searching for the cause of these conditions we are concerned with the depth of anesthesia, the position of the patient, the preparation for the operation, and the use of suction. There is a difference of opinion as to the value of suction in throat surgery. I note that, as time goes on, surgeons use the suction apparatus less and less. The reason is that with the improvements in operative technic they need it less and less. A factor of the greatest importance is the depth of the anesthesia. With profound anesthesia, protective reflexes are abolished and the respiratory passages are laid open for the entrance of infectious material. With a light depth of anesthesia, postoperative pulmonary complications very rarely occur. Another important factor is the manipulation of the jaw. I believe that many pulmonary complications have been due to the practice of pulling the jaw forward when the patient attempted to vomit. Drawing the jaw and the tongue forward opens the respiratory passages for the entrance of foreign material. I believe that these two factors, profound anesthesia, and manipulation of the jaw, are responsible for most of the postoperative lung complications.

Dr. R. S. Adams, San Antonio, Texas: I am sure that after having heard these two papers, and Dr. Miller's discussion, we can all be assured that the term anesthetic or ether pneumonia will soon be a thing of the past. Chilling of the body surface is one of the most important factors in this connection. The average patient is accustomed to heavy sleeping garments. He is given a thin nightshirt that does not cover the upper part of the chest, and is repeatedly exposed for preoperative preparation, examinations, etc. He is then transported through a drafty elevator shaft or chilly hall to the operating room, and if, in addition, he is placed on an operating table that is not kept warm, and cold, moist packs are allowed to remain in the abdomen, and an excess of mucus accumulates, we can readily see why 2 per cent. of all patients operated on develop these complications. Henle, in 1901, made an exhaustive report on the lung complications following 1,786 abdominal operations. Local anesthesia was used extensively, and he noted an increased morbidity but lessened mortality. In patients suffering from asthma, chronic bronchitis or emphysema, or in those in whom infection was coexistent, the morbidity and mortality were increased. Animals were anesthetized with ether and soaked with cool water; the control animals were anesthetized and placed on vacuum pillows. The lungs of the chilled animals showed a general hyperemia, swelling and desquamation of the alveolar epithelium, and when sputum containing the pneumococcus was placed in the trachea, those chilled all developed pneumonia, while the reverse as to lung findings and pneumonia was found in the control series. Even at this early date, Henle mentioned the possibility of emboli from the operative field traversing the lymphatics and veins to the lungs. Whipple thinks that the aspiration into the bronchioles of mucus which had become laden with germs from the mouth and tonsils was the most frequent cause of postoperative pneumonia, and considered the Type IV pneumococcus the usual offending organism. Whipple emphasized the value of the roentgen ray in arriving at an early diagnosis of lung complication. The work of Cutler and Hunt, and more recently of Cutler, elaborating on the embolic theory of pneumonia, is attractive. I should be inclined to believe that those cases of pneumonia coming on within forty-eight hours after the operation were usually of the aspiration type, while those occurring later could more properly be classed as embolic. Lemon, in reporting on eighty-one cases of lung abscess, found that seventeen were postoperative, and of these seventeen, twelve followed operations on the nose and throat. I believe, with Dr. Chipman, that the method of anesthesia is of prime importance in tonsil surgery, as advantage should be taken of the electric motor vapor and suction apparatus, thus permitting of a light, even plane of anesthesia, most of the mucus and blood being removed, thus minimizing the dangers of aspiration. When the face mask is reapplied several times in nose and throat surgery, an uneven plane of anesthesia ensues, causing greater danger of aspiration. I hope that the time is not far distant when every one connected with the operation will realize that the anesthetic and method of anesthesia comprise only one of many factors bearing on postoperative pneumonia and lung abscess.

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[9] Nichols, H. J., and Bryan, J. H.: The Tonsils as Foci of Infection in Streptococcus Hemolyticus Carriers, J. A. M. A. **71**: 1813 (Nov. 16) 1918.

[10] Cajigas, Thomas: Bull. George Washington Univ., October, 1920.

Dr. Frances E. Haines, Chicago: I agree with practically everything that has been said. I have never seen pulmonary abscess or pneumonia following nose and throat surgery. The Chicago men whom I have consulted never had a pulmonary abscess. They all use the ether vaporizing and suction machine sometimes in clinic cases, but not much in private cases because they operate rapidly. They all agree that pulmonary abscess is due usually to inspiration of septic or foreign material; in practically all cases, therefore, it is due to carelessness. The semirecumbent position is never used by these men: dorsal position for general anesthesia, and sitting erect for local anesthesia. Dr. Shambaugh has an assistant turn the patient on the side immediately at the close of the operation. Drs. Pierce and Theobold emphasize that anesthesia should never be too deep or too light. A light anesthesia should be employed. Our ether patients are so lightly under the anesthetic that they attempt to crawl off the cart when returning to the room. The outlook is hopeful, since the vast majority of cases are due to aspiration. If the surgeon and anesthetist will watch and protect the larynx, pulmonary abscesses will result only rarely.

Dr. Edwin McGinnis, Chicago: Cocain anesthesia is dangerous unless care is used. Dr. Chipman mentioned 2, 5 and 10 per cent. solutions. I use 20 per cent. and sometimes the flake cocain. I am in the habit of telling students that the weaker solution is the more dangerous in that the surgeon using a weaker solution of cocain thinks he is safe and does not take into consideration how much solution he uses. The thing that does the anesthetic work is the cocain itself. I had one unfortunate death from local anesthesia, and we never determined whether we injected the cocain or whether some complication caused death. I do not use the suction apparatus in tonsillectomy. I use the original Sluder tonsillotomes. On one I had a catch put so that I could run it down and set it in any position I desired. We very often have acute tonsillitis following nasal operations. If I have a patient needing a tonsillectomy and a nose operation, the tonsillectomy is done first. Dr. Herb saw an experimental animal in which we had produced an acute pneumonia and acute nephritis. The staphylococcus from skin infection or osteomyelitis will produce abscesses in the internal organs. The cervical adenitis cases that break down, the few that we have been able to follow up bacteriologically, have been infections with *Streptococcus hemolyticus*. From the work that we have done, it does not seem possible that a lung abscess could follow an operation on the nose unless we get a tonsillitis with the invasion of *Streptococcus hemolyticus*. I also do bronchoscopic work. It has always been our experience that in almost all the foreign body cases in which the object was not removed within a month or six weeks following the accident we got some purulent conditions in the lung in the region of the foreign body. In the early days the foreign body cases were not diagnosed. Often they were present in the lung six or eight years. All of those patients had a lung abscess. A woman had a tonsillectomy done in Indiana recently. She warned the anesthetist that she had a pivot tooth. On awaking her tooth was gone. They decided that the tooth had been swept up and thrown out with the refuse. Six weeks later she developed a cough and râles in the right side of her chest. She went through various government hospitals, and finally it was decided to send her to Arizona for pulmonary tuberculosis. Some one suggested that the roentgen ray be used. They found the pivot tooth in the right bronchus. She had an abscess cavity 2 inches in diameter, and the tooth was at the bottom of it. Efforts to remove it failed. During the night she had an attack of coughing, and the tooth came up with a large amount of mucus. She made an uneventful recovery.

Dr. Logan Clendening, Kansas City, Mo.: This is the most important problem that the anesthetist has today. I see on an average one case a week following nose and throat operations. The anesthetist or the nose and throat man does not always know that his patient has developed a pulmonary abscess. The symptoms develop as late as two weeks afterward. The anesthetist or laryngologist hears that the patient has left the hospital, but has developed "a cold" or has "influenza," and is under the care of a general practitioner; but not until two or three weeks later is the case definitely recognized as a lung abscess. I am very much interested in the embolic or inspiratory origin of these things. There is no question that there are embolic abscesses. I have seen patients with abscesses of the cervical lymph glands develop a double femoral phlebitis, abscesses in both lungs and finally die. We found at necropsy multiple abscesses in the lung, pericarditis, double pleural empyema and double femoral thrombophlebitis. Embolic abscesses are usually of that kind. They are multiple. The ordinary abscess that follows tonsillectomy is of a different character. It is usually single, in the lower lobe of the right lung. I have had one experience which seems to me to demonstrate the fact that the origin is inspiratory. We had a patient who on the second day after tonsillectomy had a temperature of 100 F. and on the third day, 102 F., with a patch of râles in the back. The next day the temperature was normal. The patient had coughed up in the night a clot about the size and shape of a small secondary bronchus. She had inspired that septic blood; it had clotted in her bronchus, and in a short time would have infected it. I believe that the origin of lung abscesses following throat operations is inspiratory in most cases. It is the safest view to take, rather than to comfort oneself with the doctrine of an embolic origin. As to prevention, all our efforts should go toward preventing those conditions which favor the inspiration of septic material. I am not committed to the doctrine of accusing your favorite motor driven anesthesia apparatus, though I am still unconvinced that those machines are entirely innocent. I believe that the depth of anesthesia is a most important factor; also the position of the patient, and all those other things that may have to do with the inspiration of septic material. If we work on the basis of that doctrine we shall arrive at the nearest approximation to success in the prevention of these abscesses.

Dr. E. I. McKesson, Toledo, Ohio: There can be no doubt that there is an embolic origin of pulmonary complications. That there is the aspiratory cause of complications is also certain. I want to call attention to one point. In the administration of cocain or local anesthetics in tonsil work I believe most of the cases are injected. We are constantly being surprised by the discovery of abscesses around the tonsil. The introduction of the needle through this abscess, unintentionally, and then injecting the contents of the contaminated eye of the needle directly into the blood stream, is a possible cause of embolic abscesses.

DR. C. N. CHIPMAN, Washington, D. C.: There is one thing that I cannot emphasize too strongly, that is, the early diagnosis and treatment of these cases. Tewksbury, to whom I referred, and who limits his work to the lungs, has found that if these cases are obtained early and the lungs are compressed, from 80 to 90 per cent. will be cured. It is really appalling to see the number of men who make no attempt to cleanse or sterilize the mouth. Patients come to the operating room with their teeth and mouth filthy. We can at least have the teeth and mouth cleansed, and paint the tonsils and peritonsillar region with tincture of iodin before the operation and swab out the cavities with the same solution after the tonsils are removed. I feel that if more attention is given to sterilization of the mouth, we shall have fewer cases of lung abscess.

SUPRARENAL GLAND IN ANESTHESIA *

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MINNEAPOLIS

It has been a common observation that certain patients do badly under ether anesthesia. Especially is this true in cases of typhoid; in starvation; in severe infections of all kinds; in late intestinal obstruction; in patients suffering from shock, and in persons who have either acute or chronic secondary anemia due to hemorrhage. In addition, one hesitates to use ether in cases of exophthalmic goiter. On the other hand, with nitrous oxid one can operate with comparative safety, and I believe that nitrous oxid has an advantage, in my hands at least, over local infiltration. Therefore I have attempted to analyze the underlying principles on which these statements have their foundation. First of all these agents, nitrous oxid seems to do least harm. Why it does least harm it is the purpose of this paper to explain from data collected for the purpose.

From the list of diseases I have enumerated it would seem that, if something could be found in all of these conditions to be common, and if this something was also a result of prolonged etherization, a satisfactory explanation could be reached. A research that I undertook at the University of Minnesota shows that there is one thing at least common to all of the conditions mentioned above. This one thing is epinephrin exhaustion. We have varying degrees of epinephrin loss in shock, in hemorrhage, in typhoid, in fright, in starvation, in infection and in prolonged etherization.

Epinephrin exhaustion of the suprarenal glands comes alone through explosive output of epinephrin. These explosive outpourings of epinephrin are clinically evident in certain forms of exophthalmic goiter, although I do not possess absolute data as to the epinephrin content of the suprarenal glands in this condition. Vasomotor balance is maintained ordinarily by minute amounts of epinephrin normally in the blood. Intense vasoconstriction may be brought about by increased amounts of epinephrin in the blood stream.

In hemorrhage, there is a relation between blood pressure, blood volume and vasoconstriction. For example, I had a patient whose systolic blood pressure was 120; diastolic pressure, 70; hemoglobin, 45, and pulse rate, 140. This patient was in no apparent danger. She was intensely white. She was white because she had an intense vasoconstriction. This patient was putting out large quantities of epinephrin to maintain the vasoconstriction. The volume of blood was very small, but rapid pulse and vasoconstriction compensated for the circulation. Had we allowed the patient to progress, even though no more bleeding occurred, she in all probability would have collapsed, without apparent cause, when the epinephrin was exhausted and vasoconstriction failed. Blood transfusion was performed, and the patient operated on under gas anesthesia. At the conclusion of the transfusion, the hemogloblin was 60 and the patient had received only 380 c.c. of blood; the systolic blood pressure was 120, and the diastolic blood pressure, 80. It is apparent that the blood volume was small. At the end of twenty-four hours, the systolic blood pressure was 100; diastolic, 55; hemoglobin, 44; but the face was more ruddy and vasoconstriction was less active. I have repeatedly seen collapse in patients who after some time were not bleeding, but who had bled and maintained a balance until vasoconstriction failed. In other words, epinephrin exhaustion had occurred. Those patients having compensation do not die until the compensating agent has been exhausted.

No one seems to know what shock actually is. The work of Malcomson and of Seelig and Lyon shows that a general vasoconstriction and reduction of blood volume occur. Yandell Henderson tells us that shock is due to the escape of fluids through the vessel walls, and that these fluids are lost as in hemorrhage. In shock, the circulation is compensated for just so long as vasoconstriction is maintained, and in some measure in proportion to that function. When vasoconstriction does not compensate, fall of blood pressure and, at length, collapse occur. Epinephrin maintains the vasoconstriction, and more than the usual output is needed. The residual reserve of epinephrin in the suprarenal glands is finally used up in traumatic shock, and when it is, death occurs.

In a study of experimental and clinical shock, I was so impressed by the similarity in the pictures presented by victims of shock and animals from whom the suprarenal glands had been removed that I decided to make a study of the suprarenal gland. With this purpose, I performed 350 animal experiments. I made a study of the residual epinephrin in the suprarenal gland in animals subjected to various procedures or dying from various causes. The epinephrin determinations were done according to the method of Elliot; that is, by means of physiologic standardization. This method, when carefully controlled with standard epinephrin, is reliable. As a result, I found epinephrin to be exhausted in the list of cases in the accompanying table. From these data, one might be led to infer that etherization, and not trauma, was responsible for the low epinephrin content of the glands in this series. However, I had the opportunity to examine the suprarenal glands from subjects of shock who had never been etherized. In three such cases there was low epinephrin content, but not complete exhaustion. I do not believe that epinephrin exhaustion is shock, but I believe that, when there is an exhaustion of that element, there is nothing with which shock can be con-

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* Read before the Section on Miscellaneous Topics at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

trolled unless we increase blood volume by transfusion, and obviate the necessity of intense vasoconstriction. This fact was further emphasized by the extreme epinephrin exhaustion following nerve stimulation. Shock does not manifest itself after long continued nerve stimulation in animals having a low epinephrin content. However, such animals go into shock almost immediately after the abdomen is opened with slight trauma. That is, there is nothing left to combat shock.

I further found that etherization alone greatly exhausted the suprarenal glands. This was in some measure controlled by morphin, but not absolutely. Nitrous oxid did not to so great a degree in itself cause epinephrin exhaustion. I believe that the use of nitrous oxid is safe not in that it protects the nervous system from trauma, but in that it does not per se exhaust the suprarenal glands, and in that it removes the element of fright. Nitrous oxid improperly given, and especially when not safeguarded by morphin and atropin, does exhause the suprarenal glands. It is of interest here to state that we often got a blood pressure tracing similar to that obtained on vagus stimulation, when no atropin was used. These experiments showed epinephrin exhaustion. Scopolamin-morphin anesthesia also exhausts the glands.

EPINEPHRIN CONTENT OF SUPRARENAL GLANDS

Condition	Epinephrin Content Per Cent.
Normal; instant death by magnesium sulphate	100.00
Infection; postmortem	0.03
Typhoid	0.03
Jaundice, obstructive; in vivo	0.80
Peptone*	0.15
Anaphylaxis*	0.36
Intestinal obstruction; postmortem	0.07
Intestinal obstruction; in vivo*	0.33
Rabies	0.01
Diphtheria	0.02
Pneumonia	0.17
Hemorrhage	0.26
Sciatic stimulation	0.10
Thyroidectomized cat*	0.55
Peritoneal trauma; ether	0.09
Peritoneal trauma; morphin	0.25
Brain trauma	0.25
Cutting cord, sympathetic nerves stimulated*	0.70
Peritoneal trauma; death; visceral nerves stimulated*	0.25
Suffocation	0.28
Chloroform; immediate death	0.76
Chloroform, one hour	0.35
Chloroform, four hours	0.28
Ether deaths, primary anesthesia	0.06
Ether, one hour	0.33
Ether, four hours	0.24
Ether-morphin, four hours	0.40
Ether-morphin, fifteen minutes	0.60
Ether-morphin, operative trauma, four hours	0.34
Ether-morphin, quinin-urea urethra blocking, four hours; operation	0.35
Nitrous oxid, four hours	0.65
Nitrous oxid, vagus stimulation, four hours	0.10
Nitrous oxid, scopolamin-morphin, four hours	0.40
Local procain-quinin and urea	0.27
Local procain-quinin and urea, morphin	0.70
Alcohol-chloroform, four hours*	0.18
Fright	0.13
Morphin-ether: operation, five hours; recovery in four hours: content after twenty-four hours	0.29
Morphin-ether; operation, five hours; recovery in four hours; content after forty-eight hours	0.40
Ether; operation; trauma; recovery in four hours; content after twenty-four hours	0.26
Starvation (Elliot)	0.50

Fright is one of the greatest agents we have in epinephrin exhaustion. I believe that it is for this reason that depletion of the epinephrin content in the suprarenal glands occurred in our animals with local anesthesia, in spite of the fact that all animals operated on were handled as gently and diplomatically as we would handle a patient in the hospital. Most patients can go through local anesthesia operation without pain. They may smile, but it has been my observation that after operation the facies changes. The change in appearance suggests shock. Further than this, I have seen shock follow operation with local anesthesia. This usually develops some time after operation and, as Harris says, "the patient flattens out." I do not believe that ether is quite as dangerous as we are told. For instance, I have performed about 200 operations on the injured arms and legs of soldiers. These are long, tedious operations requiring from two to five and one-half hours. The work was done under ether. In the service, there were no deaths, and in only one instance was there approach to a mild shock. These persons were in good health except for the deformity, and had a good epinephrin content. Had the epinephrin content of the same persons been depleted by some of the agents mentioned above, they would not have stood the ether so well.

I am submitting a table for study and analysis. I cannot detail all of the combinations and conclusions one might make, but should prefer to leave it with the reader for study and deduction. It gives a physical explanation for many things we know to be true from clinical observation.

The figures in the table express the percentage of epinephrin obtained from the suprarenal glands of animals subjected to procedures as indicated. The content of normal glands obtained from animals instantly killed with magnesium sulphate was taken as 100 per cent. Each figure represents, in all but seven instances, ten or more experiments. A star indicates the cases in which less than ten experiments were done.

ABSTRACT OF DISCUSSION

Dr. Nettie Klein, Texarkana, Texas: Dr. Corbett did not give any one cause as producing shock, and while the causes will gradually increase in number we are still in the experimental stage as to the epinephrin content of the suprarenals under anesthesia and in shock. The interrelation of the endocrines is so close that it is hardly possible to have a pathologic condition arising in one gland without some disturbance in the other gland. Whenever an animal survived a longer time, necropsy often disclosed hypertrophy of the accessory glands. Compensating hypertrophy explains the variability of the time of survival in some cases when animals are subjected to partial or complete removal of the suprarenals. In the diseases that Dr. Corbett mentioned, we see the patients when they are in an extremely toxic state. The endocrine system is depleted, and the polyglandular picture is more evident than just simply the exhaustion of the suprarenals alone.

Dr. Ansel M. Caine, New Orleans: My knowledge is limited entirely to clinical experience. One would think, after reading this paper and seeing the results as shown on the charts, that administering epinephrin chlorid in shock would, to a large extent, give a patient a chance to recover. There is a lot of truth in that. If we administer saline solution or glucose to which from 10 to 15 minims of epinephrin chlorid has been added, the patient will recover enough so that proctoclysis can be used and supply the necessary fluids, if the shock is due to loss of blood, or the patient can recover entirely on his reserve power. Crile has shown that when he administered 1:50,000 epinephrin at the rate of 3 c.c. a minute over a long period of time, it did a great deal of good. The blood pressure was maintained very well for a time, but it did not hold out. But, as Dr. Klein said, you cannot expect that the loss of epinephrin would be the only cause of shock, and I am sure that Dr. Corbett does not believe that it is the only cause of these constant symptoms; but by knowing the action of these internal secretions, we can do good. For that reason we always use epinephrin chlorid.

Dr. J. F. Corbett, Minneapolis: I do not contend that shock is simply an exhaustion of the suprarenal. There is, however, abundant evidence to show that residual epinephrin is necessary to overcome shock. The results of experiments on animals by various investigators have been conflicting. When we stop to consider that the question of accessory chromaffin glands has not been taken into consideration by many of these investigators, we have an explanation for the contradictory opinion. I do not believe that epinephrin should be administered artifically in shock except for the purpose of tiding over temporarily some grave crisis. The purpose of the discussion is to emphasize the conservation of epinephrin.

EFFECT OF REPEATED ADMINISTRATION OF ANESTHETICS ON BLOOD CATALASE *

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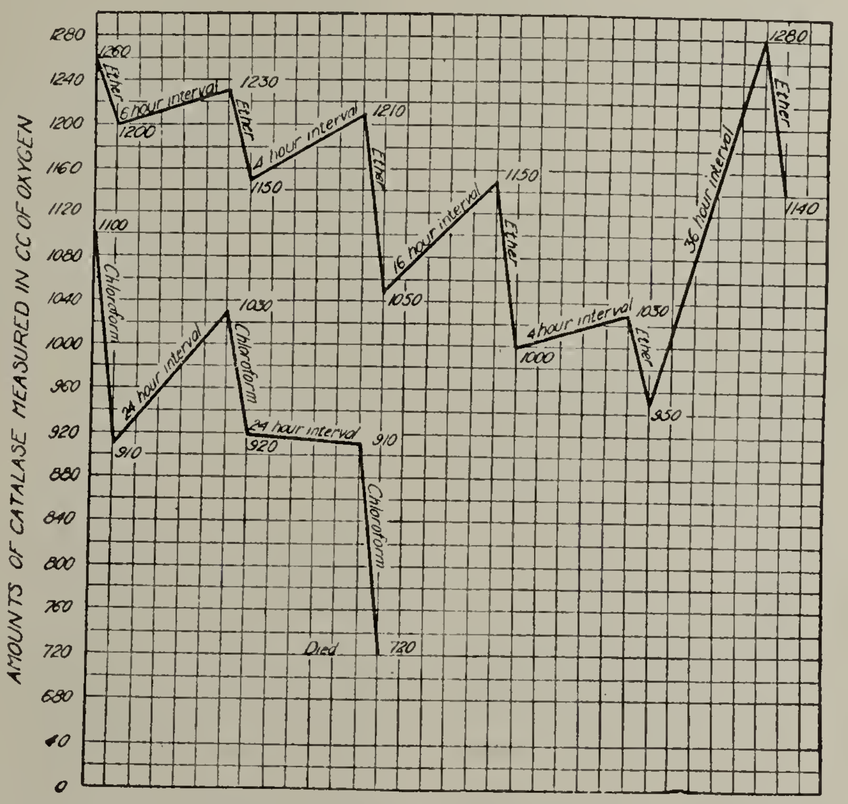
We had already found that anesthetics produce a decrease in catalase, an enzyme possessing the property of liberating oxygen from hydrogen peroxid, and accordingly suggested that this decrease in catalase with resulting diminution in oxidation might be responsible for anesthesia. It was also found that a strong anesthetic, such as chloroform, produced a much greater decrease in catalase than a weaker anesthetic, such as ether, and that a rapidly acting anesthetic, such as nitrous oxid, decreased catalase more rapidly than a more slowly acting one.

The object of the present investigation was to determine the effect of repeated administrations of anesthetics on the blood catalase. The animals used were rabbits, and the anesthetics chloroform and ether. Catalase determinations were made by adding 1 c.c. of the rabbit's blood, diluted 1:3 with 0.9 per cent. sodium chlorid, to neutral hydrogen peroxid, and the amount of oxygen liberated in ten minutes was taken as a measure of the catalase content of the blood. Determinations were made immediately before and after fifteen minutes of anesthesia.



Decrease in blood catalase brought about by fifteen-minute intervals of ether and chloroform anesthesia, with subsequent increase in catalase during the intervals between anesthesia.

In all, twenty-four rabbits were used, twelve for chloroform and twelve for ether. The results of two experiments, which are fairly typical, are given in the accompanying chart.

It may be seen that the effect of the repeated administration of ether and chloroform was to lower the catalase content more and more after each successive administration, chloroform being more effective in this respect than ether. No rabbit survived more than three fifteen-minute periods of chloroform anesthesia; whereas nine of the twelve rabbits survived the five periods of ether anesthesia, and are in good condition at present.

ABSTRACT OF DISCUSSION

Dr. Morris H. Clark, Kansas City, Mo.: The dictionary says that catalase is an enzyme which decomposes hydrogen peroxid, returning to its original state at the end of the process. That left me in the dark as much as ever. Then I saw the *Journal of Biology*, and the first sentence I came to was very helpful. It said: "Considering the tremendous amount of work that was done on this subject, it is very discouraging that we have learned nothing." I found one statement that caught my attention because I found it in several places, that "catalase in the presence of hydrogen peroxid will liberate oxygen molecules." It does not make a bit of difference whether the oxygen or the amount of catalase in the blood is due to the number of red blood cells or catalase in the blood. What we want to know is how much oxygen is liberated by the peroxid when blood is added. If we find that less oxygen will be liberated in certain conditions, such as infections, we can measure the severity of the infection by the amount of oxygen liberated. If we find that anesthesia reduces the amount of catalase in the blood, we know that we are getting some detrimental effect from the anesthetic. These experiments are helping us to obtain something, and sometime we shall put them all together and evolve a definite theory that will be of absolute value.

Dr. F. H. McMechan, Avon Lake, Ohio: In Burge's work we have evidence that caffein and theobromin, for all practical purposes, preserve the catalase functions of the liver during anesthesia. In view of the fact that caffein and theobromin are such important drugs also, conserving kidney functions as well as catalase secretion, would it not be very useful to have a series of experiments made, to determine the amount of caffein and theobromin which could be given to the normal or the serious risk patient coming to operation, in order, before operation was attempted at all, to supply that patient with a reversible amount of these drugs to counteract any effect of the anesthetic, which would have to be given during the course of the operative procedure? What I mean to say is this: Is it a practical possibility to give the patient, previous to operation and anesthesia, such an amount of caffein as will not invalidate the anesthesia, but which, irrespective of the anesthetic used or the duration of the anesthetic period, will leave the patient in the same physiologic condition as though the anesthetic had not been administered, because the caffein had taken care of the oxidative processes of the body in a physiologic way, during the surgical procedure?

Primitive Medicine and Religious Beliefs.—If we are to understand the attitude of the primitive mind toward the diagnosis and treatment of disease, we must recognize that medicine, in our sense, was only one phase of a set of magic or mystic processes designed to promote human well-being, such as averting the wrath of angered gods or evil spirits, fire-making, making rain, purifying streams or habitations, fertilizing soil, improving sexual potency or fecundity, preventing or removing blight of crops and epidemic diseases, and that these powers, originally united in one person, were the god, hero, king, sorcerer, priest, prophet, or physician, formed the savage's generic concept of "making medicine."
—F. H. Garrison, "History of Medicine."

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* From the physiologic laboratory, University of Illinois.

* Read before the Section on Miscellaneous Topics at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

UTERINE HEMORRHAGE OF BENIGN ORIGIN TREATED BY IRRADIATION

AN ANALYSIS OF FIVE HUNDRED AND TWENTY-SEVEN CASES OF MYOMA UTERI AND MYOPATHIC LESIONS *

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AND
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We now have available for statistical study 527 cases of myomas and other benign lesions causing uterine hemorrhages which have been treated by irradiation in the gynecologic department of the university hospital. In various publications, we have defined from time to time the indications for and contraindications to this treatment; and we have carefully followed a set of rules which clinical experience has taught us are essential safeguards. The patient who falls into the hands of a radiologist who is not a surgeon, or the surgeon who does not employ this valuable remedy as part of his armamentarium, is indeed riding on perilous waters; for neither irradiation nor surgery can be employed exclusively if the best interests of the patient are to be served. Radium in the treatment of uterine hemorrhage of benign origin is chiefly applicable to patients in the fourth and fifth decades of life; but with proper precautions and in carefully selected cases, it may be employed successfully in younger women.

To bring this issue out more clearly, we shall discuss this treatment from the standpoint of age, and we have classified these patients as follows: adolescent girls and young women up to the age of 20; young women from 20 to 35; middle aged women from 35 to 45, and those entering the climacteric years.

ADOLESCENT GIRLS AND YOUNG WOMEN

Occasionally, without definable cause, young girls either menstruate excessively, the flow at times amounting to a more or less persistent metrorrhagia, which in many instances may not interfere greatly with health, but, on the other hand, may finally reduce the patient to a severe degree of anemia. Quite naturally, this condition may be a simple functional derangement incident to the inauguration of the menses, or it may be due to some more or less obscure cause, which is difficult to ascribe to a demonstrable patholgic lesion. Such cases usually tend to self-correction under appropriate hygienic and medical treatment; therefore, we studiously avoid any direct gynecologic intervention until the patient's health is manifestly deteriorating. Since the cooperation between the ovarian impulse and menstrual function is so interdependent, our inclination has been to ascribe these irregularities to some deviation of ovarian function, since a curettage so seldom proves more than temporarily effective. But one should be most wary in using radium in adolescent patients on the very threshhold of young womanhood, because in sufficient dosage it will just as surely stop menstruation for all time as will double ovariotomy.

In no field, therefore, should this agent be used with such precautions, and to this end we hold the initial irradiation at a very small dosage, with the possibility of only partial relief or even failure, with a view to a second irradiation, rather than resort at once to a more prolonged exposure with its dangers. In these young persons, after an examination under anesthesia for the purpose of accurately defining the pelvic conditions, we may with safety apply 50 mg. for from three to four hours. This usually proves effective in regulating the periods; but we never reach any conclusion as to its failure to cure under six months, for we fear the effects of a too early repetition of the treatment. Should the second irradiation be necessary, the first having been partially or wholly ineffective, we then increase the time from four to six hours, depending to some extent on the size of the uterus and the severity of the bleeding. In our experience, the second application is always effective.

Fortunately, these cases are of infrequent occurrence; hence, the very small number in our list. Precisely the same contraindication must influence one here as in all other cases; namely, in the presence of any inflammatory involvement of the tubes, irradiation is very postively contraindicated. Occasionally, a small cyst, or tuberculosis of the endometrium may be the hemorrhagic genesis. It is especially important, therefore, to exclude every possible cause for the metrorrhagia that might contraindicate the use of radium. In our series of 527 cases, there have been only five treated between the ages of 11 and 20 years. All of these patients except one were cured by the first treatment. One girl of 11 had 50 mg. applied for three hours; two, aged 15 had eight and five hour applications, respectively; two, aged 17, five and eight hours, respectively. One of these who was subjected to an eight-hour application suffered with flushes for one year—too perilously close to a menopause for comfort.

YOUNG WOMEN

In the cases of women, aged from 20 to 35, myomatous changes in the uterus begin to show their incidence in an increasing ratio, very few appearing between 20 and 25, but from then on gradually becoming more frequent. In women of this age, two controlling motives in life should be kept in the foreview: (1) her maternal possibilities, and (2) the sexual life. While radium is most effective in inhibiting the growth and ultimately diminishing the size of the tumor during these ages, it is also equally powerful in inducing a premature menopause. Therefore, the patient should be studied from the standpoint of a myomectomy if possible, as this operation is unquestionably to be preferred; and should this not be feasible, we are, as a rule, favorably inclined to a subtotal hysterectomy, with the preservation of the ovaries. In the first instance, the sexual and maternal physiology are not interfered with, but rather promoted; while in the second, menstruation may continue and the sexual life is in no way disturbed.

With this disposal of myomas occurring in young women, it will be noted that surgical intervention takes decided precedence over that of irradiation, leaving relatively few cases open to the latter treatment. As a result of our experience, we usually restrict the dosage of radium to 50 mg. for from six to twelve hours in these younger women. In such instances, the menstrual periods may recur more or less normally after a variable period of amenorrhea. Seventy-seven patients falling within these ages were subjected to irradiation. The age distribution was as follows: from 20 to 25, eleven; from 25 to 30, eighteen; from 30 to 35, forty-eight.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

MIDDLE AGED WOMEN

In the group of women aged from 35 to 45 the question of the maternal possibilities as well as the sexual life of the person becomes of much less importance in the choice of treatment. Usually, the maternal equation is either settled by the patient having a family, or the myomatous changes in the uterus have so distorted its structure as to render the patient sterile, or have made childbearing impossible. Further, the cessation of the ovarian function in women who have established sexual habits is of far less moment in its influence on this function, for the libido sexualis is now largely dependent on the psychic side of the individual rather than on the centers in the lower spinal cord, which are of capital influence in the inauguration of the sexual instincts.

If either of these phases stand out prominently in the patient's mind and she fears the abrogation of either, we incline toward surgical intervention. The ultimate happiness of the patient must have equal consideration with the restoration of physical health; for the latter without the former may have little merit in the mind of a patient suffering under a cloud of such misgiving. In such cases, a follow-up letter does not bring a very cheerful or grateful response, even though the patient's life may actually have been saved.

However, in considering the use of radium, we find that this question has largely been settled by the fact that the patient has passed the fortieth year. At this period, therefore, the preference, in case of doubt, always falls in favor of radium; whereas, in the younger women, surgery is almost invariably the remedy chosen.

WOMEN IN THE CLIMACTERIC YEARS

In the group of cases formed by women in the climacteric years, radium occupies a premier position; it is effective, it is quick in giving relief, the treatment does not incapacitate the patient, it is safe, and it is followed by practically no immediate disabling sequelae or remote ill effects, as our summary will show. With our experience as a guide, we have ceased to summarize what may happen from three to five years after irradiation; for, without exception thus far, we have nothing to record in the way of so-called continuing or remote changes which may be counted as a backflare from the treatment.

This statement is now well grounded on the careful study of cases running back six years. The fear of sarcomatous transformation of the tumor is without foundation, for in not one single instance has this malignant change been noted after irradiation in this large series. Hence, any criticism of radium treatment on this false assumption is without support. The cure in these cases is prompt, and the only after-effects are those noted in all women passing through the menopause. Many pass through this trying period with scarcely a complaint; others are troubled constantly; while a few have a very stormy and occasionally, a prolonged period of adjustment. At times, we have thought that possibly a menopause induced by irradiation is more violent than in other series of cases in which the climacterium is surgically induced; but when a large series of patients who have undergone double ovariotomy is compared with those who have been submitted to irradiation, the two are found to be similar.

In a review by Norris and Clark of two comparative series of myomatous and of pelvic inflammatory cases, in which the ovaries were preserved or removed, Norris, after a very close scrutiny of the results according to the age incidence, brought out a rather startling and revolutionary point which is fully substantiated in this study. In a large group of young women who have undergone double ovariotomy, there will unquestionably be a greater percentage who suffer acutely from climacteric disturbances; but it is strikingly evident that, in an equal number of patients either within or actually beyond the normal menopausal years, there will also be a considerable percentage in which these disturbances are quite as stormy and equally prolonged.

The temperamental and the nervous stability of these women has an infinitely greater bearing on this critical epoch than the mere question of age. For this reason, we study much more attentively than formerly the nervous status of the patient, when this decision as to the artificial induction of the menopause is under consideration. This is particularly to be taken into full account in young women; whereas, those who are within the menopausal years may be treated as the pathologic status indicates. This observation of Norris we especially emphasize, for it is of capital importance and must be carefully heeded if the best postoperative results are to be achieved.

SUMMARY OF RESULTS IN FIVE HUNDRED AND TWENTY-SEVEN CASES

The total number of cases of benign hemorrhage of the uterus occurring in myoma uteri and myopathic lesions is 527. Of this number, there are available for statistical study 476 cases which have been fully treated; of the remaining fifty-one, some have not been heard from and others have been too recently treated for conclusive study.

After irradiation, it is common for one or two and rarely three menstrual periods to occur before the actual onset of the permanent amenorrhea. To some extent, the time of the application of radium relative to the menstrual epoch influences the succeeding periods. If radium is applied shortly before the expected period, it is not likely in any way to influence the succeeding period; to the contrary, it may actually be more profuse; but, we may assume that within from four to six weeks at most the structural changes induced by the irradiation will have progressed sufficiently to stop the menstrual flow entirely.

In 476 cases which required only one treatment, permanent amenorrhea occurred promptly, or, after a short interval of temporary amenorrhea, there was a return to normal flow, when the dosage had been intentionally light with this end in view. Of 433 cases, forty either required a second application of radium, or an operation was necessitated on account of a persistent flow. The actual percentage in which the bleeding was controlled by the first application of radium in 476 cases was 91 per cent. In this entire number, only one death occurred, and this was of obscure origin. The patient was very stout, and within twenty-four hours after a plastic operation on the vagina, accompanied with a simple dilation and curettage, and an intra-uterine application of 50 mg. of radium, she developed severe pains in the epigastric region, which soon defined itself as a general peritonitis, from which she died.

A necropsy was not permitted in this case, and we are at a loss to know how to account for the fatality, particularly as the initial symptoms began in the upper abdomen and not in the region of operation. We are inclined to think that there was a second lesion in the upper abdomen, and the ultimate catastrophe may have resulted from the perforation of an ulcer or possibly from some accident incident to a gallbladder or pancreatic lesion.

RECURRENCE OF BLEEDING AFTER IRRADIATION

In forty-seven cases, bleeding recurred after the application of radium; in twenty-seven, several months after the treatment. The remainder were noted as follows: one year subsequently, nine cases; from one to one and one-half years, two cases; from one and one-half to two years, three cases; from two to three years, six cases. Of these forty-seven, the recurrence was slight, or the periods returned to normal and did not require subsequent treatment, in twenty-three cases.

LEUKORRHEA

Frequently, after an intra-uterine application of radium, a thick yellowish leukorrhea develops, which is slight in amount and is seldom if ever persistent, rarely lasting more than from six to ten weeks. Frequently, it is so insignificant that unless the patient's attention is called to it, she does not refer to it. Further, along this line, there is a gratifying sequel in that a persistent leukorrhea is not infrequently cured by the treatment. We, therefore, lay little or no stress on the presence of leukorrhea as a sequel, because it is evanescent in character, and requires little or no attention.

MENOPAUSE

Irradiation in a dosage of 50 mg., for twelve to twenty-four hours, will produce climacteric symptoms of varying degrees of intensity in 60 per cent. of cases. In 36 per cent., the symptoms will be marked or severe. As a rule, they persist for from a few months to two or three years, and then subside. In an occasional case, severe symptoms may persist for several years. Menopausal symptoms seldom if ever occur in young women when a dosage of 50 mg. is applied for from six to eight hours; and in no case has the climacterium been induced by this dosage. Larger doses will produce these symptoms; but our impression is that they are usually neither so persistent nor so severe in younger women as those of menopausal years. Strangely, this observation is at variance with the usual conception of the menopause, but it is in line with the statement of Clark and Norris in their analysis of cases after a complete hysterectomy.

From this study, we also draw the conclusion that the age factor in its relationship to the menopause is not nearly so much to be taken into account as the temperamental and nervous factors. Thus, a highly strung woman with poor nervous governors is very likely to be thrown markedly out of balance by the precipitation of the menopause, be it early or late. This point we would especially emphasize.

PREGNANCY

As the vast majority of these patients were subjected to irradiation after childbearing possibilities had ceased either through age limitation or because of the distortion of the uterus incident to pathologic changes, the consideration of pregnancy has but little bearing as a deciding factor in the choice of treatment. As we have already indicated in the preceding pages, our inclination is to perform an operation in the younger women rather than to use radium.

In our total number of cases in which radium has been used, there have been five women who subsequently became pregnant. In one, a woman, aged 29, suffering with persistent menorrhagia of a myopathic character, in whom a three hour application of 85 mg. of radium was employed, the menses returned to normal after three preceding curettages had failed to effect this regulation. Two years after marriage, a full term healthy child was born. The second patient, aged 31, had suffered from excessive menorrhagia for ten years, induced by a myomatous tumor the size of a small orange. Subsequent to the irradiation with 50 mg. for twenty-four hours, she passed through a definite menopausal cycle. The periods then came back to normal for a short time and pregnancy occurred. She passed through a normal pregnancy up to full term, but succumbed to a postpartum hemorrhage, following the birth of the baby by accouchement forcé. In a third patient, pregnancy occurred two years after an application of 50 mg. for twenty-four hours, but resulted in a miscarriage. In a fourth, a normal delivery occurred after three years in a patient who had been submitted to an application of 50 mg. of radium for six hours. In a fifth patient, who had twice received applications of 25 mg. of radium for twenty-four hours, three pregnancies occurred. All of these children were born prematurely and were either dead at delivery or died subsequently.

From this summary of results, it is very plainly evident that the application of radium gives but little forecast in favor of restoring the childbearing possibilities; for, of these seven pregnancies, only two children came to full maturity. This study, therefore, emphasizes the statement already laid down that when pregnancy is still in contemplation by the patient, an operation should be advised, instead of irradiation.

LATE RESULTS OF IRRADIATION

The criticism offered to the use of radium has been that the final results of irradiation are not yet known. We believe that this skeptical forecast may be set at rest when we find in our large list of cases that, in at least 300 of them that have been followed from three to six years, thus far no single instance has come to our attention in which there was any remote deleterious result which could in any way be traced to radium.

In one instance, a patient who was operated on in another clinic after irradiation by us was found to have a carcinoma of the fundus. Previous to the treatment by us, a curettage had been done by a competent gynecologist and a negative report as to malignancy had been returned from his laboratory. The bleeding recurred after the curettage, and the patient then came under our care. The second curettage brought away insufficient débris for a pathologic examination. The hemorrhages had been absolutely periodic in character, the uterus was slightly enlarged, and there were no grounds on which to base a diagnosis of malignancy, all the evidence being in favor of a benign source of hemorrhage. Irradiation in this case caused a cessation of hemorrhage for sevaral months, when it again recurred; and, at an operation in another hospital, an extensive carcinoma of the fundus was found. Whether there was an oversight at the time of the irradiation, or whether the carcinoma originated subsequently, is open to question. Admitting the probabilities that the carcinoma was overlooked at the time of irradiation, this was but one single instance in 527 cases of such an oversight; and, as we review our 96 per cent. of permanent cures, we do not feel that this is a very serious indictment against irradiation, particularly as this error did not preclude the subsequent hysterectomy.

FAILURE TO RELIEVE BY ONE IRRADIATION

A reapplication was necessary for the relief of a continuation or a recurrence of the abnormal bleeding in twenty-eight cases. In all of these, the condition was cured by a second application, except in two, which required operation. The types of cases requiring a second treatment were: myomas, eight cases; myopathic hemorrhage, five cases; endometritis, two cases; bleeding from cervical stump, one case; pelvic inflammatory disease, one case; not stated, one case.

Of this list, an error was committed in reapplying radium in the pelvic inflammatory case, notwithstanding the fact that the bleeding was controlled and the patient was relieved of the symptoms; for inflammatory cases should not be submitted to irradiation. Further, it may be said of the twenty-eight patients that thirteen were subjected to 50 mg. of radium from six to twelve hours. In other words, in this list there were several young women in whom the light application of radium was made with the probability of having to resort to a second treatment.

CASES REQUIRING OPERATION AFTER IRRADIATION

Of the 527 patients, a total of eighteen were operated on subsequent to irradiation. Fourteen of these were myomatous cases in which the bleeding persisted or recurred more or less profusely following a variable period of amenorrhea. Four patients were subsequently operated on for chronic pelvic inflammatory disease and one for hemorrhage. It is gratifying to note that in this long list of cases, only 3 per cent. of the patients required operation after irradiation: certainly a very small percentage in a series of cases of so many varied conditions.

In the fourteen patients requiring a subsequent operation, ten of the operations were for myomas of the larger submucous type, three for myopathic hemorrhage, and one, in which there was recurrent bleeding from a cervical stump after a hysterectomy, for an adenomyoma.

MORTALITY

In the entire series, there was but one death, which occurred from peritonitis a few days after an extensive plastic operation and an application of 50 mg. of radium for twenty-four hours. The postoperative symptoms were those of an acute upper abdominal lesion. Necropsy was not performed.

COMPLICATIONS OF IRRADIATION

Phlebitis occurred in two cases; in one, a mere recurrent symptom of an old phlebitis. In the second, bilateral phlebitis followed on a repair of the cervix, a posterior colporrhaphy and irradiation. Eight patients developed symptoms of more or less severe neuritis, which is not an infrequent occurrence in women at the menopause, regardless of any antedating treatment or operation.

TECHNIC

The technic of application is very simple. Under nitrous oxid and oxygen anesthesia, a careful pelvic examination is made. The size of the uterus is ascertained, and its depth is measured by a sound and recorded for future reference. A thorough curettage is performed, and the curettings are saved for microscopic diagnosis. A 50 mg. tube of radium properly filtered is inserted to the fundus of the uterus. The duration of application depends largely on the age of the patient; in women at or near the menopause, the duration is usually twenty-four hours, and in young women proportionally less. A repetition of the application in young women is preferable to overirradiation.

A point which we always emphasize in the use of radium in all cases of benign hemorrhage is that one intra-uterine application of 50 mg. for twenty-four hours suffices to cure the case effectively. We, therefore, strongly deprecate the repetition of these treatments, since each application carries a minimum danger with it, and has no merit whatever over one application which effectively cures. Also, we do not favor coincident roentgen-ray treatments, for they are quite unnecessary.

The immediate results of irradiation are not unlike those of a simple curettage, with the exception that nausea is likely to be more persistent during the retention of the radium within the uterus. In all of this list, we have had no case of vomiting so persistent or prolonged as to give the slightest cause for anxiety. Usually, within one or two hours at most after the withdrawal of the radium, the nausea and vomiting cease. In a few instances, these symptoms have persisted for three days. As a rule, these patients remain in the hospital five days; for we follow the rule here that we observe in any case of simple curettage. It is unwise to permit the patient to go home the second day after irradiation, since the surgeon must see the patient through any possible danger arising from his surgical intervention, and such dangers are not past within twenty-four hours. As a rule, the patient sits up the third day and leaves the hospital the fifth day.

The standing rule is for all of these patients to return for examination at the end of from six weeks to two months after the treatment. If the patient lives at a distance and cannot return, a personal letter as to her condition is requested of the patient or of the attending physician. From our study of these final results, we feel that a three-year period suffices for a complete observation. By no means do all tumors disappear, and a few do not diminish greatly in size; but as the majority of these cases have been treated solely for hemorrhages, with the cessation of this symptom the patient may be looked on as cured. After irradiation, the great majority of tumors either shrink greatly in size or disappear completely. A subperitoneal tumor is not likely to be greatly influenced by irradiation.

CASES IN WHICH OPERATION WAS PERFORMED AFTER INEFFECTUAL IRRADIATION

Case 1.—*Myoma.* One hundred milligrams of radium was applied for twenty-four hours. Operation was performed two months later. There was no relief of hemorrhage. A large tumor was found.

Case 2.—*Myoma, large.* Fifty milligrams of radium was applied for twenty-four hours. There was no effect on bleeding.

Case 3.—*Adenomyoma of cervical stump.* Fifty milligrams of radium was applied for twelve hours. There was no relief of hemorrhage.

Case 4.—*Myoma.* Fifty milligrams of radium was applied for twelve hours. The periods recurred in normal amount a few months after irradiation.

Case 5.—*Myoma, large.* Fifty milligrams of radium was applied for twenty-four hours. Two applications were made, with an interval of ten months. Bleeding was not controlled.

Case 6.—*Myoma.* Fifty milligrams of radium was applied for eight hours. Bleeding continued.

Case 7.—*Myoma.* Fifty milligrams of radium was applied for twelve hours. Operation was performed two months later, as bleeding was not controlled.

Case 8.—*Myopathic lesions.* Fifty milligrams of radium was applied for twenty-four hours. Operation was performed eight months later for recurrence of bleeding.

Case 9.—*Myopathic lesions.* Twenty-five milligrams of radium was applied for six hours. Operation was performed two years later for recurrence of bleeding.

Case 10.—*Myoma.* Fifty milligrams of radium was applied for twelve hours. Operation was necessary for recurrence of bleeding.

Case 11.—*Myopathic lesions.* Fifty milligrams of radium was applied for four hours. There was persistent bleeding.

Case 12.—*Myoma, large.* Fifty milligrams of radium was applied for twenty-four hours. There were two treatments, with an interval of nine months. After the second treatment, there was amenorrhea for two years, then a recurrence of bleeding.

Case 13.—*Myoma.* Fifty milligrams of radium was applied for twenty-four hours. The tumor was large. There was recurrence of bleeding after nine months, requiring operation.

Case 14.—Fifty milligrams of radium was applied for fourteen hours. Radium had no effect on bleeding. Operation was performed six months later.

CASES IN WHICH OPERATION WAS PERFORMED FOR SUBSEQUENT PELVIC INFLAMMATORY DISEASE

Case 15.—Operation was performed six weeks after irradiation. This was a case of chronic pelvic inflammatory lesion, lighted up by irradiation.

Case 16.—The patient was well for three years following irradiation, and then developed symptoms of acute pelvic infection of streptococcus type.

Case 17.—Operation was performed one and one-half years after radium treatment for extensive pelvic inflammation.

Case 18.—Radium was applied in this case which had been diagnosed as pelvic inflammatory disease at the time of the first treatment. This was a cardinal error, for this treatment is not suited to pelvic inflammatory lesions.

Having been among the first to adopt this plan of treatment following the pioneer work of Drs. Abbe and Kelly, we have endeavored to thread our way cautiously, expanding the field of application only as our experience pointed the way, and we now feel that we are on a solid therapeutic foundation. Following are clinical rules which have been evolved from our observations of this large series of cases.

CONTRAINDICATIONS

1. Tumors larger than the size of a four months pregnant uterus, or those complicated by inflammatory lesions or neoplasms of the adnexa, should not be submitted to irradiation. Hysterectomy offers quicker relief for the first, and surgical intervention is imperatively indicated in the second class. In exceptional cases, large tumors have been successfully irradiated in the face of some grave contraindications to the major operation, and in others this treatment has been employed to check hemorrhage in seriously anemic patients, thus permitting a sufficient recuperation to insure a safer operation.

2. In tumors causing pressure symptoms, the shrinkage of the tumor is too slow after irradiation; therefore, hysterectomy is to be preferred.

3. When, in tumors, there is cachexia out of proportion to the blood loss, this may be due to a necrosis of the tumor, which may be hastened by the irradiation. We have observed such instances. The recovery of the patient is very prompt and most satisfactory after hysterectomy, and it is, therefore, preferable.

4. The larger submucous tumors, and those so distorting the cervical canal and fundal cavity as to render the introduction of the radium capsule difficult or impossible, are not suitable for irradiation. A pyometrium may follow the application of radium in such cases. This sequel has followed in two instances.

5. Tumors rapidly increasing in size or those which have undergone calcareous changes are not adapted to irradiation.

6. Myomas in young women fall, as a rule, within the surgical domain, as a myomectomy or partial hysterectomy, with preservation of the ovarian function, is decidedly preferable.

7. In patients suffering with an associated intra-abdominal lesion, such as a cholelithiasis, appendicitis or gastric lesions of surgical consequence, it is injudicious to employ radium. In such instances, an exploratory incision should be made, thus giving a comprehensive diagnostic insight. The abdominal lesion may require first attention; but this does not preclude an irradiation at the same sitting, if the myoma or myopathic cause of the hemorrhage falls within the class to which this treatment is applicable. Under this comprehensive plan, the treatment is fully subservient to the surgeon's judgment.

INDICATIONS FOR IRRADIATION

From a study of the foregoing contraindications to irradiation, it appears at first glance that the field for its application must be a narrow one; and yet such is not the case. In 1921, 210 patients falling within these two domains were admitted to the gynecologic service of the university hospital. Of these, 110 were submitted to irradiation and 100 to surgical intervention. Both classes of cases, under this careful segregation, yielded first class results. Those undergoing an operation ran greater risks and were longer in the hospital; and the return to efficiency was much slower. But the ultimate outcome was entirely satisfactory, since these patients belonged without question to the surgical field.

We would commit a serious error were we to consider this splendid and most effective plan of treatment as a competitor of surgery. The two go hand in hand, and both must be supervised by the surgeon, and not by the roentgen-ray expert or the roentgenologist, for each in a varying degree is a surgical measure. As to the indications for this treatment, we may briefly summarize it in one sentence: "Irradiation is the treatment of choice for the smaller myomas in women approaching or within the menopausal years whose only symptom is hemorrhage."

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ABSTRACT OF DISCUSSION

Dr. Henry Schmitz, Chicago: In my work I observe the same indications as given by Dr. Clark. In every case of bleeding uterus to be treated with radium I insist on a diagnostic curettage. The ratio between the cases treated with radium and those subjected to surgery is as 1:3. In other words, 25 per cent. of so-called benign uterine hemorrhages are treated with radium, and the other 75 per cent. by surgery. Therefore, the treatment of benign uterine hemorrhages belongs to the surgeon and should, under no circumstances, be undertaken by a radiologist unless the latter cooperates with the surgeon. We have treated 142 cases up to date. One patient died from septic peritonitis. The patient was the last of five patients being treated on this particular morning with radium for benign and malignant hemorrhages. The same surgeon did the work in the same operating room. The diagnostic curettage was negative. The bimanual findings were normal. We observed a case of carcinoma of the uterus in spite of careful diagnostic curettage and histologic diagnosis. It was a cervical carcinoma. Hemorrhage recurred six months after the treatment. At this time the cancer had invaded the parametria. Whether the carcinoma was present at the time of the insertion of the radium it is impossible to state, as the microscopic report was negative. It is fair to assume, however, that the patient was suffering with cancer. Another patient returned two years later with an advanced fundus carcinoma, though the diagnostic curettage was microscopically reported as a hypertrophy. Two sarcomatous degenerations were detected very soon after the treatment, and were removed; so the patient did not suffer from procrastination. We also saw four cases of degeneration fibroids: three simple fatty degenerations and one red degeneration. I have mentioned these observations, not to discourage the use of radium in cases of benign hemorrhage, but to bring out the point that it is extremely important to make a very careful diagnostic curettage, and if we are in doubt to resort to surgery rather than procrastinate by the use of radium.

Dr. F. F. Lawrence, Columbus, Ohio: The question seems to be, first, Shall we treat the symptoms? Shall we be satisfied with a symptomatic cure or relief? In some of the cases of radium and roentgen-ray treatment the results are apparently magical, while in others the malignancy seems to be increased in its activity. The first thing we should remember is that every neoplasm, no matter where, is potentially a malignancy. Second, that fibroma or myoma of the uterus, while it develops malignancy, is not carcinoma. It may be the cause of carcinoma by its continued irritation, and produce an epitheliomatous growth which is carcinomatous. With this potential malignancy, we should ask ourselves, Can we afford—when the operation of supravaginal hysterectomy for removal of the myomatous uterus has a mortality, when properly performed, of 1 per cent.—to deal with this potential malignancy by any type of treatment other than complete removal? Noble and other competent men have shown, and probably Dr. Clark has found, that there is a potential malignancy in fibroma of from 5 to 8 per cent. That is to say, from 5 to 8 per cent. of the fibromas, when removed, have undergone sarcomatous change. When we put against this 1 per cent. mortality in hysterectomy properly performed, can we afford to run from five to eight times the risk of malignancy by attempting to treat with radium or roentgen ray or anything else?

Dr. John G. Clark, Philadelphia: Dr. Schmidt raises the question as to mortality. There was one fatal case among the 527 treated. The death occurred from some obscure cause. The symptoms were of a fulminating character, and occurred in the upper abdomen from apparently some coincident lesion. Neither an operation nor a necropsy was permitted, and we have designated this as a fatality from peritonitis, induced by the curettage, although the symptoms would really not sustain this interpretation. I am, indeed, glad that Dr. Lawrence has brought into the discussion the perennial question of malignant degeneration in myomas. If there was ever a fallacy that should be annihilated, this is one. The frequency of sarcomatous transformations in myomas is so small as almost to be negligible. If, as Dr. Lawrence would have us believe, this peril is so ominous, certainly sarcomatous sequels in the cervical stump after a supravaginal hysterectomy should frequently be noted, and yet in more than 1,500 such operations we have yet to see such a postoperative incident. In our laboratory, in which more than 1,200 uteri have been examined after hysterectomy for myomas, there were only twenty-two sarcomas that were not diagnosed before the specimen was sent to the laboratory. The hiatus in pathologic statistics emanating from different laboratories depends on what one pathologist would call sarcoma and what the other would call fibroma. It is quite possible to take out of almost any fibroid tumor isolated areas which could very easily be mistaken for spindle cell sarcoma. In such instances the whole specimen is of chief diagnostic import, not these compact areas. I am sure, therefore, that the discrepancy in diagnosis lies in this difference in interpretation. We have seen several carcinomas occurring in the cervical stump in which a previous supravaginal hysterectomy has been performed, but a control diagnostic curettage had not been made. As these cases have passed through our clinic, there were 101 cases of adenocarcinoma of the uterus in which the clinical diagnosis was positive in fifty-seven and doubtful malignancy, twenty-four; in the remainder the positive diagnosis was made in the laboratory in cases which otherwise would have been considered of benign type. In such instances proper surgical measures were instituted before the patients were discharged from the hospital. The ultimate judge, therefore, in all of these cases, whether one uses radium or operates, is a skilled pathologist. All too frequently a good general pathologist goes completely amiss on this point, for he may see in normal cyclic glandular changes in the endometrium such puzzling pictures that he may designate them as adenocarcinoma. The main point which I particularly wish to stress is that we should cease to hold over patients the suggestion that a myoma is liable to sarcomatous changes, for such transformations are so small as almost to be negligible and should never be the crucial point on which a radical operation is decided. Dr. Lawrence admits at least a 2 per cent. mortality from surgical intervention. Therefore, in this series, were they all to have been submitted to hysterectomy, there would have been at least ten deaths; under irradiation there has been one.

STANDARDIZATION AND PRESERVATION OF COMPLEMENT SERUM FOR WASSERMANN TEST *

E. H. RUEDIGER, M.D.
BISMARCK, N. D.

Laboratory workers who are familiar with the Wassermann test know that the serums from different guinea-pigs differ greatly in complement activity, and that under ordinary conditions complement rapidly deteriorates but can be preserved for varying lengths of time under suitable conditions.

About two years ago I[1] showed that a number of complement serums from guinea-pigs gave results with the same human serum varying from 2 + to 10 +. Even greater differences have been observed since; serums from some guinea-pigs have given negative results while serums from other guinea-pigs gave 10 + with the same human serum. Such irregularities can be eliminated by selection of complement serum, probably by selective breeding of guinea-pigs, by selective feeding of guinea-pigs and by preservation of the good complement serums.

SELECTION OF SERUM AND GUINEA-PIGS

The preserved positive control serum, composed of a mixture of twenty syphilitic human serums, I diluted to such an extent that it gave approximately 6 + with a fairly good complement serum. This diluted positive control serum was then used in titrating the complement serums from the different guinea-pigs. At the beginning of this work, about two years ago, the differences in the results were very striking; they varied from negative to 10 +, and from no hemolysis to complete hemolysis. All guinea-pigs whose serums gave less than 5 + or had poor hemolytic power were rejected and were used for other work or were killed.

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* From the pathologic laboratory of the Bismarck Evangelical Hospital.

[1] Ruediger, E. H.: Journal-Lancet **40**: 565 (Oct. 15) 1920.

At the first time I titrated the serums of all guinea-pigs I had I rejected approximately 50 per cent. as absolutely unfit for the Wassermann test. A selected few, those whose serums had good hemolytic power and gave 10 + or more with the positive control, were kept as breeders and the others were kept for the Wassermann test. For the Wassermann test each guinea-pig serum is titrated and at least six selected serums are mixed. Selective breeding has been carried on for nearly three years; when I started I rejected 50 per cent. as worthless, and of approximately 100 guinea-pigs raised last summer under selective breeding I rejected only 5 per cent. as worthless; 50 per cent. fell into the exceptionally good class.

INFLUENCE OF FEED ON COMPLEMENT

In winter, a number of selected guinea-pigs were divided into four groups, called A, B, C and D. Group A was fed on raw carrots, raw cabbage, raw lettuce, raw apple peelings, hay, oats and bread. Group B received raw carrots, hay, oats and bread; Group C received raw cabbage, hay, oats and bread, while Group D was fed on raw potatoes, hay, oats and bread. All received as much water as they wanted. After one month of special feeding, the serums of all the guinea-pigs were again titrated, and they were all good. A barely perceptible superiority was found in Group A over Groups B, C and D.

Last fall the complement serums of a number of grass-fed guinea-pigs gave 8 + with the preserved positive control serum. During the winter the fixability gradually rose, reaching about 20 + by spring, and in two weeks on the fresh grass diet the fixability abruptly fell more than 50 per cent. The serums of guinea-pigs which gave 8 + last fall and 20 + toward spring now gave only 6 +, while the hemolytic power remained unchanged or nearly unchanged.

PRESERVATION OF COMPLEMENT SERUM

Among the methods commonly employed to preserve complement serum, freezing the serum or salting the serum appear to be the most successful. In 1919 I[2] reported on a more or less unsuccessful result I had with with frozen complement serum. At that time I tried it under unfavorable conditions. During the winter months the complement serum was kept outdoors; but, as the temperature varied greatly, I had to pack small test tubes with complement serum in salt and ice. The serum was usually worthless in three weeks. The only explanation I can offer for that rapid deterioration is that salt or brine got into the tubes. Salt (crude sodium chlorid) is strongly anticomplementary; hence a small excess renders a complement serum unfit. Since that report I kept complement serum at a temperature of below zero Fahrenheit in a cold storage room for which I am indebted to the Northern Produce Company at Bismarck, N. D. Kept in the cold storage room at a temperature below zero Fahrenheit, complement remained active for from eight to ten weeks. Practically no deterioration could be detected in a month.

Adding salt to complement also helps to preserve it. At ordinary refrigerator temperature I find that it deteriorates in less than two weeks. Salted complement kept at approximately 1 C. remained active for from four to six weeks; one lot was still good after eight weeks.

SUMMARY AND CONCLUSIONS

The serums from different guinea-pigs differ greatly in fixability and in hemolytic power.

In order to obtain fairly uniform complement serum, the serums must be selected, the good serums being used and the poor serums rejected.

Breeding only guinea-pigs with good complement greatly improved our collection of guinea-pigs for this purpose in three years.

Any raw vegetables, such as potatoes, cabbage or carrots, prevent scurvy and are suitable winter feed for complement guinea-pigs. A mixture of raw vegetables gives the best results.

The fixability of guinea-pig complement was much better in winter than in summer, which may be due to the large quantity of grass fed in summer.

Frozen complement serum kept below zero Fahrenheit in the cold storage room remained active for eight weeks.

Salted complement serum kept at approximately 1 C. remained active for more than four weeks.

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2. Ruediger, E. H.: J. Infect. Dis. **25**: 269 (Sept.) 1919.

PREMATURE INFANTS

MALFORMATIONS AND DISEASES OF THE NERVOUS, OSSEOUS AND MUSCULAR SYSTEMS REQUIRING CORRECTIVE TREATMENT *

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CHICAGO

According to the general use of the term, we designate as premature all infants who are born before the end of the normal term of pregnancy (forty weeks); but in common usage the term refers only to those infants whose gestation period was 260 days or less. There is another class of infants who may be considered in practically the same category as premature infants—the weaklings, infants born at term or nearly at term, who have suffered more or less severely during their intra-uterine existence through factors which interfered with their nutrition, and consequently interfered with their development. They are classed as congenitally diseased infants.

For our purposes, we shall consider the conditions most frequently seen in premature infants which are of especial interest to the surgeon in three groups: (1) congenital malformations of the fetus due to intra-uterine diseases and deformities, (2) pathologic conditions developing at or shortly after birth, and (3) those developments of nutritional disturbances during the first months of life which result in secondary complications of the osseous, muscular and nervous systems.

CONGENITAL MALFORMATIONS DUE TO INTRA-UTERINE DISEASES

In the first group, constitutional defects and congenital malformations can be given only the most superficial consideration, because of the large variety and need for individualization in treatment. Organic diseases of the central nervous system, with resulting disturbances in growth, and deformities, frequently cause premature expulsion of the fetus.

Cephalocele.—Early death ensues in anencephaly, while encephalocele and meningocele are often amenable to surgical procedure. When the deformed structure contains a cavity corresponding to a ventricle, the terms hydro-encephalocele and encephalocystocele are applied. The latter deformities incline to a rapid increase in size, while those which are not connected with the cerebrospinal canal tend to remain stationary. Three principal types of encephalocele are to be distinguished: frontal, occipital and basal. The frontal types most frequently appear between the frontal bone and the nasal process. Rarer forms are noted, such as the naso-orbital and the naso-ethmoidal. The occipital is the most common form of cerebral hernia, and is usually seen at the nape of the neck, above or below the external occipital protuberance. The basal variety is noted in the nasal or pharyngeal cavity.

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* Read before the Section on Orthopedic Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

Spina Bifida.—When the embryonic medullary tube fails to close properly, deformities result, corresponding to the nature and location of the opening. The open, congenital fissure of the spinal column, termed rachischisis, is invariably fatal. The closed types, spina bifida cystica, are generally situated in the dorsolumbar or lumbosacral regions of the vertebral column and, more rarely, in the cervical regions. Any of these forms of spina bifida may occur as a myelocele, myelocystocele or meningocele.

Treatment in all of these cases of encephalocele and spina bifida is essentially surgical, when the infant's development permits of interference. The decision as to early or late operation must, of necessity, be dependent on the fetal age of the infant and the gravity of the symptoms. Deformities most amenable to operation are those with a small pedicle and limited communication. Operation may frequently be delayed through repeated paracentesis, with intermittent indications for operation. Hydrocephalus frequently accompanies spina bifida, and is one of the most common complications secondary to operation, even in what appear to be favorable cases.

Numerous efforts have been made by different methods for the relief of internal hydrocephalus with, and without, spina bifida. Among the methods, drainage in the subdural space, under the scalp, into the jugular veins, and puncture of the corpus callosum have been among the most popular; but these procedures have given little more than temporary relief in the cases which have come under my observation. More recently, Dr. Alfred Strauss has operated in a series of six cases, removing a cylinder of cortex, about three-eighths inch in diameter, from the frontotemporal region. The plug of cortex extending into the lateral ventricle was removed with a piece of glass tubing, with sharpened edge, after the skull was opened at a lateral angle of the large fontanel, and the dura was incised and sutured to the arachnoid. In the experimental animals, the defect in the cerebral cortex remained permanent in five out of seven cases, and, in some of them, the lumen was found at necropsy to be lined by endothelium, probably from the lateral ventricles. Six infants on whom operation was performed are all living, with no visible evidence at this time of disturbances of sensation or muscular power. In the cases associated with spina bifida, with the exception of one case, the operation for removal of the cerebral cortex was performed eight or ten days previous to the spina bifida operation. In one case, the two operations were done at the same sitting. The results have been such in these cases as to encourage further development of the procedure described. It is to be remembered that little can be expected from major operative procedures before the infant has attained a fetal age and development approximating full term.

Other Congenital Abnormalities.—Numerous other congenital abnormalities of the skeleton are seen in infants prematurely born, some of which are due to developmental defects or displacements, and a considerable group of which are secondary to the posture of the fetus within the uterus. Among congenital abnormalities of the trunk skeleton, the most common are scoliosis and kyphosis of the vertebral column, and deformities of the thorax. The latter may result from improper development of the lungs, as in congenital atelectasis, congenital heart conditions and diaphragmatic hernia. More rarely, chest deformities may be secondary to lack of ossification of the ribs. Malformations of the extremities are not uncommon, and vary from defects of all the extremities to rudimentary formation of the distal part of a single extremity. Of the congenital changes of position and permanent contractures, the most frequent are club-foot and club-hand. The deformities are often multiple and may involve the larger joints as well, such as the hip joint, knee, shoulder, elbow and jaw. Congenital dislocations of the hip are the most important of this type of deformities. However, any of the joints may be involved. Intra-uterine fractures may result from abnormal bone development, constriction by amniotic bands or intra-uterine trauma. Abnormalities of the skull may necessitate mechanical support in order to avoid further deformity. The conditions of harelip and cleft palate in the very young present feeding problems rather than surgical ones. Among the more common congenital diseases involving the bones and joints are mongolian idiocy, chondrodystrophia and osteogenesis imperfecta. Cretinism may result in premature birth, and is associated with delayed ossification. The retarded skeletal and muscular development leads to malformations requiring correction.

PATHOLOGIC CONDITIONS DEVELOPING AFTER BIRTH

In the second group of pathologic conditions affecting the growth and development of premature infants, I will include those becoming manifest shortly after birth. The most important conditions encountered are those affecting the nervous system. These are usually dependent on one of two causes, either birth hemorrhages or hydrocephalus. Birth hemorrhages of the intracranial type belong in two groups. In the first group may be included prenatal intracranial hemorrhages, which may have been the cause of the premature expulsion of the fetus, and in the second group hemorrhages within the cranial cavity and spinal canal which result from trauma, secondary to labor, or a tendency to spontaneous hemorrhages. Ylppö believes that intracranial hemorrhages are responsible for 30 per cent. of the deaths of premature infants in the early days of life. Hemorrhages from tears of the tentorium and subdural hemorrhages, which are the most frequent forms seen in full-term infants, are only exceptionally seen in premature infants. In the latter, the hemorrhages within the cranial cavity are usually subarachnoidal or intrapial, but, in the spinal column, the hemorrhages are more commonly extradural. Ventricular hemorrhages are frequently found in premature infants, but hemorrhage into the brain substance proper is quite rare. Spontaneous hemorrhages, which occur in considerable number, can usually be distinguished by a study of the coagulation time of the blood.

Fortunately, many infants who suffer from intracranial hemorrhage escape mental disturbances, probably in large part because of a lack of development of the bony structures of the skull, allowing the brain to accommodate itself to the increased intracranial pressure. Most of the infants, however, are less fortunate in escaping the different types of paralysis, which may involve the trunk muscles and from one to all of the extremities. Therefore, infants and children who are mentally normal, or even precocious, with varied degrees of spastic paralyses, are not uncommon. On the other hand, mental defects in premature infants are, in at least 75 per cent. of all cases, accompanied by spastic monoplegias, paraplegias or diplegias. Paraplegias or diplegias have been reported in more than 3 per cent. of all the cases of surviving premature infants. The figure would undoubtedly be much higher had all premature infants remained alive, since most of the infants suffering from injuries to the brain die very early. The average coagulation time in full-term newborn infants is seven minutes, as estimated by the Rodda method. In icterus, melena, jaundice due to syphilis, and nontraumatic cerebral hemorrhage, the coagulation time of the blood is prolonged; in most instances, to such a degree that the diagnosis is readily made by a study of the coagulation time. The subcutaneous injection of human serum is the most efficient method of treating delayed coagulation or slow bleeding. The further early treatment must of necessity be symptomatic and expectant. There is always a possibility that spontaneous cure may result. Lumbar puncture, although primarily used as a diagnostic measure, may have a beneficial therapeutic value. While decompression, with removal of surface clots, is to be recommended in hemorrhages in full-term infants, little can be expected in premature infants unless they have had almost the full period of gestation.

For the various types of paralysis, mechanical corrective measures should be undertaken early, in order to prevent marked deformities. Massage and active and passive movements should be practiced regularly before the end of the first year. Muscle training in walking, climbing and other activities should be instituted under the supervision of a trained assistant. Orthopedic appliances are frequently indicated. Surgical procedures may be necessary later.

Hydrocephalus.—True congenital hydrocephalus is usually of the internal type and associated with enlarged ventricles. The external form is rare. The megacephalic head (Ylppö) of the premature infant is frequently described as a hydrocephalic head, to which it has no relation. Megacephaly is dependent on the fact that the brain growth continues at its normal or a greater rate while the remainder of the body is retarded in its development, resulting in a disproportion between the size of the head and the body.

Congenital hydrocephalus may follow blocking of the aqueduct of Sylvius, the foramen of Luschka or the foramen of Magendie, giving rise to the so-called obstructive type. This may be due to a congenital abnormality, however, for more often obstruction is the result of intra-uterine serous meningitis or meningoencephalitis. Congenital hydrocephalus of the second large group is due to interference with the absorption of cerebrospinal fluid from the subarachnoid spaces, following intra-uterine inflammation of the meninges, with resultant adhesions causing obliteration of the foramina and the cisterns. Syphilis, in all probability, is more frequently the cause of congenital hydrocephalus in premature infants than in full-term infants. In the latter, it is estimated that not more than 20 per cent. of the hydrocephalus is due to syphilis. Intracranial hemorrhages and cystic formations may be associated with secondary hydrocephalus.

Many of the infants show an enlargement of the head at the time of birth; however, the hydrocephalus may become evident only after a latent period. A marked retardation in the development of the brain may result. The head need not be enlarged; in fact, it may be very small, as in microcephalic idiots, the brain being little more than a large cyst. In many instances, shortly after birth, hypertonus and spasms of the muscles, increased reflexes and general convulsions are to be noted. In others, apathy, shallow respiration and feeble heart action are present early, giving indications of involvement of the central nervous system. When the characteristic enlargement of the head is absent, the diagnosis may be different. Intracranial hemorrhages and meningitis must be ruled out. Lumbar or ventricular puncture may be of assistance.

The prognosis as to life and physical and mental development is dependent on the underlying pathologic condition. The only early therapeutic measure is lumbar or ventricular puncture, with drawing off of cerebrospinal fluid. Later, surgical interference may be indicated.

Traumatic Injuries.—Trauma, with fractures, epiphyseal separations and dislocations and nerve injuries resulting from labor are seen in a greater percentage of premature infants than in full-term infants. Owing to the inability of these weaklings to give expression to their pain and discomfort, the pathologic conditions may go undiagnosed for weeks. The infants should be viewed as potential subjects for traumatic injuries in all cases in which version and manual extraction are practiced. Roentgenograms should be made in very doubtful cases. Early institution of surgical measures is necessary to minimize deformities.

NUTRITIONAL DISTURBANCES DURING FIRST MONTHS OF LIFE

In the third group of pathologic conditions affecting the growth and development of premature infants, nutritional disturbances during the early months of life, secondarily affecting the nervous, osseous and muscular systems, are especially common to premature infants. In fact, the infants of this class escaping without such affections are the exception, and their absence suggests an understanding of their needs by the physician and attendants, and the institution of proper feeding and general care. It has been my experience to come in contact with large numbers of cases in which nerve, muscle and bone pathologic conditions were unrecognized until gross deformities had developed. Every premature infant should be viewed as a potential case of rickets, spasmophilia and secondary anemia, and the possibility of latent scurvy should be considered. The fact must not be overlooked that premature infants develop manifest clinical evidences of rickets and secondary anemia by the second to the fourth month, while full-term infants rarely show bone lesions of rickets which can be diagnosed before the fifth or sixth month by roentgenograms.

Rickets.—The more prematurely born the infant is, the greater is the tendency to develop severe types of rickets, and, in infants born in the seventh and eighth months of fetal life, even human milk is not an absolute protection against the development of pathologic conditions in the bone and muscle.

The etiology is to a large extent dependent on three important factors: first, the chemical constitution of the premature infant, which differs from that of the full-term infant, the salt content of the body being far below the normal; second, underfeeding; third, improper environment. Birk, in his researches, found that the body of the average 4 months old fetus contained 14 gm. of ash; at six months, 30 gm., and, at nine months, 100 gm., showing that two thirds of the minerals of the full-term infant were due to retention occurring during the last three months of fetal life. In the new-born, fully 75 per cent. of the ash is made up of calcium and phosphate, which represent the chief constituents of the bones. From 85 to 90 per cent. of the bone ash is composed of calcium phosphate; from 10 to 15 per cent. of calcium carbonate, and a small amount of magnesium phosphate.

In premature infants, there is also a very low calcium retention during the first months of life (Hamilton). This is probably dependent on several factors, among the most important being the low mineral content of the body at birth and the restricted intake of foods which in themselves are low in calcium and phosphorus, such as breast milk and cow's milk mixtures of high dilution. In the light of our present knowledge we cannot but be convinced that sunlight plays an important part in the mineral metabolism of the body. It is the common experience to find the premature infant stored away in a secluded corner of a poorly ventilated and, not infrequently, dark room or, even worse, in a closed incubator.

Pathology: Rachitic premature infants show bone changes which present a pathologic picture different from the lesions seen in full-term infants, which develop at a later period during the first year. They are chiefly characterized by the development of megacephaly, characterized by a large round head with prominent frontal and parietal eminences and wide open sutures. Megacephaly (Ylppö) in the literature is commonly spoken of as hydrocephalus, with which, in the majority of cases, it has no relationship, the main exceptions being syphilis and conditions causing obstruction in the cerebrospinal canal, and spina bifida. The apparently large head in these cases is due to the fact that the growth of the brain tends to continue at its normal or a greater rate while the development of the remainder of the body is to a large degree retarded. The changes in the long bones often lead to error in diagnosis because of a typical change in the zones of proliferation. Only rarely are broadening, cupping and saw-tooth changes noted at the epiphyseal borders. More commonly the metaphysis is seen as a straight line with a hazy appearance of normal breadth, while the cartilage alone is enlarged. Similar changes are observed at the costochondral junctions. Clinically, therefore, a moderate enlargement is noted at these points while roentgenologically only minor changes are seen in the bones.

Pathologic fractures are of frequent occurrence and are usually partial, with a resulting deformity due to angulation. These are especially common in extreme cases of tetany, owing to overaction of the muscles in the presence of carpopedal spasms.

Treatment: Prime importance must be placed on a careful study of the previous diet and life history of the infant. In a consideration of the preceding diet, the cases may be classified into the breast-fed and the artificially fed. In the breast-fed, the diet usually errs in the direction of an insufficiency. Breast milk contains 2 gm. of ash per thousand cubic centimeters, of which 0.458 gm. is in the form of calcium. Holt, in his studies on calcium metabolism, found that breast-fed infants required 0.06 gm. of calcium per kilogram, or about 120 c.c. of breast milk per kilogram. Because of the obstacles to be overcome in feeding these infants, most of them, therefore, receive an insufficient amount of food to meet the needs during the first weeks. In the artificially fed, even though cow's milk averages 1.72 gm. of calcium per thousand cubic centimeters, because of the difficulty of digesting this food and the use of high dilutions, even greater obstacles present themselves. The same may be said of the feeding with proprietary foods, all of which are poorly balanced in their salt content.

Hygiene: The infant should at all times receive a sufficient amount of warm fresh air, and should be exposed to the sun's rays during the day. As soon as the infant has developed sufficiently to permit handling (mothering) in the form of frequent changes of position and light, massages are invaluable. The infant must at all times be protected from infection. Orange juice and cod liver oil, the latter combined with phosphorus, should be added to the diet in small quantities at the end of the first month of life. In the artificially fed, fresh cereals in the form of well cooked gruel can usually be added by the fourth month of life, and fresh vegetables in the form of a vegetable-cereal soup may be started by the sixth month.

Deformities.—Development of deformities of the osseous system, more especially of the spine and long bones, can be to a large extent prevented. Infants should be discouraged from walking until the bones are firm. Head deformities can be lessened by changing the position in which the infant sleeps. Scoliosis may be avoided by preventing the child from bearing weight on the spine through early attempts at sitting, and by preventing improper holding and carrying of the infant. Bowing and distortion of the legs often follow crossing of the legs around the pot-belly. Coxa vara is due to bearing the weight of the trunk before sufficient calcification has occurred. Many of the deformities may be avoided by the institution of proper orthopedic measures. Massage is of great value in strengthening the weakened muscles.

Secondary Anemia.—Closely associated with rickets is an anemia which develops quite regularly and strikingly during the first three months of life. There is a very distinct and early hemoglobin impoverishment which reaches its maximum in the third or the fourth month. Lichtenstein believes that the early anemia in the first three months of life is a hypoplastic condition, resulting through insufficiency of the hematopoietic system. The later oligochromemia is probably a sequel of impoverished iron storage. Landry has shown that the older the fetus, the higher the iron content of the body. Diseases in the mother, such as nephritis, anemia and tuberculosis, of necessity have a direct influence on the iron content in the infant. The low iron content of breast milk, 0.0017 gm. per liter, and of cow's milk, 0.0007 gm. per liter, with the minimum intake of food and difficulties of metabolism, all have a direct bearing on the development of anemia, as have also lack of fresh air and sunshine. The blood picture in the well, breast-fed premature infants, and in those showing alimentary disturbances, shows an anemia of chlorotic type.

Treatment: For the general and hygienic treatment of primary and secondary anemia, the suggestions made for general measures in the care of rachitis should be followed. The infant must, above all, be given the advantage of a good environment, plenty of fresh air and sunshine.

Iron therapy for the purpose of increasing the iron content of the tissues and the hemoglobin should be started early. Among the iron compounds to be recommended are ferri carbonas saccharatus, ferri et ammonii citras or ferri lactas, in doses of from 0.03 to 0.12 gm. (½ to 2 grains) from one to three times daily.

Small doses of liquor potassii arsenitis, from 0.03 to 0.06 c.c., may be given one or two times daily for short periods. The infant should be observed carefully for evidence of arsenic intoxication. In the presence of congenital syphilis, mercurial therapy is imperative and may be combined with the arsenic treatment to good advantage.

It is of the greatest importance to bear in mind that, as in the case of rachitis, the treatment for anemia should be started early. It is our custom to begin the prophylactic treatment of both of these conditions in the first weeks of life.

Spasmophilia.—The term spasmophilia diathesis, as applied in the clinical sense, refers to a constitutional anomaly characterized by a general hyperexcitability and irritability of the nervous system. The most frequent active manifestations are general convulsions, laryngospasms, spasmodic apnea and carpopedal spasms. Among the latent manifestations are Chvostek's facial phenomenon and Trousseau's sign. Among the most constant findings is Erb's sign, the presence of hyperexcitability of the peripheral nerves, as evidenced by increased reaction to the galvanic current.

Spasmophilia appears earlier in premature infants than in full-term infants, and may be manifest as early as the sixth to the tenth week of life. The blood of these infants shows a marked decrease in its calcium content. Kramer, Tisdale and Howland found the calcium of the blood serum, in the presence of active manifestations, in the average of their cases to be 5.6 mg. per hundred cubic centimeters of serum, as compared with from 10 to 11 mg. in normal infants, while the inorganic phosphorus of the serum, in about half their cases, was within normal limits or slightly above normal. This is in marked contrast with cases of rickets uncomplicated by tetany, in which they found a much reduced inorganic phosphate serum content. The significance of this relatively high phosphate content in the presence of decreased calcium, in cases of rickets complicated by tetany, is as yet unexplained. The interest of the orthopedists in tetany depends to a great extent on the secondary complications, such as intracranial and intraspinal hemorrhages following convulsions, and the fractures and deformities secondary to tonic carpopedal spasms. Several cases of fracture due to prolonged and powerful contraction of the extremities have come under my care. Such deformities necessitate prompt general dietetic and medicinal treatment, reduction of the deformities and immobilization.

Scurvy.—All that has been said of the etiologic factors of rickets has an equally important bearing on the development of scurvy. Many cases of latent scurvy undoubtedly remain unrecognized. The severer types of hemorrhage and cases complicated by pathologic fractures, epiphyseal separation and intracapsular hemorrhage need surgical care as well as dietetic treatment.

5717 Blackstone Avenue.

ABSTRACT OF DISCUSSION

Dr. W. McKim Marriott, St. Louis: Dr. Hess has brought out two important points; first, that a premature baby is potentially an orthopedic patient, and secondly, that realization of this fact early enough may prevent a great deal of trouble later on. It is a fact not generally recognized that birth hemorrhage occurs more frequently in premature infants than in those born at term, even though the latter may be delivered by forceps. A certain number of premature infants during the first few months of life slowly develop a condition of opisthotonos. This does not seem to be dependent on birth hemorrhage. It has been our experience that the most satisfactory way to treat these infants is to keep them on the Bradford frame continually until there is no more tendency to opisthotonos. Unless this is done, the deformity may last a long time. Such a large proportion of premature infants develop rickets that it seems safe to consider that they will all develop rickets ultimately, and to treat them accordingly. It is advisable, as a routine, to give every premature infant a small amount of cod liver oil; 5 drops, three times daily, is usually sufficient to prevent rickets in infants of this type. There is no advantage in adding phosphorus to the cod liver oil. A certain number of premature infants who develop rickets may also show evidences of spasmophilia or tetany, as Dr. Hess has mentioned, and this may secondarily lead to cerebral hemorrhage as a result of the convulsions. The specific for tetany is calcium. To control the active manifestations, large doses of calcium chlorid are required: from 10 to 15 grains, four or five times daily.

Dr. Julius H. Hess, Chicago: After illustrating some of the pathologic conditions encountered in premature infants, I would say that they are in great part worth saving. They are deserving of the full consideration of the diagnostic group of the hospital in which they are born, and not the least important factor in proper orthopedic inspection.

SUBSEQUENT COURSE OF A CASE OF ADDISON'S DISEASE

LEONARD G. ROWNTREE, M.D.
Director of Medicine, the Mayo Foundation
ROCHESTER, MINN.

Under the heading, "An Autograph History of a Case of Addison's Disease," the late Dr. A. L. Muirhead[1] gave an unusually interesting description of the clinical course of his own illness. In this report we find a professor of pharmacology investigating and recording the subjective and objective results of treatment on himself, and the effects of drugs on the course of Addison's disease, from which he suffered and eventually died. I will record the course of events subsequent to his report, which covered his illness until December, 1920.

CLINICAL COURSE

Dr. Muirhead left the Mayo Clinic, Aug. 11, 1920, and for several months continued to improve. The pigmentation had almost disappeared, and he was able to resume his work as professor of pharmacology in Creighton Medical School. Improvement continued until Jan. 25, 1921, when there developed a gastric upset, loss of appetite, abdominal discomfort and weakness, accredited by Dr. Sachs, his personal physician, to hyperacidity. The attack yielded somewhat to sodium bicarbonate, magnesium oxid and bismuth so that he was again able to return to his work. However, the weakness persisted and he was placed on digitalis. Subsequent to January 25, the salivary secretion was deficient, and he lacked appetite and could not relish food. He continued on suprarenal treatment; epinephrin solution 1:1,000, 3 minims, twice a day hypodermically; rectal injections of 3/200 grain of the whole gland, and two capsules, 10 grains each, of whole gland, by mouth, at night. In February, the weakness and shortness of breath became more pronounced. He suffered from pain in the left upper portion of the chest which Dr. Sachs called "low pressure angina." The pain was relieved by heat, exertion, food and nitroglycerin.

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[1] Muirhead, A. L.: An Autograph History of a Case of Addison's Disease, J. A. M. A. **76**: 652 (March 5) 1921.

In March, 1921, Dr. Muirhead returned to the clinic, complaining of extreme weakness which confined him to bed, and of pain in the left shoulder. The pigmentation was marked. He was extremely asthenic, and suffered almost constantly from gastro-intestinal symptoms, especially burning in the stomach. The heart was slightly enlarged and the sounds were of poor quality. An electrocardiogram disclosed a rate of 92, sinus tachycardia, notched QRS complex in all leads, arborization block, and slight right ventricular preponderance. The blood pressure was 86 systolic and 54 diastolic; the blood urea was 56 mg. for each hundred cubic centimeters, and the uric acid 2.8 mg. The hemoglobin was 68 per cent., and the erythrocytes numbered 3,820,000. The patient ate very sparingly, and toward the end of his stay developed a mild acidosis. He left the clinic, March 23, unimproved. The subsequent course of the disease is submitted in Dr. Sachs' report:

"The blood pressure just prior to his death was 84 systolic and 60 diastolic. Dr. Muirhead had a mild acidosis from time to time, for which he was given alkalis. Alkalis during the latter part of his illness distressed him greatly and were discontinued. His gastric acidity changed from a hyperacidity to a hypo-acidity. He progressively became more asthenic until it became difficult for him to swallow. He gradually lapsed into coma, and died, April 26, 1921."

REVIEW OF CASE

Clinically, Dr. Muirhead presented a typical, slowly progressing case of chronic Addison's disease with pigmentation, marked asthenia, intestinal discomfort, and low blood pressure. He gave a questionable history of renal tuberculosis; but tuberculosis was not borne out at operation, a right side nephrectomy being performed in 1918.

Subsequent to the nephrectomy, gout developed; the patient suffered from typical attacks of great severity, involving the metatarsophalangeal joints associated with high level of uric acid in the blood. Both the gout and blood uric acid responded promptly and permanently to a low purin diet. It is of interest to speculate on whether or not the removal of the kidney was a factor in the increase of the blood uric acid and in the development of gout.

The patient's improvement under treatment with epinephrin and the whole suprarenal gland during the first visit to Rochester, and after his return home, was striking objectively as well as subjectively. Rectal injections of epinephrin proved effective for a considerable period, although they were finally discontinued because of tenesmus. Glandular therapy was of unquestionable value in the relief of asthenia and of gastro-intestinal discomfort, and resulted in a temporary clearing up of pigmentation. For a time, at least, it also checked the general course of the disease.

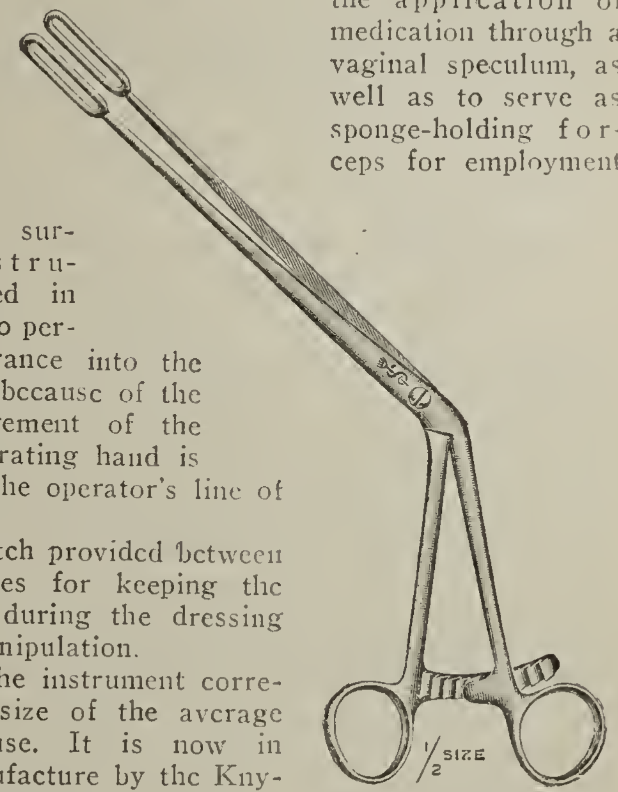
Although the results were only temporary, they were almost miraculous. Such definite relief of symptoms in the chronic form of the disease justifies a thorough trial of such measures in other cases of Addison's disease.

Clinical Notes, Suggestions, and New Instruments

NEW ANGULAR UTERINE DRESSING AND SPONGE-HOLDING FORCEPS

Albert M. Crance, M.D., Geneva, N. Y.

The instrument shown in the accompanying illustration was designed chiefly for use as sponge-holding forceps for the application of medication through a vaginal speculum, as well as to serve as sponge-holding forceps for employment in gynecologic surgery. The instrument is shaped in such a way as to permit direct entrance into the speculum, and, because of the angular arrangement of the handle, the operating hand is entirely below the operator's line of vision.



New angular uterine dressing and sponge-holding forceps.

There is a catch provided between the ring handles for keeping the forceps locked during the dressing or sponging manipulation.

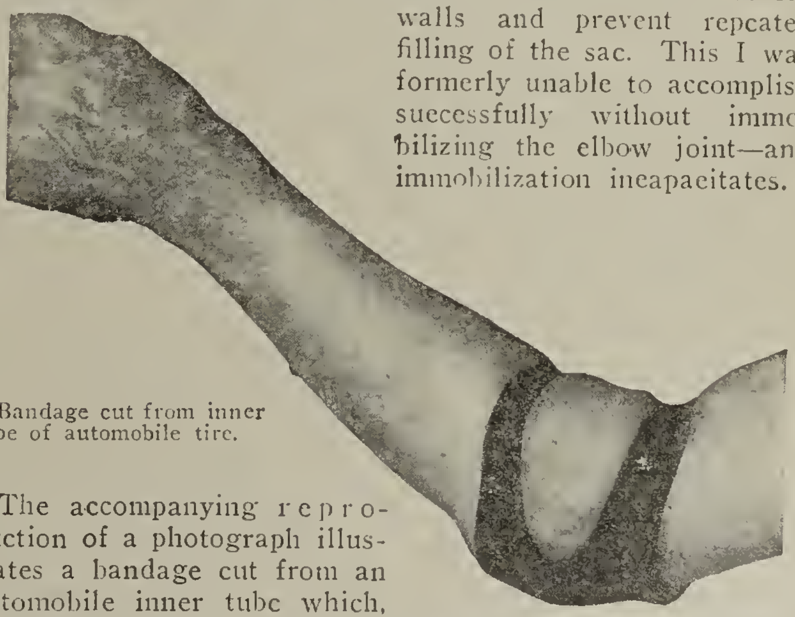
The size of the instrument corresponds to the size of the average speculum in use. It is now in process of manufacture by the Kny-Scheerer Corporation.

Schnirel Building.

A METHOD FOR MAINTAINING PRESSURE OVER ELBOW IN OLECRANON BURSITIS (MINER'S ELBOW), WITHOUT IMMOBILIZING THE JOINT

Guy S. Van Alstine, M.D., Chicago

The usual treatment of a recent olecranon bursitis with nonpurulent effusion is aspiration, followed by bandage or adhesive strap pressure to favor adhesion of the bursal walls and prevent repeated filling of the sac. This I was formerly unable to accomplish successfully without immobilizing the elbow joint—and immobilization incapacitates.



Bandage cut from inner tube of automobile tire.

The accompanying reproduction of a photograph illustrates a bandage cut from an automobile inner tube which, I find, will maintain sufficient pressure to bring about obliteration of the bursal sac without greatly inhibiting the joint action. With this device my patients have been able to continue their usual occupations while under treatment. This treatment is not suitable in old chronic cases with thickened, fibrous sacs, or in acute suppurative bursitis.

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SATURDAY, AUGUST 12, 1922

PRODUCTION OF BILE PIGMENT WITHOUT INTERVENTION OF THE LIVER

The question of the origin of the bile pigments has played an important part in the interpretation of disorders of the liver. Until lately this organ has been held primarily responsible for the appearance of bilirubin and its companion pigments, whether in the bile which represents their normal habitat or in the blood and tissues wherein their occurrence is essentially an abnormality. The generally accepted hypothesis has been that the pigments responsible for the characteristic discoloration in jaundice are manufactured in the liver, whatever the cause of their absorption into the blood may be, and there is agreement in regarding the blood pigment, hemoglobin, as the precursor of the bile pigments.

Icterus may occur not only after obstruction to the outflow of bile, but also following hemolysis not associated with interference with the hepatic secretion. It is, of course, readily conceivable that in the latter case the liver cells are nevertheless concerned in the genesis of the bile pigment which happens to be returned directly into the blood stream instead of the biliary capillaries. Types of hemolytic icterus have been described in which the kidneys excrete bilirubin without the bile salts which might be expected to accompany it if the abnormality represented a mere perversion of bile production. Consequently, it has become more common in recent years to assume that in such cases of "dissociated" icterus—that is, bile pigments present in blood and urine unaccompanied by bile salts—the liver does not seem to be concerned.

In his lecture before the Harvey Society at New York in January, Whipple[1] reviewed anew the evidence that true bile pigment can be formed from hemoglobin within the body or by other than liver cells. Whipple and Hooper[2] showed that this transformation could be effected within two hours in the blood stream of the head and thorax with complete liver exclusion. The same workers[3] showed that hemoglobin can be transformed into bilirubin in the serous cavities within a period of twelve hours. It is regarded by Whipple as probable that the vessel endothelium and Kupffer cells are concerned in the vascular reaction.

Additional support to the view that hemoglobin can be changed to bile pigment and other substances, quite apart from essential liver cell activity, has lately been furnished[4] at the Massachusetts General Hospital, from a study of patients exhibiting paroxysmal hemoglobinuria. In a particularly instructive case, intravascular hemolysis was produced in a very restricted portion of the circulation. Thus, the products of hemolysis were completely isolated from the influence of the general circulation or of any of the organs of the body. Free hemoglobin was liberated, and reached its greatest concentration in the plasma in twenty minutes. Although still completely isolated, the free hemoglobin rapidly diminished in concentration. Accompanying this reduction in hemoglobin concentration there was a marked increase in the bilirubin content of the plasma, as indicated by a positive Gmelin test and by a change in color of the plasma from a reddish yellow to a dark golden yellow. As no bile pigment had been introduced into the blood of the isolated arm circulation at any time, it is evident that the free hemoglobin had undergone a transformation in the bilirubin in the local blood vessels, capillaries and tissue spaces. It was concluded that such experiments suggest that a large part of the transformation of hemoglobin into bilirubin could occur normally in the blood vessels. Possibly the greater portion of this change takes place ordinarily in the blood vessels of the liver because of the vascularity of this organ. If the catabolism of hemoglobin can actually be accomplished without the intervention of the hepatic tissue proper, the story of pigment metabolism in the body will need to be rewritten.

THE LYMPHATICS IN TUBERCULOSIS

In the conventional discussions of the physiology and pathology of the body, only scanty attention is usually paid to the lymphatic system. This is perhaps due to the fact that the latter does not obtrude itself so conspicuously as does the blood vascular system for observation; in part it is due to the lack of information regarding the "middleman" between the blood and tissues, and the spaces within which the lymph is confined. From the standpoint of nutrition and cellular function, the significance of the lymphatic system becomes emphasized by the fact that in no part of the body does the blood come into direct contact with the tissue cells, for it is confined in vessels with distinct walls. The exchange of materials—food products and waste substances—goes on through the intermediation of extravascular fluids. Some of these are contained in the tissue spaces, others in what is now regarded as a closed system of vessels comparable with the blood vessels. In fact, a recent writer[1] has summarized the present-day belief by pointing out that the tissue spaces are not continuous with the lymphatics, any more than they are with the blood capillaries; indeed, in many situations in the body there are no lymphatics, yet tissue spaces and tissue fluids exist in them. The term "lymph," on this view, should be restricted to the fluid in the lymphatics. It may or may not be the same as the tissue fluids, we are further told; but until their identity has been established it is preferable and more exact to speak of tissue fluids and of lymph, regarding them as distinct from one another. Lymphatics are associated with the connective tissues and are much more limited in their distribution in the body than are blood vessels.

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[1] Whipple, G. H.: Pigment Metabolism and the Regeneration of Hemoglobin in the Body, Arch. Int. Med. **29**: 711 (June) 1922.

[2] Whipple, G. H., and Hooper, C. W.: Icterus: A Rapid Change of Hemoglobin to Bile Pigment in the Circulation Outside the Liver, J. Exper. Med. **17**: 612 (June) 1913.

[3] Hooper, C. W., and Whipple, G. H.: J. Exper. Med. **23**: 137 (Jan.) 1916.

[4] Jones, C. M., and Jones, B. B.: A Study of Hemoglobin Metabolism in Paroxysmal Hemoglobinuria, Arch. Int. Med. **29**: 669 (May) 1922.

Soluble and diffusible matter finds no difficulty in gaining entrance into the circulation and thus becoming readily distributed in the organism. On the basis of the views expressed above, however, the lymphatics seem to be especially concerned with the intake and transport of undissolved particles, of which bacteria afford a typical example. They may find their way into the lymphatics through the agency of ameboid phagocytic cells which can penetrate the walls of confining systems. Once in the lymphatics, however, the path of progress is filled with numerous obstructions in the lymph glands.

In a report to the Medical Research Council in Great Britain, Herring and MacNaughton[1] of the University of St. Andrews have called attention anew to the function of the lymph glands, particularly in relation to the tubercle bacillus. In its early stages in the body, the fate of this micro-organism is much the same as that of other insoluble particles. The lymph gland is an extremely efficient filter, and allows solid particles to traverse it only when they arrive in too great numbers at a time, or when the gland has become disorganized. The British investigators point out anew that the lymphocytes of the lymphoid tissue act as a mechanical barrier against the escape of the particles, and eventually the barrier is made more complete by the appearance in it of fibroblasts and the formation of fibrous tissue. The foreign material is firmly enclosed, while the lymph sinuses are left open for the free passage of lymph.

In the case of tubercle bacilli, some of which may be destroyed in their encounter with body cells, their multiplication in a tuberculous focus in the lymph glands gives rise to an added complication through the possible production of soluble toxins. As Herring and MacNaughton further conclude, these easily transported products set up an intense lymphocytosis in other glands through which the lymph passes. The toxin or other chemotactic substance precedes the bacilli and renders the glands less pervious to them by narrowing the lymph sinuses and filling them with lymphocytes. The physiologic mechanism generally considered protective, we are further assured, may cease to be so, and may actually further the spread of the disease. What protection is afforded appears to be merely a mechanical one, and the gland in which the organisms are successfully immured by fibrous tissue, when this does occur, may remain a source of further infection if for any reason the protective barrier is broken down.

REGURGITATED ECTOPLASM

Medicine is concerned with phenomena which involve the fundamental sciences of physics, chemistry, biology and psychology. These departments of human knowledge do not represent a finished development; they are subject to the changes which progress in inquiry always brings about, and to the growth which is the glory of learning. Scientific discovery and sober reflection are forces which pave the way to advancement; there is nothing occult or mystical about them; they are natural rather than supernatural activities. Now and then the observer encounters phenomena which seem to defy interpretation on the basis of the known laws of the sciences. Under such circumstances there is often an almost irresistible temptation to ascribe the seemingly inexplicable to some unique "superscientific" potency. In former centuries, "animal spirits" were called on to assume responsibility for that which could not be explained by current knowledge. Subsequently, within the recollection of many among us, the physiologic activities that failed to admit of ready interpretation in harmony with the biologic sciences were designated as "vital."

"Vitalistic" explanations, implying reaction beyond the pale in which the laws of physics and chemistry apply in the body, have long been popular. The history of learning ought, however, to furnish adequate warnings of the unwisdom of venturing explanations which call for mere faith without demonstration. Many of the miracles of ancient days—and even of modern times—have been dissipated by the advance of knowledge. The rise of bacteriology has meant the fall of much superstition and ignorant belief. A trained mind will not say "I cannot know" when, in reality, it intends to convey the information, "I do not know."

In addition to the natural mystery which attends the limitations of knowledge in many fields of science—mystery such as that of the nature of heredity, the forces of absorption and secretion, the regulation of growth and development—there are conjured mysteries which boldly flaunt their marvels into the faces of a receptive world. Occult science—an obvious misnomer—has long been used not only to secure homage from the gullible but also to attempt ridicule of the devotees of that organized common sense which true science represents. Recently "spiritism" has again come into the limelight as an instance of present-day credulity. Instead of mysterious levitation, the latest phase of the old scheme of transcending the known types of action, physical or psychic, consists in evoking manifestations of the "ectoplasm." Those who have the "will to believe" can supposedly observe the mediums giving "temporary immaculate birth to fugitive parental matters without organic growth and not capable of permanent life, but nevertheless capable of immediate temporary formations subject to tremendous exertions of imagination and will power expressed by the medium herself or through the medium by others present."

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[1] Herring, P. T., and MacNaughton, F. G.: On the Lymphatics and Lymph Glands: Their Rôle in Absorption of Foreign Particles and Tubercle Bacilli, Lancet 1: 1081 (June 3) 1922.

Here is something to tax the ingenuity of the incredulous scientist, we are assured. Manifestations of no mere protoplasm, the physical basis of life, but of a subtle ectoplasm of intangible tangibility and of outside origin. And have not great minds admitted seeking this remarkable substance, which is not living and yet takes the form of living matter in the indispensable cabinet? But the ways of the scientific skeptic are inquisitive. A group of psychologists and physiologists in Paris have attended the séances of an ectoplasm specialist and discovered not some rare, inexplicable emanation issuing from the medium's person but merely a substance coming from the mouth after a convulsive movement characteristic of emesis. And so the mystery of the ectoplasm is unmasked. "This formidable twentieth century biologic miracle," says the New York *Times*, "the three wise men of the University of Paris dare to call a vomit!"

CONTINUE THE EMBARGO ON DYES AND DRUGS

Unless prompt action is taken, the people of the United States may soon be paying exorbitant tribute to Germany once more as the price of recovery from disease and of the maintenance of health. Caught between the opposing forces in the conflict between the importers of German dyes and American dye makers, now being carried on in the Senate in connection with tariff legislation, the synthetic drug industry in the United States, built up as a result of lessons learned during the World War, is threatened with extinction. Again German domination of our drug markets looms up as a not remote possibility.

Those synthetic drugs found to be of service in the relief of suffering are mostly side products in the manufacture of dyes from coal tar, and their production, on a commercial basis, is not possible except when carried on along with the dye industry. With the outbreak of the World War in 1914, commerce with Germany was promptly cut off by the blockade established by her enemies, and we, although then a neutral nation, found ourselves not only without the dyes and essential drugs formerly supplied almost exclusively by Germany, but even without means for producing them. Driven by the conditions thus created by the blockade, and later impelled by conditions that resulted from our own entrance into the war, an industry was created within our own borders whereby needed drugs were produced and our civilians and military forces alike supplied with these necessary agents. When the armistice was proclaimed, we possessed an infant industry which experience had shown to be necessary to the continued welfare and safety of the American people, and particularly for the relief of the sick.

After careful consideration and debate, as a matter of sound economic policy deliberately determined on, and in order that this infant industry might live, a limited embargo was laid against the importation of synthetic drugs and of the dyes with which in their manufacture they were associated, so long as no necessity might exist for importing them. Up to the present time our domestic drug supply has been adequate, and as the result of competition among American manufacturers the sick have been able to supply all their needs at fair prices, instead of paying unconscionable tribute to foreign manufacturers. The synthetic drug industry now shows signs of growth and of increasing strength that promise sooner or later to make it a substantial factor not only in American prosperity but also in the maintenance of American health and national security.

Recently, however, a movement has been initiated that seems likely, if successful, to undo everything that has been accomplished; the protecting embargo is to be raised, and the still feeble dye and drug industries are to be protected only by certain proposed tariff schedules. Those most familiar with the situation assert that as a result the industries will die; that the duties proposed are inadequate to protect the industries, and that in the present stage of development of these industries no tariff schedule can be framed that will be adequate.

No sufficient evidence has been adduced to justify the opinion that American dye and synthetic drug industries will survive if they are thrown just now into competition with the highly organized, war-perfected factories of Germany, operated by poorly paid German labor. In the absence of such evidence, it would seem to be folly to take any action that may destroy them. The welfare of the people, and particularly the welfare of the sick, requires that the manufacture in the United States of synthetic chemicals for medicinal purposes be protected and built up. To that end it is necessary to protect and build up the dye industry, for without it these chemicals cannot be made on a commercial basis. In view of the public health aspects of the matter, the medical profession should make its voice heard in no uncertain terms, protesting against the removal of the embargo. Write or telegraph to your senator today!

Current Comment

VAQUEZ-OSLER DISEASE

A quarter century has elapsed since the attention of clinicians was first clearly directed to a syndrome including erythrocytosis, general cyanosis, and enlargement of the spleen. Vaquez and Osler deserve credit for having brought this unique polycythemia into general notice, and for having dispelled the earlier belief that the malady represents essentially a splenic tuberculosis; hence the justification for the designation Vaquez-Osler disease. Increment in red blood corpuscles is known to occur in the cyanosis of congenital heart disease in which the circulation is too slow, and particularly as a response to the needs of respiratory exchange under conditions of oxygen shortage, such as occurs at high altitudes. Polycythemia under these conditions is a compensatory overproduction of red cells to facilitate the gaseous metabolism of the organism. In the cryptogenic type of polycythemia, however, the stimulus is not oxygen deficiency, so that the blood picture does not represent a beneficial response of the blood-forming tissues. The true pathogenesis of the disease remains unknown. In a recent address before the Royal Society of Medicine in London, Vaquez[1] ventured to liken the harmful, cryptogenic polycythemia that bears his name to the overgrowth of the blood, just as solid tissues may develop tumors. Thus, Vaquez's disease might be thought of as a benign tumor of red corpuscles, as leukemia is a malignant tumor of leukocytes. The conception of blood as a distinct tissue is by no means new; and the direction of attention to this view may be productive of helpful studies in the domain of a still obscure malady.

THE TREATMENT OF TYPHOID CARRIERS

In the course of routine bacteriologic examinations of the bile at necropsies, Murstad[2] of the Gade Pathologic Institute in Bergen found typhoid bacilli in a man, aged 58, who had had typhoid fever twenty years before, but who, so far as could be learned, had not been connected with any epidemics. Numerous typhoid and colon colonies were obtained also from different parts of the liver, from the wall of the gallbladder, and from gallstones in the latter. On the basis of these observations, Murstad studied twenty-two records in the literature of necropsies on typhoid carriers, in eighteen of whom typhoid bacilli were recovered. In nearly all the liver, as well as the gallbladder, contained typhoid bacilli, but it seems that the gallbladder is the principal permanent abiding place of the bacilli, and that if the gallbladder is removed, the bacilli soon disappear from the liver. At any rate, Murstad's analysis of the results of gallbladder operations in twenty-four carriers appears to support this view. In four of eight cases in which cholecystostomy was performed, and in fifteen of sixteen cases in which cholecystectomy was performed, the bacilli disappeared. In Murstad's own experience, however, cholecystectomy failed to eliminate the bacilli from the stools, indicating that a focus or foci of infection persisted somewhere in the liver or the intestinal tract. In view of the fact that the carrier is a most important factor in the spread of typhoid fever, which would become a very much rarer disease than it is even now if carriers could be cured promptly, it would seem that cholecystectomy should be made in carriers for the good of the community as well as for the good of the carriers themselves. Finally, Murstad emphasizes that while the treatment by disinfectants has no effect in the case of carriers with typhoid bacilli in the bile and stools—the so-called fecal carriers—urinary carriers may be sterilized by drugs, the most effective being hexamethylenamin and other members of the formaldehyd group. Vaccine treatment of carriers should be abandoned because it is ineffective.

PROTECT AMERICAN CHEMICAL INDUSTRIES

Every reader of The Journal is urged to telegraph or to write at once to his senator at Washington, protesting against the removal of the embargo on synthetic drugs and on dyes. One of the benefits that came to the United States as a result of the World War is freedom from German control of its dye and synthetic drug industries. In bringing about that freedom, the embargo has been a most important factor. To remove the embargo now just as these industries are beginning to get firmly established invites disaster; the industries will be overwhelmed by a flood of foreign goods, let loose perhaps for the very purpose of destroying them in their infancy. On behalf of your patients and in the interest of the public health, protest against the removal of the embargo, and protest now.

SKIN COLORATION IN HEMATINEMIA

The demonstration that abundant intakes of foods relatively rich in carotinoid pigments, such as occur in carrots, tomatoes and other color-yielding plant products, may lead to a retention of carotin in the body sufficient to occasion discoloration of the skin has served to call attention to the possibility of erroneous diagnoses of icterus. Although superficial inspection may temporarily give rise to mistakes of judgment based on mere observation of persons exhibiting carotinemia, the detection of bile pigments by chemical means in the urine can always be depended on to dispel any doubt with respect to jaundice. Schumm[1] of Hamburg has called attention to an added type of brown-yellow discoloration of the skin in cases of marked hematinemia. The occurrence of hematin as an occasional free constituent of the blood has only lately received any considerable recognition. Schumm, who has described a number of cases, regards it as an unquestionably pathologic manifestation which has already been discovered in certain types of intoxication with both organic and inorganic poisons, and in pernicious anemia, malaria, some forms of sepsis, eclampsia and other diseases. The possible genetic relationships between hematin and the long recognized hematoporphyrin and bilirubin which may arise under pathologic conditions remains to be elucidated. It is important to realize the necessity of being on the lookout for the rarer forms of abnormal pigmentation.

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[1] Vaquez's Disease, Lancet, June 3, 1922, p. 1108.

[2] Murstad: Med. Rev. 38: 215, 1921.

[1] Schumm, O.: Hämatin als pathologischen Bestandtheil des Blutes, Ztschr. f. physiol. Chem. 97: 32, 1916.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Personal.—Dr. William H. Abernathy, Florence, recently resigned as county health officer of Lauderdale County, and has been appointed health officer of Pike County and will reside in Troy. He succeeds Dr. Douglas Cannon, who has been appointed state director of county health work.

New Sanitation Rules.—New regulations defining the sanitary requirements, facilities and conditions under which circuses, street fairs, county agricultural fairs and similar exhibitions may be held in Alabama were adopted by the state board of health, July 10. Permanent exhibition grounds are to be provided, with separate drinking fountains, plainly designated for each race. Persons suffering from any communicable disease are prohibited from handling or serving food or beverages on any exhibition grounds.——Temporary camps and communities within the state of Alabama must henceforth be conducted in accordance with special rules and regulations adopted, July 10. A community consisting of three or more dwellings of comparatively temporary construction, located close to one another, in existence for a period greater than seven days, but not to be occupied for an indefinite period, shall be regarded as a temporary community. This definition includes mining camps, highway and railroad construction camps, and religious, educational and recreational encampments. The territorial limits or boundary of such a temporary community or camp shall extend one-fourth mile (0.4 kilometer) in every direction from any house, cabin, tent or other structure which is occupied as a part of such unincorporated community. All structures intended for dwellings by human beings shall be of such nature as to furnish protection against undue exposure.

ARKANSAS

Fire Destroys Hospital.—The Stout Hospital at Brinkley was destroyed by Fire, July 27. The loss is estimated at between $13,000 and $14,000.

New Nurses' Home at St. Vincent's.—Construction work has been started on a new three-story and basement nurses' home for St. Vincent's Infirmary at Little Rock. The residence is to cost approximately $100,000 and will accommodate eighty nurses. Sanders and Ginocchio of Little Rock drew the plans.

CALIFORNIA

Personal.—Dr. Frederick P. Gay, professor of pathology at the University of California, Berkeley, has been elected chairman of the division of medical science of the National Research Council.——Prof. Lewis M. Terman has been appointed head of the department of psychology at Stanford University, San Francisco, to succeed Prof. Frank Angell, who retired recently.

COLORADO

Joint Meeting.—A special meeting of the Denver Dental Association and the Medical Society of the City and County of Denver was held, August 8, to discuss the antivivisection bill.

DELAWARE

New Health Plan.—At a meeting of the board of health and representatives of the county medical organizations, at Wilmington, a complete set of regulations for the handling of cases of communicable diseases that may arise in the city was approved. The purpose of the new regulations is to bring Wilmington in line with the latest practice of the large cities of the country in handling epidemics or single cases of infectious disease, and by having the code in published form to make its methods known to all who are liable to come in contact with them. The rules will be printed for distribution.

FLORIDA

Near Epidemic of Dengue.—According to the reports of the city health officer of Tampa, dengue is rapidly assuming epidemic proportions in that city. Eleven cases were reported in two hours, July 7, and the total for that day reached forty victims of the fever. One hundred and twelve dengue patients have been reported since the count began.

Venereal Disease Control.—The fight against venereal disease being conducted by the Florida State Board of Health is proving very successful, it was recently announced. There were under treatment in the clinics of the state, during June, 1,199 cases of syphilis in males, 750 cases of syphilis in females, 136 cases of chancroid in males and 13 cases of chancroid in females, making a total of 3,101 persons under treatment during the month. This work is part of the work of the division of venereal disease, which is one of the divisions of the bureau of communicable disease of which Dr. George A. Dame is director. There are at present twelve clinics in the state for the free treatment of indigent cases and for a graduated fee in cases of the nonindigent who are not able to pay a full fee. Four of these clinics are conducted by physicians employed by the Standard Lumber Company.

GEORGIA

Child Hygiene Act Adopted.—A resolution creating a state agency to cooperate with the federal department of child hygiene for the expenditure of $19,530, apportioned Georgia under the provisions of the Sheppard-Towner Maternity Bill, was adopted, July 18, by the Senate.

ILLINOIS

Personal.—Dr. Otto E. Fink, Danville, has been appointed visiting oculist and aurist to the Danville Branch of the National Home for Disabled Volunteer Soldiers.

Hospital News.—A $250,000 addition to Our Saviour's Hospital at Jacksonville is being completed. An additional $50,000 is now being secured to purchase equipment and furnishings for the hospital.——The cornerstone for the Eastern Star Home for the Aged, to be erected in Rockford, was laid recently at appropriate exercises. The new building is being erected at a cost of $175,000 and will be completed by September 15.——Plans have been completed for the new hospital to be erected at Harrisburg, at a cost of $75,000.

Conference on Diphtheria Control.—August 2, about thirty public health officials, including the director of the state department of public health, the health commissioner of Chicago and a number of local health officers, met and discussed diphtheria control measures. Under the chairmanship of Dr. Herman N. Bundesen, the deliberation centered particularly around the use of toxin-antitoxin as an immunizing agent and the question as to whether or not a state-wide campaign in favor of general inoculation against diphtheria among children of preschool age would be advisable.

Successful Milk Conference Held.—Satisfactory progress was made at a conference held in Chicago, August 1, between more than 100 representative Illinois milk producers and milk dealers, and public health officials in about equal numbers. Those present unanimously adopted a motion favoring a state law that would guarantee perfectly safe milk supplies for municipalities. They also accepted with slight alterations an ordinance drafted and presented by the state department of public health as a model ordinance for adoption generally by municipalities. This ordinance was drawn up with the idea of especially stimulating pasteurization. As a means toward bringing about practical results from the conference, the permanent chairman, Dr. W. A. Evans, Chicago, was authorized to appoint three committees. The duty of one will be to edit and publish the minutes of the meeting; of another, to promote the adoption of the ordinance by municipalities; of the third, to render, in the course of one or two years, a report on practical legislative measures.

INDIANA

Typhoid Fever Compensable.—The appelate court of Indiana has decided that typhoid fever, contracted by an employee through drinking impure water furnished by the employer, is an "injury" by "accident arising out of and in the course of the employment" under the Workmen's Compensation Act, and as such is compensable.

IOWA

Eradication of Hay-Fever.—Under the direction of Prof. Clifford H. Farr of the botany department of the University of Iowa, Iowa City, the city officials and residents have cooperated in a campaign to rid the city of ragweed.

Hospital News.—The detention hospital of LaMars was recently destroyed by fire.——A new tuberculosis hospital was recently opened for Henry County in Des Moines.——The new Military Surgeons' Club of Iowa has approved plans for building a memorial hospital in Fort Dodge in honor of the physicians, nurses and enlisted men of the medical service who lost their lives during the World War. Plans call for a $40,000 structure, which will be started as soon as funds are available, which, it is expected, will be raised by popular subscription. The hospital would be used during camp periods of national guards and by the general public in time of disaster or epidemic.——The new east wing of the Jennie Edmundson Memorial Hospital, Council Bluffs, erected at an approximate cost of $200,000 was formally dedicated recently. It is four stories high, with an observatory attic and a physicians' clinic room overlooking the surgical laboratory below. Dr. Donald Macrae, leader of the Mobile Hospital No. 1 in France, during the World War, delivered an address.——The Allen Memorial Hospital, Allen Heights, is rapidly progressing, and it is expected to be finished this year.——A new $120,000 building will be erected at St. Luke's Hospital, Mason City.

KENTUCKY

Hospital News.—A new tuberculosis hospital will be erected at Waverly Hills in the near future.——A new hospital will be erected at Maysville at an estimated cost of $35,000.——The Harrison Memorial Hospital, Cythiana, was dedicated, July 4.——A new hospital is practically completed at Whitesburg.

LOUISIANA

New Dean for Tulane.—The board of administrators of Tulane University, July 31, elected Dr. Charles C. Bass as dean of the School of Medicine.

New Baptist Hospital.—The Home Mission Board of the Southern Baptist Association has been instructed to build a general and research hospital in the city of New Orleans, to cost approximately $2,000,000.

Appeal for Hospital Funds.—The Charity Hospital, New Orleans, has requested a bond issue of $300,000, which Governor Parker vetoed as unconstitutional after the bill had passed the Senate and the House, recently. The money is needed for an additional building for interns and also for nurses. The interns' home was erected thirty-three years ago to house eighteen interns. There are now thirty crowded in, and others have to seek accommodation elsewhere. The nurses' home is seventeen years old and was originally intended to accommodate 102 nurses. The minimum requirement now is space for 200 nurses.

Smallpox in Oil Camps.—The existence of smallpox in oil regions of Louisiana has caused Dr. Dowling of the state board of health to issue warnings that all persons whose business takes them to these regions should be vaccinated. One hundred and fourteen cases occurred at Haynesville, it was stated in the report of communicable disease, for the week ending, July 22. Dr. Dowling states that for several months, despite all efforts, smallpox has been increasing in the northern section of the state. In the oil field regions, owing to the fact that there has been such a rapid increase in the population that sanitation cannot keep pace with it, typhoid is very prevalent.

MARYLAND

Personal.—Dr. Valcoulon L. Ellicott, Baltimore, has been appointed epidemiologist in the New York State Department of Health. Dr. Ellicott is a graduate of the medical school and the school of hygiene and public health of Johns Hopkins University.——Dr. Joseph Colt Bloodgood, Baltimore, was the guest of honor at a luncheon given by Dr. R. C. Coffey to thirty-five physicians at the University Club, Portland, Ore., July 13.

MASSACHUSETTS

Personal.—Dr. Walter B. Cannon, professor of physiology at the Medical School of Harvard University, Boston, gave a Mayo Foundation lecture at the Mayo Clinic, June 20. His subject was "The Effects of the Emotions on the Body."——Dr. Reid Hunt of the Harvard Medical School, Boston, has been elected on the editorial board of *Physiological Reviews* for 1922.

Physician Sentenced.—About a year ago, the Massachusetts State Board of Registration in Medicine revoked the license of Dr. Charles I. Granstein, Brockton, the charge preferred being criminal assault and the performing of a criminal abortion. Now it is reported that Dr. Granstein has been sentenced to serve a term of from five to seven years in the state prison on the charge of criminal assault. The charge of performing a criminal abortion was placed on file.

Mickle Fellowship for Dr. Cushing.—The faculty of medicine of the University of Toronto, Canada, has awarded the Charles C. Mickle fellowship of $1,000 to Dr. Harvey Cushing of Harvard University. This fellowship is awarded to the member of the profession "considered to have done most during the preceding ten years to advance sound knowledge in medical art or science." Dr. Cushing accepted the award, but instead of keeping the money has requested the university to send one of its graduates to work with him for one year. He will give the money to the selected graduate.

MICHIGAN

Physician's Fees.—It is announced that a uniform fee has been adopted by all members of the Gogebic County Medical Society.

Malaria Campaign.—The state health commissioner has instituted a malaria campaign to prevent an increase of this disease, which attacked more than 150 people last year. It is feared that the anopheles mosquito has survived the mild winter and will appear in large numbers again this year.

Chiropractors Pay Fines.—At the annual meeting of the Michigan Chiropractic Association, a resolution was passed unanimously pledging its members to serve jail sentence in the event of conviction under the Michigan Medical Act and to refuse to pay fines even if the court allowed an option in the case. Nevertheless, within a week, some half dozen of the members of the association paid fines of $200 each rather than serve six months in the house of correction.

Supreme Court Upholds Licensing Board.—A chiropractor convicted of practicing medicine without a license at Cadillac last December appealed the case to the supreme court on the following contentions: (*a*) That "certificate of registration" and "license" used in the act were not synonymous terms; therefore, two offenses were charged in the information; (*b*) that the drugless section of the act is discriminatory, unreasonable and arbitary, and, therefore, unconstitutional and void; (*c*) that the court was not justified in directing a verdict of guilty when the facts in the case were not disputed and, therefore, held to be admitted. The court held unanimously against the contentions.

Health Clinic Work Enlarged.—The clinic division of the state department of health, and the lecturing, moving picture and exhibit units will combine and tour the state, conducting health institutes, it was announced recently by Dr. R. M. Olin. In addition to the children's and tuberculosis divisions which formerly comprised the clinic, an infants' unit, two lecturers, and an organizer will be included. The increase in personnel will make possible more intensive work in counties visited. Clinics will be held in the larger towns and county seats, while lecturers will visit every community. Health institutes will be held in any county on request of individuals or organizations. The personnel of the newly organized staff are Dr. Frank Rose, head of the children's unit; Dr. Charles A. Wilson, head of the tuberculosis division; Dr. Florence Browne, head of the infant unit, and Dr. Frank Poole, lecturer.

MINNESOTA

Fund to Improve Auto Camps.—An additional appropriation of $15,000, with legislation to guarantee its effective expenditure, will be asked of the next legislature by the state board of health, for the supervision of the state tourist camps. The importance of extreme care in sanitation matters among tourists is shown in a report covering the period from 1913 to 1921, showing that 365 cases of typhoid fever in Minnesota were contracted outside the state while the victims were on vacation trips.

Hospital News.—A new $11,000 hospital for contagious diseases will be erected in Owatonna. Construction will be commenced shortly.——An addition will be made to the Naeve Hospital at Albert Lea. The addition will be a two-story and basement building of brick and concrete.——Plans have been completed for the Bethany Home for Children, a new fireproof institution for West Duluth. The building will be erected at a cost of $80,000.——A campaign for $100,000 to establish a Methodist hospital at Wadena is under way.

Personal.—Dr. Lawrence F. Sutton, Mazeppa, and Dr. William F. Wilson, Lake City, were recently elected president and secretary, respectively, of the Wabasha County Medical Society.——Dr. Charles L. Scofield, Benson, has been elected president of the state board of health to succeed Dr. Egil Boeckmann, St. Paul, who resigned, July 18, following his appointment to the board of regents of the University of Minnesota. Dr. Solon Marx White, Minneapolis, was elected vice president of the board succeeding Dr. Scofield.

MISSISSIPPI

Hospital Plans.—The contract has been let for the erection of the new East Mississippi Charity Hospital at Meridian, for $78,000. The institution will be erected on a 19 acre site given by the state.——A deed for the property of the Mississippi Centennial Exposition Company at Gulfport has been given to the United States government, which will establish a $1,000,000 hospital on the site.——Ground has been broken for the new Martha Ross Hospital at the Mississippi Woman's College at Hattiesburg, of which Dr. J. L. Johnson is president.

New School Health Rules.—At a meeting of the state board of health in Jackson, the following rules and regulations on sanitation were adopted for the schoolhouses of the state:

> Heating, light and ventilation: All schools and colleges in Mississippi shall be properly heated and lighted and be provided with proper methods of ventilation sufficient to furnish each pupil an adequate amount of fresh air. The air in any schoolroom shall be kept at all times in a wholesome condition and exercises shall be suspended as often as necessary in order to remove the air from any room, the ventilation of which is defective. The schoolhouse shall provide for admission of light from the left, or from the left and rear of the pupils and the total lighting area shall be at least 20 per cent. of the floor space. The temperature in the school shall be maintained as nearly as possible at from 68 to 70 F. No schoolroom shall be swept until all exercises have been completed for the day, and no school shall be swept during the hour just before school opens.
>
> Drinking water: Abolition of the common drinking cup, and proper care must be taken by the school trustees to prevent contamination of the water supply of the school.

MISSOURI

Farewell Banquet for Physician.—The Pettis County Medical Society gave a farewell dinner in honor of Dr. Everett A. Wood, Sedalia, July 6. Dr. Wood has practiced in Sedalia for twenty-seven years and was the founder of the former Maywood Hospital. He has retired from practice and will reside in Hemet, Calif., in the future.

NEW HAMPSHIRE

Hospital News.—Plans have been completed for the erection of a $100,000 addition to Laconia Hospital, Laconia.——The contract has been let for a new $100,000 building for the New Hampshire Memorial Hospital for Women at Concord, of which Dr. Marion L. Bugbee is superintendent.

NEW MEXICO

New County Physician.—Dr. Edmund M. Clayton, Albuquerque, has been appointed physician to Bernalillo County to succeed Dr. John F. Pearce.

NEW YORK

Club to Conduct Child Health Work.—The City Club of Albany has inaugurated a child health campaign for Albany County. The campaign will include health consultations for rural districts. The healthmobile of the state department of health will tour the country in advance of the consultations.

Personal.—Dr. Frankwood E. Williams has been appointed medical director of the national committee for mental hygiene to succeed Dr. Thomas W. Salmon, who resigned in January to become professor of psychiatry at the College of Physicians and Surgeons of Columbia University.——Dr. Harry E. Plotz, who is engaged in relief work in Poland, sailed for Europe, July 22.——Dr. S. Josephine Baker has been appointed a member of the health committee of the League of Nations. Dr. Baker, who is director of the Bureau of Child Hygiene, New York City, recently completed twenty years of service with the city health department.——Dr. Joseph A. Blake and Dr. J. Bentley Squier sailed for Europe on the *Aquitania,* August 2.

Course of Instruction in the Hygiene of Maternity, Infancy and Childhood.—The state department of health, through its division of maternity, infancy and child hygiene, plans an extension course in the hygiene of maternity, infancy and childhood, for public health nurses. The course will consist of some study, lectures and demonstrations at a central place, to be selected for each sanitary supervisor's district, and probably actual practical work at a maternity center, probably in New York City. There will be no charge for the course. Applications should be addressed to the Division of Maternity, Infancy and Child Hygiene, State Department of Health, Albany. The general correspondence course will be given by New York University and Bellevue Medical School.

New York City

Public Safety Campaign.—A broad and intensive campaign for public safety will be begun here shortly by the Safety Institute of America, under the leadership of Judge Elbert H. Gary. Invitations have been issued to eighty-seven leaders in civic, industrial, social and administrative circles to aid him. It is hoped to duplicate in this city the work that has been so successful in various industrial plants, where accidents have been materially reduced.

Health Center Fights Medical Frauds.—The East Harlem Health Center, which is sponsored by the New York chapter of the American Red Cross, cooperating with twenty-one other health and social agencies, has initiated a campaign to drive out of the neighborhood all quacks and illegal practitioners of medicine. The *Medical Week,* the official organ of the Medical Society of the County of New York, states that the society will support any movement to clean up in similar fashion any part of the city, and if the effort in the East Harlem district is successful, it would like to see the Red Cross extend this activity to the entire city.

NORTH CAROLINA

Illegal Practitioner Extradited.—It is reported that George W. Titman of Salisbury, charged with practicing medicine without a license, was tried in Rowan County court, July 21, and given one year in the chain gang. Sentence was suspended twenty-four hours to allow to him leave the state of North Carolina for good.

Aid Asked to Negro Industrial School Hospital.—Announcement has been made that a hospital for colored people has been established in connection with the industrial school at Laurensburg, and that aid is required for developing the hospital and the library in connection with the nursing school, as well as for the purpose of obtaining much needed hospital equipment, including a sterilizer, a microscope and clinical laboratory apparatus. Small gifts of either money or equipment may be sent to Professor McDuffie, care of the Laurensburg Normal School, Laurensburg.

OKLAHOMA

Hospital News.—Plans are being made for the erection of a union hospital at Duncan.——The board of commissioners of Carter County have appropriated funds for the erection a new county hospital at Ardmore. Plans are being prepared for the new structure, which will cost approximately $150,000.——Bids were asked, July 16, for five buildings, including a nurses' home and vocational building for the Oklahoma Soldiers' Memorial Hospital, to be erected at Honor Heights, Muskogee, by the Soldiers' Relief Commission of the State of Oklahoma. The Soldiers' Tubercular Sanatorium, erected by the relief commission at Sulphur, will be opened to the public the first week in August. An outpatient department will be opened at the same time. The commission operates another hospital at Guthrie.

PENNSYLVANIA

Philadelphia

Support Urged for Medical Research.—Dr. Paul A. Lewis, director of the laboratory of the Henry Phipps Institute, has issued a pamphlet urging the appreciation and support of the public in the interest in research of the medical school in this city, that the cultivation of medical research may mean better medical service.

RHODE ISLAND

Personal.—Dr. Asa S. Briggs, Ashaway, has been appointed head of the Rhode Island State Home and School, by the Penal and Charitable Commission, Providence. Dr. Briggs is president of the Washington County Medical Society and associate editor of the *Rhode Island Medical Journal.*

Illegal Practitioner's License Revoked.—The secretary of the state board of health states that, at a meeting of the board, July 13, it was voted to revoke the license of Raymond E. Connors, who claimed to be a graduate of Tufts Medical College, 1920. Connors presented proper credentials as to his graduation, but these credentials, it is reported, were obtained by fraud.

SOUTH CAROLINA

Chiropractor Convicted.—It is reported that I. E. Johnson, chiropractor of Spartanburg, was convicted on a charge of practicing medicine without a license, and was sentenced to serve ninety days in the chain gang.

SOUTH DAKOTA

Health Officer Appointed.—Dr. John R. Westaby, Madison, has been appointed health officer of Lake County to succeed the late Dr. John Duff, who had occupied that position for the past twenty-five years.

TENNESSEE

Appointments to Veterans' Hospital.—Dr. Chester D. Allen has been appointed officer in charge of the U. S. Veterans' Hospital No. 88, Memphis, formerly the Methodist Hospital. Dr. John W. Tippie is executive officer or secretary, and Dr. A. G. Holland has been appointed assistant surgeon and staff officer.

TEXAS

Hospital News.—Final plans for the Potter County Hospital to be erected at Amarillo at a cost of $250,000, have been accepted by the county commissioners.——The Frances Ann Lutcher Hospital, Orange, will open a free medical and dental clinic at that institution, August 1. This has been made possible by the generosity of Mr. and Mrs. Luther Stark in furnishing the rooms and equipment. A full-time social service worker will be employed in this work. The physicians of the Orange County Medical Society have signified their willingness to devote a portion of their time to these clinics.——A new nurses' home will be erected at Dallas for St. Paul's Sanatorium, with accommodations for 150 nurses.——The Knights Templar Hospital at the Home for Aged Masons, Arlington, is building a twelve bed addition to its sixteen bed plant, with an additional capacity, in emergency, of about twenty beds, forty-eight in all.

WASHINGTON

Plaintiffs Win from Surgeons.—The Yakima *Herald* states that Mr. and Mrs. O. M. Jones, in their $7.500 malpractice suit against Drs. Charles A. Riemcke, Yakima, and William M. Munsell, Grandview, were awarded $5,000 damages by a superior court, June 21.

WISCONSIN

Physician Fined.—The *Wisconsin Medical Journal* states that Dr. Oscar Schnetzky, Princeton, was fined $400 and costs of $200 in the circuit court recently, for illegal transportation and sale of liquor.

Personal.—Dr. and Mrs. Archibald O. Shaw, Ashland, have recently returned from a trip to Australia, New Zealand and the South Sea Islands.——During the absence of Dr. Clarence A. Baer, who is taking a course of study in Paris, Dr. A. A. Evans is acting as chief of staff of the Milwaukee Children's Hospital.——Dr. Karl Doege, Sr., and Dr. Karl Doege, Jr., Marshfield, are leaving for one year's trip in Europe.——Dr. Carroll D. Partridge, formerly in charge of the Milwaukee health department laboratories and recently health commissioner of Wausau, has returned to Milwaukee to take charge of the clinical department of the Seelman laboratories, of which Dr. John J. Seelman is director.

Society News.—The annual meeting of the Milwaukee Neuro-Psychiatric Society was held, June 22, in the Milwaukee Athletic Club. Dr. Lorenz, director of the Wisconsin Psychiatric Institute spoke on "Treatment of Central Nervous Syphilis by New Remedies."——Dr. Harry B. Moe, Blanchardville, and Dr. Peter W. Leitzell, Benton, were elected president and secretary, respectively, of the Lafayette County Medical Society, at the annual meeting, June 27.——At the meeting of the Dane County Medical Society in Stoughton, June 13, it was voted to close offices Saturday afternoons.——At a special meeting of the Marinette County Medical Society, Dr. Arthur J. Patek, Mt. Sinai Hospital, Milwaukee, was the guest of honor, and spoke on the University of Wisconsin extension service.

Maternity and Infant Welfare.—The state board of health will establish a maternity and infant health center, with a physician and a nurse to manage its affairs, in every county that provides rooms and equipment, under plans announced for administration of the Sheppard-Towner Maternity Bill. Under this legislation, Wisconsin receives $10,938 for the year ending June 30, 1922, and $27,751 for the year ending June 30, 1923. In these health centers, complete physical examinations will be made for children under school age and expectant mothers. Little mothers' classes, to teach girls how to care for babies, will be promoted, together with illustrated lectures and moving pictures. Personnel to carry out the provisions of the act will consist of one physician to visit health centers, six or eight part-time physicians in various localities, and ten public health nurses to organize the health centers and to do follow-up work in each county.

WYOMING

Many Cases of Spotted Fever.—The state board of health announces that there were fifty-four cases of Rocky Mountain spotted fever reported during the last three months, and fourteen deaths, a mortality rate of about 26 per cent. This year, the secretary of the health board states that the disease has occurred in both sexes and at practically all ages, the youngest victim being 5 years of age.

PHILIPPINE ISLANDS

Independence Mission.—Drs. Justo Lukban, Antonia G. Sison, Jose Albert and Juan Nolasco sailed for the United States, recently, having been appointed members of the Second Philippine Independence Mission. Dr. Lukban was mayor of Manila at one time, while Drs. Sison and Albert are members of the medical faculty of the University of the Philippines. Dr. Nolasco is a member of the Philippine House of Representatives.

Hospital, Dispensaries and Health Centers.—The Philippine Islands Health Service plans to build hospitals in every provincial capital, and health centers in largely populated districts. Provision is already made for such hospitals at Laoag and Sorsogon, and will be made later for Iloilo, Negros Occidental and Negros Oriental. It also plans to provide towns and the larger villages with well-stocked dispensaries. Several clinics will be conducted in the provinces, like the clinics on yaws and tropical ulcers, conducted in Parñaque and Pangasinan in 1921, and are now being conducted at Loaog.——A hospital for women and children will be erected at San Fernando, for which land has already been purchased.

CANADA

Public Health Campaign.—Under the direction of the Royal Sanitary Institute of London, England, a special health week will be conducted in Calgary, Alta., October 8-14.

Society Changes Name.—At the annual meeting of the Canadian National Council for Combating Veneral Disease, the name was changed to the Canadian Social Hygiene Council. The new offices of the organization will be 207 York Building, Toronto.

New Medical Society.—At a meeting of physicians from the provinces of Quebec and Ontario at Toronto in June, the Canadian Society for the Study of Diseases of Children was organized. Physicians in other branches of medicine, whose work has a close relation to the field of pediatrics and child welfare, will also be eligible for membership. Officers elected were: president, Dr. Alexander B. Blackader, Montreal; vice president, Dr. Alan G. Brown, Toronto, and secretary-treasurer, Dr. Edward A. W. Morgan, Toronto.

Health Officers' Association.—The eighth annual meeting of the Health Officers' Association of Ontario was held, recently, in Toronto, under the presidency of Dr. John W. Shaw of Clinton. Dr. Milton J. Rosenau, professor of medicine and hygiene at Harvard University, Boston, read a paper on "Food Poisoning." The following officers were elected for 1922-1923: president, Dr. Douglas V. Currey, St. Catharines; vice presidents, Drs. Theodore Lomer, Ottawa, and Theodore J. Park, Amherstburg, and secretary, Dr. J. J. Middleton.

Cooperation of Health Units.—A round table conference of voluntary agencies was held during the week of the Canadian Public Health Association meeting in St. John, presided over by Dr. Roberts, who explained that the object of the meeting was to coordinate the work of the various organizations and to attempt to make arrangements which would prevent the possibility of overlapping in time, energy and expense. Representatives from the following organizations attended the meeting: Canadian Red Cross Society, Col. Nasmith, C.M.G.; Victorian Order of Nurses; Department of Health, Ottawa, Dr. Helen MacMurchy and Dr. John J. Heagerty; Canadian Medical Association, Dr. Hutchinson; Canadian Public Health Association, Committee on Policy; National Committee on Mental Hygiene, Dr. William H. Hattie; National Council for Combating Venereal Disease, Dr. Gordon A. Bates; Canadian Association for the Prevention of Tuberculosis, Dr. Robert E. Wodehouse; Provincial Medical Officers of Health of Nova Scotia, Dr. H. A. Chisholm; Alberta, Dr. Laidlaw; New Brunswick, Dr. G. G. Melvin; Ontario, Dr. R. R. McCleanahan; Imperial Order, Daughters of the Empire, Miss Liggett; Women's Institutes, and Public Health Nurses.

Hospital News.—The Quebec government has given the Laval Hospital $100,000 with which to erect a new wing for tuberculous children. Work on this structure will be started soon.——A new orphans' home will be erected at Kitchener, Ont., this year, at a cost of about $70,000. Plans have been drawn and approved for the institution.——The Sisters of Moncton, New Brunswick, are to have a new hospital in that city, it is announced. The institution will be known as the Catholic Hospital and will be erected at a cost of $500,000. ——The Misericordia Hospital, Edmonton, Alta., will have a $250,000 extension and will increase its capacity seventy beds. Construction work will be started this summer.——The Toronto Department of Health is building a nurses' home in connection with the Riverdale Isolation Hospital. The plans call for a building that will house 150 nurses. It is expected that it will be ready for occupancy in the autumn.——The new Ontario Hospital at Whitby, for the mentally afflicted, was officially opened recently by the Premier of Ontario.——According to an emergency measure passed by the board of health, the medical ward of the General Hospital, Hamilton, Ont., will be converted into an isolation hospital for poliomyelitis, which is very prevalent in that city.

GENERAL

Death of Japanese Chemist.—Dr. Jokichi Takamine, known for his work on diastatic ferments and the active principles of the suprarenal glands, died in the Lenox Hill Hospital, New York, July 22. Dr. Takamine was born in Tokyo in 1854 and graduated in chemical engineering from the University of Tokyo at the age of 25.

Warning.—Dr. Oscar O. Miller, Louisville, Kentucky, writes that a man calling himself Frank Wayne is imposing on the medical profession in various cities. As soon as he arrives in the city, he goes to one of the prominent throat specialists, telling him he is suffering from tuberculosis and is endeavoring to secure funds to go West. He evidently has some slight affection of the larynx, as he invariably secures a letter of recommendation from the physician, certifying that he has tuberculosis of the larynx. He takes this to a notary public and has it sworn to, and then has it approved by the chief of police. Armed with this, he solicits funds and then moves on to another city.

Congress of French-Speaking Physicians of North America.—The *Union Médicale du Canada* for August brings the details of this meeting which is to be held at Montreal in September. It is the seventh Congrès des médecins de langue française de l'Amérique du Nord, and the general secretary is Dr. St.-Pierre, 703 rue St.-Hubert, Montreal. The Paris faculty of medicine has appointed Professor Achard as its representative at the meeting. He is professor of pathology and general therapeutics. A party of French physicians also are planning to attend the meeting. The main subjects appointed for discussion are toxic goiters, vaccine therapy, and expert medical testimony in workmen's compensation cases.

Public Health Service Reserve Officers Meet.—The Association of Reserve Officers of the United States Public Health Service held its annual meeting in Washington, D. C., during the last week in July. This association comprises in its membership doctors who are engaged in hospital work in the Veterans' Bureau and in the Public Health Service. All members of the association are themselves ex-service men. The association has for its purpose the advancement of medical and hospital work of the government, the care and treatment of ex-service men and the welfare of the doctors who are connected with that work. Because of inadequate legislation, it is claimed the status of the reserve officers in the public health service is uncertain. It was stated that the functions of the public health service cannot be utilized to the fullest degree unless the medical personnel composing it is established on a sound basis. The activities of this association will continue to be employed to place the reserve medical officers of the public health service on a more stable basis and one commensurate with the increased responsibilities and duties in the care and treatment of ex-service men, but will also continue to be employed in the regular work of the United States Public Health Service. Unless proper inducements and ample provisions are made for the medical officers in the Public Health Service permanently to continue in their work, it was said the medical and public health work of the service must necessarily suffer because trained and well qualified doctors will not be attracted to the service or remain permanently in it. The following officials were elected by the association of reserve officers for the ensuing year: president, Dr. T. H. Scott; treasurer, Dr. P. S. Rawls, secretary, Dr. C. T. Messner, 3224 Northampton St., N. W., all of Washington, D. C.

Reported No Action on "Filled Milk" Bill.—As a result of the testimony presented before the subcommittee of the Senate, of which Senator McKinley of Illinois is chairman, it is probable that no action on the Voigt Filled Milk bill will be taken by the Senate committee at this session of Congress. The meetings of the committee this week were for the purpose of hearing those who opposed the passage of the measure. The charge was made before the committee that behind the Voigt bill is a desire to injure the business of one company which manufactures filled milk. Numerous witnesses appeared before the committee, including Dr. E. V. McCollum of Johns Hopkins University, who stated that filled milk is not deleterious; that it is a healthful product provided it is used in such combination with other foods that it would not interfere with a satisfactory diet; that there was nothing poisonous about it. Under examination, he made the statement that skimmed milk, which is used in making filled milk, contains all the food value of whole milk, except that it has less of the so-called "vitamin A." Dr. Eugene Aggers, an economist of Columbia University, New York, told the committee that filled milk makes a real economic contribution to the country, giving an outlet for a tremendous amount of skimmed milk, a valuable food, which otherwise would be lost. He insisted that in the long run the filled milk industry would be a benefit to the dairy industry, and would tend to stabilize the latter. Among others who testified were Dr. Joseph Brenneman, chief of the medical department, Children's Memorial Hospital, Chicago; Dr. Philip M. Stimpson, New York; Dr. A. J. Carlson, Chicago; Prof. O. Erf, in charge of dairying, Ohio State University; Dr. Charles J. Brinn, medical inspector of baby health stations, New York; Dr. Casimer Funk, Columbia University, New York; Dr. Wm. E. Ramsey, Perth Amboy, N. J.

LATIN AMERICA

New Porto Rican Journal.—Physicians of the Mayaguez and Western Polyclinic, Mayaguez, Porto Rico, have begun the publication of a monthly entitled, *El Policlínico.* The editor is Dr. P. Perea Fajardo. The journal contains an average of twenty pages.

Tribute to an Argentine Physician.—An unusual tribute was paid to Dr. Emilio R. Coni, the Argentine sanitarian, when a number of the most prominent physicians of São Paulo, Brazil, sent a letter endorsing his appointment as head of the Argentine Public Health Service.

Cuban Delegates to the Brussels Tuberculosis Congress.—At the Third International Antituberculosis Conference held at Brussels, July 11-13, the Cuban government was represented by the following delegates: Drs. Julio Arteaga, Eugenio Albo, Fernando Remsoli and F. Javier de Velasco.

Mexican Society Appoints Officers.—The medical society of the state of Yucatan has appointed the following officers for the year 1922-1923: president, Dr. Narciso Souza; vice president, Dr. Abelardo Lara; secretary, Dr. Silvio Hernández; subsecretary, Dr. Eugenio Paloma; treasurer, Dr. Alberto

Correa; undertreasurer, Dr. Carlos Casares; editors, Drs. José E. Contreras and Romualdo Manjarréz. The headquarters of the association are at Mérida.

Tribute to Dr. Rísquez.—The *Gaceta Médica de Caracas* for April, just received, relates that the fiftieth professional anniversary of Dr. F. A. Rísquez of Caracas was to be celebrated by the Academia Nacional de Medicina, April 27, and a gold medal presented to him. He was president of the Academia at one time, and has been rector of the university, director and professor, and has published a number of important communications, especially on tropical medicine. One of his latest articles was summarized in The Journal, Oct. 22, 1921, p. 1374.

Argentine Hospitals.—According to information received from Argentina, there are now 243 hospitals and dispensaries, supported either wholly or partially by the Argentine government. These hospitals are divided as follows: Buenos Aires (city), 38; National Territories, 7; Buenos Aires Province, 75; Santa Fe Province, 17; Entre Rios Province, 22; Cordoba Province, 19; Tucuman Province, 8; Corrientes Province, 16; Mendoza Province, 11; Santiago del Estero Province, 4; Salta Province, 8; San Luis Province, 7; San Juan Province, 3; Catamarca Province, 6; La Rioja Province, 2, and Jujuy Province, 5. The three largest hospitals in Argentina are Las Mercedes, 1,672 patients; Francisco J. Muñiz, 1,000 patients; Torcuato de Alvear, 1,391 patients.

Personal.—Professor Andreatti of the University of Vienna, has given at the Asunción Medical School, Paraguay, a series of stereopticon lectures on tuberculosis, its prevention and treatment.——Dr. R. Vega Gómez, Jr., of San Salvador, El Salvador, has been sent by the Salvador Medical School and the Rosales Hospital to take a course in roentgen-ray work in a New York school.——Dr. Ramón Ruiz Arnau, who has been visiting in Porto Rico for a few weeks, has returned to the United States.——Dr. José Gómez Brioso of San Juan, Porto Rico, has left for a month's trip to the United States.——The *Repertorio* of Bogota mentions that Dr. C. Torres Umaña, the pediatrician, has left for a trip to the United States and Europe. Dr. Luis Zea Uribe, professor of bacteriology, has left for Germany, and Dr. Rafael Meoz and his wife are making a tour of Europe.——The *Semana Médica* states that Prof. V. Delfino of Buenos Aires has been appointed correspondent of the Italian Institute for Hygiene and Public Assistance which was described in these columns, July 15, page 226.

FOREIGN

Cancer Institute in India.—It is reported that plans have been made to establish a cancer institute at Bondoeng, India. It is to be connected with a hospital and medical laboratory already in operation there.

French Donate to Pasteur Celebration.—The French senate has unanimously voted 2,000,000 francs to observe the one hundredth anniversary of the birth of Louis Pasteur. The senate in voting the appropriation described Pasteur as the "Symbol of French science."

Women in Japanese Medical Colleges.—The Kyushu Imperial University, Fukuoka, Japan, has recently opened the departments of medicine and engineering to women students. Women are barred from attending the University of Tokyo and most of the other colleges of the better class.

Antituberculosis Work in Switzerland.—The Swiss government has recently granted an appropriation of 1,000,000 francs for antituberculosis work in that country during the current year. A marked increase in tuberculosis has taken place in Switzerland since the war, the *Bulletin des Eidgenossischen Gesundheitsamtes* announces.

Scientific Museum to Be Opened.—A petition, which was presented at the last session of the lower house, Japan, regarding the establishment of a fully equipped, up-to-date scientific museum, was approved. It was stated by the petitioners that scientific knowledge among the Japanese is far below that of Europeans and Americans.

Medical Periodicals in Russia.—This year has witnessed the birth of a number of medical journals in Russia. Copies have been received of the *Meditsinskaya Gazeta* of Moscow, the *Meditsinskii Journal* of Kiev, the *Klinitcheskaya Meditsina* of Moscow and the *Russkii Ophthalmologitcheskii Journal* of Moscow. Syphilis, anaphylaxis, protein therapy and percussion and auscultation of the kidneys are the main subjects discussed.

Insanity Pleaded for Criminals.—The lord chancellor of England has appointed a committee to report on the changes which are desirable in the existing law, practice and procedure relating to criminal trials when a defense of insanity is raised. The members of the committee are Sir Richard Muir, Sir Ernest Pollock, Sir Archibald Bodkin, Sir Ernley Blackwell, Sir Leslie Scott, Sir Herbert Stephen and Sir Edward Troup.

Hospital Cooperation.—At the National Conference of Local Voluntary Hospital Committees held recently in London, mutual benefit and cheaper working for a system of hospitals conducted on national cooperative lines was discussed. It was stated that if stores, medicines, drugs, equipment, etc., were purchased on a cooperative basis, it would do much to lessen expenditure, each hospital or unit reaping the advantages of joint purchases.

British Medical Women's Federation.—The fifth annual meeting of the federation was held in London, May 6, under the presidency of Dr. Mary Sturge. The following officers were elected for the ensuing year: president, Lady Barrett, M. D.; vice presidents, Miss Frances Ives and Dr. Mabel Ramsay; honorary treasurer, Dr. Louisa B. Aldrich-Blake; honorary secretary, Dr. F. M. Dickinson Berry, and medical secretary, Dr. C. Violet Kelynack.

New Japanese Maternity Hospital.—The Charity Maternity Hospital at Shibuya was formally opened, June 10. This institution was financed and equipped by the Japan Red Cross Society. The minister of war, the mayor of Tokyo and Mr. Hirayama, president of the Japan Red Cross Society, were among the guests present. After the reading of the congratulatory addresses, the building was declared formally open and the general public was admitted to inspect it.

Polish Graduates Visit America.—Six medical students from Polish universities have been selected to come to America to finish their studies, preparatory to entering the Institute of Hygiene at Warsaw, which was established recently by the Rockefeller Foundation. After a competitive examination under the auspices of the Polish ministry of health, Prof. Selskar Gunn, representing the Rockefeller interests, made the final selection. An endowment fund of $250,000 was given by the Rockefeller Foundation to establish this institute.

The German Law on Methyl Alcohol.—The newly enacted law on the brandy monopoly in Germany forbids the use of methyl alcohol not only in food and beverages but also in perfumes and articles for cleansing, caring for or dyeing the skin, hair, nails or mouth. This prohibition includes wood spirit. The previous exemption from tax of alcohol and ether designed for hospital and other medical purposes has been rescinded. This action is exciting much unfavorable comment. Certain medical organizations have already protested to the government.

Maternity and Unemployment.—Both Spanish Houses of Parliament have approved the ratification of the Maternity and Unemployment conventions adopted by the first International Labor Conference held in Washington in 1919. The Maternity Convention states that a woman shall not be permitted to work six weeks before and six weeks after childbirth, and shall, during that period, be paid benefits sufficient for the healthy maintenance of herself and her child. In addition to this, she is entitled to free attendance by a physician or a certified midwife.

Course for Physicians in Physical Training.—Our German exchanges mention that this week there is being held at Berlin a graduate course on the importance of physical exercise. It was organized by the committee in charge of medical graduate courses and the German Hochschule für Leibesübungen, and is in charge of Prof. A. Bier. The aim is to give physicians a better insight into the nature and system of gymnastic exercises and sports. As these can be learned best by actual experience, the course includes three hour exercises, daily, besides three or four hours of lectures. The course is to last thirteen days and the expense for the whole with board and lodging is stated to be 955 marks.

Medical Work in Siam.—Dr. George McFarland, emissary to the United States from the king of Siam, has been on a short visit to his relatives in this country and will return to Siam in October. Dr. George McFarland, who is a graduate of the College of Physicians and Surgeons, Baltimore, is dean of the Royal Medical College, Bangkok (University of Chulalongkoran). A five-year course in medicine is given, with a sixth year in internship and practical experience at the college, which at present has 250 students. Dr. McFarland states that a flying service is attached to the medical department of the university in Bangkok, which is named after the late king, who donated the land and endowment fund. Dr. McFarland is not a missionary to Siam but a representative of the Siamese government.

University News.—Sir George Murray recently opened the new Darling Building at the Medical School of the University of Adelaide, Australia. This building will serve the department of the fundamental sciences of the medical school, as formerly there was insufficient accommodation for the teaching of anatomy, physiology and pathology. The family of the late John Darling contributed £15,000 toward the erection of the building. In declaring the building open, Sir George gave an account of the development of the medical school from the creation of a lectureship in physiology in 1882 to the establishment of a chair of anatomy in 1884; through the period when medical students received the complete course of training, up to the present extension of the school. The library of the Darling Building will accommodate the library of the South Australian branch of the British Medical Association, as well as the medical library of the university.

Three Years of the Swedish Antivenereal Disease Legislation.—The *Hygienisk Revy* devotes a long editorial to the workings of the law which has now been in force for three years. The number of cases of venereal disease has been reduced by 60 per cent. during this period in Stockholm, and by 40 per cent. for the whole of Sweden. Dr. Karl Marcus in announcing these figures remarked that the legislation is not altogether to be credited with this improvement, as the hard times have something to do with it. During periods of prosperity, the venereal diseases increase in frequency, and they drop off during financial depression. However, during this three year period, the reduction in the number of cases of venereal disease at Copenhagen and at Christiania has been only 10 per cent. The editorial adds that both Norway and Finland are planning similar legislation, and even in Germany, parts of the Swedish law have been taken as a model. This law was discussed with great interest at the Red Cross Conference at Copenhagen in May. The objection is made to the law that it does not suppress prostitution, but the editorial reiterates that this is a social, not a medical question, and the law is planned from the medical standpoint. Venereal disease in sailors is a question which demands international cooperation, the editorial adds. In Sweden the seamen get free medical attention but this is not the case everywhere.

Graduate Courses in Western Europe.—Nearly all the European countries are busily organizing graduate courses in all kinds of specialties, in hygiene, general medicine, diagnosis, etc., and they all welcome American physicians with special cordiality. It is impossible to call attention to all the courses separately, and the American University Union has been founded partly to supply information in regard to graduate and undergraduate work for all applicants. The office in England is 50 Russell Square, London, and Prof. J. W. Cunliffe of Columbia University, New York, is the secretary of the board of trustees in the United States. The office of the continental division is at 1 rue de Fleurus, Paris. There is also a university bureau of information for medical affairs at Paris which is open every afternoon with an English speaking official in charge, 65 rue de Miromesnil, Paris. A practical guide has been published containing the data useful for medical men, and information as to special graduate courses at any time is freely available on demand. Italy also is offering numerous courses, and Germany has a regular well established system for graduate courses which brings them within the reach of every practitioner in the country at some time during the year. The Vienna graduate courses have been mentioned recently in the correspondence department. Prof. F. Widal begins September 4, at Paris, two courses of ten lectures each on methods of clinical exploration applied in the diagnosis of diseases, especially of the kidneys and liver. Each course is limited to twenty-five, and the price for ten lectures is 100 francs.

Personal.—Dr. N. Bishop Harman, London, has been elected a corresponding member of the Société nationale des sciences naturelles et mathématique de Cherbourg, in recognition of his researches into the origin of the facial musculature.——Prof. George H. F. Nuttall of the University of Cambridge, England, has been elected a corresponding member of the Société de Biologie, Paris, and of the Society of American Bacteriologists.——Dr. Alexander Mills Kennedy, who was appointed professor of medicine in the Welsh National Medical School last October, has been elected dean of the school to succeed Prof. David Hepburn.——Sir William Thorburn, Sir Charles A. Ballance and Dr. R. P. Rowlands have been elected fellows of the Royal College of Surgeons of England.——Dr. Legry, professor of anatomy in the Paris School of Medicine, has been elected a member of the Académie de Médecine at Paris, to succeed the late Professor Ranvier.——Prof. L. Devoto has been placed in charge of the Italian Antonio Devoto Foundation which has a 10,000,000 liras fund to train the public in hygiene and prophylaxis of occupational affections. An asylum for children and a colony for study and work are also planned and a large property has been acquired at Chiavari for the purpose. Some scholarships for college work and graduate study are also to be offered to Argentine undergraduates and graduates.——The seventieth birthday of Dr. S. Goldflam, one of the leading neurologists and alienists of Poland, was celebrated by the profession there recently. The *Informateur* states that a special volume of "Neurologie polonaise" was dedicated to him on this occasion.

Deaths in Other Countries

Dr. **W. H. Banner Robinson**, surgeon-general with the government, of Bengal, India.—Dr. **K. McMillan**, of typhus fever, while attending his patients, at Hamkeung, Korea.——Major-Gen. **W. F. Stevenson**, R.A.M.C., England, formerly professor of clinical and military surgery at the Royal Army Medical School; author of "Wounds in War, the Mechanism of Their Production and Their Treatment"; July 7, aged 78.——Dr. **A. N. Davis**, superintendent of the Devon Memorial Hospital, England, June 29, the day preceding his intended retirement.——Dr. **Deiters**, director of the Psychiatric Institution at Düren, aged 54.——Dr. **S. S. Ostenfeld**, assistant to the orthopedic clinic at Copenhagen.——The *Policlinico* reports the death of Dr. **C. Cavazzeni** and Dr. **Ricci** of Bergamo, both killed in an automobile accident.——Dr. **J. Drivon** of Lyons, aged 80.

Government Services

Changes in Public Health Service Appointments

Changes in the heads of the various divisions of the U. S. Public Health Service have been announced by Surgeon-General Cumming. Surgeon F. C. Smith has been detailed as Assistant Surgeon-General in charge of the division of marine hospitals and relief, and Surgeon B. J. Lloyd has been detailed as Assistant Surgeon-General in charge of the division of sanitary reports and statistics of the bureau. Assistant Surgeon-General C. H. Lavinder has been relieved as Assistant Surgeon-General in charge of the division of marine hospitals and relief, and has been assigned to the position of executive assistant in the office of the Surgeon-General. Assistant Surgeon-General B. S. Warren has been relieved from duty as Assistant Surgeon-General in the bureau and assigned as director of the second regional district, at Baltimore.

New Medical Reserve Units

In accordance with the scheme of organization of medical reserve units, the following new hospitals have been organized:

Evacuation Hospital No. 21 (St. Anthony's Hospital, Terre Haute, Ind.).

General Hospital No. 55 (Creighton University College of Medicine, Omaha, Neb.).

Red Cross Loans for Blinded Ex-Service Men

At the meeting of the executive committee of the American Red Cross in June, the sum of $12,000 was made available for making capital loans to blinded ex-service men during the fiscal year ending June 30, 1923. These loans are for the totally or partially blinded soldiers who wish to establish themselves in a small business. The loans will be subject to the following conditions:

1. No loans shall be made unless the man's progress has been satisfactory to the officer of the U. S. Veteran's Bureau who has had immediate supervision of his training.
2. No loans shall be made until a thorough investigation of the business venture has been made by a responsible agent of the bureau who is familiar with the nature of the business which the man desires to establish.
3. No loans shall be made without the approval of both the director of the Evergreen School for the Blind and the fiscal agent of the American Red Cross, if the man has received his training at Evergreen, or without the approval of the supervisor for the blind and the fiscal

agent of the American Red Cross stationed at Evergreen, if the man has received his training elsewhere.

4. It is the understanding that in every case in which a trainee has been aided to establish himself in a small business venture with the aid of a loan he will be given adequate supervision and follow-up, and that for the first year he will be visited by an agent of the bureau familiar with the training of the blind and with the nature of the business, at least once in three months.

Foreign Letters

PARIS

(From Our Regular Correspondent)

July 21, 1922.

Spread of Cocain Traffic

About a year ago, Dr. Courtois-Suffit, a medicolegal expert, presented, in collaboration with Dr. René Giroux, a communication to the Academy of Medicine on the inadequacy of the law of July 12, 1916, in connection with the campaign against cocainomania (THE JOURNAL, Aug. 20, 1921, p. 633). In the meantime, Suffit and Giroux have pursued still further interesting investigations on the traffic in cocain. The number of arrests on the charge of trafficking in cocain has increased four-fold, from fifty-three in 1916 to 212 in 1921.

In order to escape the vigilance of the police, traffickers in cocain have, of late, invented a number of schemes, some of them quite ingenious. They sell the drug in counterfeit wrist-watches, medallions, or powder boxes with a double bottom. Some go about as truckers, selling tangerines containing a supply of cocain; others offer for sale artificial flowers which have within their petals a tiny pouch enclosing 2 or 3 gm. of the drug. Some persons engaged in the traffic do not carry with them a supply of the drug but seek out customers, while they are trailed by a partner who distributes the drug. Sometimes, too, the cocain is offered for sale, payment is made in advance, and the place where the drug is concealed is made known. It may be behind a drinking fountain, under the sidewalk or under the seat of a parked taxicab. Employees on through express trains and soldiers with the occupation troops in the Rhine Province are said to be guilty of taking part in the traffic. The drug is transported by aeroplane as well as by mail, coming, in this case, chiefly from Morocco, Spain and Holland. To facilitate distribution, important depositories have been created throughout the provinces. A firm of exporters and commission brokers, who were supposed to be dealing in textiles, was in reality engaged in wholesaling German cocain. The enormous profits realized constitute a very serious temptation. The present purchase price of a kilogram of cocain is about 1,300 francs ($106.60). A small package of cocain, containing 1 gm., is usually sold for from 20 to 30 francs. Thus, the traffickers and middle men have about 20,000 francs ($1,640) to divide between them, for every kilogram of the drug they sell.

Drs. Briand and Livet recently pointed out that certain occupations and employments have a tendency to increase the number of cocain addicts. For instance, among motion picture artists, the use of cocain is widespread, owing to the fact that the drug is said to make the eyes more brilliant and more photogenic. In order to combat this illicit traffic more successfully, a law supplementing the act of July 12, 1916, has just been passed. According to the terms of this new law, the courts shall impose a prison sentence of not less than five years nor more than ten years on persons found guilty of having contributed to the delinquency of others by facilitating in any manner the use of narcotic drugs. But, in order that the campaign against cocainomania may be effective, it is desirable that some form of international understanding on the subject should be reached. The spread of the cocain habit in foreign countries, as well, makes it seem likely that it would be possible to bring about the creation of an international commission on narcotics, the most important duty of which would be to draft an international law covering the subject and to provide for its rigorous enforcement. Dr. Briand and Livet have appealed to the Société de médecine légale that it draw up such a resolution.

In view of the fact that the council of the League of Nations has established a consultative commission on opium, it is to be hoped that the labors of this commission will result in the formulation of a uniform plan by which the trade in narcotics can be controlled adequately.

The Therapy of Hypophysial Syndromes

The third Réunion neurologique internationale annuelle, recently held in Paris, under the auspices of the Société de neurologie, devoted the whole session to the discussion of the therapy of hypophysial syndromes. Drs. Jean Camus and G. Roussy, both of Paris, presented a report on the pathologic anatomy and the pathologic physiology of such syndromes. Dr. J. Froment of Lyons discussed the clinical and the therapeutic aspects of these syndromes. Dr. Velter of Paris described the visual affections associated with hypophysial tumors; Dr. Harvey Cushing of Boston, the surgical treatment of tumors of the pituitary body, and Dr. Béclère of Paris, the roentgenotherapy of the hypophysis.

Béclère collected forty cases of hypophysial tumors treated by roentgenotherapy. The results were excellent from every point of view. Béclère regards roentgenotherapy as the preferable treatment of tumors of the pituitary body (especially in acromegaly and giantism), with the exception of tumors of syphilitic origin and syndromes characterized by glandular deficiency.

In regard to organotherapy, Dr. Froment expressed himself in a reserved manner. He recalled that we are not entitled to consider extracts of the pituitary body as the equivalent of products secreted by the hypophysis. Some of the effects secured by the injection of such extracts may be due to the presence of quite ordinary substances. There is, however, one syndrome on which injections of an extract of the posterior lobe exert a marked effect; namely, diabetes insipidus; but the action seems to be palliative rather than curative. Some encouraging results have been obtained in infantilism and in the adiposogenital syndrome. While Froment would not wish to reject organotherapy absolutely, he emphasizes that the application of the method should be in a very critical spirit.

Preventive Serotherapy in Tetanus in Civil Practice

In a recent number of the *Gazette des hôpitaux*, Dr. Lop of Marseilles raises the question whether preventive serotherapy in tetanus is indispensable in civil practice. He refers to a communication presented, during the war, by Dr. Souligoux to the Société de chirurgie, in which he stated that, while he was not opposed to preventive injections of antitetanic serum, he did not think that the disappearance of the tetanus was due solely to these injections; the principal factor is the asepsis and the antisepsis, which are applied with more active and more effective substances than at the beginning of the war. Of from 1,000 to 1,200 persons injured annually on the streets, wharves or boats or in factories, Dr. Lop has had, during a long period of years, only one case of tetanus, which he encountered in a fully developed state the fourth day after the accident. The wound was a bruise of the hand. The tetanus was treated and cured by the Baccelli method. Lop does not use, at the present time, the preventive injections of antitetanic serum, nor has he done so since 1906, in which year he observed two fatal cases of tetanus in patients who had received preventive injections of antitetanic serum that had come directly from the Pasteur Institute. Among the 15,000 injured persons that he has treated since that time, there were some who presented serious bruises and lacerations. Nearly all the wounds were contaminated with grease and dirt. A number of the patients were injured at sea, some on boats transporting horses, and often received no medical attention for from four to eight days after injury.

No doubt, the war wounded presented a higher degree of susceptibility, as a result of the fatigue and privations suffered during the hours preceding or following the battle; and in consequence, also, of the delay, often prolonged, in receiving first aid, which was not always adequate in the first-aid outposts. Lop is ready to admit that, if he had been at the front, inadequately equipped, he would not have hesitated to resort to preventive injections of antitetanic serum—if for no other reason, to satisfy his conscience, and out of respect for the results obtained and proclaimed by surgeons whose scientific authority is only equaled by their probity. But, farther to the rear, in an evacuation hospital in which approximately the same conditions obtained as in civil practice, he would not have departed from the technic that he ordinarily employs: lavage; cleansing with soap; disinfection with alcohol or ether, tincture of iodin and hydrogen peroxid; extensive débridement; prudent sequestrotomy; continuous irrigation with surgical solution of chlorinated soda or with iodin-iodid solution.

Death of Dr. Jacques Bertillon

Dr. Jacques Bertillon, director of the army bureau for medical and surgical statistics, died recently, at the age of 70, after a long illness. Convinced that the end was near, he wrote a short account of his life and sent it to certain journals. He was the son, grandson and brother of well-known statisticians, and devoted his whole life work to statistics. For a period of thirty years—from 1883 to 1913—he was chief statistician for the city of Paris. For more than ten years, he was an instructor in the science of statistics in the Collège libre des sciences sociales, which he had helped to found in 1895. He published a large number of articles in special journals; more particularly, in the *Journal de la société de statistique* (of which society he was president) and in the *Annuaire statistique de la ville de Paris.* He assisted in founding the national alliance for the augmentation of the population of France, and, with a view to supporting national propaganda for the betterment of the birth rate, he founded the review *La femme et l'enfant.* He was a member of the Conseil supérieur de statistique and also of the Conseil supérieur de la natalité.

Dr. Gran's Account of Famine Conditions in Russia

Dr. M. M. Gran of Petrograd, speaking at the Pasteur Institute of Paris recently, gave a vivid account of famine conditions in Russia. Dr. Gran has been sent out by the Pan-Russian Medical Union to make known to the medical profession in Europe and the United States the gravity of the sanitary situation created by the famine, which presents certain serious dangers for the countries of western Europe. According to Dr. Gran, the number of persons suffering from the famine amounts to 35 million of the population, while the number of persons being aided by foreign governments and charitable organizations (for the most part, American) is only from five to six millions.

In connection with this address, the Russian physicians in Paris deposited a magnificent wreath of flowers on the grave of Pasteur, and Dr. Roux, director of the Pasteur Institute, spoke of the close relations that had always united Russia's scientists with the Pasteur Institute, to the work of which Metchnikoff had made such important contributions.

BELGIUM

(From Our Regular Correspondent)

Liége, July 24, 1922.

Anergic Syphilis

Before the Société des sciences médicales de Bruxelles, Dr. Dujardin discussed recently the question as to whether it is possible to bring about the appearance of allergy in tardy, anergic (inactive) syphilis. He explained also the indirect procedure by which he had attempted to solve the problem. Allergy in syphilis is not effected solely by prepared extracts of spirochetes; it can be brought about by certain ordinary substances; for example, the frank intradermal reaction to milk in tertiary syphilis. It may be noted in passing that allergy in tuberculosis as well may be produced in the same manner. Allergy appears thus to be a quite simple reaction of any organism, for a long time infected, toward certain organic substances that in some respects are similar to the original toxic cause of the infection. By successive cutaneous injections of milk, we can secure marked cuti-reactions to milk in a given subject; that is, he develops an allergy for milk. The question arises as to whether or not this allergy for milk will produce a specific allergy in an anergic syphilitic. While Dujardin cannot as yet assert that such is the case, he has noted at least a curious result; namely, that injections of milk may exert a frank influence on secondary symptoms, and it seemed to him that they effected some improvement in tabetic patients, not only with respect to their general condition but also as regards certain subjective symptoms (darting pains). He thinks that this result is sufficient to justify further research; especially in view of the fact that chemotherapeutics seems thus far to have been unable to produce a cure for tardy anergic syphilis (general paresis, etc.).

Celebration of the Centenary of the Société royale des sciences médicales et naturelles

The Société royale des sciences médicales et naturelles, the venerable yet perennially young scientific society of Brussels, which is a direct lineal ancestor of our Academy of Medicine, in that the latter derived its founders from the former, celebrated, June 22, with special ceremonies held in Marble Hall, the centenary of its foundation. Professor Heger gave a vivid and trustworthy account of the founding and early activities of the society, bringing out the fact that it took up and continued the work of the old Société de médecine, de chirurgie et de pharmacie, which was established in 1795, following the fall of the Austrian régime. After an existence of a hundred years, the society was still giving abundant evidence of its vitality. "Men succeed each other," he said, "historical events pass across the stage and fall into oblivion; but institutions which are the outgrowth of high thoughts and lofty principles persist and must persist if their purpose is noble and upright, not contaminated by selfish interests and promoting only the good of the general public."

The Goiter Problem in Belgium

The results of Dandois' inquiry into the incidence of goiter in Belgium, which he recently laid before the Royal Academy, have a suggestive interest. His report shows that there are very few cases of goiter in Belgium, and it is interesting to study in a nongoitrous country the geographic incidence of the disease. It appears that the results are not identical with those obtained in countries in which the disease is widespread.

Dandois divides the country into three regions, basing the distinction on the relative number of cases of goiter found in each as shown by the examination of recruits. Lower Belgium, made up almost entirely of plains, presents an insignificantly low incidence of goiter. Middle Belgium, for the most part a country of plains, but which has, scattered here and there, small areas of rocks and wooded hills, shows an appreciably higher incidence than Lower Belgium; but the number of cases is still comparatively small. The third area, the provinces of Liége, Luxembourg and Namur, where the earth's surface is uneven, rocky and cut up with mountains and valleys, with winding rivers, furnishes, with a total population of not much more than a million, relatively high figures, there having been 108, twenty-six and seventeen exemptions, respectively, in the three provinces.

This inquiry is only the prelude of a statistical study, which will furnish valuable information, for the time is propitious in view of the fact that the project of distributing throughout the state a high grade of drinking water seems about to be realized, and the further fact that the economy of the distribution of goiter poison is being studied more and more and that, in all probability, drinking water will be found to be the principal intermediary agent.

Annual Meeting of the Belgium Surgical Society

The annual meeting of the Société belge de chirurgie was held this year at Liége, under the presidency of Professor Willems. A large number of surgeons of Brussels, Antwerp and Ghent gathered in the hospital services of Liége and listened to the discussions. There were three main subjects studied:

ARTICULAR TRAUMATISMS OUTSIDE OF FRACTURES

Albert of Liége set forth the surprising results secured by immediate active mobilization in traumatisms of the knee. It was first applied to the treatment of hemarthrosis. Willems' method has completely revolutionized old therapeutic methods and changed for the better the prognosis in a large proportion of articular lesions. The technic and the results are very simple. In simple traumatic hydrarthrosis, the treatment is the same and the results are also perfect. The essayist reported also the excellent success secured by meniscectomy in cases of contusion or of luxation of the semilunar cartilage, fifty cases of which have been treated by Willems.

The method has been applied also to purulent arthritis, formerly much feared. All forms of incision and all means of drainage that had been tried hitherto had failed miserably. Mobilization begun at the start, while the infection is still confined to the synovial membrane, by a continual *brassage*, rids the joint of its purulent contents. When the treatment is instituted in the very beginning, patients suffering from purulent arthritis in full evolution will preserve in the injured member a musculature scarcely inferior to that of the corresponding sound member.

AMPUTATIONS AS DETERMINED BY THE TYPE OF PROSTHESIS TO BE WORN

Martin and Neuman discussed the level of the amputation, the choice of technic and postoperative treatment. In leg amputations they prefer the Anten method, with lateral flaps. They discredit the classic amputations of Chopart, Pirogoff and Lisfranc. They assign great importance to providing patients with temporary prosthesis soon after the operation, and recommend early mobilization for amputation stumps. Some of their conclusions follow:

The development of orthopedics, as far as supplying prosthetic apparatus for patients is concerned, has had a notable influence on the surgical technic of amputations. It is clearly evident from the experience gathered during the war that a surgeon who is called on to perform operations should keep in close touch with an orthopedist who is acquainted with modern methods of treatment and with modern types of prosthesis. The complete recovery of this class of wounded demands the close collaboration of the surgeon and the orthopedist. It is desirable, for the sake of those who have had limbs amputated, that the large surgical services recognize the necessity of this collaboration. Our large sanitary units, both official and private, should have an orthopedic service attached to their formations; at least for the orthopedic treatment of stumps and the early provision of prosthetic apparatus. It would also be desirable for such formations to keep in constant touch with an institution capable of furnishing prosthetic apparatus constructed on definite, rational and scientific principles.

PSEUDO-APPENDICITIS

Voncken and Reynders brought out the importance of deep roentgen-ray examinations for the purpose of diagnosing pseudo-appendicitis, which may take on the various clinical aspects of chronic appendicitis. They draw especial attention to cases which, owing to the presence of a Jackson membrane or on account of pericolitis, mesenteritis or epiploitis require special surgical treatment.

LONDON

(From Our Regular Correspondent)

London, July 14, 1922.

Fifth International Birth Control Conference

The fifth international birth control conference, of which the program was given in a previous letter (THE JOURNAL, June 17, 1922, p. 1907), has been held. The attendance was not large, but the delegates included visitors from all parts of the world, as well as a number of health officers and other representatives of public bodies in this country. The president, Dr. G. V. Drysdale, said in his address that there had been an embargo on the entrance of science into the social sphere, and that their movement was the result of the attempt of the greatest thinkers of the past and present to obtain a really scientific sociology. They met for the first time with the knowledge that the whole world was ready for the doctrine of birth control, and that East and West were ready to meet on this fundamental human need. The terrible economic distress and unemployment which followed the war had forced statesmen to recognize the fundamental truth of the malthusian doctrine, while the great pronouncement by Lord Dawson, the king's physician, in favor of both a rational and humane sexual philosophy and birth control, had had an effect all over the world.

Today all organized opposition to birth control was dead, except that of the Roman Catholic church. The movement was as greatly concerned with the quality of the race as with its quantity, and the latter question was becoming of supreme importance in countries such as Great Britain, America and France, where the birth rate had now fallen to fairly manageable figures, but where family limitation had been adopted by the educated and successful sections, leaving the poor, improvident stocks to multiply without restraint in their ignorance, to the great injury of our race. The movement had always been deeply concerned with moral ideals, and had always had as one of its chief aims the promotion of sexual purity through general early marriage. One of the most important objects of the conference was to urge that the public authorities of all nations take steps to secure the provision of hygienic birth control instruction at all hospitals and medical centers where the poor and the diseased congregated. For the whole of Europe, the birth rate had fallen from 40 in 1876 to 36.5 in 1901, which meant 3,000,000 fewer annual births. Australia and America probably swelled the reduction to 5,000,000. This meant that at least 20,000,000 persons had adopted family limitation in one form or another in the forty-five years since the beginning of the movement. The reduction of births had saved at least the same number of lives. If the process was continued until the average birth rate of the entire world was reduced to 17 or 18 per thousand, they would save lives at the rate of 25,000,000 each year, remove untold suffering from millions of hapless men, women and children, make early marriage and social purity possible, eliminate the struggle for bare existence, improve the quality of the race and delay the economic rivalry which was the most potent cause of international friction and war.

Herr Ferch (Austria) said that in his country their opponents, who were supported by large sums of money, were mainly the war profiteers, who were dreaming of a war of revenge, through an excessive birth rate. Dr. Goldstein (Germany) deplored the fact that nothing of the conference would be published in the German papers.

A resolution was passed expressing pleasure at the achievements of the movement and its extension to the East and calling on the governments of all nations to facilitate extension of birth control knowledge among the poor and unfit, in the interests of human welfare, race improvement and lasting peace.

At the afternoon conference, Mrs. Margaret Sanger, president of the American Birth Control League, presided. Mr. Edward Cecil said that the root cause of the evil was too much motherhood. What chance was there under modern conditions, especially in towns, for the mother or the children when children were brought into the world at the rate of one a year?

Bernard Shaw on "The Advantages of Being Unregistered"

Mr. Bernard Shaw addressed a crowded meeting of the Abernethia Society of St. Thomas' Hospital on the heretical theme of "The Advantages of Being Unregistered," which he treated in his usual paradoxical vein. It was a serious blow, he said, to medical prestige that a knighthood had been conferred on Mr. Parker the "bone setter" (The Journal, July 1, 1922, p. 52). This title was usually given in medicine to the heads of the profession. Here it had been bestowed on a man who was not only unregistered but unqualified. He had no recognized medical training but "had learned his business" from another bone setter. The faculty was inclined to regard such persons as ignorant. Unfortunately, they got relatively as many cures as the qualified, and often obtained their best results when the latter had failed. To the public, there had always been a glamor about the unqualified man—probably because he dared to charge more than his qualified rival. His popularity had increased so much of late that patients would now frequently run the whole gamut of osteopaths, masseurs, Christian scientists and psychotherapists before turning to the qualified physician.

What was the cause of this waning faith? He attributed it to the narrow-mindedness of the general medical council. Its main failing was that it consisted entirely of physicians. Such a system tended to a medical autocracy, and the community for whom the physicians worked had no opportunity of expressing its views on medical organization and conduct. The remedy lay in constituting the council mainly of members of the informed public, with physicians as assessors. Such a body would be in a position to effect several needed reforms in medical practice and education. First was the question of admission to the profession. It was absurd for any body of men, whether physicians or bottle-washers, to say to a man, "You shall not enter our profession." That was for the general public to say. Next came the problem of medical education. The most needed reform was lengthening of the curriculum, but this could be compensated for by cutting out certain unnecessary parts of subjects which were taught at present. The smattering of science, for instance, in which the medical student was grounded, was unnecessary. Medicine was not a scientific profession. Yet such was the effect of the so-called scientific training that the surgeon tended to regard all disease problems as mechanical, the physician to regard them as chemical; whereas, such problems were vital. The curriculum should be lengthened by study of Swedish massage and osteopathy, both of which forms of treatment had proved of value.

The Medical History of the Great War

The second of the series of volumes of the medical history of the war has been published. It is the first of two volumes on diseases. The chapter on influenza is contributed by Dr. Herbert French and Sir Wilmot Herringham. Much attention is given to the conditions in which pneumonic symptoms developed. "Delirium and coma occurred in bad cases, but more striking was the number of cases in which they were entirely absent. Big, strong men, cyanotic, breathing thirty times to the minute, and obviously dying, would be fully conscious, not realizing their danger in the least until within a half-hour of death." In the chapter on cerebrospinal fever, of which there was a formidable epidemic, the importance of overcrowding in the causation is emphasized. In the chapter on trench fever, the failure of all forms of treatment, including arsphenamin, is pointed out. Prophylaxis—freeing the man from lice—is the important thing. The second volume will be concerned with gas warfare, and the medical aspects of aviation and mine warfare. It is expected that the whole series, excepting the two volumes on statistics and epidemiology, will be completed about the end of the year, with the exception of the general histories of the medical services in the various campaigns of the war.

The Army Medical War Collection

The valuable army medical war collection of specimens, which has been housed at the Royal College of Surgeons (as described in a previous letter to The Journal) has now been handed over to the college by the War Office, with a sum of $37,500, which is to be devoted in part to a new building for housing the collection, while the rest is to be invested with a view to providing an annual sum to help in the maintenance of the new section. An important feature of the arrangement is that, while the collection will form an integral part of the museum of the college, it will always be at the disposal of the army medical authorities for demonstrations to members of the corps.

Industry's Death Roll

The annual report of the chief inspector of factories and workshops for the year 1921 has just been issued. During the year, 92,565 accidents were reported, of which 951 were fatal, as compared with 138,773, of which 1,404 were fatal, in the previous year. The decline is almost entirely due to the phenomenal inactivity of industry throughout the year, including the prolonged coal strike which resulted in many large iron mills and blast furnaces being completely closed down for a long period. These industries are heavy accident producers. The number of accidents due to electricity was 322, thirty-two being fatal—a reduction of 20 per cent. in the total and of 50 per cent. in the fatal cases compared with each of the previous two years. There were 230 cases of lead poisoning, of which twenty-three were fatal. In 1900, the number was 1,058, of which thirty-eight were fatal. There were no cases of phosphorus or mercury poisoning, but one case of arsenic poisoning. The figures for anthrax were twenty-five cases, with six fatalities. This low figure is held to be partly due to the inauguration of the government station for the disinfection of wool at Liverpool. On the question of hours of work, it is stated that, since the forty-eight-hour week has been established, it is a source of satisfaction to find that, when the reduction of hours is continued over a considerable period, output tends in the majority of cases to attain the old level and that the beneficial effects of the increased leisure on the workers are becoming apparent.

Marriages

Cecil Edward Reynolds, Los Angeles, to Miss Nora Gardner of Hollywood, Calif., July 22.

William Kuykendall to Miss May Rowland, both of Eugene, Ore., at Salem, July 19.

Louis Francisco Ross to Miss Margaret Grubbs Starr, both of Richmond, Ind., July 19.

Douglas Squire Corpron, Yakima, Wash., to Miss Grace Chapman of Redwood Falls, Minn., July 12.

Philip L. Newmeyer, Salem, Ore., to Miss Ruth Johns of Manila, P. I., at San Francisco, July 13.

Charles Willis McLain, Gurdon, Ark., to Miss Joyce Dudley of Hope, Ark., June 24.

James Wesley Aldridge to Miss Martha Coffing, both of Covington, Ind., June 15.

Abraham Greenberg, Omaha, to Miss Blooma Kogan of Minneapolis, June 14.

Earle Bloodgood Fowler to Miss Barbara Blatchford, both of Chicago, August 5.

Joseph Pokorny to Miss Carrie Wells, both of Baltimore, July 23.

Deaths

Harold Barclay ⊕ New York City; Columbia University College of Physicians and Surgeons, New York, 1899; member of the New York Academy of Medicine; consulting gastro-enterologist to the Portchester Hospital and to St. Mary's Hospital, Hoboken; assistant attending physician at Bellevue Hospital, New York; served two years in France during the World War with the M. C. U. S. Army; specialized in internal medicine; died suddenly, July 22, aged 46, at Biarritz, France.

William D. Wolverton ⊕ Pittsdown, N. J.; colonel U. S. Army, retired; was appointed assistant surgeon in the Army in 1861; served as chief surgeon, department of the Columbia, Vancouver Barracks, Wash., from 1894-1898; was post surgeon at Washington Barracks, D. C.; medical director of the department of the South at Hilton Head, S. C., in 1864; retired in 1898 with the rank of colonel; died, July 20, aged 88.

Edward M. Eidheer, Chicago; University of Vienna, Austria, 1886; formerly expert in the department of agriculture, bureau of chemistry, Austria; member of the Royal Academy of Science of Vienna and the Academy Physico-chemique Italienne; was awarded the gold medal for technical work and scientific merit of the Italian Academy of Palermo; died, July 24, aged 60, from cerebral hemorrhage.

John E. Sylvester ⊕ Wellston, Ohio; Medical College of Ohio, Cincinnati, 1876; Bellevue Hospital Medical College, New York, 1884; formerly president of the Ohio Valley Medical Society; for many years councillor of the Ohio State Medical Association; for twenty-five years owner and publisher of the Wellston *Telegram;* died, July 25, at the Holzer Hospital, Gallipolis, from diabetes, aged 67.

John Nesbit Scott ⊕ Peabody, Kansas; University Medical College of Kansas City, Mo., 1897; established the first radiographic laboratory in Kansas City; died, July 24, aged 51, as the result of burns received in experimenting with roentgen rays while in practice at Kansas City. Dr. Scott's right hand was amputated several years ago, necessitating his retirement from practice.

George Shultze Youngling ⊕ New York City; Bellevue Hospital Medical College, New York, 1890; consulting physician to the Manhattan State Hospital and to the Central Islip (L. I.) Hospital for the Insane; member of the American Medico-Psychological Association; died, July 25, aged 60, at his summer home in Patchogue, L. I., from uremia.

Robert Francis Lawless, Stamford, Conn.; Yale University School of Medicine, New Haven, Conn., 1907; member of the Connecticut State Medical Society; formerly surgeon for the Pennsylvania Railroad; aged 42, fell dead on the Grand Central Terminal steps, New York, July 27, following an overdose of chloral.

Charles P. Gerstmeyer, Terre Haute, Ind.; Medical College of Ohio, Cincinnati, 1867; formerly on the staff of St. Anthony's Hospital; at one time coroner, health officer and member of the school board of Terre Haute; died, July 27, aged 75, from pneumonia.

Samuel W. Hixon, Daisy, Tenn.; University of Tennessee College of Medicine, Memphis, 1890; member of the board of education; formerly a member of the state legislature; at one time county physician; died, July 19, aged 62, at a hospital in Chattanooga.

Lyman T. Strother, Nowata, Okla.; Rush Medical College, Chicago, 1867; Jefferson Medical College of Philadelphia, 1873; member of the Oklahoma State Medical Association; veteran of the Civil War; died, July 19, aged 82, following a long illness.

William Allin Archer, Houston, Texas; University of Virginia Department of Medicine, Charlottesville, 1869; member of the Medical Society of Virginia; Confederate veteran; died, July 6, aged 80, from senility, at the home of his daughter.

William Patrick O'Malley, St. Paul; University of Minnesota Medical School, Minneapolis, 1902; served during the World War in the M. C. S. U. Army; died, July 6, aged 48, from injuries received in an automobile accident, near Shakopee.

Francis Wade Hughes, New Bern, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1880; member of the Medical Society of the State of North Carolina; died, June 28, at the Union Protestant Hospital, Baltimore, aged 65.

Samuel N. Quillin, Washington, D. C.; Marion-Sims College of Medicine, St. Louis, 1899; former clerk of the house of the Indiana state legislature; died, May 19, aged 53, at the Sibley Memorial Hospital, from diabetes.

Hugh N. McDonald ⊕ Minneapolis; McGill University Faculty of Medicine, Montreal, Que., Canada, 1889; formerly professor of diseases of the chest at the Hamline Medical College, Minneapolis; died, July 15, aged 59.

Ernest Potter Storey, Minneapolis; Denver College of Medicine, Denver, 1901; died at the General Hospital, July 21, aged 43, as the result of pistol wounds, presumably self-inflicted, at his apartment, July 18.

Alpheus Henley, Melbourne, Fla.; Starling Medical College, Columbus, Ohio, 1865; veteran of the Civil War; served as government physician to the Cheyenne and Apache Indians in 1870; died, July 11, aged 88.

Archibald A. Campbell, Statesville, N. C.; University of Maryland School of Medicine, Baltimore, 1889; formerly county physician of Iredell County; died suddenly from heart disease, July 17, aged 66.

John Lawson Cameron, Philadelphia; Medico-Chirurgical College of Philadelphia, 1888; member of the Medical Society of the State of Pennsylvania; died suddenly, July 26, aged 67, at Ocean Grove, N. J.

Edna Ricker Field Kimball, San Francisco; Cooper Medical College, San Francisco, 1883; formerly attending physician to the Children's Hospital; died, July 26, aged 74, from hemorrhage of the bowel.

James Ray Brady, Sioux City, Iowa; State University of Iowa College of Medicine, Iowa City, 1893; consulting physician to the Samaritan and St. Joseph's Hospital, Sioux City; died, July 18, aged 54.

Robert H. Lillemann, St. Louis; Homeopathic Medical College of Missouri, St. Louis, 1904; member of the Missouri State Medical Association; died, July 17, at Barnes Hospital, St. Louis, aged 52.

William C. C. Freeman, Rock Springs, Wyo.; Trinity Medical College, Toronto, Ont., Canada, 1893; member of the Wyoming State Medical Society; died, July 21, aged 54, at Salt Lake City.

Susan Elizabeth Crocker, Los Angeles; Woman's Medical College of the City of New York, 1874; member of the Massachusetts Medical Society; formerly of Boston; died, July 18, aged 87.

Charles P. Evans, Lehigh, Iowa; Bennett Medical College, Chicago, 1891; died, June 6, aged 59, at the Mercy Hospital, Fort Dodge, Iowa, following an operation for perforated duodenal ulcer.

Enrique Alberto Rodes, Tampa, Fla.; Tulane University of Louisiana School of Medicine, New Orleans, 1918; died, July 11, aged 29, in Havana, Cuba, following a long illness.

⊕ Indicates "Fellow" of the American Medical Association.

Milton J. Hicks, Jacksonville, Fla.; Emory University School of Medicine (Atlanta Medical College), Atlanta, Ga., 1860; died, July 21, aged 84, at the home of his daughter in Atlanta.

Charles Noble Abbott, Chippewa Falls, Wis.; Northwestern University Medical School, Chicago, 1907; specialized in obstetrics; died, June 1, aged 52, at a sanatorium in Madison.

Frank Wilson Martin ⊕ Lansing, Mich.; University of Michigan, Ann Arbor, 1886; specialized in ophthalmology, otology, laryngology and rhinology; died, July 17, aged 63.

Charles Douglas Miller ⊕ Pottsville, Pa.; Jefferson Medical College of Philadelphia, 1884; member of the board of pension examiners; died, July 24, aged 61, from pernicious anemia.

Arthur Eugene White, Baggs, Wyo.; University of Minnesota College of Homeopathic Medicine and Surgery, Minneapolis, 1890; died, June 22, aged 54, from carcinoma.

John Taylor Stewart, Los Angeles; Jefferson Medical College of Philadelphia, 1878; member of the Medical Society of the State of California; died recently, aged 72.

Enos Hahn ⊕ Leetonia, Ohio; Bellevue Hospital Medical College, New York, 1867; died, July 8, at Honolulu, Hawaii, aged 81, from cerebral hemorrhage.

Jesse C. Asbury, Greensboro, Ga.; Louisville Medical College, Louisville, Ky., 1886; member of the Medical Association of Georgia; died, July 3, aged 57.

Latzi Szabary ⊕ New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1877; died, July 23, aged 68, from heart disease.

R. M. Kimbrough, Rockwood, Tenn.; University of Tennessee College of Medicine, Memphis, 1888; veteran of the Civil War; died, July 23, aged 66.

Joseph H. B. Adams, Fort Recovery, Ohio; Physio-Medical Institute, Cincinnati, 1872; died, July 19, at the Otis Hospital, Celina, aged 74, from paresis.

Albert J. Herschman, Milwaukee; University of Vienna, Austria, 1887; died, July 31, aged 62, from an overdose of morphin, self-administered.

William D. Seeley, Taylorsville, Ky.; Louisville Medical College, Louisville, Ky., 1874; died, July 14, aged 72, from mitral regurgitation.

William D. Roussel ⊕ Patterson, La.; Tulane University of Louisiana, New Orleans, 1889; died, July 19, aged 54, from heart disease.

Charles L. Heizman, Colonel, U. S. Army ⊕ San Francisco; University of Pennsylvania, Philadelphia, 1867; retired; died recently, aged 76.

Lucian Tudor Platt, Terryville, Conn.; University of Pennsylvania, Philadelphia, 1869; died recently from lobar pneumonia, aged 76.

Oreon Staples Rhodes, East Stroudsburg, Pa.; University of Pennsylvania, Philadelphia, 1889; died, July 5, aged 59, from diabetes.

Samuel Milton Pratt, Topeka, Kan.; Homeopathic Medical College of Missouri, St. Louis, 1861; died, July 13, aged 86, from senility.

J. Louis Horsey, Fernandina, Fla.; Medical College of the State of South Carolina, Charleston, 1886; died, July 13, aged 65.

Willis H. Park ⊕ Glenwood City, Wis.; College of Physicians and Surgeons, Keokuk, Iowa, 1884; died, June 27, aged 68.

Russell Withers, Annapolis Royal, N. S.; Medical Department of Columbia College, New York, 1865; died recently, aged 86.

R. L. Odilon Poliquin, Montreal, Quebec, Canada; Montreal School of Medicine and Surgery, 1895; died recently, aged 50.

Robert Amos Taylor, Spring Valley, N. Y.; Bellevue Hospital Medical College, New York, 1893; died, July 16, aged 56.

Allen N. Gray, Floyd, Texas; Baylor University College of Medicine, Dallas, Texas, 1901; died, June 15, aged 52.

H. W. Booth, Orion, Mich.; Western College of Homeopathic Medicine, Cleveland, 1868; died recently, aged 76.

Emil J. Schwandt, Chicago; Rush Medical College, Chicago, 1888; died, August 3, aged 59, from carcinoma.

William McChristie ⊕ New York City; Long Island College Hospital, Brooklyn, 1895; died, July 20, aged 56.

John Leeson, Cadillac, Mich.; Detroit Medical College, 1869; died, July 21, aged 87, from senility.

The Propaganda for Reform

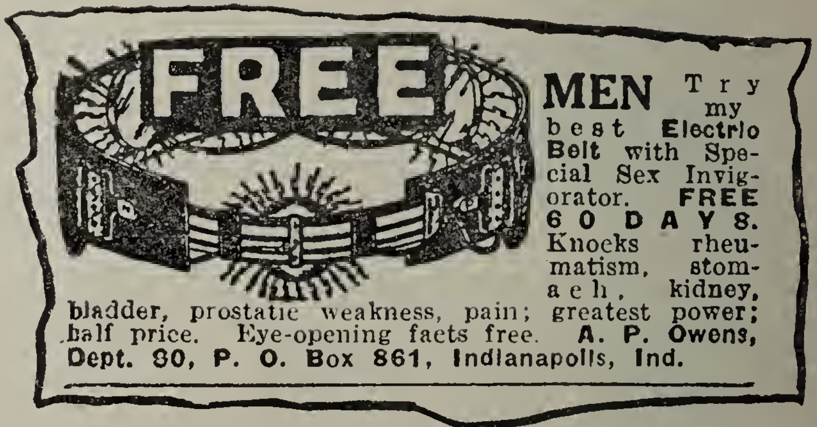
In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

THE OWENS ELECTRIC BELT

Another Fraud Barred from the Use of the United States Mails

A. P. Owens, a peripatetic quack, has been defrauding the public for some time by the sale of an "electric belt." Owens has advertised from New York City, Buffalo, Miami, Indianapolis, San Antonio and Chicago. As long ago as October, 1919, the city of Cleveland, Ohio, which does more, probably, than any other city in the United States to protect its citizens against medical fraud, called attention to the preposterous claims made by A. P. Owens for his belt.

On Jan. 14, 1922, A. P. Owens was called on by the federal authorities to show cause why a fraud order should not be issued against him and February 7 was set as the date for hearing the case. Owens failed to appear on that date; neither did he send an attorney, but he filed a written answer to the charges, together with the advertising literature being used by him at that time in the conduct of his business. The solicitor for the Post Office Department, Judge John H. Edwards, in his memorandum to the Postmaster General, recommending the issuance of a fraud order against Owens, gives the facts regarding this quack, in part, as follows:



MEN Try my best Electric Belt with Special Sex Invigorator. FREE 60 DAYS. Knocks rheumatism, stomach, kidney, bladder, prostatic weakness, pain; greatest power; half price. Eye-opening facts free. A. P. Owens, Dept. 80, P. O. Box 861, Indianapolis, Ind.

A typical advertisement of A. P. Owens.

"Briefly outlined the scheme conducted by Owens, according to the evidence, consists in placing periodically, advertisements in various newspapers, many of them printed in foreign languages, in which he offers for sale through the mails a so-called electric belt, which, when worn as directed, is represented to be a cure for various diseases and ailments, many of them known to be incurable, while others are amenable to surgical interference only.

"After getting in touch with prospects through his advertisements he sends them literature containing gross misrepresentations as to the curative value of the belt, and offers terms of purchase which appear to be bona fide. After the belt is sold on these terms and the purchaser finds it is worthless or not as represented, and returns it, Owens refuses to abide by his guarantee to return the deposit 'Without Any Delay Or Question,' but alleges for one reason or another that the terms of the sale have been violated by the purchaser, and insists upon certain conditions being fulfilled, which are impossible of fulfillment."

A typical advertisement of Owens' is reproduced with this article. Through these advertisements Owens got in touch with his victims. Continuing to quote from the memorandum to the Postmaster General:

"When Owens receives an inquiry respecting his belt he forwards among other literature a stock letter in imitation typewriting setting forth among a number of other representations and promises his alleged 'FAIR AND SQUARE OFFER,' which is as follows:

"Order one of my powerful No. 15, Universal Model Belts, with Owens' Supreme Power Battery, together with Special Attachment

> (if needed), such as Head Bands and Arm or Leg Bands for treating Neuralgia, Headache, Rheumatism, Sciatica, etc. Send DEPOSIT covering my low catalog price, to prove that you are not sending out of mere curiosity. You will receive the Belt and whatever you may need with it, all wrapped in plain package, charges paid. You agree to begin immediately and wear the Belt continuously every day or night, as directed, for a period of TWO MONTHS from the time you take it from the Express or Post Office.
>
> "At the end of 60 DAYS if you desire to keep the Belt, if you are convinced that it has done you more real good than all the drugs and doctors you know of, please recommend me to your sick friends. But IF, after giving the Belt a fair trial as above stated, for sixty days, you don't want to buy it, you agree not to keep it any longer, but to return it immediately postpaid to me, and if you will do this I will RETURN YOUR DEPOSIT in full, without delay or question, just as soon as I receive the belt back from the Post Office and the two months' trial COSTS YOU NOTHING, and as I take all the risk, please be honest with me—don't order unless you NEED THE BELT."

"It will be noted that Owens is very emphatic with respect to the matter of alleging that he will return the purchaser's deposit in full 'without delay or question.' The evidence shows, however, that purchasers are lucky indeed if they can secure a refund even after considerable bickering. It is shown that a purchaser residing in Philadelphia bought a belt from Owens February 11, 1920, under Owens' guarantee that if not satisfied after 60 days use he could return it and his money would be refunded. On April 9, 1920, the 59th day, the belt was returned as unsatisfactory. Owens received the belt on the 60th day. The refund was refused because Owens alleged the purchaser had not worn it exactly sixty days. On a card mailed to this purchaser on May 8, 1920, Owens states: 'If you can prove to me by a statement from your post office where you mailed the belt that same was mailed not earlier than April 10th, I will return $12.00 to you.' The belt was not registered, therefore such proof could not be secured, and no one knew this better than Owens. The foregoing is simply an illustration of Owens' methods of evading refunds. It indicates his lack of good faith, is directly contrary to his promise to refund 'without delay or question' and is a part of the general scheme to defraud."

With the letter quoted above Owens also sent certain pamphlets and circulars containing unwarranted and fraudulent claims for the electric belts. He also used the orthodox "scare methods" of the medical mail-order faker. Solicitor Edwards, in his memorandum, directs attention to this phase of Owens' quackery in these words:

"In one of his printed pamphlets Owens has recourse to a method frequently employed by mail order medical concerns, namely to scare the readers of his literature into purchasing his belt through dire forebodings of what will happen if prompt action on their part is not taken. After warning the reader of the dangers of delay Owens concludes:

> "But for Pity's Sake DON'T DELAY. The hospitals and graveyards are full of people who waited for tomorrow to take the treatment they needed today. This is no joke, remember, but A SOLEMN WARNING. Send NOW before it is TOO LATE."

Of Owens' tendency to stay in one place only a short time the memorandum says:

"Attention is called to the several addresses used by Owens in the conduct of the business. At the time of the beginning of the investigation of his business Owens in his advertisements gave Woodcliff Lake, N. J. as his address. Investigation at this point disclosed that he had removed to New York. When the investigation was undertaken there it was found that a forwarding order was on file showing he had located at San Antonio, Texas, and at the same time it was learned that he was doing business at an address in Chicago. Investigation begun in Chicago in October, 1920, disclosed that Owens had been receiving mail there for about six months at the rate of about 30 letters a day. He also was operating under the name of Owens Publishing Company in the sale of alleged obscene pictures, and a case has been returned against him relative to that business. He was receiving about 20 letters a day addressed to that concern. Some time prior to March, 1921, Owens had evidently removed to Miami, Florida, as in response to a written communication addressed to him at Chicago by the inspector investigating the case Owens, writing from Miami, Florida, stated: 'My headquarters is here until May 1st; when I expect to leave for Washington, D. C., remaining there a short time, then I shall be on the move again; it is doubtful if I return to Chicago for some little time. . . .' Owens' plan of flitting from place to place can leave no other conclusion but that this method of evading responsibility also constitutes part of the general scheme to defraud."

In summing up the government's case against Owens, Solicitor Edwards in his memorandum to the Postmaster General says:

"Without reference to the question of the efficacy of electricity in the treatment of disease the evidence in this case shows, and I so find, that the claims and representations by this promoter for his appliance go far beyond the claims of those members of the medical profession who now recognize electricity as being efficacious in the treatment of some conditions. The evidence shows that electro-therapists do not employ electric belts in the treatment of disease.

"The evidence in this case further shows, and I so find, that the refund guarantee and so-called 'free sixty days' trial offer employed by Owens to induce persons to purchase his appliance are not made in good faith, but are designed to work a fraud on the public. . . .

"I find that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, and I therefore recommend that a fraud order be issued against A. P. Owens."

The fraud order was issued against A. P. Owens by the Postmaster General, July 18, 1922.

Correspondence

SUGGESTION OF SPIROCHAETA NEOTROPICALIS AS NAME FOR SPIROCHETE OF RELAPSING FEVER FOUND IN PANAMA

To the Editor:—Work recently done has proved that the spirochete of relapsing fever in Panama is transmitted by the human tick *Ornithodoros talaje,* and that this spirochete is of a distinct species, variety or strain from the commonly recognized relapsing fever spirochetes, *S. obermeieri, S. novyi, S. kochi, S. duttoni* and *S. carteri.* Thus far we have called the organism referred to above the spirochete of Panama, but now feel that the time has come to give it a specific name. *S. novyi* is generally recognized as the relapsing fever spirochete of North America. Agglutination and immunologic tests demonstrate that the spirochete found in Panama differs as markedly from *S. novyi* as *S. novyi* does from the Old World strains.

The surface of the earth is divided by zoologists into six regions, namely, the Palearctic, the Oriental, the Australasian, the Ethiopian, the Nearctic and the Neotropical regions. The boundaries of these regions have been determined in a general way by the localization of genera and species of various forms of animal life. It does not seem at all improbable that each of these regions has its own particular species of the relapsing fever spirochete.

The Palearctic region, which includes all of Europe and the northern part of Asia, has *S. obermeieri.* The Oriental region, which includes India, Siam, the whole of the Malay Peninsula, part of China, Formosa, part of Japan and the Philippine Islands, has *S. carteri* (India). The Australasian region, which includes New Guinea, Australia and the Polynesian Islands, thus far has no described species. The Ethiopian region, which includes all of Africa south of the Great Desert and southern Arabia, has *S. duttoni.* There is also a spirochete credited to East Africa; but Castellani and Chalmers state that recent researches seem to identify it with the West African type. There is another spirochete, *S. berbera,* credited to the northern part of Africa, and to Algeria, Tunis, Tripoli and Egypt. This territory falls within the Palearctic or European region, and Castellani and Chalmers state that immunologic experiments show that this fever is closely related to the European type. The Nearctic region, which includes all of North America north of the Mexican line, except for the southern portion of Florida, has *S. novyi.* The Neotropical region, which includes all of Central America and all of South America, has the spirochete of Panama, which we have referred to above. Relapsing fever is not uncommon in Colombia and Venezuela, and it is quite possible that the relapsing fever spirochete found in these countries is identical with the one found in Panama.

We propose the name *Spirochaeta neotropicalis* for the organism which we have referred to as the spirochete of Panama, because it is found in the Neotropical region and because we believe it to be a distinct species. The term spirochete, to paraphrase the words of Fantham, Stephens and Theobald, is used in this connection without prejudice as to the organism's ultimate correct generic name.

Lewis B. Bates, M.D.,
J. Harold St. John, M.D.,
Ancon, Canal Zone.

EXCISION OF BENIGN PIGMENTED MOLES

To the Editor:—Benign pigmented moles, as a rule, can be removed with the knife. The pigmented area should be given a margin of at least one-half inch or more, and the wound can be closed. One should divide the skin and remove some of the fat. If the margin of the pigmented area is indefinite, a wider margin should be given. Even if one cannot close the wound, one should never give a narrow margin. The only danger of excising a benign mole is to leave a piece of the tumor behind.

If the mole is situated in a position where it is difficult to give a good margin, for example, near the ala of the nose or the eyelid, the cautery should be used. The cautery must be hot enough to cut through the skin readily. When I think that the mole has become malignant, I always use the electric cautery instead of the knife, give a very wide margin of skin, and remove the subcutaneous fat and fascia.

We have on record at least 300 benign moles without a recurrence or death from metastasis. They were all completely excised with the knife or the cautery. During the same period of thirty years we have operated on at least 200 malignant moles with only one five-year cure.

In removing a mole, therefore, the skin and fat should be cut through, and should be given a good margin of healthy skin. As a rule, the excision can be done with the knife under procain, and the skin closed by any of the usual procedures. All elevated pigmented moles should be removed.

Joseph C. Bloodgood, M.D., Baltimore.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PENETRATION OF ROENTGEN RAYS

To the Editor:—Your answer to my inquiry about the penetration of the roentgen rays (The Journal, June 24, p. 1982) is still not clear to me. 1. I am surprised that you state that the square of the distance has no reference to penetration. If not, what is the law for penetration? 2. The alpha, beta and gamma rays had use as names for the rays of the roentgen rays perhaps before we had radium, if I remember correctly, so why are they applied only to radium? Why not compare the gamma ray from the roentgen ray to the so-called gamma ray of radium? 3. Further, I am still more confused when you tell me that intensity refers to amount, and penetration to quality.

Paul Peniston, M.D., Newnan, Ga.

Answer.—1. The law of penetration is that any beam or any part of a beam of the roentgen ray is absorbed, in any given substance, in proportion to the cube of its wave length. It is, of course, absorbed at different rates in different substances, the rate of absorption being as the cube of the atomic number of the absorber. There is a regular formula for this absorption rate which is given in an article by Dr. A. W. Hull (*Journal of Radiology* **1**:27 [Jan.] 1920). The distance has nothing to do with the rate of absorption, or penetration, of the roentgen ray.

2. The terms alpha, beta and gamma are not usually applied to rays issuing from a roentgen-ray tube. These three names are used to indicate radiations from radium, which is composed of three distinct kinds of rays. The alpha ray is the emission of a gas; the beta ray is a stream of electrons such as passes from the cathode to an anode of a roentgen-ray tube; gamma rays are electromagnetic waves. Only the electromagnetic waves come out of a roentgen-ray tube. The gamma ray from radium is exactly the same thing, except that the shortest wave coming from the ordinary roentgen-ray tube is in the neighborhood of one tenth of an Engstrom unit in length, while most of the gamma radiation from radium is of much shorter wave length than this. It has been estimated that in order to get from a roentgen-ray tube wave lengths as short as the shortest wave length from radium, it would be necessary to operate a tube at 1,000,000 volts.

3. With the roentgen ray, just as with a beam of white light, the beam includes many different qualities of radiation. A beam of white light may be divided into seven primary colors with all kinds of intermediate shades. This is because different wave lengths produce different color sensations in our organs of vision. A beam of roentgen ray will be composed of many different wave lengths or qualities of radiation. While these waves produce no sensation of color and do not affect our vision, the different wave lengths, or qualities, are just as distinct in their properties as are different wave lengths in a beam of white light. Two things must always be taken into consideration as applied to a beam of roentgen ray: intensity and quality; intensity refers to the amount of radiation, and quality means the same thing as penetration.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, Sept. 5. Sec., Dr. Harry C. DeVighne, Juneau.

Massachusetts: Boston, Sept. 12-14. Sec., Dr. Samuel H. Calderwood, State House, Boston.

New Hampshire: Concord, Sept. 7-8. Sec., Dr. Charles Duncan, Concord.

New York: Albany, Buffalo, New York and Syracuse, Sept. 25-28. Ass't, Professional Examinations, Mr. Herbert J. Hamilton, State Education, Albany.

Iowa March Examination

Dr. Rodney P. Fagen, secretary, Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, March 21-23, 1922, and also reports that one candidate was licensed by reciprocity, and one by endorsement of credentials at the meeting held April 12, 1922. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Harvard University		(1918)	87.6
University of Berlin		(1920)*	85.6

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Ohio State University College of Medicine		(1919)	Ohio

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Northwestern University		(1915)	N. B. M. Ex.

* Graduation not verified.

Maine March Examination

Dr. Adam P. Leighton, acting secretary, Maine State Board of Registration in Medicine, reports the written examination held at Portland, March 14-15, 1922. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Seven candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Harvard University		(1913)	84
Tufts College Medical School		(1920) 82, (1921) 85, 87,	88
Dartmouth Medical School		(1875)	77
McGill University		(1918)	86

Book Notices

RINGWORM AND ITS SUCCESSFUL TREATMENT. By John P. Turner, M.D., Medical Inspector of Public Schools, Philadelphia. Cloth. Price, $1, net. Pp. 62, with 8 illustrations. Philadelphia: F. A. Davis Co., 1921.

This monograph is written, according to the foreword, because of the author's success in treating ringworm of the scalp by his method. The major portion of the book consists of a discussion of the clinical and pathologic features of the disease. This part is sketchily and poorly written, and contains less information about the subject than any standard textbook on dermatology. The description of Turner's method of treatment of ringworm of the scalp and body occupies a scant three pages of the book. In treating infection of the scalp, tincture of iodin, oil of cade, 20 per cent. ammoniated mercury ointment and 20 per cent. resorcin ointment are used sequentially for several days each. The author states that from one to fifteen such courses of treatment may be necessary, but that few cases fail to yield to four such courses. In treating ringworm of the body he recommends the use of tincture of iodin for three days, to be followed by ammoniated mercury ointment. The latter treatment cannot be condemned too strongly, as it is well known that these two drugs, if used together, frequently provoke a severe dermatitis. The book can scarcely be recommended as furnishing anything more than an outline of a method of treating ringworm of the scalp by the intensive use of the commonly employed agents.

THE EARLY DIAGNOSIS OF THE ACUTE ABDOMEN. By Zachary Cope, B.A., M.D., M.S., Surgeon to Out-Patients, St. Mary's Hospital, Paddington. Cloth. Price, $4. Pp. 223, with 28 illustrations. New York: Oxford University Press, 1921.

In the first place, exception must be taken to the use of such a monstrosity as the term "acute abdomen." Such medical slang is unjustifiable in either spoken or written scientific language. The proper title for this book should be "The Early Diagnosis of Acute Abdominal Diseases." While most of the facts in this monograph are well known by surgeons of experience, yet, as is stated in the preface, "there are still many who do not appreciate to the full the significance of the earlier and less flagrant symptoms of acute abdominal diseases." For these, for whom the work is written, there is an abundance of practical clinical observations presented in an interesting, scientific, and delightfully clear and concise manner. One can hardly agree with the statement on page 5 that "it is acknowledged by those who are acquainted with modern surgical results that the best and only justifiable treatment for . . . cholecystitis . . . is by surgical intervention." Chapter III, on examination of the patient, is quite incomplete, and one is struck by the lack of any evident order in performing the examination. Many valuable points are brought out, however. In the description of ruptured gastric ulcer, no mention is made of leukocytosis (either in the direct diagnosis or in the differential diagnosis, which is often of great value); blood in the vomitus, or roentgenologic examination. Fluoroscopic examination not infrequently reveals the escaped air, especially if the patient is examined in the upright position, when the air is seen as a bright zone between the upper surface of the dark liver shadow and the diaphragm. Too much emphasis is placed on obliteration of the liver dulness, caused by the escaped air. This finding is rare, and this portion of the chapter gives an entirely erroneous evaluation of this sign. The subjects with which the author has apparently had considerable experience are well discussed in the chapter on the early diagnosis of abdominal injuries, but some of the most common conditions are not taken up at all, so that one face to face with his first severe acute traumatic abdominal emergency would not get much real help from this chapter. Rupture of the liver is not discussed at all, although it is more frequent than rupture of all the other organs taken together. Edler found rupture of the liver in 183 instances, whereas rupture of other parenchymatous abdominal organs was noted in only 176. Rupture of the spleen is similarly not discussed. This, likewise, is surprising, when one remembers that, next to the liver, the spleen is the organ most frequently ruptured. Geil, in a tabulation of 494 cases in which internal organs were ruptured, found rupture of the liver in 59.9 per cent.; of the spleen in 33 per cent.; of the kidney in 21.5 per cent.; of the intestine in 11.1 per cent.; of the stomach in 7.1 per cent., and of the bladder in 4.4 per cent. Thus it is evident that the solid organs are much more frequently ruptured than the hollow ones. Cope, however, devotes practically all his attention to the latter, and even goes so far as to state that "the solid viscera of the abdomen (liver, spleen, pancreas, kidneys) are situated high up in the abdomen largely under cover of the ribs; the hollow tubes (intestines, bladder, ureter and stomach) are more exposed to injury." In general, however, the work is worthy of an accessible place in the library of all internists, general practitioners and beginners in surgery.

DIE WASSERSTOFFIONEN-KONZENTRATION. Ihre Bedeutung für die Biologie und die Methoden Ihrer Messung. Teil I. Die Theoretischen Grundlagen. Von Dr. Leonor Michaelis, A.O. Professor an der Universität Berlin. Second edition. Paper. Price, $1.70. Pp. 262, with 32 illustrations. Berlin: Julius Springer, 1922.

The first edition of this valuable work was published in 1914, and since that time, in spite of the war, the topic it covers has been enormously developed. The clinical chemist has come to recognize the importance of quantitative estimations of hydrogen ion concentration, and is no longer satisfied with the mere qualitative statement that a fluid is alkaline or acid. Professor Michaelis is recognized as one of the pioneers in this field, and his first edition was an important contribution to its development. The second edition is completely rewritten and not merely a reedited book. It will continue to be indispensable to all laboratory workers in biologic and medical chemistry. This volume merely concerns the theoretical basis of the subject, leaving to a second part the consideration of methods, thus permitting a wider consideration of the underlying principles than was given in the first edition.

TRAITÉ DE PATHOLOGIE MÉDICALE ET THÉRAPEUTIQUE APPLIQUÉE. Publié sous la Direction de Emile Sergent, Membre de l'Académie de Médecine, Médecin de la Charité, L. Ribadeau-Dumas, Médecin des hôpitaux, et L. Babonneix, Médecin des hôpitaux. Tome IV. Appareil Circulatoire. Par Pr. Vaquez, Lian, Heitz, Leconte. Paper. Price, 45 francs. Pp. 1071, with 161 illustrations. Paris: A. Maloine et Fils, 1922.

This volume represents the current views of the French school concerning diseases of the circulatory apparatus. It has been carefully written. It is distinctly not a simple compilation, for each of the four authors has put into his writing his own personality and his own views, based largely on clinical observation and investigation. Vaquez writes the introductory chapter, Lian treats of diseases of the heart, Heitz discusses the diseases of the aorta and arteries, and Leconte discusses diseases of the veins and lymphatic vessels. Clarity of style, good print and good paper with well chosen and well executed illustrations make the reading of the book a pleasure. If a second edition of the book is ever published, it is to be hoped that it will be in two volumes. As one, it is too heavy and bulky.

HYPERPIESIA AND HYPERPIESIS (HYPERTENSION). A Clinical, Pathological and Experimental Study. By H. Batty Shaw, M.D., F.R.C.P., Physician to University College Hospital. Cloth. Price, $6.50. Pp. 191, with illustrations. New York: Oxford University Press, 1922.

Hyperpiesis or hypertension is a sign of the disease hyperpiesia, the pathologic state characterized by cardiac hypertrophy and altered blood vessels. The author bases his study on the clinical histories and necropsy findings in fifty cases. The clinical features and the origin of the hyperpiesis and of the cardiac hypertrophy are discussed. Shaw believes that a toxic substance is responsible. The relation of this condition and this unidentified pressor substance to uremia, eclampsia, renal changes, infections, convulsions, coma, retinal changes, etc., is taken up. As a part of a concluding chapter the therapy of hyperpiesia is briefly considered. The book represents thoughtful study, and extended and careful clinical observation and pathologic examination. Though much of it must still be classed as theoretical or speculative, the work is a real contribution to a still imperfectly understood subject.

The Physiology of Gout, Rheumatism, and Arthritis as a Guide to Accurate Diagnosis and Efficient Treatment. By Percy Wilde, M.D., Physician to the Lansdown Hospital, Bath. Cloth. Price, $3.50. Pp. 229, with 31 illustrations. New York: William Wood & Co., 1922.

This is an interesting and instructive book, presenting the subjects of gout, rheumatism and arthritis from a point of view not commonly accepted. The author is not in sympathy with the theories of excess nitrogenous food or of bacterial invasion as etiologic bases of these conditions; the uric acid theory he considers founded on mistakes. He contends that all these conditions are produced by aberrations of physiologic processes rather than by disease, and that these aberrations have to do with the production and elimination of lactic acid. His contentions are logically propounded, and seem well supported by experiment. His therapy is based on the physiology of the skin and its important rôle in elimination.

Glands in Health and Disease. By Benjamin Harrow, Ph.D., Associate in Physiological Chemistry, College of Physicians and Surgeons, Columbia University. Cloth. Price, $2.50. Pp. 218. New York: E. P. Dutton & Co., 1922.

This book is written for the lay, rather than for the medical, reader. It is a companion volume to the excellent book on vitamins prepared by the same author. It is a safe, reserved, clean-cut statement of the scientific knowledge concerning the glands and their functions. It is written in a simple, readable style without any of the fantastic hyperbole that has characterized some of the other recent books on this subject. It should be serviceable to those physicians who wish a simple introduction to the subject, as well as to the interested layman.

World Metric Standardization: An Urgent Issue. A Volume of Testimony Urging Worldwide Adoption of the Metric Units of Weights and Measures—Meter—Liter—Gram. Compiled by Aubrey Drury, in collaboration with Clifton Hildebrand, W. Mortimer Crocker, Harry Allcock, M.I.E.E., and other Members of the World Metric Standardization Council. Cloth. Price, $5. Pp. 524, with illustrations. San Francisco: World Metric Standardization Council, 1922.

This volume contains a summary of the testimony gathered by the World Metric Standardization Council during recent years for the purpose of supplying legislators, editors and the public with the facts available, so that they may aid the movement. Among the sixteen chapters, those on metric units in the world today, and world metric clues, are valuable as references. The book contains an adequate index.

A Pocket Surgery. By Duncan C. L. Fitzwilliams, C.M.G., M.D., Ch.M., Surgeon in Charge of Out-Patients and Lecturer in Clinical and Operative Surgery, St. Mary's Hospital, London. Cloth. Price, $3.75, net. Pp. 348. New York: Longmans, Green & Co., 1921.

Surgery is the most difficult of the clinical branches to teach from a textbook. The usual single volume for students is too brief; the "system" is too comprehensive and confusing. In using this little volume, one should bear in mind the limitations imposed by the author in the preface. It "attempts to give all of the necessary headings and only a short account of the mere details which the student should have learned elsewhere." It is of use for a hasty review, not for detailed study.

Doctors — Entre Nous. Short Stories. By James Bayard Clark. Cloth. Price, $1. Pp. 66, with illustrations. New York: The Medical Times Company, 1922.

In this book are collected three stories which originally appeared in "The Medical Pickwick." "An Unlooked for Conclusion" is a satire on the meeting of the average medical society. "How Dr. Jones Came Back" is a semihumorous sketch of rather moderate interest. "The Narrow-Minded Layman," the third sketch, is a direct attack on the Potter method of version in obstetrics, and on similar radical procedures. All will be read with interest by physicians, since the stories deal with problems directly concerned in medical life.

Miscellany

THE WEIL-FELIX TEST

The Weil-Felix test for typhus fever has been in use at the New York quarantine station for more than two years, during which time 1,698 tests have been made. Twenty of these tests were made, say Holt-Harris and Grubbs in *Public Health Reports,* July 14, on clinically positive typhus patients, forty-three in atypical or clinically doubtful cases, and 737 in cases of various acute diseases. In all but two of the clinically or atypically positive cases of typhus fever, the first Weil-Felix tests were positive. The two negative tests were made early in the disease, and later both became positive. It is stated that all cases giving a positive reaction were undoubtedly typhus fever.

The Weil-Felix reaction depends on the agglutinating property of typhus serum on certain strains of the *B. proteus* group which were isolated by Weil and Felix in 1915 from stool and urine of typhus fever patients. The discoverers designated these strains X 2 and X 19. The New York station has used the strain X 19 exclusively. A tentative test on a glass slide is made on shipboard, for which a single drop of blood is sufficient. The drop of blood is allowed to clot, and then mixed with four drops of saline solution placed near it; a drop of this mixture is carried over to three other drops of saline on the slide near by and mixed; a drop of the second mixture is then carried over to a single drop of saline placed a little farther along on the slide, thus making serum dilutions of 1 : 5, 1 : 20, and 1 : 40 approximately. A small amount of a twenty-four hour agar slant culture of X 19 is now placed at the margin of each dilution and emulsified. The slide is then rotated on its long axis against a dark background. A positive reaction—agglutination—is shown by the appearance of white flocculi, which are readily discernible. Prompt and complete clumping, especially in dilution 1 : 40, points to typhus fever. When the tentative test is positive, the patient is bled from the basilic vein and a confirmative test is made in the laboratory. With this method agglutination in dilution 1 : 40 is regarded as diagnostic of typhus fever. It is claimed that the Weil-Felix test not only increases the protection to the country against typhus, but is economically important in shortening the delay to commerce, and the traveling public.

BLINDNESS IN THE UNITED STATES

Statistics compiled by the Bureau of the Census on the causes of blindness in the United States show that there are 52,567 blind persons in the country, in 35,788 of whom definite information as to the cause of blindness was obtained. In 13,818, or 38.6 per cent. of the 35,788 for whom the cause was reported, the blindness was caused by some specific disease of the eye, such as cataract or glaucoma; and in 5,623 cases, or 15.7 per cent., it was a result of some general disease, such as measles, meningitis or scarlet fever. Accidents were responsible for 5,913 cases, or 16.5 per cent. of the total. Of this number, 1,429 persons lost their sight through explosives or firearms. Cataract, the leading cause, was reported by 4,896, or 13.7 per cent. Glaucoma, ranking next, was reported by 1,932, or 5.4 per cent. Atrophy of the optic nerve was given as the cause by 1,756, or 4.9 per cent. Ophthalmia neonatorum, or "babies' sore eyes," was reported by 1,198, or 3.3 per cent. of the total number reported. Recent statistics of admissions to schools for the blind show that there has been a marked decrease in the amount of blindness due to this cause. These figures show that only 14.7 per cent. of the new students admitted in 1917-1918 were reported blind from ophthalmia, as against 24.2 per cent. of the students then attending who had entered the previous year. This decrease reflects the more general adoption of scientific methods of treatment, and especially the routine use of silver nitrate drops in the eyes of infants. The campaign to eliminate trachoma also appears to be successful, as trachoma and "sore eyes" together were reported by only 3 per cent. of the total for 1920, as against 5.2 per cent. for 1910. The causes of blindness, as summarized in the 1920 census, are given in the accompanying table:

CAUSES OF BLINDNESS, 1920

Causes	Number	Per Cent. Distribution
Total blind persons returning schedules	40,913	.....
Cause reported	35,788	100.0
Definitely reported causes	26,333	73.6
Specific affections of the eye	13,816	38.6
Cataract	4,896	13.7
Glaucoma	1,932	5.4
Atrophy of the optic nerve	1,756	4.9
Ophthalmia neonatorum	1,198	3.3
Trachoma	555	1.6
Diseases of the retina	497	1.4
Corneal ulcer	264	0.7
Cancer and other neoplasms	247	0.7
Diseases of the iris	240	0.7
Other specific affections	2,231	6.2
General diseases	5,623	15.7
Measles	797	2.2
Meningitis	526	1.5
Scarlet fever	416	1.2
Kidney disease and diabetes	308	0.9
Influenza (grip)	282	0.8
Typhoid fever	253	0.7
Syphilis and locomotor ataxia	252	0.7
Smallpox	235	0.7
Other general diseases	2,554	7.1
Accidents	5,913	16.5
Explosives	797	2.2
Firearms	632	1.8
Falls	445	1.2
Flying objects (not from explosions)	380	1.1
Cutting or piercing instruments	335	0.9
Burns	113	0.3
All other accidental injuries	3,211	9.0
Poisoning	311	0.9
Foreign substances in the eye	431	1.2
All other definitely reported causes	195	0.5
Indefinitely or inaccurately reported causes	9,119	25.5
Congenital (not otherwise specified)	2,635	7.4
Neuralgia	548	1.5
Exposure to heat	507	1.4
Sore eyes	497	1.4
All other	4,932	13.8
Combination of different classes of causes	380	1.1
Cause unknown or not reported	5,125	.....

MEDICINE IN POLAND

Polish medicine, says Dr. W. Szumowski, professor in the Cracow Medical School, began in the thirteenth century with Vetellus, a Silesian, who wrote "Perspectiva," a work on the anatomy of the eye. In the thirteenth and fourteenth centuries, Polish students studied in Paris and Bologna. The University of Cracow was founded in 1364, one of its component schools being a medical faculty with two professors. Owing to the death of Cassimir the Great, its founder, the school was suspended until 1400, when the university was reinaugurated by Ladislaw Jagello, who gave the university its name, Jagellonian. The study of medicine was, however, neglected, and sometimes there was not even a professor. Physicians in that period usually combined astrology, mathematics and medicine, as happened with Martin Krol and Peter Gaszowiec, both professors of medicine in the university, and Nicolas Kopernik, the astronomer and physician, who was a pupil in the same school. In the sixteenth century, the Cracow Medical School assumed greater importance, and its most famous character was Mathias de Miechow, also called Miechowita, professor of medicine, rector of the university and author of several medical, geographic and ethnographic books. The only diplomas granted were bachelor and master, the first degrees of doctor being granted in 1527 to three Poles. Among famous Renaissance physicians may be mentioned Joseph Strus (Struthius, 1510-1568), who graduated in 1535 at Padua, where he was appointed professor of theoretical medicine. At Padua he published his important work on the pulse ("Ars sphygmica"), which was received so warmly that 800 copies were sold in one day. His reputation was so great that he was called to attend the two greatest princes of his time, Soliman II and Phillip II. Another prominent physician was Sebastian Petrycy (1554-1626), whose sculpture still adorns the scepter of the school. A period of decay followed, until the reorganization of the school in the latter part of the eighteenth century, when the two chairs were filled by Andrew Badurski and Raphael Czerwiakowski. Among modern representatives of the Cracow Medical School may be mentioned Louis Bierkowski (1801-1860), known through his anatomic and surgical charts; Joseph Dietl (1804-1899), a famous clinician and one of those who did most to stop the practice of routine venesection; Joseph Majer (1804-1878), a physiologist, first president of the Academy of Sciences of Cracow; Louis Teichmann (1823-1895), professor of anatomy, known through the crystals named after him; and the surgeons Jean Mikulics (1850-1905) and Louis Rydygier (1850-1920).

Another Polish medical school was at Vilna. Its most remarkable product was Andrew Sniadecki (1768-1838), a physician, biologist and chemist, who began to study medicine at Cracow, and finally graduated in Pavia, Italy. On his return to Vilna, he became a professor and one of the most popular physicians in the province. His most important work was "Teorja jestestw organicznych" (Theory of Organized Beings) published in 1804, and translated into both German and French. His ideas apparently influenced the German biologists John Muller and Wrzosek, and the chemist Liebig. The Vilna Medical School remained open until 1840, when it was finally closed by the Russian government.

The medical school at Warsaw was founded in 1809, even before the university, which was founded in 1816. It was closed during the 1830 revolution, and remained quiescent nearly thirty years. The lack of physicians became acute, and Alexander II permitted the opening of a medicosurgical academy at Warsaw, in 1857. In 1862, the academy became a part of the Warsaw Superior School. Among its most prominent professors were Titus Chalubinski and Ignace Baranowski. In 1869, the Superior School was named Imperial University, and its Russian tendencies were intensified, until after the war it passed finally under Polish control.

Medical courses were also organized by the Austrian government at Lvow in 1773, the first professor there being Andrew Krupinski. A university was established in 1784, but it was soon closed, and the Lvow School was authorized to give only the diploma of "surgeon." The present medical school was opened in 1894.

Medicolegal

Another Court Favors Charitable Hospitals

(Emery v. Jewish Hospital Association (Ky.), 236 S. W. R., 577)

The Court of Appeals of Kentucky, in affirming a judgment overruling demurrers to the defendant's answer and dismissing the petition in this action by the plaintiff to recover damages for injuries which he alleged that he had sustained through the negligence of the defendant, its servants, agents, and employees, while he was employed in operating an elevator on its premises, says that there was no precedent in that jurisdiction on which the rights of the parties having such relations to each other as those in this case could be appealed to for guidance. But the conclusion reached is that a charitable corporation, organized and operating under Sections 879-882 of the Kentucky Statutes, for the purpose of conducting a hospital, to which all funds are donated or devised by individuals for the purpose of operating a hospital for the treatment of the poor and needy sick, and are expended for that purpose, no profit or gain accruing to any person from the operation of said institution, is not liable in damages for the negligent acts of its managers, servants or employees, to any persons whatsoever. The manager, servant or employee will be liable in damages to any person whom his negligent act in the course of his employment may injure; but the corporation is not liable. This principle is adopted for the reason that the funds of such an institution are donated to it or devised to it in trust that they will be expended for the charitable purpose of ministering to the poor and needy sick, and no other; and such a corporation is a trustee of funds for such purposes, and neither it nor its trustees or officers receive any profit from its operation; and while it is not held that, according to the ordinary principles governing the administration of a trust, these funds might not be diverted to the payment of damages incurred in its administration, they should not be diverted to any such purpose. The diversion of such funds in such a way would probably destroy the institution; and a wise public policy forbids such a result. It is to the interest of the public that such institutions be maintained; and a principle which requires that the interest of an individual be subordinated to the good of the public is not a stranger to our legal principles. It probably might be said that it is a hard rule which exempts such an institution from liability to a stranger, or to an employee; but it only works the same hardship on a stranger or employee as the principle which exempts a governmentally conducted charity from any liability to them; and the defendant is doing the same service as such an institution governmentally conducted might do.

Rules for Determining Percentage of Loss of Vision

(Turpin v. St. Regis Paper Co. et al. (N. Y.), 192 N. Y. Supp. 85)

The Supreme Court of New York, Appellate Division, Third Department, in affirming an award under the workmen's compensation law, says that the award was questioned only on the ground that the evidence did not show a loss of 16 per cent. of vision, for which the award was made. A similar question arose in *Johnson* v. *United States Railroad Administration,* 185 N. Y. Supp. 338, in which the question was, what loss of use of an arm had been suffered; and the court said: "There is, of course, no method by which the percentage loss of the use of an arm can accurately be determined. It is at best a matter of rough estimate and approximation. . . . The question is one of fact for the industrial commission, to be determined by it on such proof as physicians may give, in accordance, however, with its own experience, good sense and judgment." This court thinks this was the correct rule to be applied in this case. The court does not think that it should determine whether the Snellen test or some other test furnishes a proper rule for guidance of the board in determining percentage of loss of vision. Necessarily some test must be used; but this is only an element of the evidence, and the board must pass upon the evidence, determining what evidence it shall accept and what weight shall be given to its various parts. By the Snellen test, the claimant's eyes, with the aid of glasses, showed 84 per cent. of normal vision, or a loss of 16 per cent. Evidence was presented tending to show that this was the measure of the "direct or central" vision only, while there are other elements of vision that must be taken into account to determine the "useful vision," namely, "field vision" and the "binocular vision." Under this standard of measurement, the claimant's useful vision was found to be 93.5 per cent., showing a loss of 6.5 per cent. Although one physician testified that another formula was more accurate than the Snellen test, the board was not bound by the evidence of the expert. It was for the board to determine, the nature of the test having been fully explained, which test it should use in determining what partial loss of the use of the eye the claimant had suffered. The board was still at liberty to make use of its experience, good sense, and judgment in determining what the actual loss was. The board may have been of the opinion that the direct vision was the vision most essential to the employee engaged in hazardous employments, and that he was handicapped in his work to the extent that his direct vision was damaged, even though his field vision and binocular vision were normal.

Cannot Require Examination in Slander Case

(Mann v. Bulgin (Idaho), 203 Pac. R. 463)

The Supreme Court of Idaho says that the plaintiff in this action for slander alleged that on a certain date the defendant in a public address maliciously referred to him as a syphilitic renegade; that the defendant stated that the plaintiff was syphilitic; that he could prove it; that he had in his possession a certificate by a physician to that effect. The defendant denied all the allegations of the complaint. Thereafter, the district judge made an order appointing three physicians to make a physical examination and test of the plaintiff for the purpose of ascertaining whether or not he "has or had or is afflicted with the disease commonly known as syphilis, or was or is a syphilitic person." The plaintiff refused to submit his person to the board of physicians so appointed for examination. The case being called for trial, the plaintiff again refused to comply with the terms of the order, and thereupon the court entered judgment dismissing the action.

In reversing that judgment, the supreme court goes on to say that the language charged in the complaint was actionable per se or in and of itself. The only reasonable construction of the language of the complaint was that it alleged that the defendant charged the plaintiff with being syphilitic at the time the words were uttered; otherwise the language charged would not be actionable per se. When a complaint charges the use of language which is actionable per se, the falsity of the defamatory word is presumed, and it is not necessary that the plaintiff shall in the first instance offer any proof that the words were false. A defense of truth must be specially pleaded; and a plea of justification must be as broad as the charge. As the pleadings stood on the trial of this case, the defendant was entitled to show the truth of the charge made by proving that, at the time the words were uttered, the plaintiff was infected with syphilis. Was the defendant entitled to the order of the court requiring the plaintiff to submit his person to examination?

On the question as to whether or not, in an action for damages for personal injuries, the court may require the plaintiff in the case to submit to physical examination by a board of physicians appointed by the court, and in case of refusal dismiss the action, the authorities in the United States are in hopeless conflict, and are not reviewed here, nor is any opinion expressed on that question, as it is considered that the situation in this case was entirely different. Here the plaintiff was not suing to recover damages for personal injuries, but to recover damages for injury to his good name and reputation caused by the language alleged to have been uttered by the defendant. The damage of which the plaintiff complained did not result from the falsity of the alleged charges. The damage to him was just as great whether the charges were true or false; hence he was relieved of the burden of proving the falsity of the charges. But the law would not suffer him to recover damages for injury to a reputation which he did not justly deserve to have. Consequently, the defendant could relieve himself from liability for the damage done by proving that the words uttered were true; but he must take the entire burden of proving justification on himself. This court knows of no rule of the common law or statutory provision of the state of Idaho which authorizes the court to enter an order requiring a plaintiff who has been damaged in his good name and reputation to submit to physical examination, in order to supply a defendant with the means of proving that the statements made by him were true.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Minneapolis, Sept. 19-23. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Sec'y.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Albany, N. Y., Sept. 19-21. Dr. James E. Davis, 111 Josephine Ave., Detroit, Secretary.

American Electro-Therapeutic Association, New York, Sept. 19-22. Dr. A. Bern Hirsh, 71 W. 94th St., New York, Secretary.

American Roentgen Ray Society, Los Angeles, Sept. 12-16. Dr. H. E. Potter, 122 S. Michigan Ave., Chicago, Secretary.

Colorado State Medical Society, Colorado Springs, Oct. 3-5. Dr. F. B. Stephenson, Metropolitan Bldg., Denver, Secretary.

Indiana State Medical Association, Muncie, Sept. 27-29. Dr. Charles N. Combs, Terre Haute, Secretary.

Medical Association of the Southwest, Hot Springs, Ark., Oct. 4-6. Dr. W. H. Bailey, 115 West 21st Street, Oklahoma City, Okla., Sec'y.

Missouri Valley, Medical Society of the, St. Joseph, Mo., Sept. 21-22. Dr. Charles W. Fassett, 115 E. 31st St., Kansas City, Mo., Secretary.

Nevada State Medical Association, Reno, Oct. 6-7. Dr. Horace J. Brown, Goldfield, Secretary.

Pennsylvania, Medical Society of the State of, Scranton, Oct. 2-5. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Utah State Medical Association, Salt Lake City, Aug. 31-Sept. 2. Dr. W. L. Rich, Boston Bldg., Salt Lake City, Secretary.

Washington State Medical Association, Tacoma, Sept. 5-6. Dr. C. H. Thomson, 508 Cobb Bldg., Seattle, Secretary.

Wisconsin, State Medical Society of. Green Lake, Sept. 6-8. Dr. Rock Sleyster, Wauwatosa, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

July, 1922, **24**, No. 1

- *Bilateral Hypoplastic Cystic Kidneys. Report of Case Simulating Chronic Diffuse Nephritis in Girl Three Years of Age. C. H. Greene, Rochester, Minn.—p. 1.
- *Ultraviolet Radiation in Rickets. Effect on Calcium and Inorganic Phosphorus Concentration of Serum. B. Kramer, H. Casparis and J. Howland, Baltimore.—p. 20.
- *Thymus Apoplexy. An Unusual Manifestation of Hemorrhagic Disease of Newly Born. H. R. Wahl and D. Walthall, Rosedale, Kan.—p. 27.
- *Food Requirements of Children. IV. Carbohydrate Requirement. L. E. Holt and H. L. Fales, New York.—p. 44.
- Food Requirements in New-Born Infants. Study of Spontaneous Intake. H. K. Faber, San Francisco.—p. 56.
- Data in Three Thousand Seven Hundred and Forty-Two Pirquet Tests. S. McLean, New York, and H. Jeidell, Salt Lake City.—p. 73.
- Vital Capacity of Lungs of Children. C. A. Stewart, Minneapolis and O. B. Sheets, Hollywood, Calif.—p. 83.
- *Neuropathic Manifestations in Infants and Children as Result of Anaphylactic Reaction to Foods Contained in Their Dietary. W. R. Shannon, St. Paul.—p. 89.

Bilateral Hypoplastic Cystic Kidneys.—A case simulating chronic diffuse nephritis, occurring in a girl, 3 years of age, is reported by Greene. Clinically, the findings were those of a long standing renal insufficiency and were identical with those seen in cases of typical chronic interstitial nephritis. The family history was negative. The condition was present from birth, but symptoms of renal disturbance first appeared at the age of 8 months. At this time the child had convulsions that probably marked the first of a series of uremic attacks. Following the convulsions, the patient was put on a faulty diet and evidences of rachitis followed. Blood smears showed a pronounced secondary anemia. The remarkable clinical improvement following a single transfusion is of interest. This is especially so since there apparently was no great stimulation of the hematopoietic system. The increase in the erythrocyte count lasted for about a month, which corresponds well with the average life of the transfused blood corpuscle. During this period there was a great improvement in the general condition of the patient and even a slight increase in the phenolsulphonephthalein output, indicating that the kidneys were functionally benefited by the general improvement. The specific gravity of the urine was low, the limits of variation being from 1.005 to 1.012. Albumin was present in the urine throughout the whole period of the disease. The amount was increased during the uremic attacks, but was never large. No Bence-Jones or protein body other than serum protein was demonstrable in the urine. Casts were absent even during the terminal stages of the disease. Death was due to uremia, though starvation acidosis undoubtedly was a contributing factor. The pathologic picture was that of bilateral hypoplasia of the kidneys with cyst formation. The renal tubules were characterized by marked cystlike dilatations, especially in the proximal convoluted tubules. There was no evidence of obstruction and the dilatation apparently was secondary to functional hypertrophy of the tubules.

Ultraviolet Radiation in Rickets.—Five children showing clinical evidences of rickets, confirmed by roentgenographic examination of the bones, were treated by Kramer et al. by systematic exposure to the rays from the mercury vapor quartz lamp. This was followed in every instance by healing of the rachitic process in the bones. The inorganic phosphorus concentration of the serum of these children was low (from 2.7 to 3.2 mg.) before the treatment was begun and gradually increased to a maximum of 6 mg. with the appearance of calcium deposition in the bones. So far as could be judged, healing of the bones following radiation occurred at about the same time as it does after the administration of cod liver oil. The changes in the phosphorus concentration of the serum were identical with those observed after cod liver oil treatment. The pigmented skin of the negro child did not interfere with the action of the light rays. The colored children required no more intensive treatment to bring about healing than did the white children.

Thymus Apoplexy.—The two cases reported by Wahl and Walthall are similar in many respects. Symptoms of meningeal irritation, lateral nystagmus and generalized icterus were present in both infants. Labor, while not normal, was not unduly difficult or prolonged in either case. In both cases there was a marked increase in the coagulation time of the blood. In each case the necropsy showed a cerebral hemorrhage, inflammatory changes in the lungs suggestive of syphilis, and a diffuse hemorrhagic infiltration of the thymus in which the extravasation of blood was both intralobular and interlobular and was associated with suppuration, necrosis and marked proliferation of the reticular epithelial cells. The cases differ in that the second patient was aged 6 weeks and the first 4 days. In the first case, the hemorrhages were more generalized and extensive; labor was more difficult; the immediate cause of death was cerebral hemorrhage. In the second case, bronchopneumonia was probably the more immediate factor causing death. In both cases the Hassall's corpuscles were numerous but in the first case they were dilated and often contained a purulent exudate forming early DuBois abscesses. On the other hand, the second case showed a striking perivascular inflammatory reaction with swelling of the vascular endothelium and also marked thrombophlebitis of the smaller veins. One of the large veins in the first case was partly occluded by a thrombus. The condition seems to be associated with syphilis more than any other factor, but circulatory stasis, trauma, nonspecific infections and a hemorrhagic tendency are contributing, if not the main, factors in some cases. There is no way of making a clinical diagnosis.

Carbohydrate Requirement of Children.—The carbohydrate intake of more than 100 healthy children, from 1 to 18 years of age, studied by Holt and Fales, averaged 10 gm. per kilogram. A diet excessive in carbohydrate leads to an abnormal deposition of fat without a corresponding increase in muscle development. Children taking such a diet have feeble resistance to infection. There is evidence that a relationship exists between the high proportion of carbohydrate in the modern diet and the prevalence of dental caries. Definite digestive disturbances, chiefly intestinal, may be produced when the carbohydrate in the diet is excessive. There may result increased fermentation with loose acid stools or constipation with flatulence and abdominal distention. When long continued, these disturbances are very difficult to control.

Neuropathic Manifestations in Children a Food Anaphylaxis.—Eight cases showing marked evidences of the presence of the so-called neuropathic diathesis in infants and children are presented by Shannon. In four of these cases, definite evidence of the exudative diathesis was also present, while in another case there was a positive history of such a condition in the past. The remaining three cases gave no evidence suggestive of the presence of an exudative diathesis. All the patients showed the presence of protein sensitization by cutaneous tests. All showed definite relief from the nervous symptoms on the institution of specific therapy directed at the proteins to which they were sensitive. In all but one of the eight cases the proteins concerned were those of foods contained in the dietaries of the patients. In one case animal emanations of pollen proteins might have played a part. In one case the nervous symptoms could be relieved or brought on by the exclusion from or the addition to the diet of the food to which the patient was sensitive. Evidence is presented showing that anaphylaxis is a sound, theoretic basis for the explanation of many of the symptoms of the so-called neuropathic diathesis.

American Journal of Public Health, Chicago

July, 1922, **12**, No. 7

- Two Twilight Zones in Health Administration. E. R. Kelley.—p. 563.
- Recent Applications of Principles of Nutrition. H. Violle and T. C. Merrill, Paris.—p. 568.
- Results of Health Program in Summer Play School. H. Harap, New York.—p. 594.
- New Venture in School Medical Inspection. G. T. Palmer, Detroit.—p. 599.

Determination of Value of Certain Soaps in Disinfecting Wall and Floor Surfaces. J. R. Conover and J. L. Laird, Philadelphia.—p. 602.
Sanitary Condition of Confections. F. W. Tanner and E. Davis, Urbana, Ill.—p. 605.
Effect of Peptone on Toxigenic Property of Diphtheria Bacillus No. 8. H. L. Wilcox, New York.—p. 608.

American Journal of Roentgenology, New York

July, 1922, **9**, No. 7

Production of Penetrating Roentgen Rays. W. Duane, Cambridge, Mass.—p. 391.
Supernumerary Pedal Bones. M. I. Bierman, St. Louis.—p. 404.
Rectosigmoid Apparatus. H. W. Soper, St. Louis.—p. 412.
*Roentgenologic Findings in Mongolism. M. W. Clift, Flint, Mich.—p. 420.
Standardization of Roentgen-Ray Reports. P. M. Hickey, Detroit.—p. 422.
Roentgenology and Internal Medicine. L. F. Barker, Baltimore.—p. 425.
*Appendicitis Due to Foreign Bodies in Lumen of Appendix. J. T. Murphy, Toledo.—p. 437.
Some Practical Results with Potter-Bucky Diaphragm. R. B. Wilsey, Rochester, N. Y.—p. 441.

Roentgenologic Findings in Mongolism.—The only condition which may be considered as in any way characterizing the roentgenologic picture of mongolism according to Clift is the disproportionate developmental deficiency on the part of nose and maxilla. As regards the sella turcica, the findings are far from uniform. The sella differs in shape in about the same ratio as in normal persons. In fact, there is no single characteristic roentgenologic sign in this disease, and the only departure from normal is a generalized delay of bone development. This feature, except for a slight selective character on the part of the nose and maxilla, is common to a number of other diseases, some of endocrine origin and others due to obscure causes.

Foreign Bodies in Appendix.—Murphy reports two cases of appendicitis in which a pin was found in the appendix. One patient, a child, aged 17 months, nine months previously swallowed a pin. The roentgen ray showed the pin in the region of the ileocecal valve.

Archives of Dermatology and Syphilology, Chicago

July, 1922, **6**, No. 1

*Erythema Multiforme Confined to Mucous Membranes. J. Butler, Minneapolis.—p. 1.
Cutis Verticis Gyrata (Unna). E. A. Oliver, Chicago.—p. 6.
Hemangiosarcoma of Skin. A. M. Greenwood, Boston and T. K. Lawless, Chicago.—p. 10.
Adenoma Sebaceum and Tuberose Sclerosis of Brain. G. M. Olson, Minneapolis.—p. 21.
*Morphea Associated with Hemiatrophy of Face. E. D. Osborne, Rochester, Minn.—p. 27.
Acnitis. Report of Case. H. E. Alderson, San Francisco.—p. 35.
*Studies on Blood Cholesterol in Syphilis. A. R. McFarland, Rochester, Minn.—p. 39.
*XXVI. Results in Treatment of Wassermann Fast Syphilis by Intravenous Mercuric Chlorid. A. H. Conrad and C. H. McCann, St. Louis.—p. 50.
*Salol in Smallpox. J. A. K. Birchett, Jr., and S. R. Lustberg, Vicksburg, Miss.—p. 55.
Syphilis of Salivary Glands. J. E. Kemp and J. E. Moore, Baltimore.—p. 57.

Erythema Multiforme of Mouth.—Two cases of severe stomatitis are cited by Butler. The mouth, tongue, and labial membranes were involved equally in both patients. The skin was normal in every respect. Two days following the examination one patient had beginning erythematosus patches on the dorsal aspect of the hands and feet that quickly developed into typical bullous lesions, and these made a correct diagnosis an easy matter. The other patient clarified the situation by saying that he, too, had suffered similar outbreaks on his hands and feet together with associated mouth lesions during the two preceding years, both attacks occurring in the spring, and attributed by him to plowing in the fields during rainy weather. Careful observation of this patient throughout the course of his illness failed to reveal any skin manifestations of the disease.

Morphea with Hemiatrophy of Face.—In the six cases reviewed by Osborne the evidence points strongly to involvement of the central nervous system. The history of trauma from four months to six years preceding the onset of symptoms in four of the cases, the necropsy findings of Steven, and the neurologic findings suggesting an old inflammatory process in the brain of one of the patients, are all incriminating evidence. The close relationship between facial hemiatrophy and morphea is emphasized by the common etiologic factors involved and in the similarity of skin changes seen in the two conditions.

Blood Cholesterol in Syphilis.—The positive Wassermann reaction on the blood, McFarland asserts, apparently does not depend on high cholesterol value. Blood cholesterol values in syphilitic patients, in general, tend to be medium and low rather than high. The amount of arsphenamin given and the time between injections do not obviously affect the blood cholesterol values. There is, apparently, no relation between the cholesterol values and the clinical and serologic response of the patient. The only recognizable relation between the clinical type of syphilis and blood cholesterol values is the large proportion of high cholesterol estimations in syphilis of the central nervous system.

Intravenous Administration of Mercury in Syphilis.—Results obtained in the patients whom Conrad and McCann have treated lead them to believe that, in those cases in which the routine treatment has failed to reduce the Wassermann reaction or improve the clinical symptoms, mercury administered intravenously should be given a fair trial. Advantages claimed for this method over other modes of mercuric injections are that quicker results in treatment are obtained, a more accurate grading of dosage is made possible; the course of the disease can be more carefully observed, and a practically painless injection is assured the patient.

Salol in Smallpox.—The action of phenyl salicylate in smallpox was studied by Birchett and Lustberg. Salol, 10 grains, four times a day, was the sole medicament used, and careful observations were made of results. It was noted that the patients who began the medication in the preeruptive stage were left with only a few scars, and even those receiving the medicament during the eruptive stages showed less scarring than those who received no therapy. The severe confluent forms left a surprising aftermath. Some scarring, of course, remained as a remnant of the disease, but far less disfigurement than is usually seen in such cases.

Boston Medical and Surgical Journal

July 13, 1922, **187**, No. 2

*Digitalis in Cardiac Disease. H. A. Christian, Boston.—p. 47.
Quackery, Miracle Healing and Medical Cults. R. W. Lovett, Boston.—p. 53.
Gummatous Cervical Adenitis. W. P. Coues, Boston.—p. 65.

Digitalis in Heart Disease.—The dangers or toxic effects of digitalis, Christian states, are more serious as met with in medical books than in medical practice. Some one of these toxic effects or so-called digitalis dangers really should be sought rather than avoided in digitalis therapy. The real dangers in digitalis therapy are three: (*a*) Using a poor digitalis preparation. (*b*) Consciously or unconsciously prescribing too little of a potent digitalis preparation. (*c*) Not knowing when digitalis should be started and stopped. Digitalis usually is given in too small, i. e., insufficient dosage. Christian says he has yet to see the patient in whom too much digitalis had been given prior to seeing the patient. The large majority of cardiac patients seen by him have had too little digitalis; a small percentage have had enough digitalis; none have had too much; some have had too little from the point of view of dosage when actually they should have had none. Digitalis poisoning, of course, is possible, but it is one of the rarities of medicine. Digitalis is good for the symptoms and physical signs the patient has, provided those symptoms and signs are the result of cardiac insufficiency, i. e., decompensation. The indications for starting digitalis therapy are the presence of symptoms and physical signs which are the result of cardiac inefficiency, i. e., decompensation. The symptoms and physical signs of cardiac insufficiency are breathlessness, cough, cyanosis, edema, pain, weakness, nausea, vomiting, enlargement of the liver, decreased urine output, rapid pulse. The indications for stopping digitalis are improvement in these symptoms and signs or the occurrence of some of the toxic effects of digitalis. The toxic effects of digitalis are nausea, vomiting, certain arrhythmias, as bigeminal pulse and heart block, rarely diarrhea. It needs to be recognized that very often the digitalis which the patient purchases has but slight potency. A serious error is to regard a drop as a minim and to prescribe 15 drops of tincture of digitalis, thinking to give 15 minims; the patient taking 15 drops often gets but 5 minims, rarely more than 7 minims—both very small doses. This error accounts for much unconscious prescribing of too small a dose. The rest comes from the digitalis being of low potence. There should be definite evidences of cardiac insufficiency before digitalis is given. Increased heart rate alone is never the result of cardiac insufficiency and never the indication for digitalis therapy. Paroxysmal tachycardia does not respond to digitalis and digitalis does not affect simple tachycardia. No murmur of whatsoever sort, nor enlargement of the heart, in itself is an indication for digitalis therapy. Digitalis may be given in a single massive dose, or in a modified massive dose method, or in regularly repeated small doses. Any of these methods is effective. The chief difference lies in the length of time needed to produce a result. For the average cardiac case there is no real preference. In a few very severe cases the modified massive dose method is better. Occasionally the single massive dose may be life-saving. Digitalis therapy is very simple. Enough of a potent leaf, prepared in any way, should be given by any accepted method of dosage, and the result is most satisfactory in almost every case. Standardizing on animals is helpful but by no means essential.

July 20, 1922, **187**, No. 3

*Management of Cancer of Bladder. G. G. Smith, Boston.—p. 97.
Nutritional Disorders in Light of Recent Investigations. A. F. Hess, New York.—p. 101.
Skin Irritants: External and Internal. C. G. Lane, Boston.—p. 108.
Treatment of Fracture Involving Lower End of Radius with Anterior and Posterior Wooden Splints. T. K. Richards, Boston.—p. 113.
*Two Cases of Early Carcinoma of Uterus Treated by Vaginal Panhysterectomy. L. E. Phaneuf, Boston.—p. 115.

Cancer of Bladder.—Smith asserts that all tumors of the bladder (barring some varieties, as fibromas) are potentially, if not actually, malignant; that early diagnosis by means of the cystoscope is the first requisite for successful treatment. Every misbehaving bladder should be considered guilty until it is proved innocent. The methods of treatment consist of fulguration, radiation by means of implantation of radium, excision of the tumor, total cystectomy, or, in hopeless cases, cauterization and permanent suprapubic drainage. The particular measure or combination of measures selected depends on the type of tumor which is disclosed by careful study of the case.

Panhysterectomy for Early Carcinoma of Uterus.—One of Phaneuf's cases was a borderline case in which the disease was discovered only by examination of curettings from the uterus; the other case was an epidermoid carcinoma grafted on a procidentia of many years' standing. Both patients were subjected to vaginal panhysterectomies and made uneventful recoveries.

California State Journal of Medicine, San Francisco

July, 1922, **20**, No. 7

Some Practicable Problems Confronting Medical Profession. H. G. Brainerd, Los Angeles.—p. 215.
Medical Education of Present and Near Future. R. L. Wilbur, San Francisco.—p. 218.
Provisions of Workmen's Compensation Act of California Relative to Furnishing of Medical Treatment in Compensation Cases. W. H. Pillsbury.—p. 221.
Problems of Industrial Accident Insurance. J. H. Parkinson, Sacramento.—p. 222.
*Successful Removal of Extramedullary Cord Tumor in Lower Dorsal Region, Causing Severe Compression Symptoms: Recovery. W. F. Schaller and A. Weeks, San Francisco.—p. 224.
Clinicians Past, Present and Future. H. C. Moffitt, San Francisco.—p. 229.
Fundamental Factors in Etiology and Treatment of Chronic Intestinal Disease. H. F. Freidell, Santa Barbara.—p. 232.
Group Medicine: Its Value to Profession and Public. D. J. Frick, Los Angeles.—p. 234.
*Pathology and Bacteriology of Excised Tonsils and Effect of Roentgen-Ray Therapy on Bacterial Flora of Tonsils. F. R. Nuzum, Santa Barbara.—p. 237.
Modern Hospital on Pacific Coast. J. B. Cutter, Watsonville.—p. 239.

Extramedullary Cord Tumor in Lower Dorsal Region.—The outstanding features in the case cited by Schaller and Weeks were: onset with severe dorsal root pain, followed by motor loss in left lower extremity and evidence of both cord and root compression below the ninth dorsal cord segment; progressive paraplegia by involvement of right lower extremity; predominant flexor "shortening" paralysis; bilateral pathologic pyramidal tract signs and heightened tendon reflexes in lower extremities; positive Beevor sign; superficial sensation affected below the tenth dorsal root distribution for pain and temperature; deep sensation affected particularly for vibration sense; reflex movements of defense present; absence of sphincter involvement; colonic crises; compression syndrome in cerebrospinal fluid; at operation complete removal of an intradural glioma at the eleventh dorsal cord segment; convalescent period complicated by anemia, toxic polyneuritis, decubitus; ultimate complete recovery.

Bacteriology of Excised Tonsils.—Of 218 pairs of tonsils removed, 7 per cent. presented no microscopic evidence of disease; 96.1 per cent. harbored hemolytic streptococci. Of the three groups of hemolytic streptococci, alpha, alpha prime and beta, the latter were found much more frequently. There seemed to be a relation between the pathology of the excised tonsil and the type of organism it harbored. Poured plates were found much more satisfactory than streaked plates. Roentgen-ray therapy was effective in reducing the size of the tonsils in but 16 per cent. of this series. Hemolytic streptococci, the essential organisms in chronically infected tonsils, were permanently removed in but 50 per cent. of the patients treated.

Canadian Medical Association Journal, Toronto

June, 1922, **12**, No. 6

Broadening Scope of Mental Medicine. A. T. Mathers, Winnipeg.—p. 371.
Symptoms in Diagnosis of Pulmonary Tuberculosis. J. H. Elliott, Toronto.—p. 377.
Differential Diagnosis. J. H. Elliott, Toronto.—p. 379.
*Tuberculosis Survey of 1346 School Children in Saskatchewan. R. G. Ferguson, Fort Qu'Appelle, Sask.—p. 381.
Ergot, Quinin and Pituitary Extract. A. H. Wright, Toronto.—p. 383.
*Metabolic Findings in Diagnosis and Treatment of Diseases of Thyroid. G. S. Fahrni, Winnipeg.—p. 386.
Intestinal Obstruction. H. W. Riggs.—p. 390.
Creatinuria in Certain Diseased Conditions. A. T. Cameron and A. Gibson, Winnipeg.—p. 393.
Intravenous Injection of Mercurosal in Treatment of Syphilis. W. T. Williams, Toronto.—p. 401.
Place of Drugs in Medical Treatment. D. S. Lewis.—p. 402.
Cesarian Section; Four Cases. A. Mackinnon, Guelph, Ont.—p. 405.
Roentgen-Ray Examination of Pulmonary Tuberculosis. H. M. Tovell, Toronto.—p. 408.
New Order. G. Jackson, Toronto.—p. 411.
Carcinoma of Prostate. J. C. McClelland, Toronto.—p. 415.
Obiter Scripta. C. F. Martin.—p. 418.
Incubation Period of Lethargic Encephalitis. Case Developing Within Five Days of Exposure. F. Godfrey, Mimico, and N. B. Gwyn, Toronto.—p. 420.
Etiology of Cancer. W. Boyd.—p. 421.

Tuberculosis in Children.—A survey made by Ferguson of 1,184 white children disclosed that ten, or 0.84 per cent., showed clinical signs, symptoms and roentgen-ray evidence of active tuberculosis. These children were advised to take treatment in the sanatorium. Thirty, or 2.5 per cent., showed signs or symptoms more or less suspicious of activity. These children were referred to their family physician for observation.

Metabolism in Diseases of Thyroid.—In a series of 105 persons, thirty-eight, or 36.19 per cent., had normal metabolic rate, sixty-two, or 59.09 per cent., had abnormally high metabolic rate, while five, or 4.76 per cent., had abnormally low rate. In analyzing the group of thirty-eight cases with normal metabolic rate, the final diagnoses come under the following heads in order of frequency: nontoxic goiters of different types; psychoneuroses; obesity and mental defectives; incipient tuberculosis; essential hypertension and so-called goiter wreckage cases. In the group of sixty-two cases with hyperthyroidism, Fahrni is convinced that many could not have been diagnosed definitely without the knowledge of existing basal metabolism. In the third group, that of hypothyroidism, were found five very definite cases of myxedema. There was no familial tendency in this group of five, and the origin was apparently spontaneous, with no history of degenerative or inflammatory disease of the thyroid gland nor of operation on the gland.

Georgia Medical Association Journal, Atlanta

July, 1922, **11**, No. 7

Eczema Parasiticum. J. W. Jones, Atlanta.—p. 253.
Acute Mastoiditis. M. H. Stuart, Moultrie.—p. 255.
Typhus in Siberia. H. M. Davison, Atlanta.—p. 258.
Medical Sects in United States and Abroad. N. Alpert, Atlanta.—p. 263.
*Knife Blade in Brain. T. C. Davison, Atlanta.—p. 267.
Compensation. F. Hames, Atlanta.—p. 269.

Knife Blade in Brain.—Davison's patient was stabbed in the left side of the head with a pocket knife, the blade penetrating the skull and was broken off. Three days following the injury, the patient became dizzy, "turned sick and blind" for the time being. On the seventh day, the patient noticed a tingling in the foot, leg and hand on the right side which developed into a numbness and paralysis. He lost control of his urine and stool the latter part of the second week. He does not remember events during the third week and has only a hazy recollection of being brought to the hospital three weeks following his injury. Roentgen-ray examination showed the knife blade, 1⅛ inches in length, in the skull, in the left rolandic area. When the section of the skull was lifted the dura was exposed, showing the opening by the blade through which exuded a thick greenish-yellow pus. The brain was not pulsating in this area. A crucial incision made in the dura exposed an abscess the size of a small hen's egg. Normal pulsation of the brain returned following evacuation of the abscess. Six hours following operation tingling returned in the foot, leg and arm and the patient could move the foot slightly. In twelve hours sensation was returning and he could move the arm and leg slightly. Twenty-four hours after operation he could move the leg freely, sensation was improving rapidly and he could move the arm, but not so well as the leg. Sensation returned rapidly to the right side with some hyperesthesia in arm and leg. The patient was dismissed from the hospital seventeen days following the operation with good use of himself, except slight incoordination of the muscles of the right hand and arm and slight right sided facial paralysis.

Illinois Medical Journal, Oak Park

July, 1922, **42**, No. 1

Maternal Death Statistics. C. E. Mongan, Somerville, Mass.—p. 1.
Value of Pyelography Before Undertaking Surgical Measures for Relief of More Obscure Types of Abdominal Pain. V. J. O'Conor, Chicago.—p. 9.
Legislation and Its Effect on Medical Profession. J. R. Neal, Springfield.—p. 13.
Dose of Radium. H. Robarts, Belleville.—p. 15.
Thoracoscopy and Its Practical Importance, Especially in Surgery of Chest. H. C. Jacobaeus, Stockholm, Sweden.—p. 17.
Intranasal Injection of Alcohol in Treatment of Hyperesthetic Rhinitis and Some of Nasal Neuroses. O. J. Stein, Chicago.—p. 22.
Omental Cap Over an Acute Appendix. R. L. Fisher, Chicago.—p. 25.
Xiphoiditis. J. K. Narat, Chicago.—p. 27.
What Shall We Do to Be Saved—Professionally? C. W. Lillie, East St. Louis.—p. 28.
Penetrating Injuries of Eye by Steel Particles. F. Allport, Chicago.—p. 31.
Orthopedic Surgery: Have Present Advanced Methods in Diagnosis and Treatment Reduced Morbidity or Lessened Period of Disability. J. L. Wiggins, East St. Louis, Ill.—p. 35.
Clnical Interpretations of Basal Metabolism Test. H. Swanberg, Quincy.—p. 39.
Suprapubic Prostatectomy. J. S. Eisenstaedt, Chicago.—p. 41.
Roentgen Ray in Diagnosis of Certain Gastro-Enteric Lesions. L. S. Goin, Peoria.—p. 44.
Vomiting of Gallstones. M. Pfeiffenberger, Alton.—p. 51.

Journal of Bone and Joint Surgery, Boston

July, 1922, **4**, No. 3

Specialist in Surgery and His Viewpoint. N. Allison, St. Louis.—p. 421.
*Chronic Arthritis. L. T. Swaim, Boston.—p. 426.
*Operative Treatment of Scoliosis. A. M. Forbes, Montreal, Can.—p. 446.
Intraperineural Neurotomy in Spastic Conditions. J. J. Nutt, New York.—p. 453.
*Unusual Fractures. C. W. Peabody, Boston.—p. 459.
Flat Hand (Manus Planus): Its Correction Essential to Normal Function of Hand. J. E. Goldthwait, Boston.—p. 469.
Open Reduction of Old Congenital Hip Dislocation. M. A. Bernstein, Chicago.—p. 481.
Use Destruction in Joints. A. W. Meyer, Palto Alto, Calif.—p. 491.
*Bone Sarcoma. J. W. Gibbon, Charlotte, N. C.—p. 512.
Osteoma of Cervical Spine. M. S. Henderson, Rochester, Minn.—p. 518.
Treatment of Congenital Dislocation of Hip as Practised by Professor Denuce at Bordeaux, France. Z. B. Adams, Boston.—p. 523.
Tendon Transplantation for Musculospiral (Radial) Nerve Injury. R. W. Billington, Nashville, Tenn.—p. 538.
Postoperative Care of Flexion Contraction of Hip. S. F. Stewart, Los Angeles.—p. 548.
Painful Traumatic Shoulder. A. Gibson, Winnipeg, Man.—p. 552.
Congenital Ankylosis of Joints of Hands and Feet. E. M. Miller, Chicago.—p. 560.
Simplified Method of Measuring Amplitude of Motion in Joints. N. G. Rosen, New York.—p. 570.
Spinal Pathology in Relation to Ocular Manifestations, with Report of Cases. C. L. Lowman, Los Angeles.—p. 580.
Operation for Hypertrophied Patella. G. E. Bennett, Baltimore.—p. 593.
Clinical and Experimental Study of Free Transplantation of Fascia and Tendon. W. E. Gallie and A. B. Le Mesurier, Toronto.—p. 600.

Chronic Arthritis.—Swaim emphasizes the fact that there are three distinct types of arthritis: infectious, atrophic and hypertrophic, and that these types differ etiologically, pathologically and clinically, respond to treatment differently and should, therefore, be differentiated. Clinical data seem valueless unless these types are studied as separate pathologic entities.

Operative Treatment of Scoliosis.—Although operative procedures for scoliosis cannot be considered to have the test of time, Forbes believes they have been sufficiently encouraging to continue their employment. The day may come when the field of usefulness of operative procedures may be extended, but he hesitates to recommend their general use, because the operation is a severe one. It should not be carried out except after deep thought and consideration, and then only by those who are accustomed to operate on the spine. Perhaps, at a later date, its field of usefulness will be broadened, but until it is possible to prove the enduring character of the ankylosis and the general benefit to the patient, as shown by increased height and marked improvement in general condition, it should not be employed except in desperate cases.

Unusual Fractures.—One of Peabody's cases presented the "cartwheel fracture" of the textbooks, in which the leg is caught in a revolving wheel, the resulting torsion completely disrupting the lower end of the femur from the shaft at the epiphyseal line. The patient was not caught in a cartwheel, but was knocked down by a motor car, and in addition the break had the complication of being compound from the protrusion of the shaft through an external wound. The second case was a fracture of the spine at a most uncommon point, and producing a skiagraphic impression which is rather startling. The neural arches of the first lumbar vertebra were fractured between the superior and inferior articular processes, the fragments separating as the spine hinged in flexion on the disc in front; so that the first glance at the roentgenogram gave the impression of complete loss of bony continuity in the spinal column. The last patient, thrown from his horse, was caught under the falling animal, with a consequent rupture and complete dislocation of the pubic synchondrosis; the two halves of the pelvis, rotating in opposite directions at the sacroiliac articulations, produced a fracture of both transverse processes of the fifth lumbar vertebra.

Sarcoma of Femur.—Gibbon reports the case of a boy, aged 16, who had a tumor of the lower end of the right femur which proved to be a large round cell sarcoma. Within three weeks after curettage, the patient came back complaining of a return of severe pain. On examination it was evident that the tumor had recurred locally, and was infiltrating the soft parts on the inner side of the knee, where there was a considerable swelling. That this was then a rapidly growing sarcoma clinically seemed to be a just conclusion, and amputation was advised. The parents, however, refused this, and again all of the tumor tissue possible was removed, and the area cauterized with phenol followed by alcohol. Three weeks later the leg was amputated in the upper third of the thigh, a local recurrence having again occurred at about the end of three weeks. Roentgenograms of the thorax at this time showed no metastases. The boy is well six months after the amputation.

Journal of Experimental Medicine, Baltimore

July 1, 1922, **36**, No. 1

*Megacaryocytes in Peripheral Circulation. G. R. Minot, Boston.—p. 1.
Experimental Epidemiology. S. Flexner, New York.—p. 9.
Outbreak of Mouse Typhoid and Its Attempted Control by Vaccination. C. J. Lynch, New York.—p. 15.
Experimental Epidemiology. I. Artificially Induced Epidemic of Mouse Typhoid. H. L. Amoss, New York.—p. 25.
Id. II. Effect of Addition of Healthy Mice to Population Suffering from Mouse Typhoid. H. L. Amoss, New York.—p. 45.
Experiments on Normal and Immune Mice with Bacillus of Mouse Typhoid. L. T. Webster, New York.—p. 71.
Identification of Paratyphoid-Enteritidis Strain. Associated with Epizootics of Mouse Typhoid. L. T. Webster, New York.—p. 97.
Immunologic Distinctions of Two Strains of Mouse Typhoid Group Isolated During Two Spontaneous Outbreaks Among Same Stock. H. L. Amoss and P. P. Haselbauer, New York.—p. 107.
Surface Tension of Serum. III. Recovery After Lowering by Surface-Active Substances. P. Lecomte du Nouy, New York.—p. 115.
*Infectious Motor Paralysis in Young Rabbits. J. H. Wright and E. M. Craighead, Boston.—p. 135.
Structure and Differentiation of Specific Cellular Elements of Pars Intermedia of Hypophysis of Domestic Pig. S. Maurer and D. Lewis, Chicago.—p. 141.

Megacaryocyte in Peripheral Circulation.—Minot points out that a megacaryocyte is seen commonly as an occasional cell in the peripheral blood of patients with myelogenous leukemia. Less commonly they appear in relatively large numbers. These giant cells also may occur in the blood under other conditions. Their presence is indicative of a bone marrow under intense strain.

Experimental Infectious Motor Paralysis.—The attempt made by Wright and Craighead to infect young rabbits and guinea-pigs with material containing in all probability the virus of human infantile paralysis failed. Incidentally, and presumably accidentally, a paralytic disease hitherto undescribed was observed in young rabbits associated with the presence of an organism showing certain definite characters. This organism is found widely distributed in the organs of the affected animals and can be demonstrated in the urine. The active destruction by the organism of the nerve cells of the spinal cord is particularly striking, and gives complete explanation for the paralysis observed clinically. With the organism present in the urine the spread of the disease by contact can easily be understood. The transfer of the infection from animal to animal by fleabites is possible but not probable. The nature of the observed organisms is in doubt. They represent probably an intermediate stage in the life history of some protozoan parasite.

Journal of Industrial Hygiene, Boston

July, 1922, **4**, No. 3

Undernourishment in Industry. I. W. H. Bunn.—p. 93.
German Literature on White Lead Question, 1921. L. Teleky.—p. 100.
Back and Foot Strain. P. D. Wilson.—p. 106.
Occupational Sickness: Review. E. A. Rusher.—p. 125.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

July, 1922, **19**, No. 6

*Biologic Reactions of Arsphenamin. III. Immediate Toxicity as Contrasted with Late Ill Effects, and Rôle of Agglutination in Production of Former. J. Oliver and S. S. Yamada, San Francisco.—p. 393.
*Studies on Strychnin. S. Weiss and R. A. Hatcher, New York.—p. 419.

Immediate Toxicity and Late Ill Effects of Arsphenamin.—Oliver and Yamada state that disodium arsphenamin may produce ill effects by means of either its physical or its chemical properties. The physical toxicity produces an early reaction and is the result of intravascular agglutination of the red cells and multiple embolism. The chemical toxicity requires some time for the production of anatomical lesions. These consist of parenchymatous degenerations particularly in the kidney and liver.

Studies on Strychnin.—Studies were made by Weiss and Hatcher on a method for the extraction of small amounts of strychnin from tissues, the absorption of strychnin by red corpuscles of the cat, the rate of disappearance of strychnin from the blood stream of the cat and the elimination of strychnin in the urine of man. The liver appears to be the principal protective organ with reference to acute poisoning by strychnin, the kidney to be concerned mainly with the elimination of traces of the poison which reenter the circulation after having been fixed temporarily in those tissues which are incapable of destroying the poison.

Journal of Radiology, Omaha

July, 1922, **3**, No. 7

Study of Legg's Disease, with Report of Cases. R. G. Giles, Boston.—p. 261.
Use of Radium Needles in Treatment of Cancer. C. F. Bowen, Columbus, O.—p. 265.
Roentgen Ray as a Microscope. W. W. Wasson, Denver.—p. 268.
Less Common Uses of Roentgen-Ray Therapy. C. E. Richards, Toronto, Can.—p. 271.
Postoperative Mastoid Treatment with Roentgen Ray. C. Goosmann, Cincinnati.—p. 273.
Roentgen-Ray and Clinical Findings in Normal Chests of Children Six to Ten Years of Age.—p. 274.
Roentgen-Ray Analysis of Sounds of Speech. A. E. Barclay and W. Nelson, Manchester, Eng.—p. 277.

Journal of Urology, Baltimore

July, 1922, **8**, No. 1

Urological Problems. H. G. Bugbee, New York.—p. 1.
*Homologue of Prostate in Female. F. P. Johnson, Baltimore.—p. 13.
*Clinical Value of Mercurophen in Treatment of Gonococcal Urethritis. C. H. de T. Shivers, Philadelphia.—p. 35.
Metastatic Complications of Gonorrhea and Their Treatment. A. R. Fraser, Cape Town, S. A.—p. 49.
Surgery of Scrotum and Its Contents Under Regional Anesthesia. W. R. Meeker, Rochester, Minn.—p. 61.
Anomalous Relationship of Right Ureter to Inferior Vena Cava. R. C. Graves and L. M. Davidoff, Boston.—p. 75.
Sacral Anesthesia in Perineal Prostatectomy. Modification of Young's Operation with Summary of Cases. A. J. Crowell and R. Thompson, Charlotte, N. C.—p. 81.
*Renal Retention Due to Seminal Vesiculitis. Report of Three Cases. E. G. Mark and R. L. Hoffman, Kansas City, Mo.—p. 89.
Physiological and Pharmacologic Studies of Prostate Gland. V. Effect of Prostatectomy on Integration of Muscular Movements. D. I. Macht and J. L. Ulrich, Baltimore.—p. 99.

Homologue of Prostate in Female.—The urethra of the female Johnson states corresponds only with that portion of the prostatic urethra of the male which lies between the internal urethral orifice and the orifice of the prostatic utricle. The remainder of the male urethra is represented in the female by the vestibule. The whole homologue of the prostate in the female is here demonstrated for the first time. It consists of: (*a*) The urethral glands which are the homologues of those prostatic glands in the male which lie above the orifice of the prostatic utricle (therefore true urethral glands). (*b*) Skene's ducts which are the homologues of the prostatic glands which lie below the orifice of the prostatic utricle (therefore sinus glands). Bartholin's and Cowper's glands are true homologues. It is also demonstrated for the first time that the glands of Littré are represented in the female by a few poorly developed glands which have received the name "minor vestibular glands."

Mercurophen in Gonorrheal Urethritis.—Mercurophen has yielded uniformly good results in Shivers' experience in the treatment of gonococcal urethritis and particularly in acute infections. All cases with the exception of three showed a considerable decrease in the number of infected cells per field after the first and second treatments. The solutions of mercurophen employed in this study were from 1:4,000 to 1:10,000; these produced slight or no irritation of the urethra. All treatments with mercurophen should be preceded by thoroughly cleansing the parts to be treated with a warm 1:8,000 solution of potassium permanganate.

Seminal Vesiculitis Causes Renal Retention.—Mark and Hoffman report three cases of ureteral stenosis with hydronephrosis due to disease of the vesicles. In one case it was possible to readily pass ureter catheters from below and yet there was complete retention above the juncture of the vesicle with the ureter.

Kansas Medical Society Journal, Topeka

July, 1922, **22**, No. 7

Some Atypical Surgical Cases. R. C. Dugan, Ottawa.—p. 195.
Relationship of Orthopedics to Neurology. K. R. Werndorff, Wellington.—p. 197.

Kentucky Medical Journal, Bowling Green

June, 1922, **20**, No. 6

Clinical Relation of Tonsils to Thyroid. J. A. Stucky, Lexington.—p. 382.
Fracture of Femoral Neck: Osteoma in Popliteal Space. B. Owen, Louisville.—p. 385.
Surgery of "Stomach Trouble." B. F. Robinson, Berea.—p. 388.
Two Cases of Pemphigus. J. E. Hays, Louisville.—p. 390.
Case of Apparent Dextrocardia Disproved by Instrumental Investigation. J. W. Moore, Louisville.—p. 392.
Diagnosis and Treatment of Syphilis. G. W. Payne, Bardwell.—p. 393.
Therapeutics in Children. A. L. Kincheloe, Owensboro.—p. 395.
Baby's Second Summer. J. W. Bruce, Louisville.—p. 396.
Symptomatology of Rectal Diseases. W. L. Mosby, Bardwell.—p. 398.
Pneumococcic Meningitis. S. G. Dabney and S. Graves, Louisville.—p. 400.
Suggestions for Malaria Control. B. W. Smock, Greenville.—p. 401.
Treatment of Malarial Fever. T. J. Marshall, Bardwell.—p. 402.
Combating Diphtheria. R. Lockhardt, Cleveland.—p. 404.
Alveolodental Pyorrhea. H. B. Ray, Tompkinsville.—p. 406.
Congenital Malposition of Left Kidney with Blood Supply from Common Iliac Artery. J. A. Kasper, Louisville.—p. 410.
Present Status of Radiation Therapy. D. Y. Keith, Louisville.—p. 411.
Headaches. R. H. Cowley, Berea.—p. 419.
Dietetic Treatment of Surgical Diabetes. J. J. Ezell, Hopkinsville.—p. 421.

Laryngoscope, St. Louis

June, 1922, **32**, No. 6

Etiology and Pathology of Loss of Vision from Accessory Sinus. L. E. White, Boston.—p. 415.
Antroscopy of Maxillary Sinus. W. Spielberg, New York.—p. 441.
Calculi of Nose and Throat: Report of Cases. L. W. Smith, Butte, Mont.—p. 444.
Laryngectomy for Cancer of Larynx with Modified Technic and Attempted Formation of Skin Graft Tube in Place of Larynx. R. H. Goldthwaite, Camp Benning, Ga.—p. 446.
Schwabach and Rinné Tests. G. W. Mackenzie, Philadelphia.—p. 451.
Acoustic Neuromas. J. J. Shea, Memphis, Tenn.—p. 460.
Meningitis. S. MacC. Smith, Philadelphia.—p. 465.
Psychology of Deafness. T. Hubbard, Toledo, Ohio.—p. 473.
Case of Temporosphenoidal Brain Abscess Following Acute Mastoiditis. R. Almour, New York.—p. 478.

Michigan State Medical Society Journal, Grand Rapids

July, 1922, **21**, No. 7

Medical Problem. W. J. Kay, Lapeer.—p. 281.
*Unusual Case of Hypernephroma. E. C. Baumgarten, Detroit.—p. 286.
Cardiac Neurosis. H. A. Reye, Detroit.—p. 287.
Future Public Health Interests and Activities. V. Scope. J. Sundwall, Ann Arbor.—p. 292.

Unusual Case of Hypernephroma.—The points of interest in Baumgarten's case were: (1) the malignant neoplasm had been present and size unchanged for about twenty years without causing any disability or appreciable discomfort. (2) It undoubtedly had its origin in an accessory suprarenal gland deriving its blood supply from an anomalous vessel, lying between the layers of the transverse mesocolon. The patient made an uneventful operative recovery and showed no evidence of further trouble for some time, when she complained of pains in the upper left arm and over the eighth rib on the right side. She refused a roentgen-ray examination of the bones. Shortly afterward she developed similar trouble in the left femur and at this time a fusiform enlargement could be palpated in the humerus, and there was also an irritating cough with occasional blood streaked sputum. A diagnosis of a generalized metastasis was made. The patient died shortly afterward.

Missouri State Medical Association Journal, St. Louis

July, 1922, **19**, No. 7

Some Accomplishments of Organized Medicine in Missouri. A. H. Hamel, St. Louis.—p. 291.
Plan for Reestablishing Four Years' Course in School of Medicine at University of Missouri. G. L. Noyes, Columbia.—p. 293.
*Congenital Syphilis and Eruption of First Teeth. E. Moody, Joplin.—p. 295.
Acrodynia in Infants: Report of Cases. J. Zahorsky, St. Louis.—p. 296.
Tuberculosis of Bones and Joints. J. E. Stewart, St. Louis.—p. 300.
Examination of Market Milk in St. Louis. M. G. Seelig, St. Louis.—p. 303.

Congenital Syphilis and Eruption of Teeth.—That there is a definite inhibition of the eruption of the first teeth of some children who have a syphilitic taint seems to be an unquestionable fact. In the cases cited by Moody that illustrate this condition there have usually been no other signs or symptoms of the disease. These cases seem to indicate that congenital syphilis may be an even more important cause of failure of the first teeth to erupt than rickets and that the disease may cause no changes whatever in the shape, size, arrangement or interfere in any way with the enamel formation of these deciduous teeth even when the inhibition of eruption has been to a marked degree.

New Jersey Medical Society Journal, Orange

July, 1922, **19**, No. 7

Rôle of Medical Profession in Prevention of Tuberculosis. B. S. Pollak, Secaucus.—p. 187.
Mind of Physician. G. K. Dickinson, Jersey City.—p. 189.

New Orleans Medical and Surgical Journal

July, 1922, **75**, No. 1

Price of Neglect in Acute Purulent Otitis Media. E. R. Gandy, Alexandria, Ala.—p. 1.
Hysterectomy — Indications for and Selection of Type of Operation. W. D. Phillips, New Orleans.—p. 8.
Suggestions in Treatment of Certain Diseases of Skin. J. M. King, Nashville.—p. 17.
Basal Metabolic Rating as Basis of Classification and Treatment of Thyroid Conditions. H. P. Jones, New Orleans.—p. 28.

New York Medical Journal and Medical Record

July 19, 1922, **116**, No. 2

Physiologic Adjuvant in Rest Cure of Pulmonary Tuberculosis. S. A. Knopf, New York.—p. 65.
Roentgen-Ray Treatment of Diseases of Generative Organs. I. S. Hirsch, New York.—p. 68.
Fugacious Edema of Mastoid Region with Paroxysmal Hemoglobinuria. C. J. Koenig, Paris, France.—p. 74.
Conquest of Typhoid Fever at Chickamauga Park, Ga., R. A. Keilty, Danville, Pa.—p. 77.
Esophagoscopy. M. C. Myerson, Brooklyn.—p. 82.
Labyrinthine Surgery. J. M. Smith, New York.—p. 85.
Infection with Organism of Vincent. C. Barker, New Haven, Conn.—p. 88.
Status of Lumbar Puncture and Prevention of Its Complications. H. W. Traub, Chicago.—p. 91.
Operative Treatment of Scoliosis. S. Kleinberg, New York.—p. 93.
Colon Bacillus Pyelitis. P. Goldfader, Brooklyn.—p. 95.
*Case of Pulmonary Abscess. D. Greenberg, New York.—p. 98.
Weaning the Infant. J. H. Marcus, Atlantic City, N. J.—p. 101.

Chronic Pulmonary Abscess.—A case of chronic pulmonary abscess lasting about a year, with a severe productive cough and with large quantities of odorless sputum, is reported by Greenberg as a unique case. In reference to the symptomatology, the presence of an increasingly severe, productive cough, together with weakness, usually associated with symptoms of fever, such as chills or chilly sensations, with languor and anorexia, with loss of weight and pain in the chest, may be said to be more often present than not. The cough and the large quantities of malodorous sputum are the most constant of the symptoms. In the author's case there was also dyspnea and marked weakness and loss of weight, with vague pains in the right side of the chest—but the sputum remained odorless. The diagnosis is usually not difficult when the abscess ruptures early in the course of the disease as it usually does, giving rise to the characteristic sputum. In cases where no such rupture occurs or when the sputum is not characteristic there may be considerable difficulty in arriving at a diagnosis. The conditions with which chronic pulmonary abscess may be confused are chronic tuberculosis and capsulated empyema, bronchiectasis, neoplasm and broken down gumma of the lung and actinomycosis.

New York State Journal of Medicine, New York

July, 1922, **22**, No. 7

*Radium Treatment of Parotid Tumors. D. A. Quick and F. M. Johnson, New York.—p. 297.
Limitations of Roentgenologic Diagnosis. R. D. Carman, Rochester, Minn.—p. 302.
Roentgentherapy in Malignant Disease. G. E. Pfahler, Philadelphia.—p. 305.
New Method of Applying Radium Through Cystoscope. L. Buerger, New York.—p. 312.
Classification of Neurosyphilis: Concerning Therapy. L. H. Cornwall, New York.—p. 316.
Personality Defects as Neuropsychiatric Problems. I. J. Sands, Brooklyn.—p. 323.
Is Shape of Public Arch Factor in Causation of Cystocele? F. C. Goldsborough, Buffalo.—p. 327.

Radium Treatment of Parotid Tumors.—Of eleven operable cases treated with radium by Quick and Johnson, three of which were recurrent, ten are at the present time clinically free of any neoplastic disease, but in five of these at the tumor site there is remaining a small quiescent fibrotic mass. These patients have been well from 6 months to 3½ years. The eleventh case in this group is still undergoing treatment, with a very satisfactory response. Of forty-three inoperable cases, twenty-three of which were recurrent, twelve are clinically free of active disease for periods ranging from 6 months to 3½ years. Ffteen patients were definitely improved, locally and generally, and sixteen were so far advanced as to render quite negligible and palliative effect of the treatment. Of the cases reported as clinically free of disease, and which at the time of treatment were subjected to biopsy, five were of the mixed tumor type, four were reported as carcinoma, or adenocarcinoma, one as squamous epithelioma and one as Mikulicz disease. The four cases of carcinoma that are clinically well represent a group that is considered very unfavorable from the standpoint of surgery. Only one of these was considered at all operable. The extent of disease of the other three cases precluded the hope of any benefit from attempted excision.

Northwest Medicine, Seattle

July, 1922, **21**, No. 7

Diagnostic Problems in Pulmonary Tuberculosis. R. C. Matson, Portland, Ore.—p. 199.
Fractures and Dislocations of Spine; Report of Five Cases. H. S. Willard, Tacoma.—p. 206.
*Dislocated Cervical Vertebrae. R. Anderson, Tacoma.—p. 212.
Dislocation of Knee. L. H. Meadows, Clear Lake, Wash.—p. 213.
Congenital Absence of Both Tibiae, Treated by Bone Transplants. R. T. Congdon, Wenatchee, Wash.—p. 214.
Subphrenic Abscess. J. D. Sternberg and W. H. Watson, Portland, Ore.—p. 217.
Renal Function Tests. L. G. Rowntree, Rochester, Minn.—p. 220.
Treatment of Postoperative Complications. N. A. Johanson, Seattle.—p. 221.

Dislocation of Cervical Vertebrae.—In Anderson's case there was an extreme dislocation of the fourth on the fifth cervical vertebra without any cord lesions. Treatment instituted in this case was a combination of the manipulation and fixation methods. After a hazardous attempt to reduce the dislocation by manipulation under ether proving unsuccessful, resort was had to the slower and more conservative method of casts and braces. For several days before an anesthetic was given, about 20 pounds traction was applied to head by means of Sayre's bandage. While under ether, the most strenuous efforts were made to reduce the dislocation under guidance of a bedside roentgen-ray machine, but without results either for better or worse. The immobilization method was the only alternative, so a cutlass of plaster-of-Paris was applied. Neck was kept in casts for three months when a brace was applied which he has been wearing about a year. He now has no pain, complains only of some stiffness in neck; no nerve complication at all, and there never has been in spite of marked dislocation. Patient is gradually being weaned away from the brace.

Philippine Journal of Science, Manila

March, 1922, **20**, No. 3

Physiography and Geology of Samar Island, P. I. H. G. Schenk, Manila.—p. 231.
New Cercopides of Philippines. V. Lallemand, Brussels.—p. 273.
Identification of Bacteria Pathogenic to Plants Previously Reported from Philippine Islands. C. G. Wells, Manila.—p. 279.
Some Results with Intelligence Tests in Philippine Islands. A. v. H. Hartendorp.—p. 287.
Pressures Required to Cause Stomatal Infections with Citrus-Canker Organism. F. T. McLean and H. A. Lee, Manila.—p. 309.
*Schick Reaction in Filipinos. L. Gomez, R. Navarro and A. M. Kapauan, Manila.—p. 323.
Relation of Age of Citrus Tissues to Susceptibility to Citrus Canker. H. A. Lee, Manila.—p. 331.
Mounted Specimen of Monkey Eating Eagle (Pithecophaga Jefferyi) of Philippines. R. W. Shufeldt, Washington, D. C.—p. 343.
Three New Species of Derbidae (Homoptera). F. Muir, Honolulu.—p. 347.
*Food Value of Philippine Bananas. W. Salvador, Manila.—p. 363.

Schick Reaction in Filipinos.—In all 1,030 persons of various ages were tested by Gomez, Navarro and Kapauan. Eighty-eight, or 8.5 per cent., were positive. Most of the positives were found during the first eight years of life, especially during early infancy and childhood. The number of positives decreased considerably from the age of 8 years up to the adult period. The females, as a general rule, showed a greater number of positive reactions than the males; they averaged 14 per cent. of the total number of females examined, whereas the males only showed 5.8 per cent. of positives.

Food Value of Philippine Banana.—The components that Salvador found make up the edible portion of the Philippine banana include water, fat, protein, carbohydrates, organic acids, and mineral matter. Of these water is hardly to be considered as a nutrient, though it plays an important part in food as a diluent and solvent. The fat, protein and carbohydrates contribute in varying degree to the supply of fuel for the production of heat and energy. Besides this universal function, the fat and the carbohydrates serve especially to furnish fatty tissue in the body, while the protein is the chief source of muscular tissue. The organic acids are minor, though important, constituents of food. Because of their conversion into carbonates within the body, they are useful in furnishing the proper degree of alkalinity to the blood and to the various other fluids, besides being of particular value as appetizers. The mineral or inorganic salts are necessary to supply material for the teeth and bones, besides having an important place in the formation of hemoglobulin in the blood and in the cellular structure of the entire body. Philippine bananas, as shown by the analyses, are essentially carbohydrate foods, the percentages of protein and fat being correspondingly low. Their nutritive value lies chiefly in the sugars they contain, although the acids and salts exercise an important function in the digestive processes. The sugars are present both as reducing and as sucrose. Although the banana is rich in carbohydrates, its low content of protein indicates that it is not a well-balanced ration, but should be eaten with beans, peas, or other vegetables rich in protein, or with lean meat in order to secure a proper quantity of protein in the diet.

South Carolina Medical Association Journal, Greenville

June, 1922, **18**, No. 6

Magnesium Sulphate as Aid in Anesthesia. G. T. Tyler, Greenville.—p. 153.
Dyspepsia Common Symptom Syndrome: Differentiation from Important Surgical Conditions of Abdomen. W. M. Sheridan, Spartanburg.—p. 155.
Experience with Radium. T. H. Dreher, Matthews.—p. 158.
Acute Peritonitis. H. H. Plowden, Charleston.—p. 164.
Passing of Old Oaken Bucket. L. Banov, Charleston.—p. 166.
Sterilization Versus Propagation. B. O. Whitten, Clinton.—p. 167.
Methods of Treatment of Ureteral Calculus. M. Weinberg, Sumter.—p. 168.
Transfusion of Blood. S. O. Black, Spartanburg.—p. 171.
Hypertrophied Tonsils and X-Ray. F. D. Rodgers, Columbia.—p. 172.
Present Status of Wassermann Reaction. J. R. Allison, Columbia.—p. 173.
Chronic Suppurative Otitis Media. W. C. Twitty, Rock Hill.—p. 174.
Syphilis and Abortions. R. E. Seibels, Columbia.—p. 175.

U. S. Naval Medical Bulletin, Washington, D. C.

June, 1922, **16**, No. 6

Hydrogen-Ion Concentration. C. W. O. Bunker.—p. 973.
Aviation Medicine in United States Navy. J. F. Neuberger.—p. 983.
Developments in Diagnosis and Treatment of Syphilis. L. W. Shaffer.—p. 1011.
Old Anatomic School at Padua. W. M. Kerr.—p. 1015.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

June, 1922, **3**, No. 3

*Infection of Lice (Pediculus Humanus) With Rickettsia Prowazeki by Injection Per Rectum of Blood Platelets of Typhus Infected Guinea-Pigs and Reinfection of Other Guinea-Pigs From These Lice. A. Bacot and J. Segal.—p. 125.
*Variations in Diastatic Power of Urine in Relation to Its Reaction; Suggested Method for Estimation of Diastase Content. E. C. Dodds.—p. 133.
*Investigation Into Etiology of Dental Caries. I: Nature of Destructive Agent and Production of Artificial Caries. J. McIntosh, W. W. James and P. Lazarus-Barlow.—p. 138.
*Isohemagglutination. S. C. Dyke.—p. 146.

Relative Value of Human and Guinea-Pig Complement in Wassermann Reaction. A. F. Hayden.—p. 151.
*Experimental Immunization Against Bacillus Dysenteriae (Shiga) and Its Toxins. S. Kanai.—p. 158.

Infection of Lice with Rickettsia Prowazeki.—The injection of lice with a concentrated emulsion of platelets obtained by fractional centrifugalizations of the blood of a typhus infected guinea-pig, according to Bacot and Segal, affords a sure and quick method of obtaining the development of *Rickettsia prowazeki* in these insects. The lice thus infected can be used to convey typhus fever to fresh guinea-pigs. The parallel development of typhus virus and *Rickettsia prowazeki* in successively passaged guinea-pigs is demonstrated and also in lice infected from guinea-pigs after twenty-three blood or brain passages.

Estimation of Diastase Content of Urine.—The original technic for the diastase reaction is criticized by Dodds because it takes no account of the varying reaction of normal urine. A modified technic is described whereby the urine is diluted with a phosphate buffer solution, thus bringing all urines to the optimum p_H before its starch-digesting power is tested. Ammoniacal decomposition, by making the urine more alkaline, decreases the diastatic power as determined by the old method, but has no effect on the method suggested. Diastase tends to cling to urinary deposits, hence all urines should be well shaken.

Etiology of Dental Caries.—The examination of selected carious material by McIntosh, James and Lazarus-Barlow showed the constant presence of a definite type of bacillus. Teeth left in contact with pure cultures over prolonged periods showed changes almost identical with those found in natural caries. The bacilli, to which it is proposed to give the name *B. acidophilus-odontolyticus*, in their resistance to and formation of acid resemble the "acidophilus" group of Moro; biologically, however, there are several points of difference.

Isohemagglutination.—Absorption tests performed by Dyke on serums of Groups II, III and IV using corpuscles of Groups I, II and III confirm von Dungern and Hirschfeldt's hypothesis as to the distribution and nature of agglutinins and agglutinable factors in the four blood groups.

Experimental Immunization Against Dysentery Bacillus.—Attempts made by Kanai to secure, by subcutaneous and oral administration of killed vaccines, a solid active immunity against the potent soluble toxin of *B. dysenteriae* (Shiga), intravenously administered, have not been attended with the striking success realized in previous work when active immunity was sought to the live bacilli similarly administered. Therefore, comparative estimates of the value of oral and subcutaneous methods in this connection are not at present possible.

British Medical Journal, London

July 1, 1922, **2**, No. 3209

Modern Treatment of Syphilis. L. W. Harrison.—p. 1.
Place of Ophthalmology in Undergraduate Medical Curriculum. W. G. M. Byers.—p. 4.
*Diagnostic Value of Gastric Fractional Test Meals. H. S. Pemberton.—p. 7.
*Treatment of Human Hookworm Infection with Carbon Tetrachlorid. L. Nicholls and G. G. Hampton.—p. 8.
Mechanism of Drug Action. O. C. M. Davis.—p. 11.
Visceral Crises. A. Mills.—p. 13.
*Quinin Necrosis of Muscle. P. Figdor and D. D. Pinnock.—p. 14.
Blood at 100 Years of Age. F. G. Macnaughton.—p. 14.
Treatment of Erysipelas by Vaccines. J. R. Russell.—p. 15.

Diagnostic Value of Fractional Test Meals.—The acidity curves plotted from fractional test meals Pemberton regards as being of some value in obtaining knowledge of the factors which modify the acidity. Alterations in these factors bear some sort of relation to gastro-intestinal lesions; hence the acidity curves may throw some light on these lesions. These curves seem divisible into at least six types of varying diagnostic value. By comparison with other methods, the fractional test meal is at least admissible as an aid to diagnosis.

Carbon Tetrachlorid Treatment of Hookworm Infestation.—Nicholls and Hampton relate the case of a murderer under sentence of death who volunteered to take carbon tetrachlorid. Six c.c. was given one hour after the midday meal, and the same day he passed four worms (*Ascaris lumbricoides*); thirteen days later this dose was repeated at 7 a. m. before any food had been taken. The patient stated that at 11:45 he felt a little giddy and sleepy, but this soon passed. The execution took place a week after the second dose, and a postmortem examination was made one hour after death. No hookworms or ascarids were found in the intestinal tract. Sections of his organs were examined microscopically, but showed no signs of degeneration of any kind. Therefore, it is apparent that in single doses carbon tetrachlorid is a safe remedy. The students of an agricultural school who were infested with hookworms received a dose of 3 c.c. of the drug at 6:30 a. m. before any food had been taken; no purgative was given after the drug was administered. They were instructed to carry on their usual mode of life, and restrictions were not placed on their work, play, or diet. Not one of them was inconvenienced by the drug, and they all continued their day's work. All stools passed for three days after treatment were collected and carefully searched for worms. A total of 719 hookworms, or an average of thirty-six for each student, were recovered. Besides these hookworms, thirteen *Ascaris lumbricoides* were passed. Microscopic examination of fecal specimens ten days after treatment showed ova of hookworms in only two specimens, which indicates that 90 per cent. were cured. Two-thirds of the worms were passed on the second day after the treatment. Other observations made show that the drug may be administered safely in doses of from 10 to 20 minims to children 3 and 4 years of age, even when they are seriously ill from various causes. It aids the expulsion of *Ascaris lumbricoides* if it is followed by a purgative, but it is not as effective as chenopodium in killing this worm. The drug does not seriously deteriorate on keeping. Many children were given carbon tetrachlorid which had been stored in the laboratory for three years. It is more valuable than chenopodium for campaigns against hookworm disease because (*a*) patients do not object to its taste; (*b*) it is not necessary to precede or follow the administration of it by a purge; (*c*) it is more efficient than chenopodium and has not the depressing effects of that drug; (*d*) it is much cheaper than any other drug that has been used; (*e*) it can be prepared in a high degree of purity, and a chemically pure preparation should always be used; (*f*) the person who is being treated can do his usual day's work.

Quinin Necrosis of Muscle.—The interest of the case cited by Figdor and Pinnock relates to the early treatment of the patient by intramuscular injections of quinin and its unusual sequel. Necrosis took place, but in none of the other cases of quinin necrosis recorded has there been, as in this case, a definite separation and encysting of the necrosed muscle.

China Medical Journal, Shanghai

May, 1922, **36**, No 3

*Operation for Cirrhosis of Liver. A. I. Ludlow, Seoul.—p. 200.
Gangosa in Hainan; Report of Case. N. Bercovitz, Kachek.—p. 203.
Types of Cerebrospinal Syphilis in China. A. H. Woods, Peking.—p. 206.
Delouser. J. H. Ingram, Peking.—p. 225.
Delousing with Special Reference to Ingram Apparatus. C. W. Young, Peking.—p. 230.
Renal Function Tests. H. W. S. Wright, Tsinaufu.—p. 242.

Operation for Cirrhosis of Liver.—Ludlow makes an incision in the median line between the umbilicus and symphysis pubis. A tube is inserted and the fluid removed by suction or syphonage after which the whole field of the abdomen is explored. The omentum is then sutured with catgut to the parietal peritoneum over as extensive a surface as possible. A small amount of the omentum is then drawn out from the upper part of the wound and tucked under the skin and stitched in place with catgut sutures—a combination of the Talma and Narath and Vander Veer operations. On the patient's return to the ward, the tube is connected with a bottle for continuous drainage which is usually kept up for a week. The fact that there was no operative or postoperative mortality in the last five cases and that the patients were at least much improved, Ludlow thinks, warrants the continuance of the method.

Edinburgh Medical Journal

July, 1922, **29**, No. 1

Significance of Pyuria in Children. J. S. Fowler.—p. 1.
Some Factors Modifying Nutrition of Children: Survey of 3,000 of Most Marked Cases of Malnutrition in Viennese Children, Made in Summer of 1921. M. R. Gribbon.—p. 12.
Variola in Baghdad. H. C. Sinderson.—p. 18.
Spinal Anesthesia. D. N. Kâlyanvala.—p. 25.
Lateral Dislocation in Lumbar Spine. J. N. J. Hartley.—p. 34.

Japan Medical World, Tokyo

June, 1922, **2**, No. 6

*Sensitizing Action of Thyroid Extract for Epinephrin. S. Ono.—p. 157.
*Epinephrin Heterogenous Transplantation of Rat Carcinoma in Brain of Adult Mouse and Pigeon. K. Yamasaki.—p. 160.
Power of Peroxydase Reaction of Leukocytes in Acute Pyogenic Inflammation. H. Ohara.—p. 164.
*Active Principle of Korean Ginseng. K. Abe and I. Saito.—p. 166.

Sensitizing Action of Thyroid Extract for Epinephrin.—Onó's experiments show that an active principle of thyroid sensitizes the heart of cold blooded animals (toad) and the blood vessels of warm blooded animals (cow) for the action of epinephrin.

Experimental Inoculation of Mouse Carcinoma.—The result of the inoculation of the mouse carcinoma of Flexner's type into the subcutaneous tissue of mice is entirely negative. But the intracranial transplantation of the same tumor into the same animal gives apparently positive results in more than 64 per cent. The growth of the tumor tissue inoculated is infiltrative, though very slowly. The vital reaction in the tissue around the growing tumor tissue is generally sluggish. Hypodermic transplantation of the mouse carcinoma of Flexner's type into pigeons is absolutely negative, but it gives apparently positive results in the brain of the same animals.

Active Principle of Ginseng.—Abe and Saito found that the substance in ginseng which has inhibitory action on blood sugar is not extracted by petroleum ether or ether, but by pure alcohol. This active principle of ginseng is said to be a glucosid.

Lancet, London

July 8, 1922, **2**, No. 5158

Osteo-Arthritis. A. G. T. Fisher.—p. 55.
Clinical Symptoms of Cerebellar Disease and Their Interpretation. G. Holmes.—p. 59.
*Ten Cases of Delayed Congenital Syphilis. E. D. Spackman.—p. 65.
Tennis Elbow. F. Romer.—p. 67.
*Diastase Reaction of Urine. A. F. Sladden.—p. 68.
*Case of "Carcinoid Tumor" of Meckel's Diverticulum. J. A. B. Hicks and S. Kadinsky.—p. 70.
*Case of Eclampsia in Thirty-Fourth Week Treated by Cesarean Section; Mother and Child Living. A. W. Owen.—p. 70.
*Case of Carcinoma of Cervix in Young Woman Following Gonorrhea. S. G. Luker.—p. 71.

Delayed Congenital Syphilis.—Eight of the ten cases reported by Spackman occurred in full grown serving soldiers, whose ages were between 19 and 31 years; the two civilian patients were aged 17 and 16 years, respectively. In the eight cases there were no signs of a syphilitic breakdown until the men were engaged in the strenuous work of war. Further points of interest in these cases are that four out of eight soldiers were passed into the army as A 1—and that six out of the eight were actually serving in France when their syphilitic symptoms appeared, four of them being combatants in the front line. Syphilis hereditaria tarda, Spackman says, is not a rare disease, and should be diagnosed more frequently than it is in adult life. Aortitis or aneurysms may have a congenital origin and not be the result of acquired syphilis. All cases of syphilis, congenital or acquired, should be placed in the hands of those competent to treat them, and if any permanent benefit is to be expected such treatment must be intensive and thorough. Disease of the eye, in the form of interstitial keratitis, iritis, or choroiditis, often one of the earliest signs, is of great importance in early diagnosis.

Diastase Reaction of Urine.—Urines tested for diastatic activity, Sladden says, should be brought to a standard hydrogen-ion concentration, preferably the optimum, p_H 6.7. In assessing results, the total day's excretion, rather than the unit value alone, should be considered. Low diastase values definitely indicate nephritis as a rule; but not all nephritics (and notably pyelonephritics) have lowered values. Not all types of pancreatic lesions cause excessive diastase output. The test is of much value in dealing with toxemias of pregnancy and allied conditions.

Carcinoid Tumor of Meckel's Diverticulum.—Hicks and Kadinsky assert that no tumor of this nature has been recorded up to date as occurring in a Meckel's diverticulum. The patient was a boy, aged 12 years, who complained of sickness and abdominal pain. Seven weeks before admission he had had an attack of abdominal pain, vomiting and diarrhea, lasting twenty-four hours. The pain recurred about once a week for the next four weeks, and the attack lasted for an hour. After this attacks became more frequent and were accompanied by vomiting. A diagnosis of appendicitis was made, and the patient operated on the same day. At the operation the appendix, which was retrocecal, was found quite normal. A small amount of pus escaped in the region of the cecum, which was edematous and thickened, from the adherence to it of the distal end of an acutely inflamed Meckel's diverticulum. The diverticulum was 3 inches long, kinked and perforated; pus was present in the pelvis. The paracecal glands were enlarged. The diverticulum, appendix, and one gland were removed and the peritoneum drained. The patient made a good recovery.

Early Cesarean Section in Eclampsia.—Owen believes that the 30 per cent. mortality for cesarean section performed for eclampsia for the ten years 1911-1920 could undoubtedly be greatly reduced if prompter action were taken. The interval between the first fit and the operation in his case was just three and a half hours.

Carcinoma of Cervix Following Gonorrhea.—Luker's case occurred in a secundipara, aged 28, in whom carcinoma of the cervix followed an attack of gonorrhea contracted five months previously. The occurrence of a carcinomatous growth during local treatment of the cervical canal for gonococcal cervicitis, Luker thinks, supports the "irritation" theory, in that in this case there was the discharge and also the repeated application of antiseptics.

Medical Journal of Australia, Sydney

June 3, 1922, **1**, No. 22

Tuberculosis. H. W. Palmer.—p. 595.
Teeth and Health. V. MacDonald.—p. 605.
Rheumatic Fever Complicating Advanced Pregnancy. E. B. Heffernan. —p. 608.

June 10, 1922, **1**, No. 23

Pathogenesis of Renal Tumors. E. H. Derrick.—p. 623.
Treatment of Renal Tumors. A. Newton.—p. 634.
Case of Sprue in New South Wales. J. A. Goldsmid.—p. 636.

June 17, 1922, **1**, No. 24

*Operations on Round Ligaments and Their Dangers. H. A. Powell, Adelaide.—p. 653.
Wassermann Reaction as Index of Cure, with Special Reference to Value of Cold Fixation in Technic of Test. C. H. Shearman, Perth. —p. 656.
Stomatitis and Glossitis in Association with False Teeth. M. C. de Garis, Melbourne.—p. 668.
Subacute Nephritis and Result of Edebohls's Double Decapsulation Operation. R. D. McIntosh, Melbourne.—p. 668.

Operation on Round Ligaments.—In choosing the operation to be used, Powell says, the method that promises the best results is one that conforms most closely to the following considerations: Allows a thorough examination of the pelvis; utilizes the strong inner half (or more) of the round ligament; leaves no free band in the peritoneal cavity; leaves no weak spot in the broad ligament as a possible path for hernia; exercises a partially forward pull on the uterus; allows for the future possibility of pregnancy; allows sufficient space for normal expansion of the bladder.

Practitioner, London

June, 1922, **108**, No. 6

Pulmonary Embolism After Operations. C. Gordon-Watson.—p. 381.
Urticaria Due to Streptococcal Sensitization. A. F. Hurst.—p. 394.
Etiology of Diabetes, and Its Bearing on Treatment. P. J. Cammidge. —p. 396.
Treatment of Internal Hemorrhoids by Injection. A. S. Morley.—p. 403.
Arthritis Deformans. C. W. Buckley.—p. 412.
Value of Massage in Fibrositis. T. Marlin.—p. 425.
Oral Sepsis and Systemic Disease. W. B. Watson.—p. 432.
Treatment of Malaria in Pregnant Women and Newly-Born Children. S. B. Naggar.—p. 441.

Bulletin Médical, Paris

June 17, 1922, **36**, No. 25

Surgical Treatment of Traumatic Epilepsy. C. Villandre.—p. 499.
Treatment of Gonorrhea with Thorium X. Aversenq.—p. 502.

Bulletins de la Société Médicale des Hôpitaux, Paris

May 19, 1922, **46**, No. 17

*The Sign of the Thyroid. J. Parisot and G. Richard.—p. 806.
*Painful Pronation in Children. J. Comby.—p. 810.
*Anaphylaxis to Bread. G. Turrettini.—p. 811.
Argyll Robinson Sign from Skull Trauma. G. Guillain and L. Lacderich.—p. 814.
Tabes in Two Europeans from African Syphilis. A. Sézary and J. Alibert.—p. 816.

The Sign of the Thyroid.—Parisot and Richard injected thyroid extract and noted its effect on the heart in 17 cases of hyperthyroidism, in 11 with other thyroid disturbance, 32 with normal glands, and 12 with deficient thyroid functioning —72 in all. The reaction evidently depends on whether the vagus or the sympathetic system happens to be most sensitized at the moment. But one reaction was constant and capital in hyperthyroidism, namely, a pronounced slowing of the pulse, after the massive injection of thyroid extract. They call this the sign of the thyroid. The systolic blood pressure usually declined also, and the oculocardiac reflex was exaggerated. They say that this sign of the thyroid deserves to rank with Goetsch's epinephrin sign and Porak's sign of excessive thyroid functioning. They found it useful in determining or excluding the participation of the thyroid in pluriglandular disturbances.

Painful Paralysis of Infants.—When a child is learning to walk and it falls while its hand is being held by a larger person, the elbow gets a jerk that may displace the head of the radius a little. The result is what Broca called painful pronation, and taught how to cure it by holding the forearm in supination and pressing on the head of the radius while the forearm is flexed on the arm. The radius slips at once back into place. A case is described in which the jerk of the elbow occurred while the babe was sitting in its perambulator. It had hold of the top when the nurse pushed the carriage suddenly forward to escape a vehicle.

Anaphylaxis to Bread.—In Turrettini's case, Quincke's edema developed in a previously healthy woman of 52. The urine was free from albumin, and when no starchy food was taken there was no edema, but whenever she ate any bread the edematous swellings and urticaria returned. Attempts to desensitize have had no or only transient effect, and the edema still returns as regularly as when the anaphylaxis first developed. This was in December, 1920.

Encéphale, Paris

June, 1922, **17**, No. 6

The Care of the Insane. A. Antheaume.—p. 330.
Experimental Study of Cerebellar Localization. André-Thomas.—p 346. Conc'n.
*American Opinion of Psychanalysis. A. Brousseau and O. Raeder.—p. 360.
Mental Complications of Epidemic Encephalitis. Naville.—p. 369. Cont'd.
The Static System and Its Relation to Hypertonic Conditions of Skeletal Muscles. J. Ramsay Hunt (New York).—p. 376.

American Opinion of Psychanalysis.—Rousseau and Raeder report the various discussions on psychanalysis at the Atlantic City congress of neurology in 1921 as reflecting the opinion of American psychiatrists that psychanalysis is merely a new method of exploration of the subconscious and of emotional conflicts. They say that the Americans accept only *une psychanalyse épurée de tous les excès doctrinaux.*

Journal de Médecine de Bordeaux

June 10, 1922, **94**, No. 11

Orthopedic Examination of Schoolchildren. Lalesque.—p. 351.
Mongolian Blue Spot in Bordeaux. Boisserie-Lacroix.—p. 355.
Colloidal Gold in Surgery. J. Guyot and G. Jeanneney.—p. 358.
*Gestation after Nephrectomy. M. Favreau.—p. 359.
Duodenum Intubation. R. Damade.—p. 361.

June 25, 1922, **94**, No. 12

Ambard's Constant in Surgery. Bégouin and Darget.—p. 387.
Induced Asthma Attacks. Creyx, et al.—p. 390.
Gastric Linitis. C. Massias and G. Auriat.—p. 393.
Diphtheria of Trachea with Negative Findings in Nose and Pharynx. L. Cornet.—p. 394.

Gestation After Nephrectomy. — Favreau concludes from the case published here that a normal pregnancy can occur after nephrectomy for tuberculosis as early as one year after the operation. He adds, "Possibly less than this, notwithstanding Mathews' plea in The Journal, Nov. 19, 1921, p. 1634, for a delay of three years after nephrectomy before a pregnancy." The woman of 24 became pregnant one year after removal of the left kidney for tuberculosis. The fifth month acute pyelonephritis appeared which passed into a torpid phase but flared up anew during the puerperium, and then became torpid again after delivery. The woman was well and up the twenty-fifth day, and suckled the babe until the second month, but this was suspended as she did not regain her pregnancy weight.

Lyon Chirurgical

March-April, 1922, **19**, No. 2

*Arthroplastic Operations for Ankylosis. V. Putti.—p. 121.
*Trauma of Wrist in Children. R. Massart and P. Cabouat.—p. 133.
*Perforation of Gastroduodenal Ulcers. A. Kotzareff.—p. 158.
*Endoscopy of Neck of Bladder. L. Phélip.—p. 171.
*Fracture of Semilunar Bone. E. Destot.—p. 178.
*Clamp for Extraction of Fibromas. H. A. Albertin.—p. 187.

Arthroplasty for Ankylosis.—Putti has now a record of 113 cases of operative mobilization of stiff joints, 10 of the jaws, 38 of the elbow, 17 of the hip, and 40 of the knee, with others in five other joints. The great progress realized in this kind of operations is due to the practice of interposing a flap taken from the fascia lata. He covers with a free flap of this kind both epiphyses, fastening the flaps in place with a few catgut stitches. The joint must be freely exposed but without cutting the parts which preside over motion and weight bearing. The reconstruction of the joint and the results are shown in a number of illustrations and the excellent outcome. He never drains, but lays great stress on the necessity for traction on the distal fragment, the limb in a plaster splint. The traction holds the parts of the joint apart, and he keeps it up for a month. Passive movements are not begun till the tenth day. They are done by the patient himself, with simple apparatus fastened to the bed. To avoid any strain on the joint, it is best for the patient to make these passive movements without assistance, the physician merely supervising. As soon as the wound has healed, Putti begins hot air treatment, at first with an electric apparatus and later with an alcohol heater. This treatment has to be kept up for several months. He does not regard massage as of much importance, believing that the electricity stimulates the principal muscles more effectually. Mechanical treatment need not be begun till the twentieth day. The old, simple Bonnet apparatus is very practical. The patient should not bear his weight on the new joint until the thirtieth day. These new joints pass through a critical period about a month after the operation; the joint may be stiff and a little painful. The hot air treatment should be suspended for a few days, and only cautiously resumed. Extra care for a longer time is required for the jaw and the knee. The chances of success are better with the elbow, next the knee, the jaw and the hip.

Trauma of the Wrist in Children.—This profusely illustrated study of the wrist and its injuries is based on 377 cases of trauma of the wrist in children.

Perforation of Gastroduodenal Ulcer.—Kotzareff protests against an immediate gastro-enterostomy when a perforated ulcer has been sutured. His reason for this protest is the assumption that chronic gastric and duodenal ulcers are caused by infection with a fungus, and by making another opening we invite the localization of this fungus at this point. Askanazy's clinical and experimental research — in which Kotzareff cooperated—seems to have established that *Oidium albicans* is usually responsible for chronic ulcers. In operating, measures must be applied to destroy the oidium in the stomach, duodenum and mouth, otherwise the pus in the peritoneum will be invaded. Wherever there is a lesion in the mucous membrane the oidium is liable to take root. He urges search for the oidium in all ulcer cases and recognition of its causal action.

The Functioning of the Neck of the Bladder.—Phélip's endoscopic study of partial retention of urine has confirmed that the evacuation of the bladder does not depend merely on the opening and closing of the sphincter. There are four movements of the parts involved, and functional derangement from any one of these can be corrected by restoring this functioning to normal. This emphasizes the necessity for endoscopic analysis of the disturbances to allow correction before irreparable damage has been wrought.

Fracture of the Semilunar Bone.—Destot's article is based on twenty-four cases.

Extraction of Fibromas.—Albertin's illustrations show the double-pronged corkscrew device which he screws into the fibroma. The curving prongs aid in cutting out the fibroma while the hold is firm and solid, and there is no hemorrhage where it is worked in. He says it is superior to all similar models, and anyone can make one like it for himself.

Presse Médicale, Paris

June 21, 1922, **30**, No. 49

*Secretion of Pepsin and Pepsinuria. Loeper and J. Baumann.—p. 529.
*Metal Bands for Fractured Bones. A. Lambotte.—p. 530.
*Pregnancy in the Tuberculous. F. Dumarest and P. Brette.—p. 531.

Pepsin.—Loeper and Baumann have been making a special study of the secretion of pepsin, and present data to show that in addition to its protein digesting function, it instigates certain nervous and vascular reactions. It reduces the blood pressure, stimulates peristalsis, and is essentially vagotonic. Hence when pepsin is secreted in excess or in inadequate amounts, besides the purely digestive disturbances that result, there may be general disturbances from the excess or the lack of pepsin. Much pepsin in the fasting stomach content testifies in favor of ulcer and true hypersecretion. The serum and urine of the normal fasting subject do not contain pepsin, but in case of ulcer large amounts of pepsin are found in both serum and urine. The constancy of this fasting finding contrasts with the variability after meals.

Metal Bands for Fractured Bones.—Lambotte's modification of the Parham bands has already been described in these columns when published elsewhere (May 6, 1922, p. 1424). A little slide fits over the band and holds the turned back end, thus rendering it much more solid. Fifteen illustrations show Lambotte's band-passer, vice, etc.

Pregnancy in the Tuberculous.—Dumarest and Brette report nine cases in which a pregnancy or even repeated pregnancies in tuberculous women seemed to have a favorable influence on their disease. They cite Lassègue's three cases in which pulmonary tuberculosis seemed to have been arrested by the pregnancy. Artificial pneumothorax has introduced a new element into the question, and they describe eight cases in which women with a lung in collapse passed safely through an apparently normal pregnancy. It seems in many of such cases that the arrest of menstruation has a decidedly favorable effect. In the progressive immunization of the race, the children of parents with attenuated tuberculosis are the agents. When conceived during the phase of fibrous transformation of the tuberculous process, the child is born with defensive attributes, and his progeny some day will triumph definitely over the tubercle bacilli. All biology teaches that nature does not know of and does not practice any other means of stamping out contagious diseases than by progressive immunization. The cases of tuberculosis in which a favorable outcome is more probable are those with pronounced reactions, and the focus in the lung has had a slow fibrous evolution.

Progrès Médical, Paris

June 10, 1922, **37**, No. 23

Exophthalmic Goiter Syndrome. III. C. Achard.—p. 265.
Indigestion Invites Gastric Crises in Tabes. M. Loeper and G. Marchal.—p. 269.
Principles for Radiotherapy in Surgery. R. Proust.—p. 269.
The Centennial of General Paresis. H. Codet.—p. 273.

June 17, 1922, **37**, No. 24

Present Status of Exophthalmic Goiter. IV. C. Achard.—p. 277.
Thyroid Insufficiency and Sterility. Vignes and Cornil.—p. 283.
Obesity in Children. Lereboullet.—p. 285.

Revue de Médecine, Paris

February, 1922, **39**, No. 2

*Vitamins and Deficiencies in the Diet. G. Mouriquand and P. Michel.—p. 65.
*Chemical Modifications of the Serum in the Course of Liver Disease. Biscons and Rouzaud.—p. 91.
Hemiplegia with Hemichorea. A. Rémond and H. Colombiès.—p. 107.
Current Topics. H. Godlewski.—p. 111.

Dietary Deficiencies.—Mouriquand and Michel review the literature on the vitamins and the practical conclusions which their own clinical and experimental experience has confirmed. They warn not to hesitate to use cod liver oil freely, as indicated, for children of all ages into pueberty.

Chemical Changes in the Serum in Liver Disease.—Biscons and Rouzaud found that the cholesterin and the bilirubin content of the blood showed promptly the effect of obstruction of the flow of bile. When the liver itself begins to suffer, then the nitrogen and the sugar content soon show the effect also. During the congestion phase, the azotemia rises, but when the liver becomes seriously diseased, the azotemia declines. This decline may be masked, however, by uremia from retention by the kidneys. The ureosecretory index will reveal whether this is the case. Hypercholesterinemia is to gallstones what uricacidemia is to gout. Hemolytic jaundice, on the other hand, bears the imprint of hyperbilirubinemia. These two cycles are thus distinct, but the liver is a factor in both. Chemical examination of the blood serum may thus give the clue in puzzling conditions, tracing to cholelithiasis certain stomach disturbances. In other cases the normal findings in cholesterin, glucose and urea exculpate the liver and warn to seek elsewhere for the cause of the disturbances which have been masquerading as disease of the liver. But it is in the early detection of liver disease that chemical examination of the blood is most instructive and salutary, prompt treatment enabling us to steer the liver into a safe harbor. A course of alkaline mineral waters for instance has more chance to reduce the hypercholesterinemia and restore normal conditions in the liver, the less advanced the liver affection.

March, 1922, **39**, No. 3

*Shock by Contact. W. Kopaczewski.—p. 129. Conc'n No. 4, p. 211.
*Heart and Aorta Complications of Malaria. F. Tremolières and L. Caussade.—p. 151.
*Is Gonococcosis Curable? P. Lebreton.—p. 166.
*Expression of Eyes as Sign of Syphilis. A. Chelmonski.—p. 172.
Current Topics. H. Godlewski.—p. 175.

April, 1922, **39**, No. 4

Pathology of the Autonomic Nervous System. H. Roger.—p. 193.
Arsphenamin by Subcutaneous Injection. J. Minet and R. Legrand.—p. 230.
Recent Literature on Tuberculosis. H. Godlewski.—p. 244. Cont'd.

The Phenomena of Shock by Contact.—Kopaczewski describes the features which differentiate shock from injection of a suspension, from shock from injection of a colloid, and from the shock of anaphylaxis. Each of these three forms of shock by contact requires different treatment, measures to prevent flocculation or lysis or coagulation. He emphasizes that there are numbers of well tried substances at our disposal for this, capable of reducing the surface tension or augmenting the viscosity without any risk. Among the antilytic substances, cholesterin has been the best studied.

Cardiovascular Complications of Malaria.—The treatment of old heart and aorta lesions for which malaria is responsible has to be addressed merely to the heart. Quinin has no action on the dilatation of the heart once established from the influence of the malaria. The gravity inherent in all heart affections is enhanced by the debility from the malaria and the liability to new febrile attacks.

Is Gonococcosis Curable?—Lebreton is convinced that the gonococcus affects the genital organs more than the urinary organs, in both men and women. It is not enough to clear the urethra of gonococci to insure that the infection has been eradicated. In 164 cases of chronic urethritis in which the urethral secretion seemed to be sterile under the microscope, cultivation of the semen revealed gonococci in 70 per cent. The sperma is evidently responsible in many instances for the infection of the wife when the husband has long been supposedly cured of his gonorrhea. An autogenous antigonococcus vaccine is often effectual in dislodging the gonococci in the deeper organs. He gives a series of six doses and then waits two weeks and repeats the series once or twice, as the most effectual method yet known for "degonococcization." It proved successful in all but one of sixty-seven chronic cases thus treated, and this one would probably have been cured by a supplementary series. The success was complete also in three cases of suppurating prostatitis, although five series were required in one case. The cure was complete also in three cases of crippling gonococcus rheumatism and in a case of gonococcus pyelonephritis.

Expression of Eyes as Sign of Syphilis.—Chelmonski remarks that the most artistic artificial eye can always be told from a natural eye, and the eyes of syphilitics have a certain aspect which tells the story of the infection. The reactions of the pupils are less pronounced than normal; they may be oval; the anterior chamber may be flat, the cornea dull, the vessels constricted.

Archivio Italiano di Chirurgia, Bologna

May, 1922, **5**, No. 4

*Early Traumatic Epilepsy. P. L. Della Torre.—p. 349.
*Hemostasis for Resection of Liver. E. Angeletti.—p. 400.
Hernial Appendicitis. A. Miliani.—p. 419.
Cystic Protrusion of Ureter into Bladder. R. Cassanello.—p. 429.
*Foreign Bodies and Leukoplasia in Kidney Pelvis. C. Romiti.—p. 449.

Early Traumatic Epilepsy.—This is a study of nine operative cases in the war wounded. Epilepsy developed in 9 per cent. of those wounded in the head during Della Torre's early experience in the war. He gives an illustration of the regions of the skull in which trauma is most liable to be followed by epilepsy. Seven of the nine were cured by his operation and all have resumed their regular occupation, although two still have attacks of the traumatic epilepsy.

Hemostasis in Resection of the Liver.—Angeletti had occasion to remove a large tumor in the liver of a woman of 51. His assistant arrested the hemorrhage by compression with his fingers while Angeletti cut a long strip, over 1 cm. wide, from the aponeurosis of the rectus muscle on each side of the incision, taking up a little of the muscle with it. Each strip was then laid on the liver close to the raw edge, the two strips thus encircling the entire raw area, a little back from the edge. A series of seven or eight U stitches were then taken, traversing the upper strip, the whole of the liver and the under strip, and back again. The U sutures were symmetrical, and when they were tied the tissues forming the edge of the raw expanse were drawn close enough together to insure hemostasis. Another row of sutures was then taken to draw the edges, the sides of the wedge, together, and thus close the gap in the liver. He describes other ways to utilize this principle of an aponeurosis strip for a border to suture into, after resection of the liver. Seven illustrations show the exact technic. In future he would not attempt to drain. The aponeurosis and muscle strip border possibly might be sutured in place before the resection is begun. He reviews the entire history of attempts at bloodless surgery of the liver, crediting the first successful attempt to an Italian surgeon in 1716.

Foreign Bodies in Kidney Pelvis.—Hydronephrosis of probable congenital origin became infected and required long surgical treatment in the course of which four fragments of drainage tubes were left in the kidney pelvis. The young man was finally cured by nephrectomy. The case reaffirms the necessity for postoperative supervision. When the care after operations is left to the family, we can scarcely escape such mishaps.

Pediatria, Naples

June 1, 1922, **30**, No. 11

*Intra-Uterine Transmission of Scarlet Fever. O. Cozzolino.—p. 481.
*Primary Progressive Myopathy; Four Cases. L. Auricchio.—p. 488.
Acute Endocarditis in Nursling with Heart Defect. A. F. Canelli.—p. 495.

Intra-Uterine Transmission of Scarlet Fever.—Cozzolino relates that the mother died the fifth day of scarlet fever that appeared after she entered the maternity for the childbirth. Her child of 21 months died the second day of fulminating scarlet fever that had developed six days after the death of the mother. The new-born child developed scarlet fever when 20 days old. The infant's urine had been pathologic for a day or two, and the child the nineteenth day presented the clinical picture of classic hemorrhagic glomerular nephritis for which no cause could be discovered except the scarlet fever. He thinks the circumstances render intra-uterine transmission of the scarlet fever extremely probable.

Primary Progressive Myopathy.—In Auricchio's case the four brothers under 13 presented different stages of the primary progressive myopathy. No benefit was apparent from vigorous thyroid or antisyphilis treatment.

Policlinico, Rome

May 29, 1922, **29**, No. 22

*Relations Between Asthma and Tuberculosis. E. Bufalini.—p. 709.
*Epidemic Lymphadenitis. A. Sala.—p. 717.
*Treatment of Anthrax. T. Biancheri.—p. 718.
*Treatment of Anthrax. L. Conti.—p. 720.
*Postencephalitic Parkinsonism. T. Silvestri.—p. 721.

Asthma and Pulmonary Tuberculosis.—Bufalini tabulates the findings in 10 men and 12 women with asthma, recording the heredity, the antecedents, the response to tuberculin tests, the findings in the lungs, etc. In 15 of the 22 some affection of the respiratory tract had preceded the asthma, but only a few had been tuberculous. Tuberculin tests were positive in 19; active pulmonary tuberculosis was evident only in one instance.

Epidemic Lymphadenitis.—Sala relates that since the epidemic wave of influenza and epidemic encephalitis, there has been a local epidemic of jaundice in his region (900 cases). This was followed last August by an epidemic of buboes. Twenty cases were observed, the glands in the groin swelling and sometimes ulcerating. This lymphadenopathy suggested bubonic plague at first. All the patients recovered after a course of three or four months. Vanni isolated a micrococcus from the glandular lesions which reproduced the disease in guinea-pigs and other animals.

Serotherapy of Anthrax.—Biancheri protests against incision of the focus as intramuscular or subcutaneous injection of the antiserum has always proved effectual in his experience, unless the patient was moribund when first seen. He injects 60 c.c. at first and then 20 c.c. each day. After the local inflammation has entirely subsided he excises the eschar to hasten the healing. Conti, on the other hand, excises the lesion completely with a deep circular incision. The mortality was 3.33 per cent. in sixty cases treated in this way, while it was 20 per cent. in twenty treated by a crucial incision.

Paradoxic Sign of Postencephalitic Parkinsonism.—Silvestri reports two striking cases of the phenomenon to which Masci called attention as was summarized here July 8, 1922, p. 168. In Silvestri's cases the parkinsonism was extremely pronounced in the girl of 13 and the young man at all times except when the girl was dancing and the young man was bicycling. The movements of the dancing girl and the speeding bicyclist seemed to be normal in every respect. Abbruzzetti reported this paradoxic behavior in 1920, and Tilney and Souques have also called attention to it, the latter styling it paradoxic **kinesia.**

Riforma Medica, Naples

May 1, 1922, **38**, No. 18

*Cause of Adenoids. P. Brisotto.—p. 409.
A Precancer Lesion of the Lip. G. Anzilotto.—p. 411.
*Influence of Pituitary Extract on Bladder. M. G. Serdinkoff.—p. 413.
Simplification of Danecy Ureometer. G. Candido.—p. 417.

Cause of Adenoids.—Brisotto found inherited syphilis certain or very probable in 56 per cent. of 150 children with adenoids, and tuberculosis in 24 per cent. In 8 per cent. there was both tuberculosis and inherited syphilis. Hypothyroidism was evident in 6 per cent., and in 2 per cent. there was a history of alcoholism or consanguineous marriages. He theorizes that the adenoid vegetations represent merely a defensive reaction carried to excess. Resection of the adenoids is only symptomatic treatment; it is useful only when associated with treatment to modify the general condition of the bone and lymphatic systems.

Influence of Pituitary Extract on the Bladder.—Serdinkoff calls attention to the remarkable efficacy displayed by two injections of pituitary extract in a case of retention of urine from paresis of the bladder secondary to pyelonephritis from metritis in a woman of 32. Spontaneous micturition had been impossible for thirty-five days. The bladder had been enormously distended before the retention was recognized, and the paresis had developed the seventh day of the retention. She had had a similar attack of retention of urine three years before with cystitis, and there was a history of three or four abortions without appreciable cause. The tonus of the smooth muscle of both uterus and bladder was evidently abnormal, and this was effectually combated by the pituitary treatment.

Archivos d. l. Enf. del Corazón, etc., Barcelona

February, 1922, **1**, No. 1

*Interpretation of Variations in Venous Pulse. Durán Arrom.—p. 7.
Idem in the Tuberculous. Idem.—p. 26.
Idem with Thyroid Disease. Idem.—p. 32.

Interpretation of Variations in Venous Pulse.—Durán Arrom compares and citicizes hundreds of venous pulse tracings. He regards as especially important the interval between the *a* wave and the *c* wave.

Archivos Españoles de Pediatría, Madrid

May, 1922, **6**, No. 5

Significance of Chvostek's Sign. E. Nogueras Coronas.—p. 257.
Schick Reaction in Prophylaxis of Diphtheria. Duarte Salcedo.—p. 264.
Bednar's Aphthae? C. de Los Terreros.—p. 273.

Archivos Latino-Amer. de Pediatría, Buenos Aires

May, 1922, **16**, No. 5

*Bibliography on Children's Diseases. J. A. Trillo.—p. 1.

Argentine Pediatric Bibliography.—This compilation was mentioned in the News columns, July 22, p. 311.

Brazil-Medico, Rio de Janeiro

April 15, 1922, **1**, No. 15

Bismuth in Treatment of Syphilis. II. Parreiras Horta and P. Gans. —p. 183.
Vaccine Therapy of Ozena. S. C. da Silva.—p. 184.
Toxicity of Chenopodium. Pio Alves Pequeno Junior.—p. 185.

April 29, 1922, **1**, No. 17

*Medical Ethics. João A. G. Fróes.—p. 211.
Influenza in Its Relations to Air Passages. S. Cezar da Silva.—p. 216.

Medical Ethics.—This lecture on the principles of medical ethics was Fróes' inaugural lecture in the course on clinical medicine at Bahia. He remarked that clinical medicine everywhere is passing through an experience like that of Laocoon's struggle with the serpents. There is only one way to insure victory, that is, to exalt the dignity of the profession, guarding the same as one's own the dignity of other physicians, and maintaining moral, fraternal and scientific relations with the other members of the profession. Medical societies aid materially in the progress of science, stimulating emulation and strengthening the ties of professional brotherhood by better mutual acquaintance. He quotes freely from a French novel "The New Doctor," by Pravieux, to illustrate what he says of the cancer of envy and charlatanism, the latter "the original sin of medicine of old, the shame and disgrace of medicine of today."

Crónica Médica, Lima, Peru

February, 1922, **39**, No. 704

*Sclerosis of Neck of Bladder. E. P. Manchego.—p. 33.
*Correction of Perforation of Palate. F. La Torre.—p. 42.
The Prehemorrhagic Stage in Typhoid. A. Ricaldoni.—p. 48.

Sclerosis of Neck of Bladder.—Manchego remarks that this condition is frequently mistaken for hypertrophy of the prostate in the elderly and for a stricture in the urethra in younger men. In some of the six cases he describes this mistake was made; in two cases there were polyp growths bedsides. Infection is the rule because the catheter has to be used early. The extreme difficulty in voiding urine contrasts with the ease with which even large instruments can be passed into the bladder. Systematic dilation always improves, and resection of the fibrous tissue cures completely in 75 per cent. of the cases. Buerger's method of procedure is described. In two cases Pazos Varela found that the neck of the bladder and upper urethra formed a stiff sheath, requiring resection of the internal sphincter. One of Manchego's patients was left with incontinence after the operation, but this was cured by resecting a fibrous band which had formed. In two cases, time and efforts had been wasted on the mistaken diagnosis of hypertrophy of the prostate. A huge fistula was left.

Perforation of Palate.—The syphilitic bone and mucous membrane lesion healed under treatment, and the defect was closed by suture and a prosthesis.

Gaceta Médica de Caracas, Venezuela

Feb. 28, 1922, **29**, No. 4

History of Gallstone Surgery in Venezuela. S. Córdoba.—p. 44.
Criticism on Above. L. Razetti.—p. 51.

Revista Española de Medicina y Cirugía, Barcelona

April, 1922, **5**, No. 46

*Fracture of the Clavicle. Soler Juliá.—p. 179.
Therapeutic Diets. A. A. Pereira.—p. 184.
*Syphilitic Heart Disease. S. A. Meza and J. Paulis.—p. 199.
The Book of the Plague. A. D. 1599. L. Mercado.—p. 200.

Fracture of the Clavicle.—Soler Juliá gives an illustrated description of the Esquerdo plaster bandage which leaves the hand and elbow joints free, and interferes only slightly with the use of the shoulder. Flannel is cut double in the shape of half of a man's vest. Each half is coated with plaster on a table and then one half is laid on the other, the plaster between, and this half-vest is then fitted over the trunk, packing the axilla thick with cotton. Broad bands of glued tarletan are then wound around the trunk and shoulder, molding the plaster cast to the back and front, and forming a stiff collar that forces the head up a little and toward the sound side. It forms also a stiff sleevelet that prevents the arm from being moved forward. The cotton in the axilla raises the shoulder. Ordinary use of the arms is not interfered with; the boy can play ball with both hands, the housemaid keep on with her duties, and the cast can be removed and massage commenced the twenty-fifth day in the young.

Syphilitic Heart Disease.—Meza and Paulis say that Cesa-Bianchi's recent discovery of spirochetes in the heart in inherited syphilis confirms the necessity for suspecting syphilis in all kinds of heart disturbances. They list twelve different forms of heart disease that it may assume, and emphasize that electrocardiography is one of the most reliable means to detect latent mischief of this kind. By prompt treatment we may avert irreparable damage and sudden early death.

Revista de Medicina y Cirugía, Havana

May 25, 1922, **27**, No. 10

*Fixation of the Kidney. O. Ledón Uribe.—p. 331.
Anomaly in Femoral Artery. E. Brú.—p. 336.
Anomaly in Subclavian Artery. G. Insua Cartaya and L. Carillo y Ortiz.—p. 340.

Fixation of Kidney.—Ledón Uribe frees the last rib and slides the kidney on this rib. A tunnel is made for it under the capsule. He has applied this method in several cases. It avoids the disadvantages of other methods. Only the two small incisions to make the tunnel, in the upper half of the posterior aspect, are required. The illustrations show how the tunnel slopes to fit the rib.

Revista Médica del Uruguay, Montevideo

April, 1922, **25**, No. 4

*The World War Against Tuberculosis. M. Becerro de Bengoa.—p. 305.
Fractures of Anterior Arch of Atlas. A. di Lorenzo.—p. 313.
*Lithopedion. C. Legnani.—p. 316.
Present Status of Bismuth Treatment of Syphilis. José May.—p. 320.

Failure of the World War Against Tuberculosis.—Becerro de Bengoa asserts that the death rate from tuberculosis is constantly increasing, notwithstanding the great concerted efforts against it. He outlines a system of tactics that would exterminate tuberculosis sooner or later. His *formula de la victoria* is to have the entire populace examined for tuberculosis once a year, at public expense, with segregation of the "open" cases in special public or private sanatoriums or colonies, until they are no longer contagious or they die, the breadwinners to be given a pension until recovery or death.

Lithopedion.—In Legnani's case the fetus weighed 1,000 gm. and the size corresponded to term. It was found free in the abdominal cavity, over four years after the last fetal movements had been felt. The woman had borne two children before.

Semana Médica, Buenos Aires

May 4, 1922, **1**, No. 18

Anomaly of Right Subclavian Artery. A. Gutiérrez.—p. 697.
Two Reactions of Piperazin and Lycetol. J. A. Sánchez.—p. 700.
The Vagus and the Sympathetic Systems. P. de Rabinovich.—p. 703.
*Rib Resection for Cheesy Focus in Lung. Gumersindo Sayago and J. M. Allende.—p. 715.
Vaccine from Dissociated Elements of Bacterial Protein. R. Cárcamo.—p. 718.
Cerium Salts in Treatment of Tuberculosis. P. Alurralde.—p. 726.
Need for Organization of the Profession. C. Carreño.—p. 729.

Rib Resection for Cheesy Focus in Lung.—There was a large cavity in the upper lobe of the left lung but the right lung seemed sound. Attempts to induce artificial pneumothorax had failed, but complete success followed resection of ribs, close to the spine. The technic followed was that which Wilms calls "columnar resection"; a total of 60 cm. was resected, from the second to the tenth ribs, inclusive, and, twenty days later, part of the eleventh rib. The chest measure dropped from 88 to 79 cm., the transverse diameter from 28 to 23 cm.

May 11, 1922, **1**, No. 19

*Indications with Difficult Delivery. E. A. Boero.—p. 737.
Biologic Treatment of Infection. H. Dasso.—p. 745.
*Variations in Children's Weight. J. C. Navarro and E. A. Beretervide.—p. 746.
*Resection of Bladder. J. Salleras Pagés.—p. 753.
Polyvalent Hormone Therapy. A. Lamarque.—p. 758.
Apparatus for Recording Reacting Time. V. Tedeschi.—p. 768. Reply. J. Ramón Beltrán.—p. 771.
Farm Colony fot the Chronic Tuberculous. F. Gorriti.—p. 773.
*The Extinction Sign of Scarlet Fever. D. J. Rojo.—p. 776.

Indications in Dystocia.—Boero refers to cases in which delivery is impossible on account of the defective development of the lower segment of the uterus. The cervix feels like a cylinder, 5 or 6 cm. long, with three rings slipped over it. The upper ring is so rigid that any attempt to deliver by the natural route is sure to tear the uterus. The presenting fetus is high, almost unreachable from the vagina. This form of dystocia is seldom recognized until late, after the ineffectual labor contractions have long continued. He has had this form of dystocia in women who had never had any trouble in former pregnancies. The lower segment of the uterus had been vigorously cauterized in some of the cases he describes, and he incriminates the cicatricial changes left from this, or from curetting, as impeding the normal stretching of the cervix. It differs in several respects from the dystocia for which spasm of Bandl's ring is responsible. The ineffectual labor contractions merge into tetanization, and this passes into a phase of rigid retraction. The tissues in this phase tear easily. In five of the six cases described, the uterus ruptured during the efforts to deliver the fetus by the normal route, even when the fetus had been dismembered.

Variations in Weight of Children.—Navarro records the variations in weight of 110 children given various tonics. He is inclined to ascribe the remarkable gains made by some of the children, in large part, to the mental impressions from the weighing and attention otherwise, and urges systematic weighing as a means to rouse the appetite and interest of children in their physical development.

Partial Resection of Bladder.—In Salleras' case the cystoscope showed an ulcerated tumor, 3 cm. in diameter, high in the bladder. The first symptom had been hematuria, in the man of 52. The hematuria returned occasionally during the following two months, and there had been slight pain just above the symphysis, and the weight declined. Salleras did not attempt endovesical measures, but resected that portion of the bladder wall with the myo-epithelioma and the adherent peritoneum. The health has been perfect during the three years to date. Attempts at electrocoagulation would have been disastrous as it would have been impossible to reach the entire tumor with it.

Diagnostic Blanching or Extinction Phenomenon in Scarlet Fever.—Rojo's experience has confirmed the specific and reliable nature of the Schultz-Charlton phenomenon in the differential diagnosis of scarlet fever. In his eighteen cases it was positive in nearly 78 per cent. and constantly negative in the four cases of eruptions of other nature. It was positive by the second day in fourteen of the eighteen scarlet fever children and allowed their prompt isolation. The test is made with 0.5 or 1 c.c. of normal human serum injected intradermally where the eruption is most pronounced. The eruption disappears completely in a zone from 2 to 10 cm. wide around the point of injection in case of a positive response.

Archiv für Gynäkologie, Berlin

May 20, 1922, **116**, No. 1

*Gas Gangrene Infection of Uterus. H. Brütt.—p. 1.
Surgical Treatment of Delivery with Contracted Pelvis. A. Wollner.—p. 26.
Teeth in Ovarian Teratomas. J. Steinhoff.—p. 53.
Test of Liver Function in Pregnancy. B. Walthard.—p. 68.
Action on Humors of Colloidal Silver (Dispargen) and Pregl's Solution in Puerperal Septic Processes. A. Mahnert and A. Sautner.—p. 98.
Ovarian Hematoma. H. Runge.—p. 116.
Aneurysm of Uterine Vessels. E. Vogt.—p. 129.
Can a Pregnancy Last Over 302 Days? E. Zweifel.—p. 140.
*Dilating Instrument: The Metranoikter. S. Stephan.—p. 161.
Torsion of Cervix of Myomatous Uterus. N. Ellerbrock.—p. 171.
New Anomaly of Umbilical Cord. B. Ollow.—p. 176.
Young Human Ovum in Situ. W. v. Möllendorff.—p. 200.

Gas Gangrene of the Uterus.—Brütt describes six cases of physometra from puerperal gas gangrene infection of the uterus. In one case the fulminating gas gangrene infection proved fatal in thirty hours from the stormy onset. In the second case, anaerobic streptococci must be incriminated for the fatal complicating peritonitis, and pneumonia in another case, two weeks after the operation. The uterus was removed in all the cases, but the conditions were already beyond help in all but one case. In another woman, a gangrene inducing metritis was the work of anaerobic streptococci alone. Peritonitis always accompanied the gas gangrene. With lymphangitic or thrombophlebitic sepsis, the fulminating course renders any operation futile.

Mechanical Dilatation of the Uterine Cervix.—Stephan calls attention to an old and forgotten dilator which he thinks is superior to all similar instruments in vogue. The two blades are connected with a spring forming a half circle which holds the blades at rest, slanting outward, about 5 cm. apart. The blades are closed and held with forceps as the instrument is introduced. The spring forces the blades apart and they stretch the lumen to 5 cm. at the upper ends of the blades. In his two and half years' experience with it there was never any injury except occasionally a slight erosion at the internal os, where the blades spread farthest apart. The shape of the dilatation is the physiologic shape.

Deutsches Archiv für klinische Medizin, Leipzig

May 23, 1922, **139**, No. 5-6

*Research on Percussion and Auscultation. III. P. Martini.—p. 257.
Gas Interchanges in Obesity and Pituitary Disease. R. Plaut.—p. 285.
*Test for Bilirubin in Blood. E. Herzfeld.—p. 306.
Pathogenesis of Cancer Anemia. M. J. Roessingh.—p. 310.
Factors Regulating Venous Blood Pressure. C. Kroctz.—p. 325.
*Metabolism in Spleen and Liver Disease. E. Grafe.—p. 354.
*Influence of Muscular Work on Diabetes. E. Grafe and H. Salomon.—p. 369.
"Roentgen Study of Heart Function." H. Assmann.—p. 380.

Research on Percussion and Auscultation.—Martini's work is being done on a special scientific grant. Six plates give the findings in normal and infiltrated lungs to illustrate the laws he has deduced. He remarks parenthetically that the diagnostic importance of bronchophony is not appreciated yet. The modification in this in case of pathologic conditions can often be detected earlier than any other changes.

Color Test for Bilirubin.—Herzfeld commends for quantitative estimation of bilirubin in the blood serum, Hammarsten's reagent as an extremely simple and reliable test. It is not necessary to remove the albumin. The reagent is one part of 25 per cent. nitric acid and nineteen parts of 25 per cent. hydrochloric acid. To use, one part of the reagent is diluted with four parts of alcohol.

The Metabolism with Spleen and Liver Disease.—In seven of the nine cases Grafe tabulates, the spleen was very much enlarged; in the other two the liver was extremely pathologic. Two of the splenomegaly cases were of the Gaucher type, and one was cured by splenectomy. Four were of the Banti type. The temperature was normal or subnormal, but the basal metabolism in all was abnormally high. True primary cirrhosis of the liver, even when accompanied by enlargement of the spleen, does not seem to send up the basal metabolism, while it is always high with splenomegaly of the Gaucher and Banti types. "When the gas exchanges in a case of splenomegaly show the basal metabolism within normal range, then splenectomy is contraindicated, as there is no toxic element to be eliminated by removing the spleen."

Influence of Muscular Exercise on Combustion of Sugar in the Diabetic.—Grafe and Salomon report research on nine diabetics which showed that the combustion of sugar increased absolutely during exercise, but relatively it dropped materially. The greater expenditure of energy must have been at the expense of the fat. In conclusion they remark that all such experiences confirm the truth of the saying that fatigue is a sensitive and reliable gage of the injury of the body by any disease process.

Deutsche medizinische Wochenschrift, Berlin

June 2, 1922, **48**, No. 22

*High Blood Pressure without Kidney Involvement. F. Külbs.—p. 717.
*Conservative Operation on Esophageal Diverticulum. König.—p. 719.
Healing of Esophageal Carcinoma Following Roentgen Irradiation. A. Beck.—p. 720.
Comparison of Roentgenograms of Lungs. F. Peltason.—p. 721.
*Pituitary Tumors. M. Kontschalowsky and A. Eisenstein.—p. 722.
Occurrence and Significance of Reticular Fibers in Syphilis and Other Cutaneous Diseases. E. Zurhelle.—p. 724.
Volvulus Affecting the Entire Small Intestine. Heymann.—p. 725.
Healing of Fractures, and Pseudarthrosis. M. Zondek.—p. 727.
Treatment of Ankylosis of Jaw. Bockenheimer.—p. 729.
Treatment of Enuresis with Camphor. C. Pototzky.—p. 730.
Acute Occlusion of Intestine. G. Ledderhose.—p. 733.
Technic of Treatment of Displaced Uterus. H. Freund.—p. 735.

High Blood Pressure Without Kidney Involvement.—Külbs has found that there is a comparatively large number of patients with high blood pressure without clinically demonstrable affections of the kidneys. In fact, the number seems to be increasing. He discusses a series of 288 cases. The working class does not seem to be affected as much as the professional or educated circles. The causal factors seemed to be: psychic excitement, the climacteric, syphilis, nicotine, alcohol, obesity, gout, and organic heart disease. The majority of the patients improved (reduction to from 150 to 160 mm. of mercury) under treatment: proper rest periods, restriction of salt, venesection, small doses of digitalis, and potassium nitrate. As a rule, the subjective symptoms were relieved and the physical and mental capacity were improved.

Conservative Operation on Esophageal Diverticulum.—König has tried a conservative operation on esophageal diverticulum in two cases. He thinks that it is indicated at least in weak patients who could scarcely survive the radical removal of the sac, and that, after more extensive trial, it may prove to have still wider indications, in order to avoid the element of danger in the more radical operation, in which the mortality ranges around 6 or 8 per cent. The sac of the diverticulum is exposed and dissected free. The contents are pressed out. The flabby, folded sac is drawn up laterally and sutured to the periosteum of the hyoid bone in its posterior portion. To make the fixation still more secure he draws the loose sac up under the anterior portion of the omohyoid muscle, which on that account must be left intact; it is also fastened to this muscle by a few stitches. If the sac is sufficiently long this gives a very firm fixation, and the omohyoideus helps also in relieving the sac of its contents. Local anesthesia is employed. The sac remains but the main thing is that food does not stagnate in it.

Roentgen Irradiation of Hypophysial Tumors.—Kontschalowsky and Eisenstein state that, in view of the fact that attempts at operative removal of tumors of the hypophysis result still in a very high mortality, recurrences also being very common, since in many cases the operator does not succeed in removing the whole tumor, roentgen irradiation, which with cautious technic is not dangerous and usually gives good results, is to be preferred. Only in cases in which roentgen irradiation proves useless (mostly colloidal cysts) and the eye symptoms and the severe headaches become alarming should an operation be undertaken as a last resort.

Jahrbuch für Kinderheilkunde, Berlin

June, 1922, **98**, No. 5-6

Influence of Whey on Intestinal Epithelium. IX. P. György.—p. 245.
*Pyocyaneus Infection in Children. E. Dudden.—p. 257.
Uremia and the Ambard Constant in Sick Infants. I. C. Koch.—p. 276.
Acromegaly and Giant Growth in Children. K. Kundratitz.—p. 292.
*The Wildbolz Urine Reaction in Children. J. C. Schippers and S. B. de Vries Robles.—p. 299.
*Composition of Infant Brain. E. Faerber.—p. 307.
*Serodiagnosis of Scurvy. Leichtentritt and Zielaskowski.—p. 310.

Ecthyma Gangrenosum.—In Dudden's three cases of ecthyma gangrenosum the pyocyaneus seemed to be solely responsible. The children were 5 and 7 months and 4 years old, and none survived. The gangrenous affection was on the back or seat or both, and it had followed pneumonia in all. In another child, the pyocyaneus had induced lesions on the stomach and intestine mucosa which resembled those on the skin in his cases. Irritation from urine, stools and sweat should be warded off in prophylaxis with weakly children. Hydrotherapeutic procedures might be given a trial, as well as symptomatic measures. In the older child, a tendency to retrogression of the skin lesions was evident toward the last, but the pyocyaneus was cultivated from the spinal fluid.

The Own Urine Reaction in Tuberculous Children.—The verdict was decidedly unfavorable after repeated examination of sixty-seven children over long periods.

Chemical Analysis of Infants' Brains.—The infants analyzed in the group here reported had all died from toxicosis. Nothing differing essentially from the findings in the brains of infants dying from other causes could be discovered.

Serodiagnosis of Scurvy.—Leichtentritt and Zielaskowski have been studying in human blood the normal protecting influence against trypanosoma infection in animals. This trypanocidal property was found in human blood and the blood of apes by Laveran in 1902, but it has wide individual differences. The suggestion is here made that these individual differences may be due to the resisting powers of the organism at the moment. If this is accepted, then the inference follows that the intensity of the trypanocidal action may serve as a gage for the resisting powers. In the prematurely born, the children suffering from infection or from lack of vitamins, the resisting powers are at such a low ebb that the production of the trypanocidal substance is temporarily in abeyance. Hence the negative response to tests for this substance may aid in the differential diagnosis and, in the grouping of certain maladies, reveal their connection.

Klinische Wochenschrift, Berlin

April 8, 1922, **1**, No. 15

Gout and Nuclein Metabolism. A. Schittenhelm.—p. 713.
Pathogenesis of Chronic Gastric Ulcer. R. Nissen.—p. 715.
Quantitative Test for Indican in Blood. Snapper and van Vloten.—p. 718.
Bases and Indications for Calcium Therapy. Dresel and Jakobovitz.—p. 721.
*Experimental Research on Autotransfusion of Blood. Furukawa.—p. 723.
Effect of Gymnasium Work and Sports on Adults. Herxheimer.—p. 725.
Nerve Paralysis and Irritation in Relation to Trophic Changes. Brüning.—p. 729.
Treatment of Spondylitis with Cautery. W. H. Wirth.—p. 732.
Immunologic Conditions of Foot and Mouth Disease in Cattle and Guinea-Pigs. P. Uhlenhuth and W. Bieber.—p. 734.
Stimulative Effect of Food in Purin Metabolism. Joel.—p. 735.
Technic and Clinical Value of Colloidal Gold Test of Cerebrospinal Fluid. O. Grütz.—p. 735.
A Thoracopagus. W. Gorn.—p. 736.
Bilateral Herpes Zoster. E. Hillenberg.—p. 737.
Susceptibility of Young Children to Influenza. Meyer.—p. 737.
Roentgen Irradiation of Uterine Carcinoma. L. Seitz.—p. 741.
Phenomenal Memories. T. G. Hegge.—p. 742.
Recent Views on Blood Sugar. P. György.—p. 745.

Research on the Treatment of Anemia by Autotransfusion of Blood.—Furukawa states that the problem of rejuvenation of the blood supply of the organism entered upon a new stage when Kasys Naswitis made his researches to determine whether Haberlandt's observations on plants with respect to the causation of increased cell proliferation by so-called wound hormones would hold good for the higher mammals and more particularly, man. Naswitis' method of experimentation follows: Blood was taken from a subject and was either made incoagulable or was defibrinized. It was then placed in a freezing mixture and allowed to freeze, in order to destroy the blood cells. It was now thawed out and permitted to stand for several hours at room temperature. It was afterward heated to body temperature and was reinjected intravenously or intramuscularly into the same subject from whom it was taken. The result was a considerable increase of red blood cells, which could be noted in the course of several days. The treated subject received in addition no other substance from any donor: Only his own blood was reinjected in a changed form, sometimes without fibrin; in any event, after it had lost something of its original character. Nevertheless, hematopoiesis was favorably influenced. Furthermore, Naswitis was able to show that the good effect was associated with or dependent on the fact that the blood had undergone changes or that certain substances had been removed. Through the partial destruction of the blood, irritative or stimulative substances are produced therein which excite to activity the hematopoietic or blood producing organs or regions. Following Haberlandt's terminology with regard to plants, Naswitis names these substances the "wound hormones" of the blood. These wound hormones have nothing to do with the hormones of the endocrine glands. In order to test the claims of Naswitis, Furukawa brought about induced anemia in rabbits and dogs by injections of phenylhydrazin. When the anemia had reached a certain degree, he took from the experimental animal a small quantity of blood, treated the blood after Naswitis' method and reinjected it into the animal, either intravenously or subcutaneously. The result was an increase of red blood cells. Before the frozen and thawed blood is reinjected, it must be allowed to stand at least from two to three hours at room temperature, for defibrinated blood exerts a toxic effect unless it is permitted to stand several hours. If it is reinjected too soon, it will produce shock effects and may possibly cause death. Furukawa holds that the relations of blood decomposition to renewed hematopoiesis in the normal body have been suddenly opened up by the Naswitis experiments. The whole research has been done at the Pathology Institute at Berlin.

Medizinische Klinik, Berlin

June 11, 1922, **18,** No. 24

*Gynecology in Relation to War Conditions. A. Mayer.—p. 749. Cont'd.
*Injection Treatment of Hemorrhoids. I. Boas.—p. 753.
*Protein Therapy. K. Brandenburg et al.—p. 756.
Nature and Physiotherapy of Muscular Rheumatism. E. Tobias.—p. 760.
Office Treatment of Acute Inflammation of Fingers. Henrichs.—p. 764.
Structure and Weight of Atom. O. Liesche.—p. 765.
Rudimentary Obstetrics. E. Runge.—p. 767. Cont'n.
Recent Literature on Social Hygiene. H. Ziemann.—p. 769.

Gynecology and Obstetrics During the War.—Mayer discusses the effect of war conditions on menstruation and childbearing. There was a large number of cases in which a child was born during the war after years of supposedly irremediably sterile marriage. Since the war, the number of women who apply with complaints of sterile marriage is strikingly large. He quotes Siegel's conclusions from 300 cases of conception during the soldier husband's brief leave: namely, that between the first and ninth days after menstruation begins the offspring are boys, and between the fifteenth and twenty-second days girls are conceived. Between these two periods, either girls or boys may be conceived, but later than these periods, between the twenty-third and twenty-eighth days, conception rarely occurs. The question is still unsolved as to the phase of the ovum during which it becomes fecundated. The menses do not return after the ovum is once embedded in the uterus, but menstruation probably can occur during the days after fecundation of the ovum before it has grown large enough for embedding or has even reached the uterus.

Injection Treatment of Hemorrhoids.—For six years Boas has been treating hemorrhoids with injection of 96 per cent. alcohol. He here reiterates his assertions in regard to the almost certain success of this excellent method of treatment. He declares that any treatment by injections must be regarded as equivalent to an operation. To insure aseptic thrombosis, the patient must stay unconditionally in bed for four or five days. Intra-anal hemorrhoids do not need drastic measures; they can be kept in control or cured with salves and diligent use of sitz baths. The intrarectal ones must each be delivered outside the anus for diagnosis and treatment. This can usually be accomplished by straining; if not, an enema of hot salt solution or glycerin will often answer the purpose. Direct stretching of the rectum wall relaxes the internal nodules and may induce paresis of the sphincter; this is liable also when specula are used. Aspiration with a Bier vacuum glass has always proved the best means for drawing out the hemorrhoids. The aspiration is continued, after local anesthesia, until the nodules are distended to the utmost, and they do not collapse when the cupping glass is lifted. Very small amounts of alcohol suffice; even for the largest nodules, he does not inject over 10 or 20 drops (0.5 to 1 c.c.). It is important to have no alcohol on the tip of the needle when the nodule is pierced, as otherwise the thin wall of the vein becomes necrotic. He injects all the hemorrhoids at the one sitting, beginning with the small ones, as these are liable to slide back first. There may be no inconveniences from the procedure, or there may be a sensation of fullness as the hemorrhoids swell. They must be reduced at once when all have been injected, smearing with liquid petrolatum, pushing them up into the rectum as high as possible. During the four or five days in bed only fluid food is allowed: then a saline purge is given, supplemented by an oil enema. Even the first stool may be painless. The factors that brought on the hemorrhoids in the first place must be kept under control. He has had a return of hemorrhoids in only six of the 130 cases he has treated with the alcohol injections. In two instances he repeated the injections once or twice. When there is already prolapse of the hemorrhoids, it is futile to waste time on palliative measures. Profuse hemorrhage may occur even without hemorrhoids. The only cure here seems to be complete extirpation of the entire hemorrhoidal plexus.

Protein Therapy.—R. Schmidt of Prague was the one who introduced systematic parenteral injections of 5 c.c. of milk into therapeutics, and he discusses its value in internal diseases, Elschnig in eye disease, and Buschke in skin and venereal diseases. This shock treatment has thrown light on processes such as "protoplasma activation," "increased vital efficiency," the "healing fever," and the "healing inflammation." The organism seems to be thrown out of the balance which had allowed the disease to become installed. Schmidt says that this shock treatment seems to be indicated whenever an acute inflammatory process has passed into a torpid chronic phase. The parenteral injection induces a local reaction in the focus, and has proved useful in torpid joint affections, in tuberculous processes in bone and peritoneum, and even in fibrous and torpid febrile processes in the lungs. Acute processes like erysipelas may also be remarkably favorably affected. In the hemorrhage of typhoid, the milk injection has proved an excellent hemostatic. He says that neuralgia is another promising field, trigeminal and sciatic neuralgia, and asthma. Stimulation of diuresis may occasionally be another indication for it. Dragging subfebrile states may be transformed by it. The same as tuberculin, it may benefit in general paresis. He adds that protein bodies may serve usefully as a sensitizing principle to enhance the action of organotherapy; for example, by combining thyroid treatment with the milk injections, we might act more effectually on obesity. In all forms of protein therapy he advises to begin with small doses, not over 0.1 or 0.5 c.c. of milk, repeating the intragluteal injection on alternate days for four or five weeks, with the same or larger doses. The maximum he allows is 5 c.c. Slight focal and general reactions are desirable.

Elschnig says that the effects of protein therapy in eye affections have been capricious: fine results in some and no effect in others. Nonmycotic iridocyclitis seems to benefit most, and acute gonococcus conjunctivitis in the earliest stages.

In skin and venereal affections, Buschke says, the healing process seemed to be hastened a little in some cases, especially with gonococcus epididymitis and arthritis, and he was impressed with the relief from the pain. The local hyperemia may be the explanation of the benefit. He warns that latent tuberculous foci are liable to flare up under it. The complete retrogression of a bubo or other lesion was very seldom observed under it, and never when the gonococcus was involved.

Münchener medizinische Wochenschrift, Munich

May 26, 1922, **69**, No. 21

*Primary Carcinoma of the Buccal Cavity. H. Küttner.—p. 771.
Effect of Deep Narcosis on Color of Blood from the Capillaries. F. Rost and Ellinger.—p. 772.
*After-Treatment of Osteomyelitis. A. Hofmann.—p. 773.
*Test Sedimentation of Erythrocytes. W. Dreyfus and P. Hecht.—p. 775.
Effect on Aviators of Lack of Oxygen. F. Noltenius.—p. 776.
Transient Roseola in Recurrent Fever. Oettinger and Halbreich.—p. 778.
Puncture of Prevertebral Abscess. F. Schede.—p. 779.
Rotation of the Cheek in Plastic Surgery. J. Esser.—p. 780.
The "Language" of Bees. III. Karl von Frisch.—p. 781.
Sensibility and Sensitization in Radiotherapy. Voltz.—p. 782.
Experiment with Immune Serum in Cerebrospinal Meningitis. E. Thomas.—p. 783.
Various Uses of Mustard for Compresses. F. Rohr.—p. 784.
Treatment of Endemic Goiter. Grassl.—p. 785.
Perforative Diverticulitis of the Sigmoid Flexure. J. Dubs.--p. 785.
Complete Luxation of the Lumbar Vertebrae. W. Förster.—p. 786.
Appendicitis with Situs Inversus. F. Franke.—p. 786.
Two Cases of Chronic Ankylosis of the Spine. J. Brennsohn.—p. 787.

Operative Treatment of Primary Carcinoma of the Buccal Mucosa.—Küttner reports results in his series of 266 cases of primary cancer of the buccal mucosa. There were 155 tongue cancers, 35 carcinomas of the floor of the mouth, 15 of the mucous membrane of the cheeks, 12 of the hard palate and 49 of the tonsils. Histologically, they were nearly all typical pavement-cell carcinomas of the epithelium; there were only two instances of glandular cancer. Sex incidence was as 81 to 19, men predominating. The largest contingent of men was furnished by the 45-50 age group; the largest percentage of women were of the 30-35 age group. There were no patients under 20, only 4 between 20 and 30; 43 per cent. of the patients were heavy smokers; 22 per cent. (exclusively men) presented leukoplakia near the carcinoma. Syphilis was demonstrable in 15.5 per cent. of the cases; in 33 per cent. chronic traumatic irritants, such as the sharp edges of carious teeth and the pressure of artificial teeth, could be incriminated. Most mouth cavities showed signs of neglect. Sixty-one per cent. of the patients were subjected to a radical operation; 21.4 were inoperable from the start. From the time local anesthesia was routinely applied, the mortality from lung complications (until 1908, 14 per cent.) has been reduced to 4.4 per cent. The operation consists of two distinct acts: a most thorough eradication of the neck glands and the extirpation of the tumor, sometimes in one sitting and sometimes in two. These cancers are always very refractory, and he regards 17.2 per cent. of permanent cures in tongue cancer as better than the average result. Only when early diagnosis is followed by early operation, and no time is lost over useless diagnostic and therapeutic measures, will the results be improved. The mistake is often made, in the presence of a positive Wassermann test, of ruling out carcinoma, whereas the predisposition of syphilitics, especially if they are heavy smokers, to carcinoma of the mouth ought now to be widely known. Roentgen irradiation has so far proved of little value. Radium treatment, which is said to have accomplished better results in America than roentgenotherapy, cannot be used extensively in Germany, for the present, on account of the heavy expense involved.

After-Treatment of Osteomyelitis with the Bier Constricting Band.—Hofmann admits that he has gone a step further than Härtel and has treated (or tried to treat) not only chronic but also acute cases of osteomyelitis by the Bier method of passive hyperemia. Of his twenty-five cases, sixteen were chronic and nine acute affections. In the chronic form the procedure gave very satisfactory results, for the two principal claims: shortening of the healing process and securing of a better looking scar, were fully substantiated. He describes his technic in detail.

Sedimentation of Red Corpuscles in the Prognosis of Chronic Pulmonary Tuberculosis.—Dreyfus says that the suspension stability of the erythrocytes promises to become an important aid in determining the activity of a tuberculous process, furnishing a more exact and more reliable indicator in regard to the course of the infection in a given case than observation of the temperature curve.

Zeitschrift für Tuberkulose, Leipzig

May, 1922, **36**, No. 4

*The Income in Relation to Tuberculosis. C. Flügge.—p. 245.
*Children in Tuberculous Families. Braeuning and Hollmann.—p. 255.
*Thoracoscopy. Unverricht.—p. 267.
Mode of Action of Tuberculin. H. v. Hayek and L. Wieser.—p. 288.

The Relations Between the Death Rate from Tuberculosis and the Income.—Flügge concludes from numerous statistics cited that what determines the prevalence of tuberculosis is the frequency of intercourse between children and tuberculous adults in a contagious stage, and this is often dependent on the income. But it need not be, he declares. Droplet infection can be avoided in the homes of the poor as well as elsewhere, with proper care. Civilized communities have learned to bathe and change linen and use individual drinking glasses, and a generation may come in which it will be considered a disgrace to shed droplets around. When children are trained in this, the spread of tuberculosis will be much restricted. Great progress in arresting the disease may be expected with better feeding. Dinners and suppers should be given the tuberculous with moderate incomes. The best way to maintain the appetite is to sell or give tickets at the preventorium which will be honored at various eating houses, allowing a choice. Arrangements might also be made with the eating houses for delivery of the food at home. The tickets should not cost more than an ordinary cheap meal, but should entitle the holder to an extra nourishing meal. A wide field for useful effort is offered in these attempts to insure extra nourishing food for the tuberculous while striving to maintain their interest and appetite. He declares in conclusion that the prevalence of tuberculosis and the death rate from it are entirely different values, and cannot be used as if they represented approximately the same thing.

Children in Tuberculous Families.—Braeuning and Hollmann present evidence that it is possible to protect young children against infection from open tuberculosis in the homes of the poor. The infant mortality at Stettin, 1911-1919, was 17 per cent. while it was this same figure among ninety-nine infants in poor families with open tuberculosis under the supervision of the tuberculosis dispensary workers. The training to avoid droplet, contact and dust infection has evidently borne fruit.

Thoracoscopy. — Unverricht's experimental and clinical research has demonstrated that the character of a pleural effusion must be ascertained before attempting to destroy adhesions with the thermocautery or otherwise. When the effusion shows increased numbers of neutrophils, the attempt had better be abandoned, as the pleura is unable to cope with the bacteria released by the endopleural cauterization. No other type of effusion forbids it. He used Jacobæus' endoscope and thermocautery, both introduced into the interpleural space inside a trocar. Adhesions taken from seven cadavers showed no signs of large blood vessels or lung tissue, even in fibrous bands up to 1 cm. thick. In four of his ten cases the procedure was a success, breaking up the adhesions and allowing complete pneumothorax. In four other cases the adhesions were not thoroughly destroyed although clinically the procedure has been a success in one case, and roentgenologically in all. In two cases he failed to sever the adhesions. A subcutaneous emphysema was a frequent complication and in three cases a serous effusion followed. A broad fibrous band can be mobilized under thoracoscopy by extrapleural resection of the portion of rib to which the adhesion has grown. This was done in one case with good effect, releasing the collapsed lung from traction by the stout adhesion that fastened it to the wall of the chest.

Zeitschrift für urologische Chirurgie, Berlin

June 12, 1922, **9**, No. 3

Pneumoradiography of Bed of Kidney. H. Boeminghaus.—p. 51.
*Congenital Anomalies in Posterior Urethra. A. Glingar.—p. 75.
Tuberculosis in Congenitally Abnormal Kidney; Two Cases. H. Reil. —p. 82.

Surgical Import of Duplication of Ureter and Pelvis. T. Hryntschak.—p. 87.
Laceration of Inferior Vena Cava. P. Rosenstein.—p. 102.
Case of Leukoplakia of Kidney Pelvis. L. Kraul.—p. 117.

Congenital Bands and Valves in the Posterior Urethra.—Glingar's patient had had difficulty in micturition and dull pains in the perineal region for some years, for which no explanation was evident. At the age of 40 a congenital band was discovered and severed, evidently a congenital anomaly. A second case was recently encountered, the young man applying for relief from urethritis, in which no gonococci could be discovered. His disturbances dated from two years before. Gradual correction of the anomaly under urethroscopy is advised, as incontinence has been known to follow excision of a valve formation of this kind.

Zentralblatt für Chirurgie, Leipzig

April 15, 1922, **49**, No. 15

Peculiar Affection of Metatarsus. K. Vogel.—p. 505.
Gastro-Enterostomy or Resection in Gastric Ulcer. Hohlbaum.—p. 508.
Treatment of Ankylosis of Flexed Knee. Stracker.—p. 509.
The Rubber Drain in Surgery of the Bile Ducts. Hübsch.—p. 515.
Jejunal Ulcer After Pyloroplasty (Eiselsberg-Doyen). Galpern.—p. 519.
"Anomaly of Testis in Partial Descent; Operative Use of the Anomaly." Comment. H. Hilarowicz.—p. 521.

April 22, 1922, **49**, No. 16

*Transplantation of Testes. E. Kreuter.—p. 538.
*Median Prostatectomy. J. Oehler.—p. 540.
Unsuccessful Trials with Alloplasty in Vascular Wounds. H. F. O. Haberland.—p. 542.
Hexamethylenamin in Pyonephrosis. H. Harttung.—p. 543.
*Dosimetry in Roentgenotherapy. K. Fritsch.—p. 545.
Gritti's Amputation. F. Bähr.—p. 546.
*Resection of Bone to Remedy Finger Contracture. Eckstein.—p. 547.

Transplantation of Testes in Relation to Homosexuality.—Kreuter relates his experience with the transplantation of half of a testis taken from a confirmed homosexual pervert in the prime of manhood. It was implanted in a man who had undergone bilateral castration two years previously, but whose general health was good. The patient was not aware of the origin of the testis implant. The patient recovered normally from the operation. Eight months later he expressed himself as "satisfied" with the results of the operation. He has occasional erections, but insists that the penis is becoming constantly reduced in size. His sexual instincts have remained heterosexual. There is not the slightest indication of any homosexual effect resulting from the implantation, as might be expected from Lichtenstern's statement that he has cured homosexual patients of perverted sexual instincts by implantation of heterosexual testes. Owing to such reports it has been concluded by some that sexual tendencies might be associated with certain cells of the interstitial gland. Kreuter thinks his operation as above cited contradicts this theory. In fact, he holds that the transplantation of testes with a view to incorporating a truly functioning endosecretory organ in man is scarcely justifiable. As a suggestive measure it may, in some cases, accomplish something.

Median Prostatectomy.—Oehler states that the unfavorable conditions for drainage after suprapubic prostatectomy induced him to try median prostatectomy as recommended by Berndt and Praetorius in 1914 and 1918 and since. He was pleased with the simple technic (which he describes in detail) and the unusually slight shock from the operation. Although the method has not as yet found general acceptance among surgeons, Oehler thinks it certainly deserves a trial by all. The problem of gravity drainage of the prostate cavity is solved by this method in a most excellent manner.

Present-Day Dosimetry in Relation to the Effect of Roentgen Irradiation on Tumor Cells.—Fritsch sets forth that present-day dosimetry is based on the belief that tumor cells are killed by roentgen rays, or at least that their capacity to multiply is destroyed; that is, that irradiation has an immediate effect on the tumor cells. Recent investigations, however, would seem to indicate that this belief cannot be upheld and that the effect of roentgen rays is indirect; that the rays strengthen the local tissue reactions that have already set in against the action of the tumor cells, and increase or accentuate the defense measures of the whole organism. If this assumption should be confirmed, dosimetry must be put on an entirely different basis; for in that event it is not a question of killing the tumor cells but of discovering in each case the stimulation that is necessary in order to secure the most favorable reaction. It is not so much statistics as it is serious research that is needed to solve the problem, and thus give to roentgenotherapy an essential impetus.

Shortening the Bone to Remedy Finger Contracture.—Eckstein during recent years, has given up trying by operative efforts to lengthen and mobilize the shrunken soft parts but endeavors instead to restore the normal proportions between the bone and soft parts by resecting from the body of the first phalanx a piece of bone from 1 to 2 cm. long. The operation is carried out under local anesthesia by an incision alongside of the extensor tendon, and the result is that the finger can then always be extended without difficulty, since the flexor tendon though impaired sufficed for this purpose. The cicatricial tissues of the flexor tendon assumed the function almost as well as if a normal tendon were present. He thinks the method might perhaps be applicable to Dupuytren's contracture, although he has never tried it himself.

Zentralblatt für Gynäkologie, Leipzig

April 15, 1922, **46**, No. 15

*Prevention of Puerperal Fever. F. Ahlfeld.—p. 562.
Buccal and Rectal Bacteria in the New-Born. R. Salomon.—p. 563.
"Origin of Cavities in Human Ovum." Comment. Temesváry.—p. 567.
Uterine Carcinoma in Pregnancy, Childbirth and Puerperium. E. O. Gross.—p. 567.
*Rectal Injuries After Radioactive Treatment. W. Kolde.—p. 576.
*Nucleic Acid in Puerperal Infection. J. Hofbauer.—p. 580.

Prevention of Puerperal Fever.—Ahlfeld reports that, without using rubber gloves, without employing rectal examination, without restricting internal examinations, without omitting preliminary vaginal lavage, and although patients were continually examined by students, they were able to get excellent results from the standpoint of mortality, for out of 8,753 patients only one died of puerperal fever after a preceding normal birth. This one fatal case doubtless resulted from self-examination, or evolved from an existing internal affection. Ahlfeld gives this report to show that good results can be secured without resorting to the extreme precautions recommended by Döderlein.

Treatment of Rectal Injuries After Radiotherapy.—Kolde describes two cases of injury of the rectum from radioactive treatment. In one case there was ulceration in the rectum; in a second case a very large defect of the rectum with a fistula into the vagina. To combat the rectal ulcer, he employed starch enemas with from 10 to 20 drops of opium; also diathermy, the positive electrode in the vagina, the negative over the sacrum. Under this ambulant treatment, gradual improvement was noticeable. Organotherapy was also used. The rectal ulcer healed but the patient still complains of weakness. In the second case, after pursuing a waiting policy for some time, he at last constructed an artificial anus in the region of the sigmoid. The results were good and the patient recovered her weight and strength. Kolde reproaches himself however that two years before, on appearance of the mesothorium injuries, he did not employ diathermy to check the necrosis; secondly, he admits that it was a technical error on his part that he did not do a sigmoidostomy at once when the fistula developed. He would thus have saved the patient two long years of illness and much pain. He urges, therefore, under such conditions not to follow a waiting policy too long but to institute curative measures as soon as possible.

Nucleic Acid in Puerperal Infection.—Hofbauer extols the value of nucleic acid in puerperal infection. The effect is heightened when intravenous injections of pituitary extracts are added.

Zentralblatt für innere Medizin, Leipzig

April 15, 1922, **43**, No. 15

Improvised Device for Closing Mounts in Fluids. Kovács.—p. 249.

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AN OUTLINE FOR THE RATING OF HOSPITALS *

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DEFINITION

A hospital is an institution suitably located, constructed, equipped, organized, managed and personneled to supply, scientifically, economically, efficiently and unhindered, all or any recognized part of the complex requirements for the prevention, diagnosis and treatment of physical, mental and the medical aspect of social ills; with functioning facilities for training new workers in the many special professional, technical and economic fields essential to the discharge of its proper functions; and with adequate contacts with physicians, other hospitals, medical schools and all accredited health agencies engaged in the better health program.

A hospital that fulfils this definition is the ideal general hospital; one that fulfils it with the exception of neuropsychiatry and contagious diseases may be appropriately designated a "limited general hospital;" and one occupying a less inclusive field may be classed as a "special hospital." The character and degree of limitation of special hospitals may be appropriately indicated by prefixes and suffixes to the name.

Under this definition, fair rating of hospitals is not dependent on size, character of ownership and management, the inclusiveness of its field of activities, its architectural beauty, or any other of its more material qualities, except so far as they affect function.

Rating and classification should be definitely and specifically based on the unhampered fidelity, efficiency and effectiveness with which a hospital discharges the three fundamental functions of every hospital, which are: (1) *service for those who are ill,* (2) *service in the prevention of disease and* (3) *service in education and research.*

Some of the points which are part of the betterment program of hospitals and which should be considered in rating are:

(*a*) The appropriateness of a hospital of the character and scope of the one under consideration in the community in which it is located. This applies particularly to smaller communities where appropriations, funds for medical purposes and other policies are closely scrutinized.

(*b*) The efficiency with which the hospital is discharging its duties.

(*c*) Its financial and organizational ability to discharge its obligations and to insure a reasonable degree of permanence and progress.

(*d*) The practical, every-day ethics and spirit of service that are guiding the organization management and workings of the hospital.

(*e*) The genuine, practical attitude of the hospital toward improvements, medical organization and better medicine.

(*f*) Its absolute freedom from political or other influences, except those of unselfish, sympathetic, scientific progress.

CLASSIFICATION AND RATING

The designations employed to express hospital ratings under the plan outlined are:

Class A hospitals (from 90 to 100 per cent.): Excellent hospitals requiring little or no improvement; findings and percentages arrived at by giving due weight to all points covered in this outline that are fairly applicable to the hospital in question.

Class B hospitals (from 75 to 90 per cent.): Acceptable hospitals needing some improvement; findings and percentages arrived at by giving due weight to all points covered in this outline that are fairly applicable to the hospital in question.

Class C hospitals (less than 75 per cent.): Unacceptable hospitals that require extensive changes in order to render the services considered essential in a satisfactory manner.

Published lists of hospitals might well include only the A and B hospitals.

Starred (*) hospitals: Starred hospitals are those of A and B ratings that have provisions for furnishing acceptable training to fifth year medical students (interns).

The data necessary to make a fair rating of any hospital are included in this outline. These data are also arranged more conveniently as a work sheet in the survey blank provided for the purpose by the Council on Medical Education and Hospitals of the American Medical Association, and as used in California by the League for the Conservation of Public Health.

It is, of course, obvious that surveys always should be made by thoroughly trained physicians with executive hospital experience whose only interest in the hospital is a sincere desire to aid the hospital with its problems. Surveys should be conducted by personal examination, including conferences with hospital trustees, executives and staff.

GENERAL CONSIDERATIONS

The following important points should be given serious consideration in rating the usefulness of any hospital:

Suitability.—(Particularly for smaller hospitals away from larger cities.) There should be a real need for a hospital of the character of the one under consideration in the community it serves. Important factors in determining this point are:

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* This article is published in full in reprints, which may be had from the Council on Medical Education and Hospitals of the American Medical Association. Many important details are omitted in The Journal article, owing to lack of space.

The distance of the hospital from other hospitals; the number and social and economic status of the population; the adequacy of all existing arrangements for the care of all the sick. The number of physicians; the physical conditions as to roads and methods of transportation; the degree to which specialization is practiced by the physicians and to which the public is prepared to accept specialization.

Location.—The hospital ought to be located advantageously as to sanitary conditions, such as noises, smoke, dust and ventilation. Roads, transportation, parking, room for expansion and general surroundings should be taken into consideration. The amount of grounds, the general surroundings and other features of privacy and attractiveness should depend somewhat on the purposes of the hospital.

Buildings.—Any fair rating must consider the character of construction; repair; arrangements for economical service; fire resistance; plumbing; facilities for the disposal of waste, garbage and sewage; roof gardens and solariums; heat; light; refrigeration and water supply, and provisions for housing, feeding and otherwise caring for officers, nurses and employees.

Of all material features of the hospital, the most important are arrangements for private, economical and efficient care of the sick, and for protection against accidents, fire and communicable disease hazards.

Within these and other less important limitations, the greater the individuality in architectural and furnishing ingenuity displayed for the comfort and well being of the sick, the more credit the hospital should have.

Equipment.—The hospital, to be worthy the name, should have general, special and departmental equipment, adequate for all the requirements of diagnosis and treatment, as well as for the safety and comfort of all persons. Ample provisions should be made in particular for sterilization and disinfection; for the protection and preservation of perishable products, and for the proper conduct of all the departments and services included in this outline that come within the scope of the hospital under consideration.

Financial Status.—Money invested in a hospital may earn a legitimate income upon itself, if it can be made to do so without in any way interfering with the excellence of the services rendered. Except in private hospitals income on investment is almost never made. A hospital may or may not make a financial profit without in any way detracting from its standing, provided that under no circumstances shall its earning exceed current bank rate of interest. Earning as used here includes dividends, funds spent in increasing the value of the property, or in any other way made to enrich the owner or other investor. Few mixed service hospitals make profits, and those that do usually use such profits in the interests of better medicine for the less fortunate. A hospital that pays in dividends or otherwise in material returns to its owners in excess of the fair working value of money should receive most careful consideration in rating. On the other hand a hospital financially insolvent or where lack of funds is affecting the quality of service should also be carefully considered.

EDUCATIONAL WORK

It is hard to conceive of an organization that can render good service to the sick which by that fact is not prepared also to give instruction. There are no schools for the training of many classes of special help that hospitals require. Each must train its own people, and its activities in this line may be subjects for consideration in its rating.

Whatever the theories and future of the education of nurses, at present it is practically all done in hospitals, and the facilities, personnel and equipment and performances of any hospital that undertakes to operate a school of nursing should be considered in its evaluation.

Technicians of several classes are essential to good hospital, dispensary and "follow-up" service. When hospitals include instruction of any class of technicians as one of their functions, the facilities and methods used should be noted.

Education and training of physicians of the staff, visiting physicians, residents, and "house officers," by association and contact, if in no other way, is an unavoidable responsibility of every hospital. Those hospitals that recognize and feature this duty deserve special notice and special commendation.

The Education of Interns: This is one of the most important functions of any hospital that undertakes this duty. It should be remembered that interns looking for accredited instruction are real fifth year medical students, and they should be given what their curriculum calls for. The fact that in discharging their proper duties as students they at the same time render service of value to the hospital should always be recognized as purely incidental. Hospitals not prepared to give interns all that they should have as students should employ other physicians as residents or assistant residents for required work. (See reprints for elaboration of this point).

Community Services.—In a number of places in this outline provision has been indicated for various community duties and responsibilities. Under the hospital department of public health or in some other department these should be brought together for contact with other organizations and with the public. If hospitals are to continue to progress along sound lines and take their proper places before the public all of this class of duties that may be classed as medical must be brought more and more into the scheme of hospital betterment. A hospital conceived and operated along the lines indicated becomes the ideal practical, effective community clearing house in all matters pertaining to health. Particularly is this true with hospitals in small centers.

Ethics.—A careful examination of the ethics practiced by any hospital, as an organization, will provide an excellent index not only to what the hospital stands for, but also as to what is going on in every one of its departments. Certainly, in all of its professional work and professional contacts the ethics of the medical profession should prevail, and it is quite worth while to encourage hospitals to adopt the Principles of Medical Ethics as their guide wherever applicable.

VOLUME AND VARIETIES OF CLINICAL SERVICE

While not essential to purposes of this outline, knowledge of the volume and varieties of clinical services offered by any hospital is interesting and important. This should be shown by the average number of patient days for each and every kind of service rendered by the clinical departments.

ORGANIZATION

The hospital should have not only a paper organization, but also an actual working one, involving its every function and activity, from its ownership and governing body to the smallest and least important of its services.

Division of authority in hospitals and the practice of "farming out" certain services sometimes seen encourages disharmony and inefficiency. This outline constitutes a unified organization for a complete general hospital.

More limited and smaller hospitals are expected, of course, to combine a number of the departments and services under one heading:

Ownership.—This may be national, state or municipal government; a religious or fraternal body; a business corporation; a community; private stockholders or any other group of people, or an individual. Ownership, in the sense used, should be clearly understood and defined; but whatever it is, it should make no difference in what the hospital ought to be.

Contacts.—The methods and manner of contact between the organization and (*a*) its owners, (*b*) the public, (*c*) other organizations and (*d*) the medical profession, in particular, should be clearly outlined and practiced.

Governing Body.—Every hospital should have a board of directors, a board of trustees or other governing body vested with wide legislative, policy-making and judicial authority. The manner of election, appointment or other method of designation should be shown, together with whatever opportunities there are for the intrusion of vested or selfish interests.

In any but private hospitals, none but able, broad minded, public service loving persons should hold positions on a hospital board. The slightest personal, political or other form of limited interest should disqualify for such service in any but a private hospital. Likewise, personal remuneration in money or service or incompetence should constitute ineligibility. All of these points should have due weight in the rating of any hospital.

Professional Work.—The lack of effective coordinated action in the professional care of the sick and the inherent difficulties in securing efficient staff organization is a major problem in any program of hospital improvement. There are numerous kinds of so-called staff organizations, and there is an ever decreasing number of laymen and physicians who still wish to consider a hospital an open hotel that may allow any one with the title of "doctor" to patronize it. Fortunately, judicial decisions by many courts on many different points are assisting in clarifying this situation.

Without attempting to set up any one specific staff organization, and with the understanding that any effective team-working staff organization is acceptable, it is only just to mention some essentials to good work in any hospital by any staff.

Administrative and Executive Authority.—This should be vested in a single individual, the director, superintendent or manager. This officer should be appointed by and hold office at the pleasure of the board of directors. He should be responsible to them solely, and every officer and employee of the hospital should be responsible to him. He should have no other interests; should be paid an adequate salary, and should, of course, measure up to his responsibilities in education, training, experience and practices.

The director should have as his assistants as many heads of departments and services as the size of the institution and the character of its work make necessary. These must all be appointed on his nomination, and those of secondary importance should owe their employment to him.

Having now brought our consideration into the hospital, as it were, the more definite internal organizational arrangements by departments may be taken up. This will be done by arbitrarily grouping these departments as: (*a*) clinical group; (*b*) general utility group, and (*c*) administrative group.

In large hospitals, each of these groups should have a head who may with advantage also hold an administrative title of assistant director of the hospital; or all of these officers may be members of the administrative board mentioned above. In smaller hospitals, it usually is necessary to consolidate many of the professional departments as well as the public utility and even the administrative departments. Such consolidations when wisely considered need not detract from the hospital's efficiency.

In small and certain special hospitals, the director may handle all administrative work and some of the professional work as well. However, the director never, under any circumstances, should be a competitor of staff members in practice.

In using this arrangement, or any other, it is necessary to bear three important facts in mind, for they apply to every department, division and person and should be constantly carried out in every hospital. These are:

(*a*) Each department or service must have an effective, overlapping contact with every other department and service.

(*b*) Each department and the hospital as a whole must so arrange its work as to provide for constant day and night service to care for emergencies and to meet all special requirements necessary to safeguard its public.

(*c*) Every department, service and person in the whole organization has definite duties to perform in:

1. The discharge of routine duties.
2. The education and training of others.
3. Efforts to secure and apply new knowledge.
4. Cooperation with and assistance to all other services.
5. Understanding the essential team work of all services as parts of a whole devoted to the prevention, diagnosis and treatment of disease and the education and training of other workers.

Clinical Group.—In preparing an outline of this important group of departments, divisions or services, it appears advisable to follow the classification largely followed in medical schools, *although any other efficient arrangement may be recognized in rating.* It should be remembered that medicine as now practiced in some cities is highly specialized, while in smaller centers "general practice" is still and always must continue to be the rule. For that reason, if for no other, it is necessary to make provision in our outline for the general practitioner, and this may be conveniently done by recognized general practice as a clinical department. In small hospitals it may be the only possible department and in more urban communities it may be omitted entirely.

Industrial medicine and surgery is, in effect, a form of "group practice" rather than a specialty. It differs from other practices chiefly in organization which insures coordination of effort; in records based on both scientific and "official" accuracy, and in provision for adequate, prompt written reports considered from professional, legal and economic points of view.

On account of the character of laws in some states and the practices and procedures in some other states; on account of the extent of this work and its influence on the profession and on hospitals, equipment and other facilities, it is given a place in this outline.

A department of this character may help some hospital organizations in "fitting in" insurance company staffs, medical departments of industrial plants, social, fraternal and other organizations. This arrangement also provides a method of bringing into this outline the large number of exclusively industrial medicine and surgery hospitals. Groups, including industrial medicine, when formed by the physicians practicing ethical medicine may be dealt with as "units of professional service," and the group, in this sense, is entitled to exactly the same consideration and ethical coverage as an individual physician.

In estimating the efficiency of the work of clinical and other staff departments, it is well to reiterate that all departments and staff members, in addition to their direct duties to the sick, have decided responsibilities toward other clinical departments; all general utility departments; all administrative departments, and to the hospital as a whole. In no other way can prompt consultations between departments be made, and time-saving efforts of general utility and administrative departments be coordinated in arriving at diagnoses and giving treatment in an effective and prompt manner.

The importance of the educational function of clinical departments cannot be emphasized too frequently. The head of every department and service has an obligation to physicians and interns (if any) second only to his duty in the care of the sick.

The departments and divisions of the group of clinical departments as used in this outline are shown below. The list is furnished as a guide. It is realized that most hospitals will have only part of these departments and that some special hospitals will be limited to only one. Any combination of departments is acceptable, provided only that those recognized are clearly understood and are doing effective work.

(*a*) General practice.

(*b*) Industrial medicine and surgery; also other forms of "group practice."

(*c*) Medicine and medical specialties:
  1. General medicine.
  2. Pediatrics.
  3. Communicable diseases.
  4. Neuropsychiatry.
  5. Dermatology.
  6. Tropical medicine.
  7. Tuberculosis.

(*d*) Surgery and surgical specialties:
  1. General surgery.
  2. Otorhinolaringology.
  3. Ophthalmology.
  4. Urology.
  5. Orthopedic surgery.
  6. Anesthesiology.

(*e*) Obstetrics.

(*f*) Dentistry.

(The departments of pathology and clinical laboratories, radiology and public health, although staff departments, are classed with the general utility group below because of their duties to all clinical departments.)

Members of the resident staff, other house officers, interns and other students should be classed as assistants in their various departments. In larger hospitals they also may have their own organization and meetings for discussion of their responsibilities to the hospital administration, as well as for review of their work and methods of improvement. The senior, or executive resident of larger hospitals, should have definite professional and administrative responsibilities and authority. This same principle should apply in smaller hospitals with only one resident. The resident should be a full-time salaried official of two or more years of hospital experience.

The General Utility Group.—In a sense, all departments are general utility, but in this group are included those departments and services the major portion of whose functions are for and in cooperation with various other departments. These departments are both professional and technical. They include:

(*a*) Pathology and clinical laboratories (as one or as two departments).

(*b*) Public health department of the hospital (administration only of the outpatient departments; contact and methods of cooperation with other organizations may be by the public health department or by some other administrative officer).

(*c*) Radiology (including roentgenology and radium).

(*d*) The school of nursing and nursing services (including operating room).

(*e*) Public health nursing, medical social service and "follow-up" service.

(*f*) Library and clinical records (as one or as two departments).

(*g*) Pharmacy.

(*h*) Physiotherapy (including all forms of physical therapeutics, occupational therapy and vocational training.

Psychotherapy, while a specialty, has much in common in equipment, personnel and methods with physiotherapy. It may be combined with physiotherapy for purposes of economy, or it may be added as a separate department.

Pathology and Clinical Laboratories: This important department should be in charge of a competent pathologist. Only large general hospitals can have enough work to occupy the full time of a competent pathologist, and there can be no serious objection to the pathologist being head of the service in two or more hospitals, dividing his time between them. The pathologist should have regular hours for consultation with the clinical departments and there should be arrangements for his presence at operations at which quick diagnosis is required.

Public Health: Comparatively few hospitals have a public health department or a public health officer, and yet there is no more important or necessary service, particularly in larger hospitals, than that only efficiently rendered by such a department. The common practice by which clinical departments, nursing service and administration handles the problems of epidemiology, hygiene, ventilation, disinfection and similar public health services of the hospital, without system or organization, is not satisfactory from the standpoint of the patient, the hospital, the public and the profession.

Safety to the public, to other patients and to officers and employees, and particularly proper education in public health matters for interns, nurses and others makes a department with a hospital health officer in charge a much to be desired service in any hospital. This department should never invade the field of clinical medicine, and should have no individual patients. Every patient and other person in the hospital, as well as all of its facilities, should operate under the instruction of the staff health officer in all matters pertaining to public health and safety. In particular should the health officer take command and issue all instructions for the control of infection when such develops in the hospital. He may be the official medicolegal officer of the hospital, or other definite arrangements may be provided to render this service. The constantly increasing importance of medicolegal work, and the small amount of attention given to it in medical schools, emphasize the importance of centralizing the service in hospitals for legal protection, purposes of instruction and for the welfare of all persons.

Radiology: Radiology is used in all branches of medicine sufficiently to warrant its consideration as a necessary department of every good hospital regardless of its size. The department should have adequate space and the best of equipment, and its records should form parts of the consolidated case record of every patient.

The department should be in charge of a competent radiologist, who should be available for consultation by clinical men daily at definite hours. There should be such technicians and other help available as the volume and character of the service require.

The School of Nursing and Nursing Service: This exceedingly important department of every hospital is the best example of what a technical department should be. In its educational work, it should be a school; in its practical work, it is a service department working and recording for all other departments.

The department should be in charge of an educated, experienced nurse who is responsible to the director of the hospital in all matters and to various departments for efficient nursing. She should have as many assistants as the size of the hospital and the work make necessary. There should be one or more instructors, who should also be the counselors and advisors of the students.

If there is a school of nursing, it should be a school and not an excuse to get cheap service for the sick. The nurses, and particularly student nurses, should have comfortable home and social surroundings. Their curriculum should be carefully planned and carried out. They should have regular hours of duty and practical instruction under unit supervisors in addition to their regular class room and laboratory instruction.

Nursing Units: It has been said that a good hospital is a group of nursing units of from fifteen to thirty rooms or beds, and that each nursing unit should be in contact with other nursing units, with all departments of the hospital and with the public through the superintendent.

Public Health Nursing and Medical Social Service: When the scramble for overspecialization has subsided, it is going to be difficult to differentiate between public health nursing and the kind of medical social work that is useful to physicians or hospitals.

Whether organized as one or two departments, these services are important. The economic and social diagnosis, accurately and sympathetically made, should be the second sheet of most clinical case records. Notes and reports of further study and treatment and particularly "follow-up" work should also be appended to the original record with as much care as the nurse uses in her records.

Clinical Records and Library: These two important services are so welded together in their functional uses that many good hospitals operate them as one department. The department should be in charge of a thoroughly trained record clerk who also knows something of library work. She should be directly responsible to the director of the hospital, and she should work as a technical assistant to all clinical departments. Large hospitals will require one or more full-time technicians in this department, and smaller ones may not need more than the time of one clerk. There is, of course, no objection to having these services separated in hospitals that can afford the expense.

Records and indexes and statistics from clinical records can be only as complete and efficient as are the written diagnoses which must be entered by the physicians. Each and every disease or abnormality of each and every patient should be entered in the appropriate place on the record. This should be done for each diagnosis, regardless of any probable or possible connection with any other diagnosis. Good hospital records will show an average of from two to four diagnoses for each patient. The efficiency and completeness of clinical records, including the special records from all departments, such as radiology, pathology and clinical laboratories, public health nursing, social service and adequate "follow up" records and including their indexing and permanent filing as individual records, furnish the best indication of the quality of professional work of a hospital, and the findings should be given material weight in the rating of any hospital.

Wherever physical conditions will permit, the hospital and outpatient record systems should be consolidated. Where this is impracticable they should be closely coordinated by one of the good methods in use in many hospitals. The clinical record secretary should render a monthly report of the department to the director of the hospital. Sample forms for this purpose may be secured from the Council on Medical Education and Hospitals of the American Medical Association or from any other organization, or a set may be designed by the hospital.

The library should be ample in size and attractive in furnishings, and should contain at least one late edition standard textbook on each specialty of medicine, as well as at least one "system" of medicine for reference. There should be current subscriptions to at least fifteen good medical and hospital journals, and files of each of these journals should be bound and built up through the years.

Pharmacy: All but the smallest hospitals should have a well located, well arranged prescription pharmacy in charge of a registered pharmacist. The department should be charged with keeping track of narcotics, alcohol and anesthetics. Certain pharmacy supplies and even toilet articles should be kept in stock. The manufacture of stock preparations and the careful filling of prescriptions, of course, constitute the main duty of the department. A good pharmacist will be of use to laboratories, diet kitchens, clinics and, in fact, to many departments of the hospital.

Physiotherapy: Physiotherapy, used in the sense that includes all forms of mechanical and physical therapeutics, occupational therapy and vocational training should constitute a department in every hospital of sufficient size.

Psychotherapy, while a specialty in its service, has so much in common with physiotherapy in space, equipment and general requirements that at least for administrative purposes and general departmental organization it may be combined with physiotherapy in all but the largest or certain special hospitals. Any other arrangement for these services either as separate or consolidated departments that assures good, economical service and good records is acceptable.

The chief technician in charge of either or both of these departments should be responsible to the hospital director and to the members of the staff for proper execution of their prescriptions in much the same way that other technical departments are conducted. In the large and certain special teaching hospitals where a physician is limiting his practice to this field, he may be appointed to the staff as head of this department.

Administrative Group.—In this group is included a number of essential functions which may be held together as one department or spread out into several departments or divisions, as the size and character of the hospital require. These are:

(*a*) General office administration.
(*b*) Finances and accounting.
(*c*) Clerical and records and office filing.
(*d*) Property, supplies and transportation.
(*e*) Engineering, buildings and grounds.
(*f*) Laundry and laundry service.
(*g*) Subsistence and dietetics.
(*h*) General service (including janitors, porters, maids and other unskilled employees and services).

General Office Administration and Financial Services and Records: The hospital, however small, should have these services, and some person should be in charge and responsible for adequate:

(*a*) Information, telephone and messenger service.

(*b*) Admission and assignment of patients, with follow-up and "social hostess" service to patients and visitors.

(*c*) Adequate records of correspondence, admission and business records of patients, bookkeeping records, cashier's duties and records, patients' effects, service and records, and all other functions of a business office.

(*d*) Financial and statistical records should be on a business basis, and a monthly report, including at least the data discussed under "volume and varieties of hospital work" in this outline should be furnished.

This important function of hospitals is in bad shape. The majority have no accounting system. Many others use methods that are useless. Some have good systems of classification of costs and of accounting. Even these are not uniform. Any good business system must classify its costs upon a functional service basis. The rest of the accounting problem is similar to any complex organization. Hospitals that are making some effort in this direction should be encouraged.

The ability to make a monthly report of this character is a very good test of the efficiency of office administration and of the way departmental data are correlated.

Telephones and intercommunication with sufficient outgoing and incoming "trunks" and a constant twenty-four hour a day switchboard service is as necessary to a hospital as it is to a police department. An effective inter-departmental communicating system, either as an extension of the telephone system or as one of the dictograph types, is also necessary in all but the smaller hospitals.

Property and Supplies: This should be a separate department in charge of an experienced purchasing agent and property officer. In small hospitals, this service may be handled by the accountant and office superintendent as part of his department. In any event, there should be a competent person in sole charge of every bit of property of whatever character and wherever located belonging to the hospital. He should have adequate storerooms, records and assistance. All purchases should go through his hands, and there should be a business system of "internal requisitions" for issue of supplies, checking of waste and control over property in general. Some of the various group or association methods of purchasing in use in various places in the country effect savings in the cost of supplies.

Transportation facilities for the sick to and from the hospital should be reckoned as an essential service of any hospital. The hospital may either own its ambulances or have a definite understanding with other agencies to furnish such service promptly on call.

Engineering, Buildings and Grounds: This department should be in charge of a competent reliable engineer, who should be responsible to the director of the hospital. In personnel, it should include engineers, electricians, plumbers, carpenters, painters, gardeners, elevator operators, and the like. The services of the department should include the operations of the power plant; repairs and alterations to buildings; repair and operation of elevators; refrigeration, including the main plant and any subsidiary units; distilling of water; radiation and temperature regulations in all buildings; repair of all equipment, including sterilizers and the sharpening of instruments; care and upkeep of the grounds; care and upkeep of ambulances and other vehicles; the operation of the central sterilizing and disinfecting plant; shops for the manufacture and adjustment of splints, and dozens of other similar functions.

All but the smallest hospitals should have their own power, heating and sterilizing plants. Court judgments against hospitals for neglect in providing pressure steam for sterilization and similar services being responsible for infections emphasizes the importance of considering the efficiency of power plants as part of the essential equipment of a hospital. Whenever a hospital has no plant of its own it is well to examine most carefully into substitutes employed to cover this deficiency, to determine as to their effectiveness and reliability.

Laundry and Linen Service: This department should be in charge of an experienced laundry foreman, responsible to the director for all personnel and services. All linen and other washable supplies in the entire hospital should be under his charge, including a manufacture and repair sewing service with emergency stores. The department should operate on a requisition system with all services, and should be charged with the responsibility for the care of unclean linen and with the duty of delivery of clean materials to the various linen closets throughout the hospital. The division of the responsibility for this service between nurses, housekeeper and a laundry foreman rarely is satisfactory and nurses should not be taken from nursing duties to render or oversee this service. Clean linen should be supplied to them by a consolidated laundry and linen service just as drugs are supplied by a pharmacy. Small hospitals should be encouraged to install laundry machinery for their mangle work at least.

Subsistence and Dietetics: This service may be discharged by one or by two separate subdepartments. If by two departments, the dietitian should make intimate contact with the physician and the patients as a technician working under the orders of the physician. She may submit the simple food prescriptions to the chef and have her own force prepare the particular scientific diets. A single department with a high grade combined practical and scientific dietitian in charge of the entire subsistence department constitutes the ideal arrangement. Whatever the arrangement about division of service, for all purposes of costs, organization and good, pleasing service to patients, it should be held as one department. Until more progress is made in the development of the practical side of dietetics as a technical specialty, most good hospitals will continue to place a good chef or steward in charge of the subsistence service, and give to dietitians only such responsibilities as they are capable of assuming.

The subsistence department should prepare and distribute all food to the unit diet kitchens throughout the hospitals, and in some good institutions employees of the department take complete charge of the preparation and serving of food. Surely waiter and "bus boy" service can be cared for without taking too much of the nurse's time except for scientific diets.

Careful records, both technical and financial, should be provided for and at least a weekly report of costs of meals should be furnished to the hospital director.

The subsistence department also should have complete charge of and should operate with its own help all dining rooms, special kitchens and, in general, the food service for all persons.

Janitor and General Service: This department should be in charge of a competent foreman of labor. He should employ, discharge and supervise the work of all unskilled labor. The department should be responsible for the cleanliness and orderliness of all parts of all buildings, except such as are placed specifically under other departments; and, in many good hospitals, this department serves as the employment and timekeeping service for other departments.

CONCLUSION

It has been my purpose to outline what is most essential in a hospital and to extend that outline through the entire organization so as to provide a working method for surveying and rating a hospital by functional tests of all of its services.

Viewed from one angle, the outline appears long and quite inclusive. However, when examined critically, it is seen that important services are only sketched and some are barely mentioned. No attempt has been made to mention more than a few of the important duties and responsibilities of most departments. Numerous more extended articles by experienced authors are to be found in recent literature going into details of various individual departments and functions only barely sketched here.

Butler Building.

Shock and Exhaustion.—Exhaustion may be produced by want of food or drink or oxygen; by exposure to cold or wet; by want of sleep; by a period of excessive muscular or mental work; by a prolonged emotional strain-worry or anxiety; by defense against chronic infection and by failure to eliminate waste products. Low blood pressure and subnormal temperature are not marked features of exhaustion. Shock on the other hand is commonly caused by a more abrupt overwhelming stimulus-physical injury, intense emotion, acute infection, anaphylaxis, etc. In shock, the brain is more rapidly impaired; the power of the brain cells to transform potential into kinetic energy is more suddenly broken; consequently the organism cannot perform its normal work, and metabolism collapses; the temperature is subnormal; there is general prostration.—G. W. Crile, "A Physical Interpretation of Shock, Exhaustion and Restoration," 1921.

A PECULIAR DISCOLORATION OF THE SKIN

PROBABLY RESULTING FROM MERCURIAL COMPOUNDS (CALOMEL) IN PROPRIETARY FACE CREAMS *

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A limited number of drugs and chemicals are known to produce a fixed discoloration when applied to the surface of the skin. Olson [1] has carefully summarized our present knowledge of the localized argyrias. Pusey [2] describes an interesting pigmentation resulting from a solution of the sulphate of iron used in dressing dermatitis. Tattooing is, of course, familiar. The pigmentation resulting from the application of heat and irritating chemicals, such as mustard, cantharides and croton oil, are secondary to inflammatory changes and can usually be readily traced to the offending agent. I have not been able to find any reference in the literature to persistent discoloration resulting from the use of mercurial cosmetics.

Recently, we have had the opportunity to observe two patients with such a pigmentation, resulting apparently from mercurial salts in a face cream.

REPORT OF CASES

Case 1.—Miss C. A., aged 45, a schoolteacher, who was first seen Dec. 27, 1920, complained chiefly of discoloration of the face and of insomnia. The skin of the eyelids, nasolabial folds and chin and the folds of the skin of the neck were a brownish-gray or slate color. At a distance of several feet, the discoloration reminded one strongly of the dirty neck and face of a boy who has limited his ablutions to Tom Sawyer's minimum. In fact, this teacher's pupils had remarked that she did not wash her face properly, and some of her co-workers had, in a bantering manner, passed similar comments. A well-known dermatologist had told her that he considered the discoloration to be due to a metallic deposit but that he could not identify the source. He had evidently not suspected the face cream.

Inspection with a 10-diameter lens showed that the discoloration of the affected areas was due to minute black puncta in the stomata of the individual glands and in the follicle mouths of the skin. The greater intensity of the pigmentation in certain parts could probably be accounted for by a redundance of the skin and the large size of the glandular openings in these regions.

A painstaking general examination of the patient, including studies of basal metabolism and endocrine function, revealed nothing of note. The patient would not permit a biopsy on the pigmented parts. An attempt was made to gather enough material for chemical examination by scraping the superficial layers of the skin but nothing could be removed in this way. The patient, however, had with her a jar of her favorite face cream, a widely known preparation, which she had used for fifteen years. This was analyzed by Osterberg of the section on biochemistry, and was found to contain large amounts of bismuth and mercury. Owing to the fact that the pigmentation involved only the areas over which this face cream had been applied, and in consideration of the evident superficial character of the pigmentation, it was strongly suspected that one of these chemicals might be the causative agent. Further study of this patient could not be carried out.

Case 2.—Mrs. K. H., aged 31, who was seen for the first time, March 21, 1921, presented virtually the same type of discoloration of the face and neck as that in the patient in Case 1, only the pigmentation was less pronounced. The discoloration of the face had been noticed for about four years. The patient herself had begun to suspect that it was probably due to the face cream she had been using, but believed that part of it was the result of "liver trouble." A general physical examination revealed one infected tooth and some slight tenderness over the gallbladder region, but was otherwise negative. Cholelithiasis was suspected, the opinion being based chiefly on the patient's statement of symptoms.

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* From the section on dermatology and syphilology, Mayo Clinic.

* Read before the Section on Dermatology and Syphilology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Olson, G. M.: Argyria Localis Due to Organic Silver Preparations, J. A. M. A. **69**: 87-90 (July 14) 1917.
2. Pusey, W. A.: The Principles and Practice of Dermatology, New York, D. Appleton & Co., 1917, p. 958.

OBSERVATIONS MADE ON CHEMICALS IN FACE CREAM

A number of experiments were made on this patient. She would not allow a biopsy on the skin, since she could not be assured that there would be no scar. Superficial scrapings of the skin were made, but not enough material was obtained for a reliable chemical examination. This patient's face cream was of a different brand from that used by the patient in Case 1. This preparation also was examined by Osterberg, who reported that of active chemicals it contained only mercury, probably in the form of mild mercurous chlorid. This report was confirmed by the patient, who said that she had seen a report of a chemical examination of her favorite face cream in one of the popular journals. The report stated that the cream was a suspension of mild mercurous chlorid. The experiments performed to determine the effect of the face cream on the skin were materially simplified by the fact that the cream contained only one active chemical ingredient. It could thus be argued that its behavior could be attributed to the action of mild mercurous chlorid.

An attempt was made to dissolve the black deposit on the patient's skin by various solvents. Water, soap and water, ether, acetone and dilute acetic acid were used in succession. None of these had the slightest dissolving or decolorizing effect on the deposits. The failure of these agents can be readily understood when it is considered that practically all of the pigment was confined in the glandular openings and probably the ducts and was therefore not very accessible. On several occasions, the cream was applied to the cubital region of the patient's arm under bandages. These bandages were left in place for forty-eight hours, and the patient was requested to take long walks. On one occasion, the patient perspired freely while the cream was in place; the skin was not discolored.

A similar method was followed in order to determine whether the reaction of the perspiration was acid or alkaline. Pink and blue litmus paper was bandaged on the skin instead of the cream. The pink paper always turned a light blue, and there was no change in the blue paper. This suggests that the secretions were slightly alkaline. Whether this alkalinity was the sole factor in the production of the black deposit it is difficult to determine. It is impossible to argue that the alkalinity of this patient's secretion was the only factor in the production of the discoloration. Physiologists evidently do not agree on the reaction of the sweat in normal persons. Zuntz and Loewy[3] say that pure sweat is usually acid in reaction, and only occasionally alkaline or neutral. Landois[4] and Stirling express the view that the reaction of sweat is alkaline, although often rendered acid, after secretion, by admixture of fatty acids from decomposed sebum. Either view admits the supposition that our patient had an unusual reaction of the skin secretion, a fact which would explain the comparative rarity of the discoloration.

After applying the cream to my own arm, I made it slightly alkaline with a weak solution of sodium bicarbonate, and it produced a black deposit. Likewise, when the cream was applied to wood and metal surfaces, it yielded the black deposit promptly. It is, of course, well known that mild mercurous chlorid preparations made alkaline rapidly change to the black mercuric oxid and mercury mixture, essentially the old-fashioned "black wash."

Quite as striking as the formation of a black deposit on alkalization was the rapid decoloration when the deposit was made mildly acid. A weak solution of acetic acid was used, and the decoloration which followed can readily be explained by the formation of mercuric acetate.

Thus far our last two experiments had suggested that a mercurial face cream in contact with an alkaline secretion or solution yields a blackish pigment of mercuric oxid and mercury, and that the reaction was apparently reversible by a dilute acid.

BEHAVIOR OF THE DISCOLORATION WHILE UNDER OBSERVATION

When the first patient (Case 1) was seen we did not know the chemical composition of the cream and for that reason we were not able to suggest a rational solvent for the deposit. Hydrogen peroxid was tried for its well-known bleaching properties, but it was without effect.

Three months after the patient's first visit, no appreciable change had occurred, although the use of the cream had been discontinued during this time. Meanwhile, the second patient had been examined, and the behavior of her face cream on alkalization and acidulation had been observed. As the latter cream contained mild mercurous chlorid only, it was assumed that this chemical alone was the offending agent. Therefore, both patients were advised to wash the discolored parts of the skin with a 2 per cent. aqueous solution of acetic acid twice daily. When the patient in Case 1 was seen after a second interval of three months the discoloration had grown materially lighter but was still plainly visible. At that time it was decided to use a 1 per cent. aqueous solution of potassium cyanid instead of the acetic acid solution, because of the well-known ability of the former to form water-soluble double salts with some of the heavy metals, including mercury. Three months after this suggestion had been put into effect, the patient said that the discoloration was constantly growing lighter but had not yet entirely disappeared.

The patient in Case 2 also used the cyanid solution following a trial of the acetic acid solution. She left our observation after about six weeks. The pigmentation was then definitely lighter in color. It should be mentioned that the acetic acid and potassium cyanid solutions used were found to be somewhat irritating to the skin. Solutions of half the strength would probably have answered the purpose.

It is not especially surprising that the pigmentation should be persistent even when proper solvents are applied. Careful inspection disclosed that the deposit was actually within the gland ducts and therefore relatively inaccessible to a solvent.

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[3] Zuntz, N., and Loewy, A.: Lehrbuch der Physiologie des Menschen, Leipzig, Vogel, 1920, p. 165.

[4] Landois, L.: A Text-Book of Human Physiology, Philadelphia, P. Blakiston's Son and Company, 1891, p. 567.

COMMENT

After finding mercury in both cosmetic creams, I inquired somewhat more closely into the composition of such creams and found that mercury compounds are freely used in the preparation. The mercuric acid nitrate and chlorid, but chiefly mild mercurous chlorid, are favorite ingredients. The most plausible explanation of the apparent rarity of the discoloration described seems to be that the skin secretions of our two patients present peculiar properties. According to physiologists, an alkaline skin secretion is rare. The alkalinity of the sweat of one of our patients to litmus may explain the occurrence of this type of discoloration. Another explanation of the apparent rarity of the discoloration may be the fact that a woman thus predisposed would discard a mercurial cream at the first sign of darkening of the skin. It must certainly be unusual for a woman who gives the closest attention to her complexion not to suspect her face cream after many years' use of it. Prolonged application of mercurial preparations may be necessary to effect this typical pigmentation, and the practice of changing the brand of face cream frequently may explain the rarity of the trouble. It is quite possible too that the milder grades of discoloration have simply been overlooked.

A final statement as to the exact chemistry involved is probably not justifiable. A number of interesting speculations, however, present themselves. The fact that the mild mercurous chlorid in the face cream so promptly gave a black deposit on alkalization would make me suspect that mercuric oxid is formed, which later deposits metallic mercury. The deposit of metallic mercury in a finely divided state may account for the persistent discoloration of the glandular openings. Again, the possibility of unusual bacterial activity on the skin of these patients must not be overlooked.

CONCLUSIONS

1. Mild mercurous chlorid and possibly other mercurial salts may produce a peculiar type of discoloration when persistently applied to the unbroken skin of certain persons. In our patients, the mercurial salt was contained in proprietary face creams.
2. The discoloration may prove a source of considerable diagnostic difficulty even to experts and of much worry to the patient.
3. The pigmentation is probably dependent on some peculiar personal characteristic of the skin secretion. My experiments suggest that a mild alkalinity of the secretion may be the deciding factor.
4. Potassium cyanid in from 0.5 to 1 per cent. aqueous solution is probably the best solvent for the pigmented deposit.

ABSTRACT OF DISCUSSION

Dr. F. J. Eichenlaub, Washington, D. C.: I am not quite clear from Dr. Goeckermann's description as to whether we are dealing with a pigment or a discoloring chemical compound in the skin, and I should like to have him clear up this point. It makes a big difference whether it is simply a pigment or whether it is a mercurial salt or metal deposit.

Dr. Richard L. Sutton, Kansas City, Mo.: Owing to the comparative rarity of this condition, and the frequent use of mercurial preparations in "bleaching" powders and "freckle creams," I believe that the process is a more complicated one than the simple precipitation or formation of mercurous oxid. We have all encountered cases in which contact with the skin of certain persons turned gold jewelry brown or black, possibly as a result of the excretion of sulphur or of sulphurous acid gas. It is possible that the exhalations or excretions of this material might react on mercurial preparations, with ensuing formation of mercury sulphid in the mouths of the sebaceous and coil gland ducts.

Dr. J. M. King, Nashville, Tenn.: Dr. Sutton has expressed my opinion, and it seems to me that as this discoloration comes on the neck it is due to the preparation, the discoloration being due probably to the sulphur compounds secreted by the sweat glands or sebaceous glands, forming a black sulphid.

Dr. Ernest D. Chipman, San Francisco: I recall one patient who had several pigmented areas on the face which, to my surprise, were entirely removed simply by the application of alcohol. Doubtless some precipitate, resulting from the promiscuous use of cosmetics, had formed in the skin. This, being soluble in alcohol, was removable.

Dr. Erwin P. Zeisler, Chicago: It might be interesting to recall that lead can be absorbed through the skin in sufficient quantity to cause toxic symptoms. Two fatal cases have been reported of lead poisoning from face creams.

Dr. W. H. Goeckermann, Rochester, Minn.: As to the rarity of this condition, I am not sure that it is so rare. Since preparing this paper I have seen another patient of the same type, and that makes three in a year. Prior to that I had not seen this pigmentation. As to whether it is a deposit or a discoloration, I do believe that there is a certain amount of chemical deposited in the stoma of the gland that produces the pigmentation. It seemed to me that it was a pigmentation, although I believe it was due to a chemical deposit, and so far as I was able to determine the form, it was a mercuric oxid and metallic mercury mixture rather than the sulphite of mercury.

BACILLUS ACIDOPHILUS

ITS VERY LIMITED VALUE IN INTESTINAL DISORDERS

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In recent years there has been a renewal of interest in the employment of *B. acidophilus* in intestinal toxemias. The organism was employed as far back as four years ago, at which time the fallacy of *Bacillus bulgaricus* cultures, *B. bulgaricus* milk and other preparations of *B. bulgaricus* as a therapeutic measure was becoming more and more generally recognized. Not a few of our best physicians advocated its use on the most cursory of clinical observation. No one seemed to take the trouble to investigate the therapy in any scientific way. The result of our observations in not being able on any plan of administration or quantities to recover them in the feces was soon reported to houses that sold it. Others did some detail work on it, and our observations were confirmed. The result of this was the thought to incorporate the organism (coat it, so to speak) by some substance insoluble in the intestinal canal. This was brought about by mixing pure cultures of the bacteria with a relatively soft paraffin about the consistency of petrolatum. The assumption was that in this way the organism would reach the colon in viable condition and exert its assumed benefits, as suggested by Metchnikoff. For a period this had its vogue in a proprietary suspension extensively sold, although the profession and the patient were more sold than the idea warranted. Request was made to us again to prove the value of this new product. As a result of several weeks of laboratory observation it was found that occasionally, and only very occasionally, could the organisms be recovered in the stool, and when so, in only negligible quantities. The benefits claimed could have been as readily brought about by the paraffin alone, which, if taken in the same quantity, would have cost the patient much less than the proprietary lactic acid ferment preparation containing paraffin, and both the profession and the patient would not have been misled with false beliefs. The popularity of this form of administration had to have its fling, which continued until some one began to reason about as follows.

B. acidophilus is a normal denizen of the intestinal canal of man. In breast-fed infants, with *B. bifidus,* it represents the predominant bacteria in stools of the infants, and *B. coli* does not occur excepting in those infants who are artificially fed. Since breast feeding is the normal feeding for an infant, and many of them do better on it than when artificially fed, *B. acidophilus* must be a "good organism" to have in the intestinal canal. The assumption then happened that, when present in large quantities, it inhibited the growth of *B. coli;* and, since *B. coli* is commonly found in infections, *B. coli* must be pyogenic in nature. This was added to by the writings of several men who claimed much benefit by their use in a subcutaneous vaccine way. Although this had never been proved so far as the intestinal contents were concerned, and the scientific and clinical evidence is all the other way from Herter's time to the present, it was a "short cut" that the less serious student of medicine would take *per fas et nefas,* though it was well proved and understood that in putrefaction *B. coli* alone could not initiate the process and could act only when the anaerobes had prepared the pabulum in the intestine for its action. Then came a period of lactose feedings in the adult, and reports of the benefits accrued; but no one undertook to prove that such benefits as came occurred because the lactose stimulated the growth of the acidophil bacteria (*B. acidophilus* and *B. bifidus*), and in that way changed the chemical reaction in the tract from alkaline to acid. Lastly, now we are in the fetish of the use of *B. acidophilus* to correct the intestinal biologic troubles of man, and a few prophetic words may not be amiss or untimely.

B. acidophilus possesses an advantage over *B. bulgaricus* in that its administration by mouth causes it to occur in large numbers in the feces. This takes approximately about four days, and lasts as long as the administration is kept up. This can be easily proved by a Gram-stained specimen of feces, and it can also be proved that a considerable proportion of those in the stool are possible of culturization. The specimen thus produced shows a diminution of the organisms of the *B. coli* class, but careful work will also prove that this is only apparent. *B. acidophilus,* being a gram-positive and large sized organism, is so prominent in the picture that the small sized *B. coli* looks diminished, and is not "reformed," as Gompertz puts it, or actually diminished as it is being assumed. Careful counting of *B. coli* in these specimens shows that this organism is there in the same numbers as before in a weighed unit of stool in the majority of instances; and, if it is not, all that is required after weeks of administration of *B. acidophilus,* is to stop its use for a few days, and the content and the relative picture of stained specimen is there as before as if no *B. acidophilus* had been taken. More than that, the anaerobic bacteria (the real offenders in the intestinal canal of man) have also not been reduced in their numbers during the administration of *B. acidophilus,* their potential activity has not been interfered with, and all that is required is for the reaction of the intestinal contents to be returned to neutral or alkaline, and *B. coli* is again active on the proteins that these anaerobes prepare for it.

Clinically, however, not a few patients with intestinal toxemia claim improvement on *B. acidophilus.* These cases, however, are not in the group of the more important saccharobutyric toxemias, which are acid conditions in the intestine due largely to the action of the anaerobes and in which the *B. coli* content is low and thus the putrefactive processes are inhibited by this active negotiation. In those instances of putrefactive processes, the intestinal chemistry is amphoteric or alkaline, and anything that will change this chemistry to acid would inhibit the extent of putrefaction that occurs. This occurs in the lower ileum, but more so in the colon, especially the right side, although it is active all the way to the rectum. Any benefits that may come from the administration of *B. acidophilus* are contingent on whether or not the case is of the putrefactive type (and not the fermentative), namely, one in which the biologic consequence from activity of bacteria in the intestinal canal is that of a lowering of the normal acidity of the intestinal contents. An acidity inhibits the putrefactive processes during the time the organisms are being supplied to the intestine, and, as stated before, is entirely a chemical process and in no sense a biologic one, either within the tract or generally in the body. In the putrefactive cases, however, no actual bacteriologic change beneficial to the host is brought about by effect on the anaerobes or the secondary putrefactive organisms of the gram-negative group. They are present as before, and with all the potencies in no way affected. All that is necessary to prove this is to stop the administration of *B. acidophilus,* and in a few days the stool bacterial picture is as before its use. No immunity, local or general, of the real offenders has been accomplished, and all that is accomplished is a camouflage of the intestinal toxemia for the time being. The same result can be accomplished just as well by the use of several teaspoonfuls of lactose taken during the day; for this simple procedure will stimulate an enhancement of growth of *B. acidophilus* resident in the intestinal canal of all human beings in only a slightly longer time, and at a cost that is far less to the patient.

21 West Seventy-Fourth Street.

How to Keep Well to a Hundred Years.—French exchanges comment on researches recently undertaken by Dr. M. Natier of Paris on the factors that conduce to longevity. Natier's experience has convinced him that, to be healthy and alert in mind, one must be gaining in weight up to the age of 20; from 20 to 30 one *can* be gaining in weight, but from 30 to 40 the weight must be stationary, and after 40 the weight should decline. It should keep declining until one is thin, if one wishes to live to an advanced age in good physical and mental condition. Fat after 30, says Natier, is a dead weight for the organism. Besides leanness and moderation in eating and drinking, continuous activity seems to be the one other indispensable factor for prolonging life. Organs that are not used atrophy and degenerate; hence moderate, regular use of all the functions is necessary to maintain the organic balance. Emotional strain wears out the tissues. We grow old faster by the medulla-sympathetic system than by the muscles or brain. In the *Gazette des hôpitaux* (**95**:697, 1922), a review of Natier's study of centenarians adds that he is a believer in the Guelpa treatment for autointoxication: a course of purging followed by fasting. The consequence is felt not only by the digestive apparatus but also in a rejuvenation of the tissues at large, by the destruction of used up cells and infiltrations of fat.

STUDIES ON THE THERAPEUTIC EFFECT OF BACILLUS ACIDOPHILUS MILK AND LACTOSE

PRELIMINARY COMMUNICATION *

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The investigations of Rettger and Cheplin[1] have shown that *B. acidophilus* actually accomplishes much that Metchnikoff expected of *B. bulgaricus,* which has failed to fulfil its promise. They have described the satisfactory treatment of chronic constipation and diarrhea with milk fermented by *B. acidophilus* reinforced with lactose.[2] It is well known that patients in institutions commonly suffer from chronic constipation. The present investigation, therefore, was undertaken, at Dr. G. H. Kirby's suggestion, in order to ascertain the benefits, if any, to be derived by psychotic patients from such treatment.[3] In a sense this represents one aspect of the major problem under consideration, namely, the relation of focal infection to the functional psychoses (which has been reported elsewhere [4]). Some of the methods employed at the New Jersey State Hospital at Trenton, N. J., for the determination and treatment of focal infections have been subjected by us to critical analysis,[4] and therefore the attempt was made to experiment with some measure which could be substituted for the major intestinal surgery there resorted to for the alleviation of chronic intestinal stasis.

Two groups of subjects were used, the first consisting of seven "controls," who were mentally normal, and the second group consisting of seven female patients classed as dementia praecox and manic-depressive. The procedure and technic followed were precisely as outlined by Rettger and Cheplin,[1] with one important difference, namely, that whole milk was used in the present instance instead of skimmed milk, and that the bacterial counts were made weekly by microscope with occasional platings on whey agar. The usual daily administration was 1,000 c.c. of *B. acidophilus* milk and 300 gm. of lactose, half the amount being taken between dinner and supper, and the remainder between supper and bedtime. This amount, however, was reduced as considered advisable, particularly in the controls. In general, to obtain the most palatable product, the milk was incubated at 35 C. for twenty hours. A fresh "resting" culture of the strain, kindly furnished us in pure culture by Dr. Leo F. Rettger, was used every two weeks.

The results obtained with treatment after about six weeks[5] are shown in Table 1, and are best discussed individually. Considering the first psychotic subject, it will be seen that for the two month period of observation preceding the administration of milk and lactose there were very few movements without enemas. However, within three days after treatment was commenced a normal daily evacuation was obtained. In this instance the daily administration of lactose was reduced from 300 gm. to 100 gm. owing to complaints of fulness in the abdomen. Patient 2 showed an equally satisfactory adjustment. Patient 3 presents virtually the same course except that the evacuations do not occur daily with the same regularity. The relief, however, from constipation in these cases is particularly noteworthy in view of the fact that there was no change in mode of life.

The diet remained the same, except for the fact that somewhat less was eaten at mealtime. It may be mentioned that the hospital diet is not high in animal protein. Patient 4 presents a similar picture, with perhaps more irregularity in bowel movement. Patient 5 showed the most immediate response, even to the extent of becoming diarrheal. The omission of lactose soon resulted in a more normal condition. Unfortunately, both Patients 4 and 5 became so agitated as to make continuation of treatment impracticable. Patient 6 showed little change in condition, having about one normal defecation a week, despite the increase to 1,500 c.c. of milk administered daily. This patient took almost no other food, which may in part account for the difficulty.[6] Furthermore, there appeared to be considerable voluntary inhibition to defecation at all times. Patient 7 had daily bowel movements before treatment, but these were not of a very satisfactory nature. The addition of only 250 c.c. of *B. acidophilus* milk increased the daily amount of feces and reduced their putrefactive character.

TABLE 1.—THERAPEUTIC EFFECT OF B. ACIDOPHILUS

Patient	Condition Before Treatment	Duration of Treatment	Result of Treatment
	Patients with Psychoses		
1.	Defecation usually obtained only by enemas	7 weeks	Daily defecation
2.	Defecation obtained only by enemas	1 week	Daily defecation
3.	Defecation obtained only by enemas	6 weeks	Daily defecation (some exceptions)
4.	Defecation obtained only by enemas	6 weeks	Daily defecation (few exceptions)
5.	Occasional defecation without enemas	1 week	Several defecations 6 days out of 8
6.	Defecation obtained only by enemas	7 weeks	One defecation a week
7.	Daily small putrefactive defecations	2 weeks	Daily large nonputrefactive defecation
	Normal Controls		
8.	Monthly diarrheal attack, interval constipation	6 months	No diarrhea; daily normal defecation
9.	Sporadic diarrhea	6 months	No diarrhea; daily small defecation
10.	Mild constipation	4 months	Daily defecation (some exceptions)
11.	Cathartics required twice weekly	2 months	Daily defecation
12.	Cathartic required every other night	6 weeks	Daily defecations
13.	Rectal operations; no normal defecation	9 days	No normal defecation
14.	Daily hard defecation; some gas	3 weeks	Daily soft defecation (no gas)

Turning now to the mentally normal subjects, the first two, Patients 8 and 9, had had, previous to treatment, severe diarrheal attacks; the former suffered these at the rate of about one a month, with an intervening period of constipation, while the latter was a prey to less frequent sporadic attacks. For the five months during which Patient 8 took 1,000 c.c. of

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[1] Rettger, L. E., and Cheplin. H. A.: The Intestinal Flora, New Haven, Conn., Yale University Press.

[2] Rettger, L. F., and Cheplin, H. A.: Bacillus Acidophilus and Its Therapeutic Application, Arch. Int. Med. **29**: 357-367 (May) 1922.

[3] Cheplin, H. A., and Wiseman, J. I.: Observations on the Effect of B. Acidophilus upon Cases of Chronic Constipation, Boston M. & S. J. **185**: 627-630 (Nov. 24) 1921.

[4] Kopeloff, Nicholas: Individual Variation as Influencing the Rehfuss Fractional Method of Gastric Analysis, J. A. M. A. **78**: 404-406 (Feb. 11) 1922; New York State Hosp. Quart., June, 1922. Kopeloff, Nicholas, and Cheney, C. O.: Studies in Focal Infection: Its Presence and Elimination in the Functional Psychoses, read before the American Psychiatric Association, Quebec, Canada, June 8, 1922.

[5] Kopeloff, Nicholas, and Cheney, C. O.: The Therapeutic Effect of Bacillus Acidophilus Milk and Lactose, Proc. Soc. Exper. Biol. & Med. **19**: 372 (May 17) 1922.

[6] She has since obtained a normal daily defecation.

B. acidophilus milk and 100 gm. of lactose daily, and Patient 9 took 700 c.c. of *B. acidophilus* milk, neither experienced a diarrheal attack. In fact, Patient 8 had a perfect normal daily defecation (sometimes two), and this despite a rather high animal protein diet;[7] and Patient 9 had a daily movement which was usually not satisfactory in size. In the latter case it was not considered advisable to increase the amount of milk administered or to reinforce it with lactose, because this subject did not wish to gain weight. The next subject, Patient 10, might be considered as having a mild case of constipation, i. e., necessitating some form of treatment such as hot water or weekly laxative. She took only 500 c.c. of *B. acidophilus* milk daily; and, while the results were not striking, nevertheless a certain definite beneficial effect could be recorded. Patient 11 was interesting, as the use of laxatives was required about twice every week. Any ingestion of *B. acidophilus* milk brought an immediate response, and the chief difficulty was to find a minimal amount, since the milk acted as a purgative. Patient 12 had to use cathartics every other night. The administration of *B. acidophilus* milk and lactose caused satisfactory daily defecations. Patient 13, who had undergone rectal operations, took 1,000 c.c. of *B. acidophilus* milk and some lactose, but obtained no beneficial results in nine days. Three enemas and a cathartic were taken during this period. The patient preferred to discontinue the treatment. Patient 14 had had normal daily defecations, but on taking about 300 c.c. of *B. acidophilus* milk daily, the color and consistency of the feces were much improved.

TABLE 2.—RELATIVE PERCENTAGE OF GRAM-POSITIVE AND GRAM-NEGATIVE ORGANISMS IN FECES (WEEKLY SAMPLES)

	3/24*		3/27*		4/3		4/11		4/18		4/25		4/29		5/2		5/9	
Patient	+	—	+	—	+	—	+	—	+	—	+	—	+	—	+	—	+	—
1	33	67	21	79	21	79	68	32	46	54	50	50	39	61	36	64	40	60
3	30	70	16	84	25	75	47	53	41	59	70	30	..	..	25	75	24	76
4	19	81	15	85	16	84	65	35	66	34	25	75†	42	58	36	64	78	22
5	36	64	14	86	16	84	20	80†	..	..	..	..	..	..	..	..	..	..
6	37	63	24	76	18	82	40	60	40	60	44	56	38	62	38	62	30	70
7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	58	42	64	36
8	..	..	74	26	..	..	63	37	..	..	..	..	..	..	..	..	..	..
9	..	..	49	51	28	72	..	..	..	..	38	62	..	..	..	..	..	..
10	..	..	62	38	..	..	..	..	..	..	..	..	..	..	..	..	..	..

* Before treatment. † Milk discontinued.

In general, then, it may be said that the subjects receiving *B. acidophilus* milk and lactose obtained relief from constipation and diarrhea. It is further interesting to note in this connection that even after discontinuing treatment, one (Patient 4) continued to have a daily defecation.

Considering now the changes in intestinal flora induced by the ingestion of *B. acidophilus* and lactose, the relative percentages of gram-positive and gram-negative organisms as present in the feces and examined weekly are shown in Table 2.

While the results are not very striking, nevertheless, it will be seen that in general there is a tendency toward an increase in the relative proportion of gram-positive organisms. The failure to obtain a greater ascendency of *B. acidophilus* in the intestinal flora of these patients may be due to the fact that the pabulum has been *whole* milk and not skimmed milk as employed by Rettger and Cheplin.[1] Obviously, the gram-negative bacteria have a more suitable opportunity for development in this medium.[8]

An interesting feature of this treatment is the accompanying gain in weight, in two psychotic patients and four controls, of about 3 to 5 pounds. While it might be expected that the daily ingestion of milk would bring about such results, nevertheless, in a majority of instances, there has been a corresponding reduction in food intake, which possibly argues a somewhat enhanced absorption of nutrients. The change in the character of the feces is also of considerable importance. Almost invariably the actual amount has increased, and the color has become considerably lighter, and the consistency softer. With the carmin test, before treatment, no carmin could be detected in the feces of three of the patients after forty-eight hours even with an enema; and three patients showed carmin from forty-eight to seventy-two hours after ingestion. After treatment the carmin was expelled in approximately one-half the time required before treatment.

Within the limitations of the data under consideration, it is evident that with the ingestion of *B. acidophilus* there is a change in the intestinal flora, as shown by Rettger and Cheplin,[1] and a relief from constipation and diarrhea. In other words, instead of major surgery for the alleviation of a condition concomitant with chronic constipation, *B. acidophilus* treatment might well be worth a trial. Next in importance to the actual relief from chronic constipation is its influence on the psychoses. So far, within this limited period of time, this appears to be negative.

Patients 1 and 2, each classified as a case of dementia praecox, evidenced no change in their mental reactions during the periods of treatment.

Patient 3, who had a recurrent depression, became somewhat brighter, less depressed and more communicative during the period of six weeks' treatment. However, she continued retarded in her activity as compared with her normal condition, and, on the whole the improvement was not striking.

Patient 4, a case of dementia praecox, with ideas of influence and poisoning, resisted taking the milk practically during the whole period of treatment; this resistance became greater, attempts to feed the milk by tube were unsuccessful because of vomiting, and the treatment was discontinued after six weeks. During and following the treatment, there was less complaint about her bowels not moving, and she was relieved of the pain and distress which had occurred when enemas were given; but otherwise there was no change in the clinical picture. She remained idle, and retained her previous ideas.

Patient 5 was at the time of the beginning of treatment showing a change from a depressed condition to a manic excitement. Her excitement during the week of treatment increased, she became entirely uncooperative, and it was necessary to discontinue the milk.

Patient 6, who had a recurrent depression, was mute and quite inactive in bed during the seven weeks' period of treatment. Toward the end of this period she appeared to become slightly more alert, at times showed evidence of cheerfulness, and spoke occasionally. Otherwise, there was no improvement.

Patient 7, who had had a recurrent manic excitement, was much improved at the time of beginning treatment, showing good self-control, and working industriously in the ward. It was not evident that, during the period of two weeks' treatment with *B. acidophilus* milk, there was any change in her clinical picture, except an increase in weight of 5 pounds.

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[7] Since discontinuing treatment, this subject has had two severe diarrheal attacks within six weeks.

[8] By using skimmed milk we have since obtained fecal plates containing 100 per cent. *B. acidophilus* colonies from a psychotic patient.

During the foregoing investigation, certain points of interest arose, to which the following data refer. In the first place, it is of importance to determine the number of viable *B. acidophilus* organisms ingested daily. In Table 3 is shown the daily analysis of milk both as regards viable *B. acidophilus* and acidity. It will be observed that the usual daily inoculums contained in the neighborhood of 100,000,000 to 200,000,000 viable *B. acidophilus* organisms per cubic centimeter. On the basis of 1,000 c.c. administered, this would amount to an ingesiton of from 100,000,000,000 to 200,000,000,000 *B. acidophilus* organisms each day. The acidity of 10 c.c. of the milk was neutralized by about 18 c.c. of twentieth normal sodium hydroxid. Continued daily bacteriologic and clinical analyses over a period of about six weeks have approximated these figures.

In Table 4 are shown some results in plating fecal suspensions on whey agar. The figures represent the averages of duplicate plates in two dilutions. It will be seen that the relative proportion of gram-positive to gram-negative bacteria is even lower than shown by microscopic count. However, the last column is of immediate concern. The calculation of the percentage of ingested *B. acidophilus* organisms in the feces was made as follows: The subjects received 1,000 c.c. of milk containing approximately 200 million *B. acidophilus* organisms per cubic centimeter, or a total of 200,000,000,000. A fair daily amount of feces would be about 100 gm. One hundred times the number of viable *B. acidophilus* organisms found per gram divided by 200,000,000,000 would yield the percentage of viable *B. acidophilus* organisms ingested, as excreted in the feces. These percentages are very small, and might create some doubt as to whether any actual multiplication of *B. acidophilus* occurs in the intestine.

TABLE 3.—DAILY ANALYSIS OF B. ACIDOPHILUS MILK ADMINISTERED

Date	Age of Transfer, Days	Incubation of Milk, Hours	Acidity, C.c. N/10 NaOH for 10 C.c. Milk	B. Acidophilus Organisms, No. per C.c.
4/19	5	..	....	240,000,000
4/20	6	22	....	240,000,000
4/21	7	21	....	190,000,000
4/22	8	19	....	260,000,000
4/24	10	20	....	430,000,000
4/25	11	20	24.1	200,000,000
4/26	12	21	....	300,000,000
4/27	13	21	21.8	130,000,000
4/28	14	23	20.2	135,000,000
4/29	15	19	16.3	210,000,000
4/30	16	17	15.4	22,000,000
5/ 1	17	22	18.4	Lost
5/ 2	1	23	5.4	3,500,000
5/ 3	2	22	16.8	27,000,000
5/ 4	3	21	10.7	30,000,000
5/ 5	4	24	13.1	90,000,000
5/ 6	5	19	12.8	1,500,000
5/ 7	6	18	17.1	145,000,000
5/ 8	7	22	15.9	64,000,000
5/ 9	8	24	23.4	70,000,000
5/10	9	25	18.2	75,000,000
5/11	10	22	16.4	140,000,000
5/12	11	24	14.5	135,000,000

In order to determine the keeping qualities of *B. acidophilus* milk, a series of three flasks was inoculated and incubated at 35 C. for twenty-four hours, and thereafter incubated for two weeks at room temperature (from 25 to 30 C.). They were analyzed daily for acidity and plated in duplicate in two dilutions for numbers of viable *B. acidophilus* organisms.

In Table 5 are presented the averages for the three flasks, the last column indicating the probable error as calculated in the usual way. It will be seen that the numbers of viable organisms decline quite rapidly after three days, and then maintain a fairly low level. Also there was a marked rise in acidity after the first few days, and the milk consequently became less palatable. At the end of two weeks the taste was very unpleasant. This experiment was repeated twice again with similar results.

The studies here reported, in which we were materially assisted by the members of the staff and particularly by Mr. E. J. Kennedy, Mr. Philip Beerman and Miss A. Feeney, charge nurse, represent only a preliminary portion of the investigations in progress along these lines.

TABLE 4.—GRAM-POSITIVE VERSUS GRAM-NEGATIVE BACTERIA IN FECAL SUSPENSIONS (PLATED ON WHEY AGAR)

Patient	Date	Gram-Positive, Millions per Gm.	Gram-Negative, Millions per Gm.	Ingested B. Acidophilus Organisms Found Viable in Feces, per Cent.
1.................	4/29	18	40	0.90
3.................	4/25	5	13	0.25
4.................	4/28	9	39	0.45
6.................	4/28	1	31	0.05

SUMMARY

Subject to the limitations of the material under consideration, the following points have been established:

1. Relief from chronic constipation and diarrhea has been secured by the ingestion of *B. acidophilus* milk and lactose in mentally normal and psychotic subjects. This corroborates the work of Rettger and Cheplin.[1]

2. Five psychotic patients receiving such treatment showed no improvement in their mental conditions during the period of treatment; in two others improvement was slight, but was not more than might have been expected without treatment with *B. acidophilus* milk, each of these patients having recovered previously from similar attacks without this treatment.

3. The intestinal flora becomes changed on treatment with *B. acidophilus* whole milk and lactose, but the relative percentage of gram-positive rods rarely exceeds 70 per cent.

4. Incubating *B. acidophilus* whole milk at room temperature is satisfactory for three or four days, after which the number of viable organisms decreases rather rapidly, and the acidity increases to the point of unpalatability.

TABLE 5.—AVERAGE OF DAILY ANALYSIS OF B. ACIDOPHILUS AT ROOM TEMPERATURE

Date	Age of Transfer, Days	Incubation of Milk, Hours	Acidity, C.c. N/20 NaOH for 10 C.c. Milk	B. Acidophilus Organisms, No. per C.c., Millions	Probable Error
4/27	1	30	22.4	177	± 2.4
4/28	2	25	18.8	184	±23.4
4/29	3	22	21.2	141	±17.4
4/30	4	23	22.9	44	±11.4
5/ 1	5	20	28.0	13	±11.4
5/ 2	6	20	29.6	30	± 3.6
5/ 3	7	24	34.9	12	± 1.2
5/ 4	8	23	33.0	9	± 1.4
5/ 5	9	25	36.9	19	± 1.8
5/ 6	10	25	38.2	20	± 4.2
5/ 7	11	21	39.0	25	± 0.7
5/ 8	12	23	40.0	2.5	± 0.7

Distomatosis in El Salvador.—J. Soto describes with illustrations in *La Clinica* **1**:170, 1922, the first case of distomatosis encountered in El Salvador. The patient died so suddenly that his skull was fractured as he fell. A crime was suspected until necropsy revealed over 300 specimens of *Clonorchis sinensis.*

ACUTE DILATATION OF THE STOMACH [*]

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The etiology and pathogenesis of acute dilatation of the stomach and its attendant phenomena are for the most part obscure. A considerable number of exhaustive clinical and pathologic studies of this interesting and important phase of gastric pathology have appeared in recent years, notably those of Conner,[1] Borchgrevink [2] and Novak.[3] A careful scrutiny of reported cases seems to have definitely established a number of significant points. Following the example of Conner, it has been customary to classify the cases on the basis of a chief pathologic factor common to certain groups, and it was found that many followed operations under general anesthesia, which was usually chloroform. Others developed during the course of, or convalescence from, severe and wasting diseases, after injuries. after errors in diet associated with sudden overloading of the stomach, and in persons with spinal deformities of various kinds. To these groups probably should be added those cases of acute postpartum dilatation of the stomach which are reported with increasing frequency in obstetric literature. As emphasized by Doolin,[4] if the pathologist has this condition in mind, at the necropsy a dilated stomach and a duodenum partly or completely obstructed are the chief anatomic findings. The unsettled questions are the relations which these conditions bear to one another, their etiology and pathogenesis, and their relation to the other phenomena of the disease, namely, the enormous accumulation of secretions in the stomach, the dehydration, the collapse, and death.

ETIOLOGY AND MECHANISM OF ACUTE DILATATION OF THE STOMACH

The occurrence of acute gastric dilatation during the course of an abdominal operation indicates that the mechanism is probably a nervous reflex. The recent experiments of Carlson and Luckhardt[5] demonstrate that it is possible to obtain both somatic and visceral reflexes from the stimulation of either somatic or visceral sensory nerves. Relaxation of the stomach has been observed following direct stimulation of the peripheral splanchnic nerves or reflexly through stimulation of many of the abdominal viscera. Although the operation has been performed a great number of times in the study of various problems, a section of both vagus nerves above the diaphragm, or a combined section of both vagus nerves and splanchnic nerves in dogs has never in our experience produced a dilated stomach with adverse symptoms. The work of Carlson, Luckhardt, Alvarez and others indicates that the alimentary tract possesses a peripheral automatic mechanism similar to that of the heart or amphibian lung, and a section of its extrinsic nerves does not produce gastric paralysis any more than section of the vagus or sympathetic branches to the heart results in paralysis of the cardiac musculature. There is direct experimental evidence as well as clinical observation that ether or chloroform anesthesia depresses the gastric tonus, and this no doubt may be a contributory factor in many cases. It is not probable that the absorption of toxic materials from the occluded upper intestinal tract or duodenum plays an important rôle in the gastric dilatation, since this was never observed in animals in which a toxemia similar to that of high obstruction was induced by the production of closed intestinal loops.[6] In these experiments the effect of the poisons could be observed independently and free from any mechanical distention produced by retained contents. When injected intravenously, these toxic materials produced marked motor activity of the entire gastro-intestinal tract; but a depression or paralysis was never observed. It can be easily demonstrated experimentally that a stenosis of the duodenum will result in a gradual dilatation and hypertrophy of the part above the obstruction and the stomach. An acute dilatation of the stomach is rarely, if ever, produced by such a stenosis.

RELATION OF DILATED STOMACH AND OBSTRUCTED DUODENUM TO COLLAPSE AND DEATH

It is quite improbable that the dilatation of the stomach is responsible directly for the protean symptoms that accompany the condition. When such an acute dilatation has occurred on the operating table and been relieved by the introduction of a stomach tube, the immediate reflex disturbances are slight and are not characteristic. A distention of the stomach of a dog under ether anesthesia, after ligation of the cardia and pylorus, gave rise to temporary reflex effects on distant organs; but the condition of the animal was not bad, and complete recovery took place when the ligatures were loosened and the air released. A distention of the stomach of both anesthetized and unanesthetized dogs with rubber balloons never produced acute dilatation, although the pressure was raised sufficiently to cause vomiting movements.

The symptoms, such as vomiting, thirst, scanty urine, and rapid collapse, which often make it difficult to distinguish the condition from perforative peritonitis or intestinal obstruction, are those of a severe toxemia rather than the result of reflex or mechanical effects from the stretched and dilated stomach. The view of Rokitansky, Albrecht, Conner and others places the essential pathologic condition not in the stomach but in the obstruction to the third portion of the duodenum. The mechanism of this obstruction by the mesentery and some experimental data illustrating factors which may bring it about are given by various writers.[7] The explanation given by Borchgrevink that there occurs a primary gastric dilatation and secondary mechanical occlusion of the duodenum, either by the direct pressure of the stomach on the duodenum in its passage over the spine or by a secondary arteriomesenteric compression brought about by the downward pressure of the dilated stomach which forces the small intestine into the pelvis, is supported by these experiments. There is no conclusive evidence that an arteriomesenteric occlusion of the duodenum as a result of a long and dependent mesentery can ever cause a dilatation of the stomach, although, as will be seen, it may cause a severe toxemia.

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[*] From the Hull Physiological Laboratories of the University of Chicago and the Department of Surgery of Rush Medical College.

[*] Read before the Section on Pathology and Physiology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Conner, L. A.: Acute Dilatation of Stomach and Its Relation to Mesenteric Obstruction of the Duodenum, Am. J. M. Sc. **133**: 245, 1907.

[2] Borchgrevink, O. J.: Acute Dilatation of the Stomach and Its Treatment, Surg., Gynec. & Obst. **16**: 662, 1913.

[3] Novak, Emil: Acute Postoperative Dilatation of the Stomach, J. A. M. A. **77**: 81 (July 9) 1921.

[4] Doolin, W.: Acute Dilatation of the Stomach, Brit. J. Surg. **6**: 125 (July) 1918.

[5] Carlson, A. J., and Luckhardt, A. B.: Vagus Control of the Esophagus, Am. J. Physiol. **57**: 299 (Sept.) 1921.

[6] Dragstedt, L. R.; Moorhead, J. J., and Burcky, F. W.: Intestinal Obstruction, J. Exper. Med. **25**: 421 (March) 1917. Dragstedt, L. R.; Dragstedt, C. A.; McClintock, J. T., and Chase, C. S.: Ibid. **30**: 109 (Aug.) 1919.

[7] Albrecht, P. O.: Ueber arteriomesenterialen Darmverschluss an der Duodenojejunalgrenze und seine ursachliche Beziehung zur Magenerweiterung, Virchows Arch. f. Path. Anat. **156**: 285, 1899. Rokitansky: Lehrbuch der pathologischen Anatomie **3**, 1863.

TABLE 1.—ANALYSIS OF GASTRIC CONTENT IN CASES OF ACUTE POSTOPERATIVE DILATATION OF STOMACH *

				Gastric Contents			
No.	Operation	Anesthetic	Onset	Free HCl	Total HCl	Bile	Blood
1	Inguinal hernia...........	Gas-ether	48 hrs.	+	+	+	+
2	Kidney stone..............	Ether	36 hrs.	No examination			
3	Mesenteric fibroma.......	Gas-ether	48 hrs.	0	0	+	0
4	Prostatectomy............	Ether	48 hrs.	0	0	+	0
5	Cholecystectomy.........	Ether	24 hrs.	0	0	+	0
6	Resection of stomach.....	Ether	120 hrs.	0	0	+	0
7	Appendectomy............	Ether	48 hrs.	0	0	+	0
8	Gastro-enterostomy......	Ether	36 hrs.	0	0	+	+

* From records of the Presbyterian Hospital of Chicago.

During the course of an experimental study of acute intestinal obstruction, certain facts were forced to our attention which have great significance for the present problem. In those experiments it was demonstrated that the toxic materials, which in the event of an acute high obstruction entered the blood stream and caused a sudden and fatal toxemia, had their origin in the intestinal tract as a result of the activity of proteolytic intestinal bacteria. Of even more importance, however, than the presence of these toxic bodies in the intestine are the factors which permit their absorption. They are not absorbed through a normal intestinal mucosa, but are absorbed when the blood supply to the intestinal wall has been disturbed by great distention. Organs, such as the colon or stomach, which have in part a storage function are capable of very great distention without injury by reason of the arrangement of their blood supply. On the other hand, the small intestine, especially the duodenum, is capable of practically no dilatation. By reason of its investment in a tough, fibrous envelop and the position of its nutrient vessels, which are arranged parallel to its long axis, any distention of the duodenum must result in an immediate circulatory damage. Irrespective of whether the mesenteric obstruction of the duodenum be due to a downward drag of the small intestines in the pelvis or be secondary to a dilatation of the stomach which forces the intestines down, it is obvious that the obstruction to the duodenum cannot be very great. This is confirmed by postmortem observations, in which it is usually found that the obstruction can be easily overcome by the examiner's finger, a fact which has led many to question the importance of the duodenal obstruction in the pathogenesis.

In a study of some of the functions of the duodenum,[8] it was necessary to produce duodenal fistulas of various kinds for the collection of secretions. The pylorus was closed, a gastrojejunostomy performed, and the lower end of the isolated duodenum brought to the surface through the rectus abdominis muscle. Although a similar type of fistula in the jejunum, ileum or colon was found to be without harm, most of the animals with duodenal fistulas died very promptly, often within forty-eight hours. The symptoms were those of a severe toxemia, with vomiting and rapid collapse. Similar observations had been made before by Matthews and Pilcher,[9] and by Whipple.[10] At the necropsy, the isolated duodenum was usually slightly distended, but otherwise normal. Apparently the abdominal muscles had acted as a sphincter and prevented the free escape of the duodenal secretions. In later experiments, care was taken to prevent this type of obstruction by placing a rubber catheter in the duodenum and washing it daily. When this was done, no adverse symptoms appeared, and animals could survive for long periods with such duodenal fistulas.

These observations, which demonstrated that a slight obstruction, of a degree which would have no effect in the small intestine or colon, would in the duodenum result fatally, suggested the following type of experiment: Obstructions of varying degrees were produced in the lower duodenum by means of light rubber bands. In two experiments, an ordinary rubber band about 1.5 cm. wide was placed around the duodenum, drawn barely tight enough to collapse the intestine and close its lumen, and stitched in place. In three experiments a still slighter obstruction was secured by using a band made of thin condom rubber, 2 cm. wide, again drawn just tight enough to collapse the intestine. Four of the animals died promptly within seventy-two hours with the usual symptoms of acute high obstruction. At the necropsy, the duodenum above the occluded area in each case was slightly distended, but the stomach was firmly contracted, especially in the pyloric region. In each case the degree of obstruction caused by the rubber band was very slight, and could be easily forced by the examiner's finger. In two cases the obstruction was forced by a column of water 6 inches high. An obstruction of this degree does not produce any symptoms whatever if it is produced in the lower jejunum, ileum or colon.

TABLE 2.—EFFECT OF INTRAVENOUS INJECTION OF TOXIC SUBSTANCES OBTAINED FROM THE DUODENUM ON THE SECRETION OF DIGESTIVE JUICES IN THE DOG

	Gastric Secretion					
Procedure	Volume, C.c.	Free Acid	Total Acid, Units	Duodenal Juice, Drops	Pancreatic Juice, Drops	Bile, Drops
Normal rate of secretion 30 min..	3	0	4	53	52	22
Normal rate of secretion 30 min..	3	0	4	59	56	30
Intravenous injection of toxic substances from duodenum:						
1st 30 min. period...............	3	0	8	100	70	40
2d 30 min. period...............	3	0	8	135	50	58
3d 30 min. period...............	5	0	7	75	21	39
4th 30 min. period...............	5	0	7	82	20	25

The facts developed from animal experimentation indicate that a severe or fatal toxemia could quite easily arise in man from an arteriomesenteric obstruction to the duodenum; but when this is a primary factor there is no evidence to indicate that dilatation of the stomach would probably follow. Such an occlusion has never produced an acute dilatation in the dog. It is probable that the dilatation is the primary factor, but that the toxic symptoms are dependent on the secondary duodenal occlusion. It is not unreasonable to suppose that the clinical symptoms of uncomplicated duodenal stenosis and duodenal stenosis plus a dilatation of the stomach should be somewhat different, although the origin of the toxemia is the same in the two cases. It is not probable that the source of the toxemia is absorption from the dilated stamach. In all of our experiments it was noted that toxemia usually occurs within a few hours after distention of a closed loop and interference with its blood supply. In gastrectasis following surgical operations, however, the toxic symptoms are usually delayed two or three days until a time when the duodenal occlusion could have developed, and a distention could have taken place. It is difficult to see how a dilatation of the stomach of reflex origin could take place two or three days after the inciting trauma of the operation. It is more probable that the dilatation is immediate but unrecognized until the secondary duodenal occlusion has produced the toxic symptoms.

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[8] Dragstedt, L. R.; Dragstedt, C. A.; McClintock, J. T., and Chase, C. S.: Extirpation of the Duodenum, Am. J. Physiol. **46**: 584 (Aug.) 1918.

[9] Matthews, A. P.: Physiological Chemistry, New York, 1915, p. 388.

[10] Whipple, G. H.: J. Exper. Med. **15**: 259, 1912. Whipple, G. H.; Stone, H. B., and Bernheim, B. M.: Ibid. **17**: 286, 307, 1913; **19**: 144, 166, 1914.

ORIGIN AND NATURE OF VOMITED FLUID

One of the most striking features of the disease is the enormous quantity of fluid which is regurgitated or may be aspirated from the dilated stomach. This is far in excess of the fluid intake, and the excessive thirst and scanty urine testify to the dehydration produced. Many observers have noted the rapid filling of the stomach after it has been completely emptied by a stomach tube. In most cases in which examination was made, the fluid contained little or no free hydrochloric acid, and practically always contained bile, as shown in the accompanying table. A study of these cases suggests that the fluid is made up of not only gastric juice but also bile, pancreatic juice, and perhaps the duodenal secretion as well. It is quite evident that the great amount of fluid present cannot be the normal output of the glands in question, but must represent the result of a profound stimulation. The mechanism of this secretion has not been adequately studied. Although a part of the normal gastric secretion is dependent on reflex stimulation of secretory fibers in the vagus nerves, it is not probable that nervous influences play any significant part in the production of this fluid. Most of the evidence indicates a depression rather than an increased vagus tonus. The previous studies, which suggest so strongly the simultaneous presence of a duodenal occlusion of a degree sufficient to cause a severe toxemia or death, if unrelieved, afford a clue to the nature of the stimulus. It is known that the toxemia of acute high intestinal obstruction is accompanied by the secretion of great quantities of fluids into the stomach and intestine above the obstructed area. A study of the physiologic activity of the poisons of acute obstruction has demonstrated that these are very active secretagogues, and it is quite probable that some of them are identical with the so-called secretion bodies which may be obtained from the duodenal mucosa and which have such a striking effect on the secretion of gastric and pancreatic juice. Animals were prepared for the experiments in the manner suggested by Luckhardt, Palmer and Henn,[11] which permits of the simultaneous collection of the secretions of the stomach, the bile, the pancreatic juice and the duodenal secretion from animals in comparatively good physiologic condition. Sublethal doses of fluid obtained from an obstructed duodenum or closed intestinal loop, when injected intravenously into such animals, were found to produce a striking increase in all of the secretions. The fluid expelled from the stomach in acute high obstruction or acute dilatation of the stomach is doubtless made up of the greatly augmented products of all of these glands and the stimuli to its production are chemical rather than nervous reflexes. It should be noted that in both of these conditions the excessive secretion may result in considerable dehydration. The dehydration is, however, produced by the entrance of these toxic substances with their secretagogue action into the blood stream, and cannot be considered a primary factor in any sense.

RELATION OF ACUTE DILATATION OF STOMACH TO TETANY

Tetany is a symptom not uncommonly associated with gastro-intestinal disturbances, and is notably frequent in acute dilatation of the stomach. Heretofore the common explanation has ascribed these manifestations as of reflex origin from the irritated intestine or the distended stomach. In a series of experiments reported elsewhere,[12] we have demonstrated that the tetany which appears in animals following removal of the parathyroid glands is dependent on the absorption of toxic substances from the intestinal tract. These substances, in common with those which are responsible for the toxic symptoms in acute dilatation of the stomach, are produced in the lumen of the intestinal tract by the activity of the proteolytic group of intestinal bacteria. They are not true bacterial toxins, but represent various toxic protein fractions arising from the partial splitting of the protein molecule by the bacterial enzymes. A practically complete removal of the proteolytic bacteria from the intestine or a change in their metabolic processes may be secured in animals by feeding a carbohydrate diet which contains definite amounts of either lactose or dextrin. There is definite experimental evidence that these changes in the intestinal flora reduce the toxicity of the intestinal content.[13] When the parathyroid glands are removed from such animals, tetany does not appear, and the animals may survive indefinitely. A natural inference is that the parathyroid glands in some way exert a detoxifying function particularly concerned with these intestinal poisons, which apparently find their way into the systemic blood stream in appreciable quantities. A parathyroid deficiency or complete absence would permit their accumulation in the body in sufficient concentration to produce the tetany. In acute dilatation of the stomach, it is probable that the tetany is due to the excessive absorption of these intestinal poisons beyond the ability of the parathyroids to care for them, or there may have been a preexisting parathyroid deficiency so that its factor of safety was easily overcome.

MECHANISM OF CURE BY POSTURAL TREATMENT AND GASTRIC LAVAGE

It has been definitely established that the excessive mortality formerly associated with acute gastric dilatation may be greatly reduced by the prompt use of the stomach tube and the adoption of the postural treatment advocated by Schnitzler. These cases are apparently so striking that any accurate explanation of the pathogenesis of the disease must afford a rational explanation of the beneficial results from such treatment. The frequent use of the stomach tube removes from the stomach and distended duodenum the toxic materials whose absorption is responsible for the toxemia, and also lessens the occlusion to the duodenum produced by the weight of the stomach. The adoption of the knee chest position or the prone position with elevation of the pelvis affords relief, and the explanation is undoubtedly that given by those who first advocated it;

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[11] Luckhardt, A. B.; Palmer, W. L., and Henn, S. C.: On the Specificity of Gastrin and Pancreatic Secretin, Am. J. Physiol., to be published.

[12] Dragstedt, L. R.: Pathogenesis of Parathyroid Tetany, read before the Society for the Study of Internal Secretions, St. Louis, May, 1922.

namely, it releases the mesenteric occlusion of the duodenum by removing the downward traction of the mesentery and the weight of the dilated stomach. We should expect that it would be more efficacious than the gastric lavage, since experimentally it was found that the factors which permit of the absorption of intestinal poisons, i. e., obstruction with distention, are far more important than the production of these poisons. This type of toxemia in dogs can be successfully controlled by the frequent administration of large amounts of Ringer's solution or salt solution intravenously or by hypodermoclysis. There is no reason why such treatment may not be tried in clinical cases.

ABSTRACT OF DISCUSSION

DR. JAMES J. MOORHEAD, Terre Haute, Ind.: Speaking of acute dilatation of the stomach from the clinical standpoint, I recently had this rather unusual experience: A patient was admitted to the hospital suffering from a gunshot wound of the lower abdomen received thirteen hours previously. An enormous distention of the stomach was relieved by the use of a tube, and the patient was prepared for laparotomy. During the intra-abdominal work—six perforations of the small intestine were closed—a recurrence of the gastric dilatation subsided following the treatment employed in the first instance. Dr. Dragstedt's paper emphasizes the value of animal experimentation in the solution of clinical problems.

DR. JOHN J. GILBRIDE, Philadelphia: I was interested to hear from the pathologist as to his views on the etiology of acute dilatation of the stomach. My acquaintance with the subject was made in 1901 when I came across a little booklet of lectures on "Tumors of the Stomach," by the late Sir William Osler, which he delivered at Johns Hopkins Hospital. There is shown a plate of a necropsy in which the abdomen is opened and in which an acutely dilated stomach practically fills the entire abdomen. Acute dilatation of the stomach occurs most frequently after operations on the upper abdomen. However, it may occur after operation on any part of the body. It has occurred after operation on the head, and it has also occurred after the application of a cast or other apparatus for a support in disease of the spine. Both the motor and secretory functions of the stomach are profoundly affected. The stomach becomes hugely and rapidly dilated. There appears to be a profuse secretion into the stomach. This comes mostly from the stomach, and it is probably augmented by secretions from the pancreas and the liver. It appears to me that obstruction as an etiologic factor does not explain the condition. Personally, I believe that the statements made about compression of the duodenum by the superior mesenteric vessels are more mythologic than real. Gastro-enterostomy does not accomplish anything in these cases. Paterson had acute dilatation of the stomach occurring in two cases in which he had performed gastro-enterostomy for ulcer.

DR. A. J. CARLSON, Chicago: This work seems to link several known facts, particularly in connection with intestinal obstruction and intestinal intoxication, so that the interpretation offered must be refuted by something more substantial than mere guess. The work suggests a more rational therapy of that condition than gastro-enterostomy, because gastro-enterostomy would not necessarily relieve an obstructed duodenum. Dr. McKenna suggested some years ago the production of a fistula in the duodenum for the relief of general peritonitis, on the theory that some of the symptoms of general peritonitis involve interference with the duodenal functioning (obstruction). Would it not be feasible to introduce a duodenal tube for drainage of the obstructed duodenum via the mouth? This should be superior to the duodenal fistula operation for an obstructed duodenum, as this operation at times induces a more severe obstruction than the one we attempt to relieve by it.

DR. LESTER R. DRAGSTEDT, Chicago: We have never produced acute dilatation of the stomach in an experimental animal. A toxemia of high intestinal origin will cause death with practically all of the symptoms of acute dilatation of the stomach. There is no experimental evidence that dilatation or distention of the stomach will reflexly produce the symptoms we see in this condition. The beneficial effects of the adoption of the prone position with elevation of the pelvis and the use of the stomach tube can really be explained on the basis of the pathogenesis of the disease presented. The dehydration must be regarded as a result of the profuse secretion into the upper intestine and stomach, brought about by the toxic secretagogues and cannot be considered a primary factor. It would be relieved by the intravenous or hypodermic administration of Ringer's solution, which in addition would dilute and promote the excretion of toxic materials in the blood.

CONTRIBUTIONS TO THE PHARMACOLOGY AND THERAPEUTICS OF IODIDS *

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I shall present here a summary of the results of certain studies of the pharmacology and therapeutics of iodids carried on in the Section on Dermatology and Syphilology of the Mayo Clinic during the last two years. Detailed accounts of methods and data covering each phase of the work will be published later.

Throughout these studies the method of Kendall[1] for the determination of iodin has been scrupulously followed. The advantages of this method are numerous, chief among which are its delicacy and accuracy with minute amounts of iodin, and, therefore, its adaptability to small amounts of blood and spinal fluid.

ADMINISTRATION BY MOUTH

It is well known that small doses of iodids by mouth are rapidly absorbed and eliminated. The recent use of massive doses of iodids has raised the question of whether large doses are absorbed proportionately and, if they are absorbed, whether the iodid is excreted more rapidly or less rapidly than with small doses. The significant facts obtained from a study of the results after doses of 1, 5 and 20 gm. of sodium and potassium iodid by mouth are as follows:

1. Sodium iodid is excreted faster during the first hour than potassium iodid. The percentages for the one-hour interval following the administration of 1 gm. of sodium iodid and 1 gm. of potassium iodid, respectively, are 5.3 and 2.2; 7.3 and 7.2 for 5 gm., and 10.9 and 2.0 for 20 gm. This fact is of importance when the mechanism of absorption is considered.

2. No appreciable difference could be noted in the amounts of iodin eliminated after sodium and potassium iodid had been taken by mouth; the percentages were on the average a trifle higher with the sodium

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* From the Section on Dermatology and Syphilology, Mayo Clinic.

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Kendall, E. C.: The Determination of Iodin in the Presence of Other Halogens and Organic Matter, J. Am. Chem. Soc. **34**: 894-909, 1912; The Determination of Iodine in Connection with Studies in Thyroid Activity, J. Biol. Chem. **19**: 251-256, 1914; The Determination of Iodine in Connection with Studies in Thyroid Activity, ibid. **43**: 149-159 (Aug.) 1920. Kendall, E. C., and Richardson, F. S.: Determination of Iodin in Blood and in Animal Tissue, J. Biol. Chem. **43**: 161-170, 1920.

iodid. My observations tend to show that the individual varies under different conditions.

3. The highest point of concentration of iodin in the urine is reached between the second and fourth hours after administration. The curve of urinary concentration of iodin does not always parallel the curve of iodin excreted because of the varying amounts of urine passed for each unit of time. There is no evidence that the amount of urine influences the amount of iodin excreted. Water intake effects are under investigation.

4. There is no difference in the length of time sodium and potassium iodid are retained in the body. They are practically entirely eliminated by the end of ninety-six hours, regardless of the size of the dose.

5. During the second twenty-four hour period after administration, approximately the same percentage of total iodin is eliminated, regardless of drug or dose.

No appreciable amount of iodin appears in the stools. Following the dose of 5 gm. of sodium iodid, 200 mg. of iodin was found in the feces, and after the 20 gm. of potassium iodid, 250 mg. of iodin appeared in the feces. Thus, 96 per cent. was absorbed from the gastro-intestinal tract, and this in spite of the fact that 20 gm. doses were followed by a mild watery diarrhea.

From experiments performed on two patients, it was found that no appreciable differences could be noted in the rates of elimination when the drug was given before or after meals. As in the case of the single dose, from four to five days was required for the entire elimination of the drug. During this series of experiments, blood was drawn at exactly two and three hour intervals after the second, or noon, administration. The blood concentration of the iodin was essentially the same in every instance. Many pharmacologists recommend the coincident administration of fats in the form of milk and cream on the theory that the lipoid substances hasten absorption of the iodin. My observations indicate no difference in the rate of absorption due to fats in ordinary meals, as compared with the empty stomach. Patients note less gastric irritation if the drug is taken on an empty stomach one-half hour before meals. I am unable to state at present whether or not the administration of iodids before meals lessens the liability to iodism.

Sodium iodid is usually better tolerated than potassium iodid. Two patients were observed recently who tolerated sodium iodid by mouth and intravenously, but who reacted markedly to potassium iodid by mouth.

COMPARATIVE RATES OF ELIMINATION FOLLOWING ADMINISTRATION BY MOUTH AND INTRAVENOUSLY

The intravenous administration of sodium iodid is being commercialized as a method superior to the oral administration, because of the supposed intensive effect and the slower excretion. The important facts to be noted from a study of results obtained following doses of 5, 10 and 20 gm. of sodium iodid are:

1. There is no striking difference in the rate of elimination of sodium iodid given intravenously, as compared with that given by mouth. Mendel has contended that sodium iodid administered intravenously is retained in the body for a longer period. My observations indicate that there is practically no difference between the two methods in the rate of elimination, and large doses are eliminated as rapidly as small ones.

2. There is a rapid adjustment of the body fluids to the hypertonic sodium iodid solution (10 per cent.). After 5 gm. of sodium iodid intravenously, the concentration of iodin in the urine rises immediately; while, after the 10 gm. dose, it is a trifle slower. With the relatively large dose of 20 gm., the urinary concentration remains comparatively low until the end of the first hour, after which it rapidly rises to a maximum during the fourth hour. Clinical experience coincides with these findings. Practically every adult patient tolerates 10 gm. of sodium iodid intravenously (100 c.c. of 10 per cent. solution) very well because the body is able to adjust itself to that amount. Above 10 gm., symptoms may develop from the effect of the hypertonic solution. No accumulation of the drug in the body after the large daily doses intravenously occurs. On 30 to 45 gm. daily, the same percentages were obtained as with small doses, and the drug did not remain in the body any longer.

RECTAL ADMINISTRATION OF IODIDS

Two patients were given ascending doses of potassium iodid three times a day by drop proctoclysis, with practically identical results. The maximal efficiency, with regard to the percentage of iodin excreted in the urine as compared with the amount administered by rectum, was reached with the smaller doses of approximately 3 to 10 gm. of potassium iodid a day. The iodin excreted varied from 16.9 to 43.3 per cent. of the amount administered. Increasing the dose above 10 gm. daily did not produce a corresponding increase in absorption. In both cases, severe rectal irritation developed when the dose reached 30 gm. of potassium iodid daily. Accordingly, it appears that approximately 20 to 25 per cent. of iodid given by rectum is absorbed with doses up to 10 gm. daily. Since 96 + per cent. is absorbed after administration by mouth, a daily dose of from 2 to 3 gm. by mouth is equivalent to the maximal dose by rectum; thus it would seem that rectal administration of iodids offers no significant advantage.

STUDY OF THE BLOOD CHEMISTRY OF IODIDS

In my first few series of experiments, blood serum was obtained after clotting had taken place. Since then I have found that oxalated blood serum is somewhat more convenient. Only the most minute traces of iodin were found in the packed cells, indicating that practically all, if not all, of the iodin is in the serum fraction of the blood.

SODIUM, POTASSIUM AND IODIN CONCENTRATION OF BLOOD SERUM AFTER IODIDS BY MOUTH

Doses of 1, 5, and 20 gm. of sodium and potassium iodid by mouth were used in this series of experiments. The potassium and sodium determinations were made after the methods of Kramer and Tisdall[2] under the direction of Dr. Rowntree. The most important facts noted were:

1. Following the administration of sodium iodid by mouth there was a definite marked rise in the sodium content of the blood serum proportional to the size of the dose, with no change in the potassium content.

2. In contrast to this finding, administration of potassium iodid by mouth did not produce a corresponding rise in the potassium content of the blood serum; but,

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[2] Kramer, B.: Direct Quantitative Determination of Potassium and Sodium in Small Quantities of Blood, J. Biol. Chem. **41**: 263-274, 1920. Kramer, B., and Tisdall, F. F.: A Simple Method for the Direct Quantitative Determination of Sodium in Small Amounts of Serum, J. Biol. Chem. **46**: 467-473 (May) 1921; A Clinical Method for the Quantitative Determination of Potassium in Small Amounts of Serum, ibid. **46**: 339-349 (April) 1921.

on the contrary, a definite rise in the sodium content almost equal to that following the sodium iodid. Following the 20 gm. dose, only a slight rise in the potassium content was noted.

3. The iodin content of the blood serum is, in general, proportional to the dose administered. With doses of 1 and 5 gm., the highest concentration is reached about one hour after administration; while, with the 20 gm. dose, the peak is reached at the two-hour period.

SODIUM, POTASSIUM AND IODIN CONCENTRATION OF BLOOD SERUM AFTER SODIUM IODID INTRAVENOUSLY

Sodium, potassium, and iodin determinations were made on blood serum at varying intervals after intravenous injection of 10 gm. of a 10 per cent. solution of sodium iodid. As would be expected, no change occurs in the potassium concentration. The sodium content remained high for twelve hours, and returned almost to normal at the end of forty-eight hours. The iodin content, which was 43 mg. for each 100 c.c. of blood serum at the one-hour interval, dropped rapidly during the first four hours to 24.7 mg. for each 100 c.c., and then gradually to 7.1 at the end of twenty-four hours. By the end of the fourth day, a trace was found in the blood serum. In comparing these results with the iodin concentration of the blood serum after iodids by mouth, it is apparent that a dose of 5 gm. of sodium or potassium iodid three times a day by mouth will maintain blood serum concentration of 20 to 40 mg. of iodin for each 100 c.c. of blood serum for at least ten to twelve hours. Three grams of sodium or potassium iodid will give a blood serum concentration of from 13 to 30 mg. for each 100 c.c. for at least three hours after a single dose. It is apparent that a dose of from 9 to 15 gm. a day in three doses of from 3 to 5 gm. each by mouth is comparable to 10 gm. in a single dose intravenously, and has the added advantage of producing a uniformly sustained concentration of iodin during the day. It seems, from these data, that unless the intravenous method is used as an adjunct to the mouth administration, there is no special advantage in giving small doses intravenously. The giving of large doses by vein produces a very much higher concentration for a much shorter period. Mouth administration creates a moderate sustained concentration; intravenous administration of large doses creates peaks of very high concentration followed by rapid declines. The therapeutic significance of these contrasting procedures remains to be determined.

IODIN CONTENT OF BLOOD SERUM PROTEINS AFTER SODIUM, AND POTASSIUM IODID

I have employed two methods for the precipitation of the serum proteins, the tungstic acid method of Folin and Wu,[3] and the alcoholic precipitation. My results thus far are as follows:

1. Only traces of iodin were found in the serum proteins after the administration of sodium iodid by mouth.

2. In direct contrast to this finding, from 7 to 26 per cent. of the iodin following the administration of potassium iodid by mouth is found in the serum proteins. The average is 16.8 per cent.

3. Following sodium iodid intravenously, from 6 to 9.9 per cent. of the iodin is found in the serum proteins.

IODIN CONTENT OF BLOOD SERUM LIPOIDS

In a series of ten determinations, only traces of iodin were found in the alcohol, ether, and chloroform soluble fractions of blood serum following potassium and sodium iodid by mouth and sodium iodid intravenously.

COMMENT

These studies indicate that an exchange of ions occurs in the process of absorption of potassium iodid. Evidently the potassium is replaced by sodium to a large extent. Whether, in this exchange of ions, the iodin from potassium iodid is absorbed in the same form as after sodium iodid is open to question. Since the potassium is evidently absorbed to a very slight degree, the question naturally arises of whether the iodin after potassium iodid unites with the protein, the fat, or the inorganic constituents of the blood. My investigations suggest that the iodin given in the form of potassium iodid by mouth forms a sodium protein combination, while in the case of sodium iodid by mouth only traces of iodin enter into combination with the proteins. In a study not yet completed of two patients exhibiting symptoms of iodism following the administration of sodium iodid by mouth, the iodin united with the protein fraction to a greater extent than in normal persons. The foregoing observations have a direct bearing on the relative effectiveness of potassium and sodium iodid by mouth and the latter intravenously. If iodin, when administered in the form of potassium iodid, unites with the serum proteins to a greater extent than when administered as sodium iodid, the question at once arises as to whether it is this sodium-protein-iodin combination that is responsible for the action of iodids. What rôle, moreover, does this sodium-protein-iodin combination play in the production of iodism? These points must be made the subject of further study.

ABSTRACT OF DISCUSSION

Dr. G. P. Grabfield, Boston: By the administration of small doses of iodids we were able to double and treble and in one case quadruple the nonprotein nitrogen of the blood. Dr. Osborne has used larger doses; and the question is whether our findings may be related to the protein combination that he suggests. After such doses of iodid, increase of the blood nitrogen begins about the second or third day, and continues for four or five days and gradually comes back to the previous level. Apparently, this is associated with an adjustment of the body fluids to the iodid in the blood. We have used both potassium and sodium iodid and have found the same result in the two cases. In two experiments so far done this is apparently also associated with some renal retention. If, however, the iodid is given in a single dose, this change in blood nitrogen does not occur. The chlorids remain unchanged. We are planning further work on this relation between iodid administration and the nitrogenous constituents of the blood. This will probably prove to be related to Dr. Osborne's work, and the two may prove to be mutually explanatory.

Dr. E. D. Osborne, Rochester, Minn.: The question of iodism and anaphylaxis, so-called, as applied to cutaneous medicine has been opened up for study. The preparation of the iodin-protein combination is now being carried out. We expect in the near future to report a study on cutaneous diseases, employing this combination. Of course the relationship of the iodids to the bromids and to other such drugs in the production of skin diseases is of great importance, and this subject is just now receiving attention.

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[3] Wu, H.: Separate Analyses of the Corpuscles and the Plasma, J. Biol. Chem. **51**: 21-31, 1922. Folin, O., and Wu, H.: A System of Blood Analysis, J. Biol. Chem. **38**: 81-110 (May) 1919.

THE VALUE AND LIMITATIONS OF ROENTGEN-RAY DIAGNOSIS IN DIGESTIVE DISEASE *

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Because of the universal application of the roentgen ray in the diagnosis of digestive disease, I believe that the time is opportune for a frank expression of opinion, based on many years of experience, regarding its value and limitations in this field.

I shall present in this paper a consideration of (1) cases in the digestive sphere in which the diagnosis cannot be made without the use of the roentgen ray; (2) cases in which the roentgen ray can be regarded only as confirmatory; (3) cases in which the diagnosis cannot be made by the roentgen ray but can be made by a careful history and clinical investigation, and (4) cases that have been incorrectly diagnosed by the roentgen ray, as shown by their subsequent history. I shall point out some of the reasons for the incorrect interpretations made in this group of cases, and finally I shall endeavor to draw a few conclusions, based on my experience, as to the proper attitude the clinician should hold toward radiologic examinations in the diagnosis of digestive diseases.

CASES IN WHICH DIAGNOSIS COULD NOT BE MADE WITHOUT ROENTGEN RAY

Esophagus.—On the completion of a thorough esophageal investigation by historical, physical and clinical methods, few lesions remain for the roentgenograph or the fluoroscope to reveal. Rarely, indeed, does the roentgen ray discover an asymptomatic pathologic condition in this region; and when this rare instance does occur, the outstanding lesion is a diverticulum. Diverticula, however, constitute a very small percentage of esophageal cases. When obstruction is from without, notably mediastinal tumors or aortic dilatation, roentgen investigation is many times indispensable.

Stomach.—Occasionally it is impossible to diagnose gastric ulcer without the aid of the roentgen ray. Palpation before the fluoroscope, aided at times by radiography, is the most dependable mode of investigation, but even this is often attended by failure.

The discovery of hour-glass formation (functional or organic) size and form, perforating or penetrating ulcer, diverticula, foreign bodies, diaphragmatic hernia, functional capacity of postoperative openings, atony, hypertonicity, pylorospasm and hyperperistalsis accompanied by hypermotility, delayed evacuation or obstruction, may depend entirely on roentgen-ray investigation; further, the anatomic location of various gastric lesions is at times definitely determined by this method when it is quite impossible of accomplishment by any other means of investigation.

Tumors (malignant and benign).—The roentgen ray has undoubtedly discovered a certain number of malignant growths entirely unattended by any of those symptoms which bespeak the nature of the disease. However, I must confess that, in my experience, the number of these independent diagnoses is pitifully small. Nevertheless, and because this method of investigation is of such inestimable value in those rare cases, the radiologist should be encouraged to search for roentgenologic signs which will assist in making an early diagnosis—the only diagnosis of any value in this class of cases.

In those unusual instances of benign tumors with markedly atypical digestive syndromes, roentgenology is often our only means of establishing the presence of the growth.

Gallbladder and Liver.—Although reports of splendid progress made with the roentgen ray in the diagnosis of gallbladder disease have been published, and while a large percentage (from 80 to 90) of gallstone diagnoses is claimed by experienced and reliable observers, my own experience has been extremely disappointing. Perhaps we have failed to develop the proper technic! In my opinion, roentgen-ray examination in gallbladder disease is of doubtful value, unless positive shadows of stones or densely thickened gallbladder can be visualized.

The Small Intestine.—Undoubtedly the most dependable and striking findings through the use of the roentgen ray are encountered in the small intestine, notably in connection with duodenal ulcer. This knowledge assumes greater importance with the realization that many extraduodenal conditions produce what was formerly supposed to be the typical ulcer syndrome, and also because of the bizarre and entirely unsatisfactory histories frequently presented by ulcer cases.

In addition to this lesion, diverticula and irregularities due to spasm, pressure, growths and dilatation may be discovered. Irregularities should be studied with extreme caution because of the numerous variations of the normal, which so minutely simulate the pathologic.

Terminal Ileum and Colon.—While valuable information is frequently gained through visualization of the terminal ileum and colon, the fact must be borne in mind here, as elsewhere in the body, that nature permits of many variations, all of which are entirely normal. However, instances do occur in which the diagnosis of neoplasm, syphilis, tuberculosis, inflammatory conditions, diverticula, foreign bodies, various abnormalities and extra-intestinal lesions would have been impossible except for the roentgen ray. Certain radiologists claim the ability to differentiate between a syphilitic and a tuberculous or malignant lesion by variations in the roentgen-ray picture, but there is a great difference of opinion in this connection. As regards tuberculosis, Brown and Sampson's observation of a filling defect with hypermotility is of definite diagnostic value only with signs of tuberculosis elsewhere, as any ulcerative lesion can produce a similar roentgenologic picture.

CASES IN WHICH THE ROENTGEN RAY IS MERELY CONFIRMATORY

I am convinced that in a confirmatory rôle the roentgen ray is possessed of its greatest diagnostic asset.

Esophagus.—As an agent merely confirmatory, in lesions of an obstructive nature (organic or spastic, intrinsic or extrinsic in origin) in this portion of the digestive tract, roentgenology plays its most important rôle. In the majority of these cases, after dysphagia has directed our attention to the esophagus, and the introduction of a bougie has localized the site of the obstruction, it is not at all unusual, through clinical investigation, to determine definitely whether the lesion is organic and malignant in nature. However, the character of the lesion may in a considerable number of cases be unquestionably established by the fluoroscope and roentgenograph.

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* From the Gastro-Intestinal Clinic of the Johns Hopkins Hospital.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

In spastic obstruction due to neurologic malfunction or a reflex because of early organic change, one will often discover cases in which dysphagia has preceded, for a considerable time, roentgen-ray manifestations of esophageal motor insufficiency.

The location of a foreign body may be determined by means of roentgenology, but here again it is only a confirmatory measure, while in the discovery of dilatation it is quite unnecessary.

Stomach.—The approximate size, position, motor capacity (normal, hypomotility, obstruction of various grades) and tone may be ascertained by other methods, but occasionally it is advisable to use the roentgen ray as a confirmatory measure. By history and thorough clinical investigations we are enabled, in a large number of cases, to determine whether or not we are dealing with a spastic lesion of the stomach; and further, whether it is of intrinsic or extrinsic origin. In these cases the fluoroscope or roentgenograph will aid in establishing the presence of pylorospasm, hour-glass stomach or gastrospasm. In this connection it may be of interest to cite an instance.

A woman, aged 57, presented a protracted digestive history of fulness, distress, abdominal tenderness, etc. Notation was made of the extremely nervous demeanor ("too nervous to be examined"). Physical examination revealed malnutrition, asthenic type, flushed face, flabby skeletal muscles, and abdominal walls thin, atonic and relaxed; the kidneys and liver were palpated with ease; there was a distinctly palpable and tender transverse colon. In spite of a general atonicity, flabbiness, and relaxation of skeletal and abdominal musculature, besides the diagnosis of splanchnoptosis, a tentative diagnosis of hypertonicity of the stomach, normal motor power and spastic transverse colon was made. Fluoroscopic investigation confirmed the diagnosis in every detail.

A similar mode of procedure is applicable and desirable as regards carcinoma, syphilis and other lesions.

Carman's late work on the diagnosis of ulcerating gastric cancer is a step forward, and splendid in its conception; however, here again a diagnosis of carcinoma or intractable ulcer with recommendation of surgical interference will have been made, and the roentgen ray employed, only as a supportive agency.

In speaking of the diagnosis of "early cancer" which involves the gastric wall without producing a recognizable filling defect, Carman states that a local loss of flexibility may be evident on palpation, and peristalsis should be notably absent from the involved area. He immediately follows this statement with the remark that these signs alone should be interpreted with caution, but that in conjunction with a gaping pylorus, achylia and clinical indexes, they may warrant surgical exploration.

In answer to the foregoing I assert that such a diagnosis is not "early"; that the findings (local loss of flexibility and peristalsis) of which he speaks are detectable only on rare occasions, and then only by the most skilled observers; also that practically all cases with gaping pylorus, achylia, etc., will have been diagnosed by clinical methods. The presence of achlorhydria, Oppler-Boas bacilli and obstruction is not necessary for the diagnosis of gastric carcinoma.

He further states that "the novice would better limit his diagnosis to those cases in which he can demonstrate a permanent filling defect and which are at least suspicious clinically." In my opinion this is, indeed, a sad commentary on the value of the roentgen ray in "early diagnosis" of carcinoma, and certainly represents no valid argument in favor of this method as an independent means of diagnosis. There are many other conditions, exclusive of carcinoma, which may produce a filling defect.

It would be dangerous to argue that because some of the most brilliant investigators are able to diagnose early malignant lesions, it is possible for all others to do likewise.

I cannot subscribe to the view that "in the detection of cancer of the stomach the roentgen ray takes precedence over all other methods." As a matter of fact, the vast majority of our cancer cases are diagnosed before roentgen-ray study, and I am firmly convinced that when a filling defect is demonstrable by the roentgen ray, the pathologic lesion has already been discovered clinically; also in a large percentage of such cases it is too late for successful operative interference.

In syphilis and tuberculosis, the roentgen ray is decidedly confirmatory only; it is not independent and conclusive without clinical and laboratory aid. It is also usually confirmatory in the case of foreign bodies and diaphragmatic hernia. Gastric diverticula are practically unknown.

Although I feel that the greatest value of the roentgen ray lies in its corroborative capacity, there is no denying the fact that it is responsible for the discovery of many previously undetected ulcers. However, I refuse to concur in the view that the clinical findings should be practically ignored and the roentgen-ray report be considered the last word in the diagnosis of ulcer; for, when ulcers, penetrating, perforating or carcinomatous, are demonstrable fluoroscopically and radiographically, they will, doubtless, already have presented a distinguishable series of clinical signs and objective findings. I am convinced that the early diagnosis of these cases must rest with the clinician. Surely it is not inconceivable that, through assiduous and faithful study of the various aspects of these cases, physical examination, clinical investigation, etc., his skill in diagnosis will not only equal, but will also surpass that which the roentgenologist has acquired by the study and interpretation of shadows and defects on the fluoroscopic screen and roentgenographic plate.

It is absurd and dangerous to accept as conclusive the results of roentgen-ray examinations alone, just as it is a step in the wrong direction to place absolute confidence in all laboratory findings; these measures are only confirmatory.

CASES IN WHICH THE ROENTGEN RAY DETECTS NOTHING, AND A DIAGNOSIS IS MADE ON THE HISTORY, PHYSICAL EXAMINATION AND CLINICAL INVESTIGATION

I feel that it is of considerable importance to discuss this distinct class of cases.

Esophagus.—Every clinician can recall numerous cases in which absolute dependence on the roentgen-ray manifestation of disease would have resulted in no diagnosis at all, or in a diagnosis so late as to render treatment relatively valueless. This is particularly true in functional disease of the esophagus, in which spasmodic contraction occurs at times with obstruction; also contraction from a small ulcer, inflammatory states and early malignancy, in all of which it is quite possible that the roentgen ray will not visualize the condition. Quite frequently in gastric lesions the use of the roentgen ray will be entirely barren of confirmatory evidence, and the diagnosis must be made on the clinical findings, notably acute and chronic inflammatory conditions, ulceration and malignancy.

Carman asserts that he diagnoses 95 per cent. of ulcers; however, one must remember, first, that possibly no man in the world today has an experience comparable to his, and consequently few, if any, ever attain such expertness; secondly, when ulcers have progressed to the stage of marked penetration and perforation (at which time Carman makes the great majority of his diagnoses), the diagnosis is perfectly clear from the clinical investigation. This is true not only as regards the esophagus and stomach, but also with reference to the small and large intestine, the gallbladder and the liver.

CASES INCORRECTLY DIAGNOSED BY THE ROENTGEN RAY

I am confident that my temerity in presenting this subdivision will condemn me to the outer limbo of heretics, in the judgment of the roentgenologist. However, the recollection of various humiliating and embarrassing experiences is so poignant that I am constrained to consider these cases of sufficient importance to present them for discussion.

All too often in the past have I been influenced by the roentgen-ray findings against my better judgment—a judgment based on the history, physical examination and clinical investigation; not infrequently have I been convinced of the presence of ulcerous, cancerous, syphilitic or tuberculous lesions, only to have the diagnosis denied by the roentgenogram, while subsequent course, operation or section testified to the correctness of the original pronouncement. Conversely, I have committed myself, on the word of the radiologist, to ulcers and cancers that did not exist. Wherefore, my experience having literally constituted a baptism of fire, I have come to assume a more conservative and independent attitude. When the diagnosis based on history, physical examination and clinical findings differs from the roentgen-ray diagnosis, I do not take the latter too seriously.

I am firmly convinced that most roentgen-ray manifestations are the result of those gross structural changes which come in the late stages of disease; on the other hand, a negative roentgen-ray finding does not by any means definitely rule out organic change.

Because of the inadequacies of this method, I would sound a warning as to the need of conservatism and of a well-balanced point of view which properly evaluates the findings by all the methods of investigation. No diagnosis should be made on one symptom; ergo, no diagnosis should be made by one method alone, and that mechanical.

Following an impartial and unbiased review of my work, I am convinced that at least 70 per cent. of my cases could have been correctly diagnosed without the use of the roentgen ray. I would also denounce the pernicious habit of making a diagnosis on one roentgen-ray examination. Witness, in this regard, the contradictory notes given by the same roentgenologist on the same patient at various times. It is to be noted that the muscle tone of the stomach or intestine may change in the greatest degree under various conditions, dependent on whether the sympathetic or the vagus impulse is predominating; also with interference in tone, there is a distinct change in motility, position and outline. If the patient is under a strain wherein vagus stimulation is predominating, we may witness pylorospasm or gastrospasm with marked increase in number and intensification of peristaltic waves, accompanied, most probably, by variations in motility. In such cases the position is high. Under different circumstances, with sympathetic influences in control, one may note a flabby, baglike state with low position of the organs, the tone of the stomach markedly diminished, peristaltic waves reduced, and the motor power decidedly lessened. In both instances, atypical outlines may be produced which might lead one astray in diagnosis.

In clinical medicine, repeated investigations (physical examination, blood pressure, blood, urine, gastric, rectal, occult blood, etc.) are made at different times under various circumstances. I strongly recommend the application of the same principle to roentgen-ray study. As mentioned before, one examination may reveal a normal outline; another; hypertonus; yet another, atonicity; as any one picture, considered alone, would lead to a false diagnosis, repeated examination is of paramount importance to a comprehensive and correct conception of the individual case.

Each pathologic lesion must have its initial onset, and the keen and brilliant diagnostician is he who "senses" a possibility, and perseveres until his suspicion is either developed into a certainty or completely disproved.

CONCLUSION

The ideas here presented are based entirely on personal experience and observation. I am not by any means decrying the use of the roentgen ray in the diagnosis of digestive disease, and my statements are not prompted by any condemnatory or critical spirit. In all fairness I must pay tribute to the splendid value and proved merit of this method of investigation. I desire, however, to caution the internist against the rapidly increasing habit of deferring his diagnosis until he has received the report of the roentgenologist. This endeavor to shift his responsibility to the shoulders of the radiologist bespeaks a spirit of unfairness, a shirking of duty, which augurs ill for the future of internal medicine. In this, as in all other fields of human endeavor, the best and most accurate results are to be obtained through cooperation. "Teamwork" is and should be the slogan of the hour.

ABSTRACT OF DISCUSSION

Dr. R. Walter Mills, St. Louis: Clinical and roentgen-ray methods should be correlated. Dr. Gaither calls attention to certain weaknesses in our methods. Gastro-intestinal roentgen-ray work is a highly skilled and difficult art so far attained by but a few who have had the advantage of large material. In one hospital, one form of diagnosis, say the roentgen ray, will become dominant in proportion to the enthusiasm and ability of the men who follow it. In another, clinical medicine will become dominant because of the excellence of the men who follow it. Roentgen-ray work can become so accurate as to be pernicious in its influence. No matter how thoroughly developed one method of diagnosis is, it should never be so developed at the expense of others. There are conditions in the esophagus other than diverticulosis in which the roentgen-ray findings, if not entirely decisive, are still almost indispensable. The roentgen ray is capable of an accuracy as to the determination and localization of peptic ulcer which it is difficult to believe ever has been or ever will be approached by clinical methods. Early carcinoma of the stomach can be and is diagnosed by the roentgen ray in a stage when the disease is operable. This is less commonly true of clinical methods. The roentgen ray also affords a vast amount of help through aiding in the localization of palpable masses and giving suggestions as to operability and topographic surgical problems. On the other hand, certain conditions are diagnosable clinically when they are not by the roentgen ray. Clinical findings are best in a considerable percentage of gallbladder cases. I used to think that possibly 75 per cent. of gallstones could be shown by the roentgen ray, but now I believe that 50 per cent. would be nearer the truth.

Dr. Franklin W. White, Boston: When the roentgen ray was first used, there was a tendency to overestimate its value; now the pendulum is swinging the other way, and we are becoming somewhat critical. We must not get a wrong idea of this valuable method; namely, that in only one fourth the cases it is essential and valuable, and in three fourths it merely confirms, is useless or wrong. Quite the reverse is true. In from three fourths to four fifths of cases it is a valuable aid. In esophageal examination, it is usually the most reliable method. Personally, I would very much prefer to swallow barium than to swallow an esophagoscope and I think many patients feel the same way. The roentgen ray has very greatly improved our diagnosis of peptic ulcer. Early diagnosis of gastric cancer has not been realized. This is partly due to the limitations of the method itself; the cancer may be overlooked because it is in the cardia or fundus, or on the posterior wall, or because it does not interfere with gastric function. An equally important reason for lack of early diagnosis is the delay in getting the patient to his first roentgen-ray examination. This factor we ought to be able to overcome. In gallbladder work, everything depends on the technic. Anything short of high-grade work is misleading and useless. In the colon, if we rely entirely on a barium meal, we may miss an early or nonobstructive cancer because of imperfect filling. When cancer of the bowel is suspected, a barium enema is always needed. Wherever there is any conflict between two methods; when the clinical findings indicate cancer and the roentgen ray reveals nothing, the case needs very careful study to get all the facts. It is essential to check one method by another. The general practitioner has fallen in a bad habit of late in digestive cases. He often takes a short history, makes a brief examination without tube tests or stool analyses, sends the patient at once to the radiologist and accepts his report as final. The roentgen-ray examination will overlook the functional changes, such as hyperacidity, achylia, hyperesthesia and catarrh, which make up fully three fourths of the digestive cases the practitioner has to treat.

Dr. Leon T. Le Wald, New York: Dr. Mills has referred to the necessity of roentgen-ray work being done by those who have had experience. The evil of inadequately trained men doing roentgen-ray work has become so great in New York City that the health department has passed an amendment to the sanitary code whereby no person shall maintain a roentgen-ray laboratory without a permit from the board of health. This is just a reflection of the state of affairs existing throughout the country in regard to roentgen-ray work, and it is time to take stock, and realize the necessity of having only the very best roentgen-ray work in conjunction with clinical work. I had opportunity to perform about 5,000 necropsies, and from this experience I am able to say that, as regards the correctness of clinical diagnosis in the days just before the roentgen ray was used to any extent in gastro-intestinal work, clinical diagnosis, as compared with roentgen-ray diagnosis, had a much lower degree of accuracy. And this I have had opportunity to verify in checking up roentgen-ray diagnosis at surgical operations, at necropsies, or by prolonged clinical observation. The best results are obtained by cooperation.

Dr. T. R. Brown, Baltimore: I take it that the fundamental purpose of the paper is to call attention to the danger of an objective method and the pursuit of a short cut in trying to develop a means whereby a great deal of important work can be eliminated. One of the fundamental principles that we have always kept in mind has been that the tendency toward laboratory diagnosis or any other form of objective diagnosis, to the exclusion of other methods, is a very dangerous tendency at the present time. There is at this time a distinct tendency to study cases less satisfactorily, not taking complete histories, not making as thorough physical examinations as formerly, and to place more and more responsibility on the methods of objective diagnosis in which the roentgen ray plays a large part. Dr. Carman, I believe, made the very definite point that we should not forget that roentgen-ray diagnosis is not objective, but that it is the subjective interpretation of objective shadows. Neither should we forget that, at the present time, there are many more good clinicians than good roentgenologists, and the great danger is that the lay public has been led to believe that the roentgen ray is the last word in diagnosis. It is not. It may be the last word in the hands of a few, perhaps in certain cases, but to say indiscriminately that the roentgen ray as used today is the last word in diagnosis is fundamentally wrong. We should not veer toward one or the other method, but use every means at our command in reaching a diagnosis.

Dr. E. H. Kessler, St. Louis: I have never had the thought that the roentgenologist was to make a diagnosis. He is part of the laboratory and his work is to be correlated with the clinical findings. In one of the largest hospitals in St. Louis, the exposures are made by the engineer and the interpretation is made by the sister in charge of the laboratory or by the physician. When work of that kind is done, the author is right in everything he has said; otherwise not.

Dr. Sidney A. Portis, Chicago: I believe that a great deal of reliance can be placed on the diagnosis of gallbladder disease by means of the roentgen ray. If a twelve hour motor meal shows the hepatic flexure held fixed above and the observation meal shows the stomach pulled over to the right and the duodenal bulb immobile, and if there is definite tenderness in the gallbladder region, one should suspect that a pathologic condition is present. These are valuable indirect signs of pathologic conditions of the gallbladder. I disagree with Dr. Gaither that Dr. Carman sees ulcers in only their late stages. Dr. Carman sees no different lesions as to their extent of time than Dr. Gaither sees, or we see. His cases are just as incipient as are other cases, and it is for this reason that Dr. Carman's observations are valued so highly. I quite agree that a great number of roentgenologic diagnoses are incorrect, but a great number of clinical diagnoses are also incorrect. A large number of clinicians are attempting to interpret screen and plate findings without the necessary experience, and an attempt at diagnosis on this basis by the average clinician without the necessary experience is hazardous, as far as the patient is concerned. A clinician should go over the history, physical and other laboratory findings, and see whether they fit in with the roentgen-ray picture. If there is a gross disagreement between the former and the latter, the clinician should make further search for the cause of the syndrome, and see whether the original diagnosis, excluding the roentgen-ray picture, was correct. I believe the roentgen ray has done more than any other one thing to impress on the clinician the necessity of making more correct diagnoses in gastro-intestinal diseases. In our own laboratory, one of the last things that we would discard is our roentgen-ray department.

Dr. E. H. Gaither, Baltimore: We have seen so many miserable examples of bringing mechanical medicine to the front that we stand our ground just as we did before. I disagree with Dr. Portis in regard to the importance attached to the roentgen ray. We too, have seen a few gallbladder cases and have made a few diagnoses, and sometimes we have been wrong. We have seen cases studied in various ways and definite diagnoses of gallbladder lesions made, while at operation there is presented a negative finding. Dr. Mills' statement in regard to the development of technic and its value in gallbladder cases is relatively correct. I think I said in my paper that our technic is not as good as that of Drs. Carman and Mills. I desire also to take special issue with Dr. Portis as to the stage at which Dr. Carman sees ulcer cases. I deny that Dr. Carman sees his cases at the stage the rest of us do. Just recently, in reviewing my cases of ulcer, I was interested in noting how they ran as to time; and the stage at which they came to office consultation varied from six months to twenty years. I should like to have you go to the Mayo Clinic and find out whether Dr. Carman sees those cases in the first two or three or four months after the patient has complained of symptoms. His cases are not acute by any means.

A CONTRIBUTION TO THE PROBLEM OF NEPHRITIS AND NEPHROSIS IN PREGNANCY *

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Modern conceptions of renal disease from the standpoint of the physiologist, internist and pathologist are still far from clear. One need but read the publications of such keen observers as Volhard,[1] Strauss,[2] Christian,[3] Mosenthal,[4] Ringer,[5] Richards,[6] Kolischer,[7] Morse[8] and Epstein[9] to realize this.

It seemed desirable, therefore, to select one angle as a working basis for study, and possibly for a revision of our views concerning the renal disturbances of pregnancy.

The kidneys excrete urine by means of two mechanisms, the vascular system, especially the glomeruli, which extract the water, and the tubular system, especially the granular cells in the capital sections of the tubules, which extract the urinary solids.

This division of function has led to a corresponding disease classification: nephritis, a disease of the vascular system, particularly the glomeruli, characterized by hematuria, macroscopic or microscopic, and a pronounced rise in blood pressure; and nephrosis, a pathologic involvement of the tubular system, characterized by albumin and casts, including epithelial casts, appearing in the urine, nitrogen and sodium chlorid retention and edema. Nephrosis of any considerable duration will always lead to pronounced cardiac changes with their associated symptoms. Mixed forms, that is, a combined nephritis and nephrosis, will occasionally be found in cases of long standing.

The nephropathy of pregnancy, the so-called "kidney of pregnancy," seems to occupy a position between nephritis and nephrosis. Very probably the initial changes occur in the renovascular system; and, because of the resulting dystrophy, later on the tubular epithelium becomes involved. The nephropathy of pregnancy is essentially a disease of primiparas. Any crowding of the ovum such as occurs in hydramnios or twins increases the disposition toward this disturbance. The association with increased intra-ovular pressure seems to indicate that the primary cause of this nephropathy is a placental toxicosis. Its infrequency in subsequent pregnancies may be explained on the supposition that the system becomes immunized against this particular toxin. Prodromal symptoms, such as slight shifting edemas and moderate retention of sodium chlorid, are frequent. The condition occurs in the second half of pregnancy in the great majority of cases, and usually runs an insidious course. Most authors deny the transition of a pregnancy nephropathy into chronic nephrosis. Of course, the occurrence of pregnancy in a person with a preexisting nephrosis may, and as a rule will, aggravate the condition of renal decompensation.

In the study presented here, functional tests based on Mosenthal's[10] pioneer work were employed, coupled with capillaroscopy. One of the renal functional tests, aimed at the tubular system, is made to discover what effect on the specific gravity of a series of two hourly specimens of urine follows the administration of a dyestuff such as methylene blue or indigocarmin.

Dyestuffs are excreted by way of the tubular system and can be seen passing through the epithelial cells. If these epithelial cells are diseased, the entrance of the dyestuff particles into the tubular system cripples the extractive power of the epithelial tubular lining.

In case of nephrosis, that is, an impairment of the tubules of the renal system, in which methylene blue has been employed, the extractive power will be affected in direct proportion to the extent of involvement of the tubular system; and since the tubular system supplies to the urine the chemicals which determine its specific gravity, successive readings of the specific gravity will tell us the tale of tubule involvement. The urine must always be boiled and filtered to remove the albumin.

In the normal case, administration of 5 grains of methylene blue and serial reading of the specific gravity of the urine thereafter shows a specific gravity unchanged or increased. In severe involvement, the specific gravity will drop suddenly and remain low for many hours.

Another test, "the freshet test," is aimed at the glomeruli. With a normal intake of liquid and an established quantity rate of excretion, the sudden drinking of a liter of water followed by quantity measurements of two hourly urinations reveals the condition of the renal vascular system. In the normal case, the extra liter will have been excreted in less than four hours. A nephritis will show delay; the more involvement, the more delay or "hyposthenuria."[11]

The first extensive work in capillary microscopy was done by Lombard,[12] an American, in 1912, followed by the work of two Germans, Mueller[13] and Weiss,[14] in 1916, since which time clinicians, and laboratory workers generally, have taken up this method. The changes observed and most easily studied in the nail grooves fall into two groups: the transient, with slight deformities of the capillary loops, such as a bulge at the convexity, hairpin shapes and elongation, seen in the kidney of pregnancy and eclampsia;[15] and the perma-

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nent, with meandering loops, tennis racket forms and retardation of the blood stream, with segmentation, seen in pronounced true nephrosis, especially if combined with general circulatory disturbances due to the renal changes, and also in sclerosis of the kidney, more particularly the rapidly contracted kidney.

The differential diagnosis between nephropathy independent of pregnancy and nephropathy due to pregnancy is based on the interpretation of renal and remote symptoms plus capillaroscopy.

There is no hyposthenuria in the nephropathy of pregnancy. The kidneys have not lost their elasticity of function; they are still able to adjust themselves immediately to a sudden increased demand due to excessive intake of fluid. The passage of stains through the kidney by administration of methylene blue or indigocarmin will not cause a sudden drop in the specific gravity of the urine as is the case in genuine nephrosis. The capillary changes are of the transient type. There are no changes in the retina, and the pronounced cardiac changes so common in genuine chronic nephrosis are missing. Further differential points are the time of onset of the renal disturbance in the course of the pregnancy and the parity of the patient.

The treatment of the kidney of pregnancy should be determined by our improved knowledge of renal physiology and pathology and the relative predominance of nephritic or nephrotic symptoms. While we are not in a position to influence renal diseases by direct and specific medication, we can hasten recovery by relieving the diseased structures. If, for example, the involvement of the glomeruli predominates, the intake of fluid must be reduced to a minimum during the acute stage. The glomeruli attend mainly to the extraction of water, and any additional fluid intake would mean more work for a structure already weakened. If, however, the epithelial involvement is to the fore, a decided increase of fluids and the administration of diuretics will prevent retention of solids, because the increased amount of urine will make up for the reduction of the concentrating power of the affected kidneys.

The nephropathy of pregnancy does not furnish an indication for artificial interruption of pregnancy, but a genuine nephrosis of marked degree under certain conditions necessitates emptying the uterus. Among such indications may be mentioned retinitis albuminuria, or edema of such a degree or location as to be vital.

Idiopathic pyelitis, that is, infection and inflammation confined to the renal pelvis, occurs frequently in pregnancy. The highest figures indicate that 50 per cent. of all pregnant women are affected. It is a "Stauung" disease; that is, stagnation and damming back, the invading germ as a rule being the colon bacillus. It may become very severe, and occasionally pus and blood appear in such quantities as to give rise to the suspicion of an involvement of the renal parenchyma itself, a true pyonephrosis. The differential diagnosis is made by testing the integrity of the renal function. True pyelitis is clinically cured by a restoration of free drainage, either by the insertion of the ureteral catheter, or, in appropriate cases, by postural treatment of the patients. This is based on the observation that the obstruction of the ureter by compression invariably occurs above the pelvic brim where the ureter crosses the quadratus lumborum. Placing the patient on the side of the affected ureter causes the uterus to dislodge the fetal pole which is responsible for the compression.

Eclampsia and uremia warrant some special discussion. While there is a certain similarity as to etiology and symptoms, they are quite distinct entities. Both are based on the presence of certain toxins in the circulation, but these toxins are of a widely different character.[16] This is proved by the temperature reaction. Eclampsia is always accompanied by a rise in temperature; the opposite is true of uremia. The depressing effect of the uremic poison on the thermic centers is so decided that, when a virulent pus infection occurs during a uremic process, there is usually no fever, though under ordinary circumstances such an infection would cause alarming rises in temperature. That eclampsia is not dependent on nephritis or nephrosis, and that the toxicosis is different from that of uremia is further evidenced by the fact that, in the fatal eclampsias without any convulsions, the postmortem reveals the changes characteristic of eclampsia, which are never seen in necropsies in cases of kidney disease. Biologists and pathologists give as the cause of uremia the presence of so-called extractive materials, soluble in alcohol and ether, chemically not well defined but evidently retained protein split products; while as the cause of eclampsia, they speak of placental toxins, very probably biogenous amins. The occurrence of eclampsia with hydatid mole is further evidence that the chorionic villi are the actual source of the toxin.

Both uremia and eclampsia present the symptoms of increased intracranial and intraspinal pressure. Whether the convulsions, amaurosis and coma are due to edema of the brain or to angiospasm is still open to discussion. Th latter theory is supported by the observation that attacks are frequently cut short by therapeutic interference. The quickness with which improvement sometimes occurs certainly does not allow time for the draining off of a cerebral edema, but allows ample time for the release of an angiospasm.

With the diagnosis of eclampsia established, the principles of treatment are clear: (1) to detoxify, and thus prevent convulsions and further injury to kidneys and liver, and (2) to remove the source of the toxin, the placenta. Williams[17] and Balard[18] have found a single vigorous bloodletting a sufficient measure to satisfy the requirements in most cases. The Swiss[19] clinics are again advocating cesarean section. The Michael Reese clinic has for some years used the Veit-Stroganoff cycle of morphin and hydrated chloral (latterly substituting phenobarbital for chloral) plus purging, sweating, and venesection for high pressure, to accomplish the detoxifying, and conservative measures to favor emptying of the uterus. The action of the sedatives in suppressing the convulsions may be explained on the assumption that they relax the cerebral angiospasm.

Prognosis in nephrosis is better than in nephritis, since the epithelium of the tubular system has a regenerative power which is lacking in the glomerular system. Recovery of renal function in the kidney of pregnancy and in eclampsia is usually complete.

REPORT OF ILLUSTRATIVE CASES

Case 1.—*Kidney of pregnancy, mild.* Mrs. C., a primipara, aged 28, developed albuminuria in the sixth month, with no casts and a blood pressure of 148, systolic, and 104, diastolic. At term, examination of the urine revealed: albumin, 1 +; casts negative; some epithelial cells and white blood cells; specific gravity, 1.020; methylene blue readings: 1.020-1.018-1.022-1.020; blood pressure, 160, systolic, 94, diastolic; no hyposthenuria. Capillaroscopy revealed that the loop arms were even. There was some elongation, and the flow was even. The changes were of the transient type. At labor, the albumin was 1 +; the casts were negative; the blood pressure was: 190, systolic, 110 diastolic. The blood pressure taken after delivery (by low forceps) was 166, systolic, 94 diastolic.

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[16] Alder: Schweiz. med. Wchnschr. **51:** 713 (Aug. 4) 1921.

[17] Williams, J. W.: Personal communication to the author.

[18] Balard, P.: Rev. franç. de gynéc. et d'obst. **16:** 257 (May) 1921.

[19] Huessey, P.: Schweiz. med. Wchnschr. **51:** 845, 874, 899, 1921.

This was a mild toxemia promptly relieved by delivery.

Case 2.—*Nephrosis in pregnancy.* Mrs. B., a tertiodecipara, aged 42, suffered from double mitral and aortic regurgitation. At the eighth month of pregnancy, examination of the urine revealed: specific gravity, 1.018; albumin, 2 +; casts, granular and epithelial; blood pressure: 172 systolic, 110 diastolic. There was some dyspnea and decompensation. At term, the specific gravity was 1.024, and the albumin, 3 +. Casts were numerous, granular and epithelial. Methylene blue readings were: 1.024-1.024-1.018-1.021-1.021. Hyposthenuria was present more than twelve hours. Capillaroscopy revealed that all loops were tortuous, meandering, elongated, and tennis racket shape. The flow was visible and there was no retardation. The changes were of the permanent type. Delivery was spontaneous, in two hours.

This was a chronic nephrosis with circulatory changes. The tubular system was still equal to its task.

Case 3.—*Kidney of pregnancy, severe.* Mrs. L., primipara, aged 29, in the last months of pregnancy had albumin, 1 + in the urine, many leukocytes and epithelial cells, but no casts, a specific gravity of 1.018 and a blood pressure of 148 systolic, 90 diastolic. Methylene blue readings were: 1.012-1.008-1.006-1.010-1.012. Capillaroscopy revealed slightly tortuous loops, many hairpin forms and some elongation. Changes were of the transient type. The patient was vigorously purged and sweated, and the next series showed normal urine, with a specific gravity of 1.030. Methylene blue readings were: 1.011-1.014-1.011-1.013-1.018. Capillary findings remained unchanged. The blood pressure was 140 systolic, 90 diastolic. Four days later, the patient went into spontaneous labor, and in two hours and ten minutes was delivered uneventfully of a small, healthy baby. On the tenth day after delivery, the specific gravity was 1.010, and after methylene blue had been given, 1.008-1.006-1.009-1.006.

In this patient, it seemed that the tubule function was on the verge of a breakdown, as indicated by the fall in specific gravity when the dyestuff particles crippled the epithelial cells.

Case 4.—*Previous eclampsia, vulnerable tubule system.* Mrs. W., secundipara, aged 31, had eclampsia at the end of her first pregnancy (1919). The convulsions, two in number, occurring four days before delivery, were controlled by the administration of morphin and chloral. Vigorous measures for elimination were instituted; the patient went into spontaneous labor, and was delivered by low forceps. One month before the second delivery, examination of the urine revealed: specific gravity, 1.012; no albumin and no casts. Methylene blue readings were: 1.002-1.006-1.008. At term, the albumin was 1 +; there were a few hyaline casts, and the specific gravity was 1.021. After administration of methylene blue, the specific gravity was: 1.009-1.005-1.002-1.009-1.013; blood pressure, 120 systolic, 78 diastolic. There was no hyposthenuria. Capillaroscopy revealed: vessels slightly tortuous and elongated; visible flow, somewhat uneven; the transient type. Delivery was spontaneous.

This patient apparently had a vulnerable tubule system, as indicated by the lowering of the specific gravity; yet she did not develop eclampsia again, but had a spontaneous delivery.

Case 5.—*Kidney of pregnancy, nephrotic type.* Mrs. T., tertipara, aged 27, whose previous labors were normal, in late pregnancy had an albuminuria (3 +). The urine was dark straw colored; specific gravity, 1.021; and there were numerous granular casts. Methylene blue readings were 1.023-1.022-1.022-1.028. Blood pressure was 162 systolic, 80 diastolic. The patient was purged and sweated. Three days later, the urine showed 4 + albumin; innumerable hyaline and granular casts, specific gravity 1.028; blood pressure, 140 systolic, 110 diastolic. Capillaroscopy revealed only slight changes; elongation and hairpin forms with no stasis; a transient type. Labor was induced by bag insertion.

That this was a kidney of pregnancy and not a nephrosis was evidenced by the absence of albuminuric retinitis, edema and cardiac changes.

SUMMARY

1. Nephritis and nephrosis are separate and well-defined renal diseases involving different parts of the kidney mechanism, with different findings, and requiring different treatment.

2. Renal function tests and capillaroscopy are fully as important as urinalyses and blood pressure readings and are necessary to classify and treat renal pathologic conditions in pregnancy.

3. The kidney of pregnancy occupies a position between nephritis and nephrosis, can be differentiated and should be treated like the type it resembles.

4. Pyelitis of pregnancy of severe degree can be differentiated from a pyonephrosis by testing the integrity of the renal function.

5. Eclampsia seems to be due to a placental toxin which causes a special toxicosis of the brain and consequent convulsions, totally different from the uremia of nephrosis, from which it can best be distinguished by the accompanying fever, which is absent in uremia.

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ABSTRACT OF DISCUSSION

Dr. A. B. Spalding, San Francisco: Dr. Addis developed a method of quantitative kidney function tests which was based on the observation that the function of the kidney is dependent on and becomes a measure of the amount of renal tissue it contains. When the kidney is placed under strain by a patient's having been given 20 gm. of urea and water, the kidney is placed at its maximal capacity, and if the urine is drawn off each hour and 100 c.c. of blood is withdrawn in the interval, the ratio of urine urea to blood urea can be obtained. Giving more and more urea to a patient shows that the amount of urea found in the urine increases exactly proportionate to that amount. We applied this test to 163 normal men and found that the average ratio was 50.4 per cent., which has been adopted as a standard for normal renal tissue. We have applied this test to various conditions in pregnancy. In eleven normal patients in the latter months of pregnancy, there was an increase in the ratio and, therefore, it is justifiable to assume that there is hypertrophy of the kidney during normal pregnancy. In testing certain cases of pregnancy nephrosis, it was interesting to find that in all but one case there was only a moderate reduction in kidney function. With patients even with marked toxic symptoms, so far as the kidney is concerned, there is no danger of serious renal dysfunction. If we are going to treat the patients, it is the toxemia that must be treated, and not the kidney lesion. The kidney has six times more normal tissue than is needed. In applying this test to patients after they have suffered from a pregnancy toxemia, excluding cases of chronic nephritis, we were surprised to find in the majority of cases that there was a progressive loss of kidney function. That is the important thing. We have observed one patient four years. This patient did show some vascular changes, but otherwise the case looked like a fatal nephrosis. We believe that the patient received her kidney lesion in her first pregnancy, and lost her life from the damage to the tubules that persisted after pregnancy. The point I wish to bring out in this discussion is that we must have quantitative methods for estimating kidney function. Qualitative methods are good, but not sufficient.

Dr. Carl H. Davis, Milwaukee: The one point that has been most overlooked by men in general practice particularly is the importance of making a microscopic examination of the urine whenever there is even a slight trace of albumin. This is especially true during pregnancy. If one examines a centrifuge specimen, the probabilities are that one will find a considerable number of pus cells, so that the important test in many cases is a low power microscopic examination of the uncentrifuged specimen. If in such an examination one finds a considerable number of pus cells, securing a catheterized specimen or otherwise, one should rule out the possibility of vaginal contamination. A centrifuged specimen is necessary in looking for casts. I was called to see a patient in the seventh month of pregnancy. A commercial laboratory was making all sorts of tests at considerable expense to the patient. It had constantly reported the presence of albumin in the urine. But the commercial laboratory did not use a little common sense and make a microscopic examination because that had not been called for. Owing to the type of temperature, etc., a diagnosis of typhoid had been made by the physician in charge. He had placed the patient on the starvation diet, and she was failing rapidly. A carefully taken history revealed that she had given symptoms suggesting an acute infection of the kidney, and the uncentrifuged drop of urine under the microscope showed that the urine was loaded with pus cells. Many cases are overlooked because a simple test has not been made. We should be more careful in checking up, whenever there is a trace of albumin in these cases, ruling out the possibility of vaginal contamination and determining what the condition of the urine really is.

Dr. N. S. Heany, Chicago: I should like to have Dr. Baer tell us whether he can correlate the findings by his methods with the findings obtained by Dr. Spalding, and whether they run parallel. There is a suggestion that this is not the case. Are these two methods workable together? I should like to have him tell us also about capillaroscopy.

Dr. Joseph L. Baer, Chicago: Concerning Dr. Spalding's excellent renal function test: I had considerable difficulty in selecting a test that would be simplest to handle and most satisfactory in result. The two I selected—the dye-stuff test, aimed at the tubules, and the freshet test, aimed at the glomeruli—coupled those two requirements, and to a certain degree both are quantitative proportionally to lowering of specific gravity and retention of the liter of water. Dr. Spalding spoke about the ultimate death four years after confinement of a patient with toxemia of pregnancy with renal involvement. The prognosis in nephrosis is decidedly better than in nephritis, because the tubules have a regenerative power which is lacking in the glomeruli. If the toxic kidney leans toward the tubular type, its recovery can be complete; if toward the glomerular type, it is going to be rather badly damaged. Dr. Davis' comment on the necessity for studying the microscopic sediment requires no further comment on my part. Answering Dr. Heaney's inquiry as to the capillaroscopy, the best place for study is at the nail groove, finger or toe. The index finger lightly strapped to a wooden tongue depressor is secured on the stage of the microscope. A small bulb at one side of the finger nail gives reflected light. The skin must be made translucent by emersion oil. The normal capillaries around the nail groove show a soldier-like uniformity. They run in parallels. The loop ends are rounded like the bases of well-formed test tubes. The transient type of involvement first produces hair-pin shapes, some elongation of the capillaries, long ones next to short ones, and a bulge at the convexity. The caliber at the loop is increased. As the condition becomes permanent, meandering loops are seen. They assume grotesque shapes, such as figure eights. Some observers describe anastomosis, also tennis racquet shapes at the loop. The normal capillary stream is perfectly visible in these loops. Some assert that it has a definite rhythm in common with the respiration. With a pause in the respiration there is a pause in the capillary circuit. With inspiration, the capillary circuit moves on again. In advanced chronic nephrotics with circulatory disturbance, in sclerosis of the kidney and other deep-seated changes, there is a retardation in the blood stream. It can be seen stagnant in the capillary loops and segmented like the broken mercury column in a thermometer. Retardation and segmentation are striking changes. Lastly, in eclampsia there is apparently a complete obliteration of the lumen of the arterial arm and a wide dilatation of the venous arm.

QUARTZ LIGHT THERAPY IN SKIN DISEASES *

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The term quartz light as generally used refers to a mercury vapor light in a fused quartz vacuum tube, the mercury making the arc. Such a lamp is very rich in ultraviolet light; and, as quartz to a large degree is transparent to ultraviolet rays, these rays emerge from the lamp and can be utilized for therapeutic purposes.

As to the nature of ultraviolet light: When sunlight is passed through a prism, it is split up into many rays. We are all familiar with the visible rays of color so produced, but at each end of the visible spectrum there are innumerable invisible rays. At one end of the visible spectrum we have the invisible infra-red of longer and longer wave lengths the farther we go beyond the visible red, while at the other end beyond the visible violet we have the invisible ultraviolet, of shorter and shorter wave length the farther we go beyond the violet.

In physics, light and electricity were formerly taught as separate subjects; but today light is regarded as an electromagnetic phenomenon, and may therefore be considered as a form of electricity. The electromagnetic waves of different lengths have different properties. The shortest wave lengths known are those of the gamma rays of radium, which are measured in quintillionths of an inch, while the waves utilized in wireless and radio transmission reach many miles in length.

The ultraviolet rays which we are considering are sometimes called chemical rays, as they seem to have a chemical action. On the skin they produce what is commonly called sunburn. Now, naturally we would suppose that sunburn is caused by the hot waves of light; but the contrary is the truth. It is the cold, invisible ultraviolet light that produces sunburn. This is easily proved by laying a piece of ordinary glass on a portion of the skin exposed to sunlight and observing that the skin beneath the glass does not become sunburned. The glass is transparent to all the visible and heat waves of sunlight, but it blocks the ultraviolet rays. If, on the other hand, we substitute quartz glass, which is transparent to ultraviolet light, sunburn will occur.

The quartz lamps in use at present are of two types, air cooled and water cooled. With the air cooled lamps, large areas of skin may be treated with a single exposure; but, on account of the heat of these lamps, they must be used at a distance of 6 inches or more. For intensive effect on small areas, the water cooled lamps are more effective. In the water cooled lamps the quartz tube is surrounded with a water jacket of running water keeping the lamp constantly cool, so that the window of the lamp may be pressed directly against the skin, bringing the source of light only about an inch away from the skin. Not only does this have the advantage of close approximation of the light, but also the pressure of the quartz glass dehematizes the skin so that the rays have a deeper penetration.

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DEVELOPMENT OF THE QUARTZ LAMP

There is no doubt that heliotherapy has been used for thousands of years; but it is perhaps only in the last fifty years that attention has been directed to the therapeutic possibilities of the chemical rays of light apart from its general effect. In this work, Finsen of Copenhagen was the pioneer, and his inventions have long since proved their value in certain skin diseases, notably lupus vulgaris. On account of the success of Finsen's efforts, many turned their attention to the invention of other and simpler apparatus as substitutes for natural sunlight. The iron arc lamp and Uviol lamp were among those which attained a certain degree of success about twenty years ago, although they were both comparatively feeble sources of ultraviolet light.

In 1892, Arons discovered that an electric current passed through a vacuum tube containing a small amount of metallic mercury produced a peculiar bluish light containing no red or orange rays. Not long after, Cooper Hewitt, an American engineer, patented a lamp based on Arons' discovery, and the Cooper Hewitt lamp has become a commercial success on account of the small amount of current it consumes. Although the ordinary Cooper Hewitt lamp is very rich in ultraviolet light, the glass of the vacuum tube filters out the ultraviolet light, so that it has no effect on the skin, however valuable it may be for illumination.

The next step toward a mercury lamp of therapeutic value was the successful fusing of quartz crystals by Heraeus, and the manufacture of vacuum tubes of this material. From this time improvements followed that eventually gave us the simple, efficient quartz lamp of today. These lamps are extremely rich in ultraviolet light, and they have proved their value in the treatment of many skin diseases.

It may well be asked whether they have any advantage over natural sunlight. One advantage of some importance is that their light is always available. Another is that quartz light can be given in much larger dosage than is possible with sunlight; for example, a patch of eczema with leathery thickening of the skin might be so resistant that a day's exposure to natural sunlight might produce no effect, whereas with a water cooled quartz lamp an exposure of one or two minutes would very likely give the desired reaction.

The third advantage is the great saving in time. In a fraction of a minute it is often possible to produce on a localized lesion the same effect as would be produced by several hours of natural sunlight.

CONDITIONS IN WHICH QUARTZ LIGHT IS OF VALUE

Ulcers.—Quartz light is of value especially in those ulcers dependent on poor peripheral circulation. Of these, the most frequent to be encountered are varicose ulcers of the leg, and in many of these quartz light may be a great help by producing an active hyperemia, which seems to be a great stimulus to epithelial proliferation. A few exposures of from one to three minutes (at weekly intervals) at a distance of 10 inches from the source of light, an air cooled lamp being used, are often sufficient to clean up a foul ulcer and start proliferation of epithelium at the borders. In traumatic ulcers also, healing may be greatly hastened.

In my opinion, when skin grafts are indicated, and the local conditions are unfavorable, the use of quartz light for a few weeks previous to the operation will often greatly increase the likelihood of a successful result, by promoting the local circulation.

Birthmarks.—Birthmarks of the so-called port wine type often respond extremely well to the water cooled type of quartz lamp. The window should be pressed firmly against the area to be treated, protecting any sound skin exposed with paper or zinc oxid plaster. The exposure should depend on the case and on the strength of the lamp used. An average exposure in these cases is from five minutes to half an hour. There is no pain during the treatment other than a prickling sensation. In those cases in which before treatment the color fades readily on pressure, the results are often very good, though complete disappearance is not to be expected. The desired reaction to treatment in these cases is a blistering burn, which results in tenderness but is not particularly painful. When small areas are treated, the pain following treatment rarely causes any loss of sleep. As it is usually two weeks or more before the reaction entirely subsides, it is best not to repeat the treatment to the same area in less than a month.

Alopecia Areata.—The course of this disease is so capricious that it is difficult to judge of the value of any treatment; but it is surely true that in many cases in which bald patches have existed for months or years the hair has grown in again after five or six treatments with quartz light. Certainly it seems to be good logic to assume that an active hyperemia will tend to start a new growth of hair in these cases. In alopecia of the ordinary type, premature or otherwise, the use of ultraviolet light is not advised, as permanent results have not been obtained.

Psoriasis.—This disease, as is well known, is rare on exposed parts of the body, and it is highly probable that the action of light is the principal cause of the comparative immunity of the exposed parts. It is therefore reasonable to expect improvement following exposure to sunlight or its artificial substitutes and such improvement usually results. Unfortunately, even in cases in which the disease entirely disappears, recurrences are very common.

Chronic Eczema.—In localized patches of this disease, when there is a marked thickening of the skin, the results from quartz light therapy are often remarkable; permanent cures are not uncommon. In such cases the best results are obtained from the use of the water cooled lamps, the window being pressed against the skin for from ten seconds to a minute or more. Blistering burns often give the best end-results. The reaction should be allowed to subside before the next treatment of the same area.

Acne Vulgaris.—Severe cases of this disease are sometimes benefited by the stimulation of quartz light treatments with the air cooled lamp, but the good results are usually only temporary. Roentgen-ray treatment in such cases is likely to be of greater value, as the results are often permanent.

Lupus Vulgaris.—In selected cases of this disease, quartz light often proves of great value; in fact, in some cases it seems to be curative. The water cooled lamp should be used, and the window or quartz lens pressed against the skin for from ten minutes to half an hour, for in these cases a severe local reaction is desired. Blistering results, and it may be several weeks before the burn entirely subsides, when another treatment should be given. As with the Finsen light, results are slow; but patience is quite likely to be rewarded in cases of this intractable disease.

Lupus Erythematosus.—In this disease the production of blistering burns is sometimes followed by good results; but, on the whole, ultraviolet light treatment, in my opinion, is rarely the method of choice.

CONCLUSIONS

Quartz light is of great value in many ulcers, especially those due to poor circulation. It is of great value in the port wine type of vascular nevus and in alopecia areata. It is often a help in the treatment of psoriasis. In localized chronic eczema with infiltration of the skin, it may prove of great value. In acne vulgaris, though the light is beneficial, improvement is usually only temporary. In lupus vulgaris it is sometimes curative. In lupus erythematosus, it may cause temporary improvement.

ABSTRACT OF DISCUSSION

Dr. Howard Fox, New York: Two points in favor of quartz lamps are their simplicity of operation and the freedom from danger. Third degree burns are never produced, and I have yet to see a keloid following their use. The reputation of these lamps has unfortunately suffered by some exaggerated reports in which almost every kind of skin disease has been claimed to be amenable to their use. With the conservative statements of Dr. Oliver, I am in hearty accord. In alopecia areata I have found the lamps a convenient and cleanly method of giving local stimulation, which is our object in treating this capricious disease. In premature alopecia, on the other hand, I am rather skeptical as to their usefulness. They could certainly be of no value when the hair is thick, as the rays are easily stopped even by a piece of tissue paper. In lupus vulgaris, the quartz lamps are a fairly good substitution for the Finsen lamp. As the operation of the latter is costly and time consuming, it is suitable only for institutional work. For that intractable disease lupus erythematosus, the quartz lamps constitute one of several useful methods of treatment. In nevus vascularis (port wine mark), quartz therapy is certainly of value. In the treatment of this condition, however, an immense amount of patience and skill is required. Some patients are improved, some are made worse, and in only a few is a perfect cosmetic result obtained. Telangiectasia due to the roentgen ray can be improved by prolonged treatment with quartz lamps, while the telangiectasia of angioma serpiginosum shows brilliant results after such treatment. In a comparison with the roentgen ray in the treatment of skin diseases, the quartz lamps would certainly suffer. The roentgen ray as used today in measured dosage has a much wider field of usefulness in dermatology than the quartz lamps. In comparing the two agents I have found this to be notably true in psoriasis. It is my opinion that the quartz lamps have a certain restricted but valuable place in treating skin diseases, and that without them a modern dermatologic equipment would not be complete.

Dr. Samuel Ayres, Jr., Los Angeles: I want to second Dr. Oliver's observations. I was with him during the early use of the light at the Massachusetts General Hospital. The most beautiful demonstration of its value is in the treatment of varicose ulcer. Ulcers of long duration, not only of months, but even of years, have healed up perfectly under the air cooled lamp. An ulcer about the size of half a dollar, which had not healed during a period of two years, was completely healed in less than five weeks after about ten exposures. A nonrubber elastic bandage should be used for support. Curettage around the bases and edges of the ulcer in old cases is valuable in cleaning away the débris and giving a new start. In pus infection of the skin, the quartz light is also very valuable, particularly in those cases of chronic fissure inside the nasal vestibule, a condition not rare, which resists treatment. They respond very readily to the water cooled lamp with direct contact over the fissure. None of the publications I have read make any mention of any permanent pigmentation resulting. It is probably true that in very few cases such a thing happens. I have on my forearm, however, an area of pigmentation, which is of a year and a half duration, resulting from thirty seconds' exposure to a water cooled lamp. It is inconspicuous at present, and it would probably occur only in a very dark skinned person. It is something to bear in mind, however, in treating lesions about the face, especially in women with dark complexions.

Dr. G. P. Lingenfelter, Denver: One of the dermatoses that I believe Dr. Oliver failed to mention in which the quartz light is of very considerable value is pityriasis rosea. This is supposed to be a rather self-limited disease, and no treatment heretofore has proved of any very great value. From my personal experience with it, I should say that the quartz light is almost a specific in pityriasis rosea. With the erythema dose, the spots turn an ivory white. Before the desquamation has entirely subsided, the color has almost returned, and one has no further trouble. Dr. Oliver stated that there was no danger aside from the conjunctivitis. There is a little danger; at least, my personal experience would lead me to believe so. I want to warn you. Tell your patient you are going to get an erythema; it is going to desquamate. I failed to do that one time, and the result was a $5,000 damage suit. However, the suit was thrown out of court on the plaintiff's testimony.

Dr. Jeffrey C. Michael, Houston, Texas: In general, I agree with what has been said about the value of ultraviolet light, especially the conclusion of Dr. Fox that it is of restricted value and not comparable with the roentgen ray. It has been of considerable benefit in generalized pruritus independent of the primary condition that causes it. I have in mind, for instance, early cases of pityriasis rosea with itching, and postscabetic pruritus and generalized dermatitis. Giving these cases an erythema dose and repeating it every three days has resulted in a valuable effect so far as it relates to itching.

Dr. W. W. Tomkins, Charleston, W. Va.: What about the therapeutic results in intercostal neuralgia that follow herpes zoster, or even in cases of eczema and pruritus? Many of those cases are not responsive to the ordinary remedies. Has the light a therapeutic effect, and would it remove those distressing symptoms or hasten a cure?

Dr. E. Lawrence Oliver, Boston: I agree with Dr. Fox that the lamp does not compare with the roentgen ray in therapeutic value. The roentgen rays are more valuable, and more cases can be treated successfully with them, but the indications are different, that is, the ultraviolet light may succeed in cases in which roentgen rays are not indicated, and vice versa. Dr. Ayres speaks of the permanent pigmentation. A year and a half seems a good while to have it, but I doubt whether it is permanent. Dr. Lingenfelter speaks of pityriasis rosea. I have not had enough experience to say anything very definite about that disease. I also agree with him about telling the patient what is going to happen. If one is going to produce a severe, blistering burn, one wants to let the patient know it beforehand. As to pruritus, I agree with Dr. Michael. I remember a woman who had a severe itching of the palms, with weeping. After ten minutes' exposure, 8 inches distant from the air cooled lamp, the itching was relieved. I continued the treatments and cleared up the eczema almost entirely. I doubt whether the response to the roentgen ray would have been as rapid, so far as the itching was concerned anyway. Some one asked how deeply these rays penetrate. The depth of penetration is very slight. A piece of tissue paper will block the rays. The results cannot be due to penetration. The skin takes up the light superficially, and this is transmitted down below in some way. One could not get results that are obtained in the treatment of birthmarks unless the effect in some way did go deep. I do not think it is actual penetration of light. The skin probably gives off on the under surface what is taken up on the surface. I do not think it is a question of actual penetration.

Clinical Notes, Suggestions, and New Instruments

EXFOLIATIVE DERMATITIS FOLLOWING SILVER ARSPHENAMIN

Loyd Thompson, M.D., Hot Springs, Ark.

F. H. V., a man, aged 44, consulted me, Feb. 25, 1922, complaining of "rheumatism." He admitted having had gonorrhea at 15 years of age, and a sore on the penis at 19. At the latter age, he was given mercurial inunctions and potassium iodid for five weeks, and he had no further symptoms of syphilis until two years ago. At that time, he consulted a physician in his home town for rheumatism, and in the course of a routine examination a Wassermann test was strongly positive. He received four intravenous injections of arsphenamin at weekly intervals, and following the last one developed a marked exfoliating dermatitis. He stated that the skin of the entire body "peeled off." There was also a great deal of edema of the face, hands, legs and scrotum. He was confined to bed nine weeks. He had received no antisyphilitic treatment since that time, and his health had been good except for rheumatism involving the large joints, the knees in particular.

The patient was a well nourished man; he weighed 180 pounds (81.6 kg.) and was 5 feet 10 inches (178 cm.) in height. His tongue was coated. There was a chronic pharyngitis, and the tonsils were slightly enlarged. The right epitrochlear gland was the size of a large pea. The right knee joint was swollen and tender. The pulse was 120. The systolic blood pressure was 122, the diastolic 100. Both pupils were irregular in outline, but reacted sluggishly to light and accommodation. The knee jerks were sluggish. Slight manifestations of the Romberg sign were present. A Wassermann test was negative. Spinal puncture was refused.

In view of the history and physical findings, the patient was placed on antisyphilitic treatment. He was given intramuscular injections of mercuric chlorid (0.16 gm.) in an oily base, February 27 and 28, and March 2 and 3. Because of his severe reaction to arsphenamin two years before, I decided to use silver arsphenamin, and in very small doses, March 4. There were no ill effects until the next day, when he had a chill, the temperature rose to 103 F., and he complained of itching all over his body. On the second day after the injection, there was a marked erythema on the back, arms, legs and face, and the face and the scrotum were edematous. He was decidedly worse on the third day, when the eyes were swollen almost shut. Desquamation started the fourth day affter the injection, and increased daily until within a short time it was very marked over the back, arms, face and legs.

When the patient left for home, March 21, the edema had entirely disappeared, but he was still "peeling off." He wrote me in May that his skin was entirely normal and that his health was better than it had been in years.

CONGENITAL IMPERFORATE LARYNX: A RARE ANOMALY

Howard L. Sieg, M.D., Earl Grey, Sask.

The mother, a secundipara, aged 22, had a normal pregnancy throughout except for the discomfort from a large amount of liquor amnii. Her first child, born two years previously, after a normal pregnancy and confinement, was normal. She and her husband were in good health and had clear family histories.

Confinement began at term, the dilating pains lasting for eight hours, and the expulsive pains for two hours. Fetal heart sounds were regular and strong throughout, and the head appeared in the left occipito-anterior position. The amniotic sac was ruptured manually—with some difficulty, owing to its toughness—and a girl was then born after a few pains. About 2 liters of liquor amnii was expelled.

On casual inspection the child appeared normal and, after a minute or two, attempted inspiration, but without success. These attempts became more violent until the lower half of the sternum was forcibly drawn backward at each effort. There seemed to be no mucus in the child's throat and, as the expulsion of the placenta seemed imminent, the cord was tied and severed. The usual procedures to establish respiration were tried and, having proved useless, attempts were made to pass a catheter into the larynx by way of the mouth and then through the nostril, but without success.

During these maneuvers it was noticed that the child had an imperforate anus, which suggested the possibility of other congenital deformities as an explanation of the difficulties. As the child was still making efforts to breathe, tracheotomy was attempted, but without success as the trachea could not be found.

Limited necropsy was allowed. All organs in the neck, thorax and abdomen appeared normal in size, situation and development with these three exceptions:

1. The rectum showed a constriction beginning 6 cm. above the tip of the coccyx and extending downward to end in atresia at the level of the cervix uteri. Its lumen was separated from that of the vagina by a thin membrane. No external dimple marked the usual situation for the anal opening and, on section, the sphincteric muscles could not be made out.

2. The trachea, beginning just below the cricoid cartilage, inclined sharply to the left and lay about 1 cm. to the left of the median line of the neck. (This may explain the difficulty in finding it, but it was easy enough to locate at necropsy).

3. The larynx appeared normal in size, shape, position and development from the external view. Section revealed the annulus of the cricoid cartilage replaced by a cartilaginous disk, 2 mm. in thickness. This disk entirely occluded the laryngeal aperture.

From available textbooks on pathology and laryngology I am led to believe that congenital imperforate larynx is a rare condition.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

MERCURIC OXYCYANIDE (See New and Nonofficial Remedies, 1922, p. 192).

The following dosage form has been accepted:

Sterile Solution of Mercury Oxycyanide: Each ampule contains 5 Cc. of solution, representing 0.008 Gm. (1/8 grain) of mercuric oxycyanide-N. N. R.

Prepared by the Gradwohl Laboratories, St. Louis.

Loeser's Intravenous Solution of Mercury Oxycyanide, 0.012 Gm.: Each ampule contains 5 Cc. of solution, representing 0.012 Gm. (3/16 grain) of mercuric oxycyanide-N. N. R.

Prepared by the New York Intravenous Laboratory, New York.

ANTIPNEUMOCOCCUS SERUM (See New and Nonofficial Remedies, 1922, p. 287).

Parke, Davis & Company, Detroit.

Antipneumococcic Serum (Polyvalent).—Prepared from the blood of horses immunized with virulent cultures of pneumococci (Types I, II, III and Group IV), and standardized against Type I culture according to the Hygienic Laboratory method. It is of the same strength with regard to Type I as Type I serum, and, in addition, contains antibodies against Types II and III and Group IV; 0.3 per cent. of cresol is added as a preservative.

Marketed in piston syringes (*Bio. 35*) containing 50 Cc., with a needle and two connections (one for injection by syringe and one for injection by gravity).

LUMINAL SODIUM (See New and Nonofficial Remedies, 1922, p. 61).

The following dosage form has been accepted:

Luminal Sodium Tablets, 1½ grains.

MEDICAL EDUCATION IN THE UNITED STATES

ANNUAL PRESENTATION OF EDUCATIONAL DATA FOR 1922 BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The tabulated statistics herewith presented are for the year ending June 30, 1922, and are based on reports received from the medical colleges and other reliable sources. We acknowledge here the splendid courtesy and cooperation of the officers of the colleges who have made the compilation of these complete statistics possible.

STATISTICS OF COLLEGES

Table 1, on pages 630-632, gives the colleges in session during 1921-1922; the population of the city; the rating given to the college by the Council on Medical Education and Hospitals; the number of students, men and women, registered during the year; the number of 1922 graduates, men and women; the number of graduates holding collegiate degrees; the number of teachers for each college; the number of weeks of actual work in the college year; the total fees for each year; the executive officer of the college, and the dates of beginning and ending of the next session. The figures in heavy-faced type show the totals by states. Beginning on page 648 are given essential facts concerning all medical colleges arranged by states.

HOME STATES OF MEDICAL STUDENTS

Table 2, on pages 634-635, shows from what state the students came who were in attendance at each medical college during the session of 1921-1922. The influence of the proximity of the medical school is seen in the fact that states having medical colleges contribute more students in proportion to the population than those which have no colleges. This is shown by the dark zone of figures running diagonally down the page. A comparison of this table with the large tables based on state board examinations,[1] which show the distribution of the alumni of each college, is interesting. The college that has widely distributed alumni usually has a student body from an equally large number of states.

The state furnishing the largest number of students this year was New York with 2,102. Illinois contributed 1,281 and Pennsylvania 1,191. The next states in the order of the number of students contributed, are: Ohio, 860; Massachusetts, 781; Michigan, 603; California, 600; Missouri, 597, and Texas, 498. Two states had less than 10 each, these being Nevada, 5, and Wyoming, 8. There were 129 students from Hawaii, Porto Rico and the Philippine Islands, and 314 students from foreign countries.

NUMBER OF STUDENTS BY CLASSES

In Table 3, on page 636, the students enrolled in each college are shown by classes. This permits one to see whether the attendance at each college is increasing or decreasing. The total attendance for the first year was 5,412 as compared with 4,825 last year and 4,234 in 1920. The second year attendance was 4,219, as compared with 3,588 last year, and 2,837 in 1920. The third year attendance was 3,355 as compared with 2,637 last year, and 3,464 in 1920. The enrolment of the fourth and fifth (intern) years, combined this year, is 3,154, as compared with 3,822 last year, and 3,553 in 1920. The first, second and third year class enrolments, therefore, show increases, respectively, of 587, 631 and 718 over the enrolments in those classes last year. The fourth (including the fifth) year class shows a decrease of 668 below that of last year. The increase in the total enrolment for the last three years indicates that readjustments under the higher entrance requirements have been completed.

TABLE 4.—MEDICAL COLLEGE ATTENDANCE

Year	Non-sectarian	Homeo-pathic	Eclectic	Physio-Med.	Nonde-script	Total
1880.........	9,776	1,220	830	...	...	11,826
1890.........	13,521	1,164	719	...	...	15,404
1900.........	22,710	1,909	522	...	...	25,171
1901.........	23,846	1,683	664	80	144	26,417
1902.........	24,878	1,617	765	91	150	27,501
1903.........	24,930	1,498	848	149	190	27,615
1904.........	23,662	1,309	1,014	123	234	28,142
1905.........	24,119	1,104	578	114	232	26,147
1906.........	23,116	1,085	644	110	249	25,204
1907.........	22,303	1,039	545	97	292	24,276
1908.........	20,936	891	479	90	206	22,602
1909.........	20,554	899	413	52	227	22,145
1910.........	20,136	867	455	49	19	21,526
1911.........	18,414	890	433	49	...	19,786
1912.........	17,277	827	308	...	...	18,412
1913.........	15,919	850	256	...	...	17,015
1914.........	15,438	794	270	...	...	16,502
1915.........	13,914	736	241	...	...	14,891
1916.........	13,121	638	263	...	...	14,012
1917........	12,925	580	250	...	...	13,764
1918...... ..	12,727	540	138	...	225	13,630
1919.........	12,259	397	86	...	310	13,052
1920.........	13,220	386	93	...	389	14,088
1921.........	14,033	440	98	...	301	14,872
1922.........	15,247	517	85	...	291	16,140

NUMBER OF MEDICAL STUDENTS

The total number of medical students (Table 4) in the United States for the year ending June 30, 1922, excluding premedical, special and postgraduate students, was 16,140, an increase of 1,268 over last year. This is the largest enrolment of students since 1914. It is noteworthy (Table 12, page 637) that in the high grade (Class A) medical colleges both the number and the percentage of students have increased. Of the total number of students, 15,247 (94.5 per cent.) were in attendance at the nonsectarian (regular) colleges, 517 (3.2 per cent.) at the homeopathic, 85 (0.5 per cent.) at the eclectic, and 291 (1.8 per cent.) were enrolled in three nondescript colleges.

NUMBER OF MEDICAL GRADUATES

The total number of graduates for the year ending June 30, 1922, was 2,529, a decrease of 663 as compared with 1921. The number of graduates from the non-

(*Continued on page 632*)

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[1] THE JOURNAL A. M. A., State Board Number, April 29, 1922, pages 1297 to 1320, inclusive.

TABLE 1—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA

Marginal Number	NAME AND LOCATION OF COLLEGE	Population of City where College is Located (Census Bureau Estimate of 1922)	Classification by Council on Medical Education	No. of Students Registered 1921-22: Men	No. of Students Registered 1921-22: Women	Graduates 1922: Men	Graduates 1922: Women	Grads. with A.B., B.S., or Ph.B.	Number of Teachers	Weeks in College Year	Total Fees (Dollars): 1st year	Total Fees (Dollars): 2d year	Total Fees (Dollars): 3d year	Total Fees (Dollars): 4th year	Executive Officer	Session of 1922-23: Begins 1922	Session of 1922-23: Ends 1923	Marginal Number
	ALABAMA			**62**	..	..	..	..										
1	University of Alabama School of Medicine, University (Tuscaloosa)*	11,996	A	62	..	..	..	..	8	34	200	200	...	...	Clyde Brooks, M.D., Dean	Sept. 4	May 22	1
	ARKANSAS			**33**	**1**	..	..	..										
2	University of Arkansas Medical Department, Little Rock	65,142	A	33	1	..	..	..	20	34	50	50	...	...	Morgan Smith, M.D., Dean	Sept. 20	June 7	2
	CALIFORNIA			**489**	**109**	**83**	**9**	**88**										
3	College of Medical Evangelists, Los Angeles[1]	576,673	B	181	17	20	3	23	140	34	236	231	211	221	P. T. Magan, M.D., Dean	Sept. 4	May 24	3
4	Stanford University School of Medicine, San Francisco	506,676	A	115	52	24	4	28	116	34	264	264	186	186	William Ophüls, M.D., Dean	Oct. 2	June 18	4
5	University of California Medical School, San Francisco[2]	506,676	A	193	40	39	2	37	187	35	290	248	235	225	L. S. Schmitt, M.D., Asst. Dean	Aug. 21	May 16	5
	COLORADO			**91**	**9**	**15**	..	**11**										
6	University of Colorado School of Medicine, Denver[2]	256,491	A	91	9	15	..	11	65	34	139	139	100	100	Charles N. Meader, M.D., Dean	Sept. 25	June 11	6
	CONNECTICUT			**156**	**9**	**21**	**2**	**16**										
7	Yale University School of Medicine, New Haven	162,537	A	156	9	21	2	16	118	35	305	300	300	320	Milton C. Winternitz, M.D., Dean	Sept. 28	June 20	7
	DISTRICT OF COLUMBIA			**540**	**12**	**59**	..	**29**										
8	Georgetown University School of Medicine, Washington	437,571	A	204	..	22	..	13	95	34	215	200	200	210	George M. Kober, M.D., Dean	Sept. 27	June 12	8
9	George Washington University Medical School, Washington	437,571	A	143	6	15	..	4	112	34	231	228	228	218	William C. Borden, M.D., Dean	Sept. 27	June 12	9
10	Howard University School of Medicine, Washington	437,571	A	193	6	22	..	12	42	33	163	158	158	165	Edward A. Balloch, M.D., Dean	Oct. 2	June 8	10
	GEORGIA			**308**	**1**	**63**	..	**28**										
11	Emory University School of Medicine, Atlanta	200,616	A	220	..	50	..	20	111	34	240	220	215	243	William S. Elkins, M.D., Dean	Sept. 27	June 5	11
12	University of Georgia Medical Department, Augusta[2]	52,548	A	88	1	13	..	8	53	34	65	60	60	60	W. H. Doughty, Jr., M.D., Dean	Sept. 14	May 28	12
	ILLINOIS			**1965**	**135**	**375**	**15**	**226**										
13	Chicago Medical School, Chicago	2,701,705	C	168	7	49	1	4	61	..	190	185	185	215	....	....	....	13
14	Hahnemann Medical College of Chicago.—H.	2,701,705	B	105	5	12	1	4	83	35	200	200	200	200	J. C. Blake, Ph.D., Dean	Sept. 25	June 14	14
15	Loyola University School of Medicine, Chicago	2,701,705	A	220	11	58	6	5	137	34	250	250	250	275	Louis D. Moorhead, M.D., Dean	Oct. 2	June 16	15
16	Northwestern University Medical School, Chicago	2,701,705	A	451	..	78	..	53	165	34	220	220	216	210	Arthur I. Kendall, M.D., Dean	Oct. 3	June 16	16
17	Rush Medical College (University of Chicago)	2,701,705	A	625	87	131	6	125	244	34	235	225	225	245	John M. Dodson, M.D., Dean	Oct. 2	June 16	17
18	University of Illinois College of Medicine, Chicago[2]	2,701,705	A	396	25	47	1	35	167	33	165	165	165	165	Albert C. Eycleshymer, M.D., Dean	Oct. 2	June 9	18
	INDIANA			**260**	**14**	**33**	..	**33**										
19	Indiana University School of Medicine, Bloomington-Indianapolis	314,194	A	260	14	33	..	33	164	35	125	125	150	150	Charles P. Emerson, M.D., Dean	Sept. 11	June 6	19
	IOWA			**301**	**12**	**35**	**3**	**23**										
20	State University of Iowa College of Medicine, Iowa City[2]	11,267	A	301	12	35	3	23	74	34	150	150	150	150	Lee Wallace Dean, M.D., Dean	Sept. 25	June 5	20
	KANSAS			**147**	**10**	**22**	**2**	**21**										
21	University of Kansas School of Medicine, Lawrence-Rosedale[2] [3]	433,261	A	147	10	22	2	21	62	35	131	131	133	133	Mervin T. Sudler, M.D., Assoc. Dean	Sept. 11	June 4	21
	KENTUCKY			**158**	**5**	**21**	..	**8**										
22	University of Louisville Medical Department, Louisville	234,891	A	158	5	21	..	8	119	34	265	265	272	292	Henry Enos Tuley, M.D., Dean	Sept. 19	June 4	22
	LOUISIANA			**327**	**13**	**66**	**5**	**30**										
23	Tulane University of Louisiana School of Medicine, New Orleans	387,219	A	327	13	66	5	30	148	34	225	225	215	245	Charles C. Bass, M.D., Dean	Sept. 22	June 6	23
	MARYLAND			**594**	**54**	**122**	**13**	**110**										
24	Johns Hopkins University Medical Department, Baltimore	733,826	A	297	52	67	13	79	205	33	317	267	267	267	J. Whitridge Williams, M.D., Dean	Oct. 2	June 12	24
25	Univ. of Maryland School of Med. and Coll. of P. & S., Baltimore	733,826	A	297	2	55	..	31	186	33	265	265	265	265	J. M. H. Rowland, M.D., Dean	Oct. 2	June 9	25
	MASSACHUSETTS			**1212**	**53**	**255**	**10**	**100**										
26	Boston University School of Medicine, Boston	748,060	A	138	23	22	2	10	93	35	260	230	230	240	John P. Sutherland, M.D., Dean	Sept. 28	June 18	26
27	College of Physicians and Surgeons, Boston[4]	748,060	C	68	2	19	..	..	37	..	105	140	120	115	....	....	....	27
28	Harvard University Medical School, Boston	748,060	A	471	..	112	..	84	281	36	305	300	300	300	David L. Edsall, M.D., Dean	Sept. 25	June 21	28
29	Tufts College Medical School, Boston	748,060	A	414	28	75	8	6	145	32	260	245	235	240	Frank G. Wheatley, M.D., Act. Dean	Sept. 27	May 29	29
30	Middlesex College of Medicine and Surgery, Cambridge.—N.[5]	109,694	C	121	..	27	..	..	52	..	150	150	150	150	....	....	....	30
	MICHIGAN			**742**	**43**	**91**	**7**	**37**										
31	University of Michigan Medical School, Ann Arbor[2]	19,516	A	524	34	63	4	29	108	35	140	140	140	140	Hugh Cabot, M.D., Dean	Sept. 25	June 18	31
32	University of Michigan Homeo. Medical School, Ann Arbor.—H.[2] [6]	19,516	A	59	2	8	..	2	..	..	....	...	...	...	....	....	....	32
33	Detroit College of Medicine and Surgery, Detroit[7]	993,678	A	159	7	20	3	6	199	34	150	150	150	150	W. H. MacCraken, M.D., Dean	Oct. 2	June 16	33
	MINNESOTA			**368**	**31**	**77**	**3**	**79**										
34	University of Minnesota Medical School, Minneapolis[2]	380,582	A	368	31	77	3	79	237	35	199	199	199	199	Elias P. Lyon, M.D., Dean	Sept. 27	June 20	34
	MISSISSIPPI			**52**	**2**	..	..	..										
35	University of Mississippi School of Medicine, Oxford*	2,150	A	52	2	..	..	..	18	34	140	140	...	...	W. S. Leathers, M.D., Dean	Sept. 20	June 5	35
	MISSOURI			**882**	**30**	**164**	**5**	**51**										
36	University of Missouri School of Medicine, Columbia* [2]	10.392	A	81	3	..	..	..	31	32	100	100	...	...	Guy L. Noyes, M.D., Dean	Aug. 29	April 25	36
87	Kansas City College of Medicine and Surgery, Kansas City.—N.[4]	433,261	C	84	6	12	2	..	32	..	200	200	200	200	....	....	....	37

	MISSOURI—Continued																	
38	Kansas City Univ. of Physicians and Surgeons, Kansas City.—N.	433,261	C	75	5	32	..	4	21	33	190	190	185	185	A. L. McKenzie, M.D., Pres.	Sept. 11	May 24	38
39	St. Louis College of Physicians and Surgeons, St. Louis [5]	772,897	C	114	6	34	2	..	30	..	200	200	200	200	....	....	....	39
40	St. Louis University School of Medicine, St. Louis	772,897	A	303	..	39	..	19	163	32	250	250	250	250	Hanau W. Loeb, M.D., Dean	Oct. 2	June 1	40
41	Washington University School of Medicine, St. Louis	772,897	A	225	10	47	1	28	148	34	315	210	210	215	Nathaniel Allison, M.D., Dean	Sept. 28	June 14	41
	NEBRASKA			**377**	**15**	**36**	**1**	**20**										
42	Creighton University of College of Medicine, Omaha	191,601	A	136	2	19	1	15	68	35	180	170	170	180	Hermann von W. Schulte, M.D., Dean	Sept. 22	June 2	42
43	University of Nebraska College of Medicine, Omaha	191,601	A	241	13	17	..	5	73	34	145	140	130	130	Irving S. Cutter, M.D., Dean	Sept. 15	May 31	43
	NEW HAMPSHIRE			**28**	..	..	..	..										
44	Dartmouth Medical School, Hanover *	1,551	A	28	..	..	..	..	12	36	250	250	...	...	John M. Gile, M.D., Dean	Sept. 21	June 19	44
	NEW YORK			**1766**	**140**	**305**	**21**	**210**										
45	Albany Medical College, Albany	113,344	A	84	4	12	..	2	96	34	220	205	205	205	Thomas Ordway, M.D., Dean	Sept. 25	June 11	45
46	University of Buffalo Medical Department, Buffalo	506,775	A	197	15	21	1	5	129	34	297	292	292	292	C. Sumner Jones, M.D., Dean	Sept. 25	June 13	46
47	Columbia University College of Phys. and Surgs., New York City	5,620,048	A	320	36	62	6	64	303	33	332	332	332	352	William Darrach, M.D., Dean	Sept. 27	June 6	47
48	Cornell University Medical College, New York City	5,620,048	A	173	40	34	9	43	165	33	345	335	335	350	Walter L. Niles, M.D., Dean	Sept. 26	June 7	48
49	Long Island College Hospital, New York City-Brooklyn	5,620,048	A	297	14	43	4	6	131	32	356	350	350	380	Adam M. Miller, A.M., Dean	Sept. 25	May 31	49
50	New York Homeopathic Medical College and Flower Hospital.—H.	5,620,048	B	129	7	18	1	5	69	32	300	300	300	330	Israel S. Kleiner, Acting Dean	Sept. 18	May 9	50
51	University and Bellevue Hospital Medical College, New York City	5,620,048	A	408	17	79	..	55	215	36	350	320	320	345	Samuel A. Brown, M.D., Dean	Sept. 13	June 13	51
52	Syracuse University College of Medicine, Syracuse	171,717	A	158	7	36	..	30	115	34	324	324	324	334	Herman G. Weiskotten, M.D., Acting Dean	Sept. 20	June 13	52
	NORTH CAROLINA			**119**	**1**	..	..	..										
53	University of North Carolina School of Medicine, Chapel Hill *	1,483	A	80	1	..	..	..	25	34	195	195	...	...	I. H. Manning, M.D., Dean	Sept. 28	June 9	53
54	Wake Forest College School of Medicine, Wake Forest *	1,425	A	39	..	..	..	..	15	35	200	200	...	...	Thurman D. Kitchin, M.D., Dean	Sept. 5	May 25	54
	NORTH DAKOTA			**42**	**1**	..	..	..										
55	Univ. of North Dakota School of Med., University (Grand Forks)*	14,010	A	42	1	..	..	..	17	35	50	50	...	...	H. E. French, M.D., Dean	Sept. 22	June 12	55
	OHIO			**691**	**35**	**144**	**5**	**92**										
56	Eclectic Medical College, Cincinnati.—E.	401,247	B	85	..	34	..	2	46	32	170	160	160	160	R. L. Thomas, M.D., Dean	Sept. 14	May 14	56
57	University of Cincinnati College of Medicine	401,247	A	193	14	43	4	35	177	34	320	320	270	215	Henry Page, M.D., Dean	Oct. 2	June 16	57
58	Western Reserve University School of Medicine, Cleveland	796,841	A	145	9	26	..	26	148	34	275	260	250	255	Carl A. Hamann, M.D., Dean	Sept. 28	June 14	58
59	Ohio State University College of Medicine, Columbus [2]	237,031	A	221	6	34	1	28	96	34	150	150	150	150	Eugene F. McCampbell, M.D., Dean	Sept. 28	June 12	59
60	Ohio State University College of Homeo. Medicine, Columbus.—H. [8]	237,031	B	47	6	7	..	1	..	..	...	...	...	...	....	....	....	60
	OKLAHOMA			**114**	**3**	**15**	..	**13**										
61	University of Oklahoma School of Medicine, Norman-Oklahoma City	91,295	A	114	3	15	..	13	71	35	62	70	22	22	Le Roy Long, M.D., Dean	Sept. 14	June 5	61
	OREGON			**138**	**16**	**7**	**3**	**7**										
62	University of Oregon Medical School, Portland	258,288	A	138	16	7	3	7	99	32	165	160	160	160	Richard B. Dillehunt, M.D., Dean	Oct. 2	June 1	62
	PENNSYLVANIA			**1356**	**163**	**261**	**39**	**128**										
63	Hahnemann Medical College and Hospital of Philadelphia.—H.	1,823.779	A	157	..	17	..	1	112	33	250	250	250	250	William A. Pearson, M.D., Dean	Oct. 2	June 7	63
64	Jefferson Medical College of Philadelphia	1,823,779	A	547	..	88	..	34	173	33	325	325	325	325	Ross V. Patterson, M.D., Dean	Sept. 25	June 1	64
65	Temple University School of Medicine, Philadelphia	1,823,779	B	89	1	19	..	3	115	35	180	175	165	170	Frank C. Hammond, M.D., Dean	Sept. 25	June 14	65
66	University of Pennsylvania School of Medicine, Philadelphia	1,823,779	A	405	31	113	5	51	180	35	348	320	320	324	William Pepper, M.D., Dean	Sept. 29	June 20	66
67	Woman's Medical College of Pennsylvania, Philadelphia	1,823,779	A	...	121	..	32	18	69	34	225	204	227	209	Martha Tracy, M.D., Dean	Sept. 27	June 13	67
68	University of Pittsburgh School of Medicine, Pittsburgh	588,343	A	158	10	24	2	21	135	34	325	310	310	320	Raleigh R. Huggins, M.D., Dean	Sept. 25	June 13	68
	SOUTH CAROLINA			**104**	**5**	**12**	**1**	**2**										
69	Medical College of the State of South Carolina, Charleston	67,957	A	104	5	12	1	2	61	34	165	165	165	165	Robert Wilson, Jr., M.D., Dean	Sept. 21	June 7	69
	SOUTH DAKOTA			**43**	..	..	..	..										
70	University of South Dakota College of Medicine, Vermilion *	2,590	A	43	..	..	..	..	10	36	60	60	...	...	C. P. Lommen, B.S., Dean	Sept. 15	June 16	70
	TENNESSEE			**438**	**6**	**56**	..	**24**										
71	University of Tennessee College of Medicine, Memphis [2]	162,351	A	106	2	11	..	4	122	34	117	112	107	132	James B. McElroy, M.D., Acting Dean	Sept. 30	June 11	71
72	University of West Tennessee Medical Department, Memphis [5]	162,351	C	7	..	4	..	..	32	31	80	80	80	80	M. V. Lynk, M.D., Dean	Sept. 26	May 20	72
73	Meharry Medical College, Nashville	118,342	B	176	4	28	..	14	38	31	152	152	152	172	John J. Mullowney, M.D., President	Oct. 2	May 24	73
74	Vanderbilt University School of Medicine, Nashville	118,342	A	149	..	13	..	6	90	34	150	150	150	175	Lucius E. Burch, M.D., Dean	Sept. 27	June 13	74
	TEXAS			**348**	**20**	**59**	**6**	**24**										
75	Baylor University College of Medicine, Dallas	158,976	A	104	8	22	1	9	83	35	195	190	190	185	McIver Woody, M.D., Dean	Oct. 2	June 10	75
76	University of Texas School of Medicine, Galveston [2]	44,255	A	244	12	37	5	15	43	32	88	58	35	23	W. Keiller, M.D., Acting Dean	Sept. 30	May 31	76
	UTAH			**57**	**1**	..	..	..										
77	University of Utah School of Medicine, Salt Lake City *	118,110	A	57	1	..	..	..	26	34	130	130	...	...	Perry G. Snow, M.D., Dean	Sept. 25	June 7	77
	VERMONT			**114**	**3**	**16**	..	**6**										
78	University of Vermont College of Medicine, Burlington	22,779	A	114	3	16	..	6	43	36	200	200	200	225	Henry Crain Tinkham, M.D., Dean	Sept. 20	June 18	78
	VIRGINIA			**294**	**21**	**44**	**3**	**20**										
79	Medical College of Virginia, Richmond	171,667	A	148	15	25	2	10	104	35	220	230	220	250	Manford Call, M.D., Dean	Sept. 13	June 5	79
80	University of Virginia Department of Medicine, Charlottesville	10,688	A	146	6	19	1	10	44	36	235	240	180	175	Theodore Hough, Ph.D., Dean	Sept. 14	June 12	80
	WEST VIRGINIA			**102**	**2**	..	..	..										
81	West Virginia University School of Medicine, Morgantown * [2]	12,127	A	102	2	..	..	..	15	34	90	90	...	...	John N. Simpson, M.D., Dean	Sept. 18	June 4	81

E.—Eclectic; H.—Homeopathic; N.—Nondescript.

* Gives only the first two years of the medical course.

[1] This college taught 14 students from the College of Physicians and Surgeons of Los Angeles all of whom obtained degrees from the latter college, and one student of the College of Physicians and Surgeons of San Francisco who was granted a degree from the last named institution.

[2] The following state universities make an additional charge for nonresidents: California, $300; Colorado, $30; Georgia, $90; Illinois, $35; Iowa, $25; Kansas, $10; Michigan, $60; Minnesota, $30; Missouri, $10; Ohio, $50; Tennessee, $50; Texas, $150; West Virginia, $150; Wisconsin, $62.

[3] Population given is the combined figures for Kansas City, Mo., Kansas City, Kan., and Rosedale, Kan.

[4] Figures for enrolment and graduates are those for 1920-21.

[5] Figures for enrolment are approximate; graduates exact.

[6] The Homeopathic Medical School was merged with the Medical School of the University of Michigan, July 1, 1922.

[7] Residents of Detroit are charged only $25 for tuition.

[8] The College of Homeopathic Medicine was merged with the College of Medicine of the Ohio State University, June 19, 1922.

TABLE 1—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA—(Concluded)

Marginal Number	NAME AND LOCATION OF COLLEGE	Population of City where College is Located (Census Bureau Estimate of 1922)	Classification by Council on Medical Education	No. of Students Registered 1921-22		Graduates 1922		Grads. with A.B., B.S., or Ph.B.	Number of Teachers	Weeks in College Year	Total Fees (Dollars)				Executive Officer	Session of 1922-23		Marginal Number
				Men	Women	Men	Women				1st year	2d year	3d year	4th year		Begins 1922	Ends 1923	
	WISCONSIN			**333**	**14**	**18**	**1**	**19**										
82	University of Wisconsin Medical School, Madison * [2]	38,378	A	147	13	..	..	..	59	35	90	85	...	...	Charles R. Bardeen. M.D., Dean	Sept. 20	June 12	82
83	Marquette University School of Medicine, Milwaukee	457,147	A	186	1	18	1	19	98	34	305	295	295	275	Eben J. Carey, M.S., Dean	Oct. 2	June 14	83
	PHILIPPINE ISLANDS			**512**	**18**	**69**	**1**	**50**										
84	University of the Philippines, College of Med. and Surg., Manila	266,943	..	109	18	24	1	5	72	36	71	79	61	66	Fernando Calderon, M.D., Dean	July 1	April 4	84
85	University of St. Thomas, College of Medicine and Surgery, Manila	266,943	..	403	..	45	..	45	24	36	58	62	62	62	Jose L. de Castro, M.D., Dean	July 2	Mar. 31	85
	CANADA [9]			**3068**	**170**	**405**	**29**	**63**										
86	University of Alberta Faculty of Medicine, Edmonton, Alta.[10]	60,000	..	141	14	..	..	..	52	30	90	115	115	115	Cecil E. Race, A.B., Registrar	Sept. 26	May 11	86
87	Dalhousie University Faculty of Medicine, Halifax, N.S.	46,619	..	159	13	20	4	4	49	32	200	200	200	200	John Stewart, M.D., Dean	Oct. 2	May 26	87
88	Queen's University Faculty of Medicine, Kingston, Ont.[11] [4]	18,874	..	240	..	40	..	..	50	32	135	144	144	134	J. C. Connell, M.D., Dean	Sept. 28	May 26	88
89	University of Toronto Faculty of Medicine, Toronto, Ont.[11]	376,538	..	980	76	126	12	10	252	32	163	163	163	191	Alexander Primrose, M.B., Dean	Sept. 26	May 31	89
90	Western University Medical School, London, Ont.[11]	46,300	..	118	3	18	..	1	55	31	150	158	158	183	Paul S. McKibben, Ph.D., Dean	Oct. 2	May 25	90
91	McGill University Faculty of Medicine, Montreal, Que.[11]	470,480	..	688	17	103	5	28	150	33	200	200	200	200	John W. Scane, M.D., Asst. Dean	Oct. 2	June 10	91
92	University of Montreal Medical Faculty, Montreal, Que.[11]	470,480	..	305	16	49	6	..	80	35	175	175	175	175	Louis de Lotbiniere Harwood, M.D., Dean	Sept. 15	June 15	92
93	Laval University Faculty of Medicine, Quebec, Que.	78,190	..	163	..	22	..	17	35	36	135	135	135	135	Arthur Rousseau, M.D., Dean	Sept. 12	June 15	93
94	University of Manitoba Faculty of Medicine, Winnipeg	136,035	..	274	31	27	2	3	113	35	173	183	183	173	S. W. Prowse, M.D., Dean	Sept. 5	May 31	94

E.—Eclectic; H.—Homeopathic; N.—Nondescript.

[2] The following state universities make an additional charge for nonresidents: California, $300; Colorado, $30; Georgia, $90; Illinois, $35; Iowa, $25; Kansas, $10; Michigan, $60; Minnesota, $50; Missouri, $10; Ohio, $50; Tennessee, $50; Texas, $150; West Virginia, $150; Wisconsin, $62.

* Gives only the first two years of the medical course.

[4] Figures for enrolment and graduates are those of 1920-1921.

[9] The Canadian schools count the one or two years devoted to premedical sciences as a part of the medical course. The fees for the last four years are shown. Enrolments include students of all years.

[10] The University of Alberta gives the first four years of the Canadian six year course.

[11] These medical schools now require a six-year course which includes both premedical and medical subjects as given in medical schools in the United States.

(Continued from page 629)

sectarian colleges was 2,358, or a decrease of 611 as compared with last year. The number from the homeopathic colleges was 64, or 51 less than last year, and from the eclectic colleges there were 34 graduates, or 4 more than last year. The three nondescript colleges had 73 graduates, or 5 less than last year.

TABLE 5.—MEDICAL COLLEGE GRADUATES

Year	Non-sectarian	Homeopathic	Eclectic	Physio-Med.	Nondescript	Total
1880	2,673	380	188	..	..	3,241
1890	3,853	380	221	..	..	4,454
1900	4,715	413	86	..	..	5,214
1901	4,879	387	148	18	12	5,444
1902	4,508	336	138	16	11	5,009
1903	5,088	420	149	24	17	5,698
1904	5,190	371	146	20	20	5,747
1905	5,126	276	153	22	23	5,600
1906	4,841	286	186	22	29	5,364
1907	4,591	225	121	11	32	4,980
1908	4,370	215	116	12	28	4,741
1909	4,163	209	84	15	44	4,515
1910	4,113	183	114	16	14	4,440
1911	4,006	152	110	5	..	4,273
1912	4,206	185	92	..	..	4,483
1913	3,679	209	93	..	..	3,981
1914	3,370	154	70	..	..	3,594
1915	3,286	195	55	..	..	3,536
1916	3,274	166	78	..	..	3,518
1917	3,134	180	65	..	..	3,379
1918	2,454	114	42	..	60	2,670
1919	2,423	89	28	..	116	2,656
1920	2,826	97	30	..	94	3,047
1921	2,969	115	30	..	78	3,192
1922	2,358	64	34	..	73	2,529

GRADUATES HOLDING DEGREES IN ARTS

Of the 2,529 medical graduates, 1,455 (see Table 11) had also obtained degrees in arts or science. This total includes those taking the combined courses in arts or science and medicine. This year 57.5 per cent. of all graduates held collegiate degrees, as compared with 46.0 per cent. last year and with 15.3 per cent. in 1910. This increase is what was expected under the general adoption by medical schools of the entrance requirement of two years of college work. Of the 2,358 nonsectarian school graduates, 1,440, or 61.1 per cent., were reported to have baccalaureate degrees; of the 64 homeopathic graduates, 13, or 20.3 per cent., were so reported, and of the 34 eclectic graduates, 2, or 5.9 per cent., were so reported and of the 73 graduates of the

TABLE 6.—MEDICAL GRADUATES WITH LIBERAL ARTS DEGREES

Year	Nonsectarian			Homeopathic			Eclectic			Totals		
	Graduates	A.B., B.S.	Per Cent.	Graduates	A.B., B.S.	Per Cent.	Graduates	A.B., B.S.	Per Cent.	Graduates	A.B., B.S.	Per Cent.
1910	4,113	664	16.1	183	13	7.1	114	3	2.6	4,440	680	15.3
1911	4,006	683	17.0	152	18	11.8	110	4	3.6	4,273	705	16.5
1912	4,206	744	17.7	185	15	8.1	92	4	4.3	4,483	763	17.0
1913	3,679	732	19.9	209	20	9.6	93	1	1.1	3,981	753	18.9
1914	3,370	794	23.5	154	7	4.5	70	6	8.6	3,594	807	22.5
1915	3,286	839	25.5	195	16	8.2	55	3	5.5	3,536	858	24.3
1916	3,274	928	28.3	166	20	12.0	78	...	.....	3,518	948	26.9
1917	3,134	1078	34.4	180	19	10.5	65	2	3.1	3,379	1099	32.5
1918*	2,454	1007	41.0	114	15	13.2	60	...	.....	2,670	1024	38.4
1919*	2,423	1162	48.0	89	16	18.0	28	2	7.1	2,656	1180	44.4
1920*	2,826	1307	46.2	97	11	11.3	30	3	10.0	3,043	1321	43.5
1921*	2,969	1447	48.2	115	33	28.7	30	..	...	3,192	1465	46.0
1922	2,358	1440	61.1	64	13	20.3	34	2	5.9	2,529	1455	57.5

* No graduates of nondescript colleges during the last four years were reported to have collegiate degrees.

nondescript colleges only 4 were reported as holding bachelor's degrees in arts or science. As will be noted by referring to Table 11, of the 1,455 graduates holding baccalaureate degrees, 226—the largest number—came from the Illinois colleges. New York reported 210; Pennsylvania reported 128, and Maryland reported 110. The percentage of graduates holding collegiate degrees will probably continue to increase, since all the better medical schools are now requiring two years of college work for admission, which brings more students in reach of the combined course for the B.S. and M.D. degrees.

WOMEN IN MEDICINE

During the past year there were 989 women studying medicine, or 110 more than last year. The percentage of women to all medical students this year is 6.1 per cent., the largest percentage since the presenting of these statistics was begun. There were 154 women graduates this year, 3 more than last year. Of all the women matriculants, 121 were in attendance at the one medical college for women, while 764 (77.2 per cent.) were matriculated in the 67 coeducational colleges. From the one women's college there were 32 graduates, while 122 (79.2 per cent.) secured their degrees from coeducational colleges. This increase of women students in coeducational colleges is not surprising, since in recent years most of the medical schools have thrown open their doors to women.

TABLE 7.—Women in Medicine

Year	Total Women Students	Percentage of All Students, Both Sexes	Total Women Graduates	Percentage of Graduates, Both Sexes	Women's Colleges	Students	Percentage of All Women Students	Graduates	Percentage of All Women Graduates	Co-ed. Schools	Students	Percentage of All Women Students	Graduates	Percentage of All Women Graduates
1904	1,129	4.3	244	4.0	3	183	16.2	56	23.0	97	946	83.8	198	77.0
1905	1,073	4.1	219	4.0	3	221	20.6	54	24.5	96	852	79.4	165	75.5
1906	895	3.5	233	4.3	3	189	21.0	33	14.1	90	706	79.0	200	85.9
1907	928	3.8	211	4.2	3	210	22.6	39	18.5	86	718	77.4	172	81.5
1908	835	3.7	185	3.9	3	186	22.3	46	24.9	88	649	77.7	139	75.1
1909	921	4.2	162	3.7	3	169	18.4	33	20.3	91	752	81.6	129	79.7
1910	907	4.2	157	3.5	3	155	17.1	41	26.1	82	752	82.9	116	73.9
1911	680	3.4	159	3.7	2	134	19.7	36	22.6	74	546	80.3	123	77.4
1912	679	3.2	142	3.2	2	143	21.1	32	22.5	64	536	78.9	110	77.5
1913	640	3.8	154	3.8	2	138	21.6	33	21.4	55	502	78.6	121	78.6
1914	631	3.8	121	3.4	2	135	21.4	25	20.7	54	496	78.6	96	79.3
1915	592	4.0	130	3.7	2	116	19.6	38	29.2	53	462	80.4	92	70.8
1916	566	4.0	134	3.8	2	102	18.0	28	20.0	51	464	82.0	106	80.0
1917	610	4.5	153	4.5	2	81	13.3	29	18.9	56	529	86.7	124	81.1
1918	581	4.3	106	4.0	2	70	12.0	12	11.3	60	511	87.9	94	88.7
1919	686	5.2	107	4.0	1	66	10.0	7	6.5	59	620	90.4	100	93.4
1920	818	5.8	134	4.4	1	89	10.9	12	9.0	64	727	90.1	122	91.0
1921	879	5.9	151	4.7	1	103	11.5	15	10.0	63	776	88.5	136	90.0
1922	989	6.1	154	6.1	1	121	12.2	32	20.8	67	764	77.2	122	79.2

NUMBER OF COLLEGES

Since June 30, 1921, two medical colleges, University of Michigan Homeopathic Medical School and the Ohio State University College of Homeopathic Medicine, have been closed, leaving 81 still existing. Of these, 74 are nonsectarian (regular), 3 are homeopathic, 1 is eclectic and 3 are nondescript. Two of these nondescript colleges, the Kansas City University of Physicians and Surgeons and the Middlesex College of Medicine and Surgery, are intimately connected with osteopathy or give liberal advanced standing to students of osteopathic colleges. The third, the Kansas City College of Medicine and Surgery, claims to be eclectic, but is reported as not so recognized by the National Eclectic Medical Association. The two colleges at Kansas City are reported as not recognized by the licensing boards of more than forty states.

TABLE 8.—Medical Colleges

Year	Non-sectarian	Homeo-pathic	Eclectic	Physio-Med.	Nonde-script	Total
1850........	44	3	4	1	..	52
1860........	53	6	4	2	..	65
1870........	60	8	5	2	..	75
1880........	76	14	8	2	..	100
1890........	106	16	9	2	..	133
1900........	126	22	9	2	1	160
1901........	125	22	10	2	1	160
1902........	126	20	9	3	2	160
1903........	126	20	9	3	2	160
1904........	127	19	9	3	2	160
1905........	125	19	9	3	2	158
1906........	130	19	8	3	2	162
1907........	127	18	9	3	2	159
1908........	120	18	9	2	2	151
1909........	115	15	8	1	1	140
1910........	109	12	8	1	1	131
1911........	103	12	7	..	..	122
1912........	101	11	6	..	..	118
1913........	92	10	5	..	..	107
1914........	87	10	5	..	..	102
1915........	83	9	4	..	..	96
1916........	82	10	3	..	..	95
1917........	83	9	4	..	..	96
1918........	79	6	2	..	3	90
1919........	76	5	1	..	3	85
1920........	76	5	1	..	3	85
1921........	74	5	1	..	3	83
1922........	74	3	1	..	3	81

LENGTH OF TERMS

During the last twenty years, as shown in Table 9, there has been a decided lengthening of college terms. This has reference to the weeks of actual work exclusive of holidays. Prior to 1904 the majority of colleges had sessions of twenty-eight weeks or less. For seven years no colleges have had sessions shorter than twenty-nine weeks, and during the last two years the shortest session reported is thirty-one weeks. Sessions of from thirty-three or thirty-six weeks were reported by 66, or 79.5 per cent., of all colleges.

TABLE 9.—College Terms

Year	23 to 26 weeks		27 to 28 weeks		29 to 30 weeks		31 to 32 weeks		33 to 34 weeks		35 to 36 weeks		Over 36 weeks	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1901	58	36.5	42	26.4	8	5.0	26	16.4	4	2.5	18	11.3	3	1.9
1902	44	28.4	44	28.4	11	7.1	33	21.3	3	1.9	18	11.6	2	1.3
1903	33	21.4	46	29.9	15	9.7	37	24.0	2	1.3	19	12.4	2	1.3
1904	27	16.3	44	26.5	22	13.3	37	22.3	13	7.8	20	12.0	3	1.8
1905	15	9.4	35	21.8	12	7.5	44	27.5	13	8.1	28	23.8	3	1.9
1906	14	8.7	35	21.7	26	16.1	32	19.9	24	14.9	28	17.4	2	1.3
1907	6	3.7	27	16.8	26	16.1	42	26.1	29	18.0	29	18.0	2	1.3
1908	2	1.3	21	13.8	28	18.4	51	33.6	24	15.8	22	14.5	4	2.6
1909	4	2.3	17	11.6	23	16.4	51	34.9	18	12.3	30	20.5	3	2.0
1910	2	1.5	8	6.0	19	14.3	42	31.5	30	22.6	30	22.6	2	1.5
1911	..	....	6	5.0	16	13.3	37	30.8	32	26.7	28	23.4	1	0.8
1912	1	0.9	1	0.9	11	9.5	34	29.3	37	31.8	31	26.7	1	0.9
1913	..	....	3	2.8	5	4.7	29	27.4	41	38.7	27	25.5	1	0.9
1914	..	....	2	2.0	4	4.0	25	24.8	41	40.5	28	27.7	1	1.0
1915	..	....	1	1.0	5	5.3	22	23.2	36	37.9	30	31.6	1	1.0
1916	..	....	..	....	4	4.2	17	17.9	43	45.3	28	29.5	..	...
1917	..	....	..	....	1	1.0	15	15.6	46	47.9	31	32.3	..	...
1918*	..	....	..	....	2	2.2	23	25.6	37	41.1	22	24.4	..	...
1919*	..	....	..	....	1	1.2	11	12.9	44	51.8	23	27.1	1	1.2
1920*	.	....	..	....	1	1.2	10	11.8	38	44.7	29	34.1	..	...
1921*	..	....	..	....	..	....	11	13.1	39	46.4	28	33.3	..	...
1922*	..	....	..	....	..	....	10	13.1	43	56.6	23	30.3	..	...

* Information not furnished by five Class C colleges during the last five years.

(*Continued on page 636*)

Marginal Number	NAME OF COLLEGE	1 Alabama.........135	2 Arizona..........11	3 Arkansas..........91	4 California.........600	5 Colorado.........150	6 Connecticut.......268	7 Delaware.........19	8 Dist. of Columbia..153	9 Florida...........65	10 Georgia..........319	11 Idaho...........39	12 Illinois.........1,281	13 Indiana..........449	14 Iowa...........461	15 Kansas.........284	16 Kentucky.........171	17 Louisiana........123	18 Maine..........102	19 Maryland........190	20 Massachusetts.....781	Marginal Number
1	University of Alabama School of Medicine	54	....	1	....	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....	1
2	University of Arkansas Medical Department	....	....	20	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	2
3	College of Medical Evangelists	....	1	....	78	9	....	....	7	1	1	2	3	1	....	5	....	1	1	2	3	3
4	Stanford University School of Medicine	....	1	....	140	....	....	....	2	....	....	1	1	....	1	....	....	1	....	....	....	4
5	University of California Medical School	....	....	....	219	2	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	5
6	University of Colorado School of Medicine	....	....	....	1	78	....	....	....	....	....	....	1	....	2	2	....	....	....	....	....	6
7	Yale University School of Medicine	....	....	....	1	....	98	....	....	....	1	....	3	....	....	....	....	....	16	2	4	7
8	Georgetown University School of Medicine	....	....	....	....	....	17	....	25	....	....	....	1	1	....	....	....	1	1	3	16	8
9	George Washington University Medical School	....	....	....	2	1	2	1	55	....	2	....	....	....	....	2	1	....	1	7	1	9
10	Howard University School of Medicine	4	....	....	....	....	2	....	38	9	3	....	1	....	....	1	9	5	....	8	2	10
11	Emory University School of Medicine	40	....	1	....	....	....	....	....	5	145	....	....	....	....	....	2	....	....	....	....	11
12	University of Georgia Medical Department	....	....	....	....	....	....	....	....	1	80	....	....	....	....	....	....	....	....	....	....	12
13	Chicago Medical School	....	....	....	1	....	....	....	....	1	2	....	149	1	1	....	1	1	....	....	2	13
14	Hahnemann Medical College of Chicago.—H.	....	....	2	....	....	1	....	....	....	....	....	31	9	1	1	....	....	....	....	....	14
15	Loyola University School of Medicine	....	....	....	....	....	....	....	....	3	1	....	159	2	10	4	3	1	....	1	....	15
16	Northwestern University Medical School	6	2	5	14	6	1	....	....	....	1	6	168	20	25	13	1	1	....	....	1	16
17	Rush Medical College (University of Chicago)	4	1	3	12	15	....	....	1	2	3	8	279	47	36	22	4	....	2	....	1	17
18	University of Illinois College of Medicine	....	1	1	10	2	....	....	1	....	....	....	302	10	19	2	1	....	....	....	....	18
19	Indiana University School of Medicine	1	....	....	1	....	....	....	....	1	....	....	1	248	2	....	1	....	....	....	....	19
20	State University of Iowa College of Medicine	....	....	....	1	....	....	....	....	....	....	2	6	....	279	....	1	....	....	....	....	20
21	University of Kansas School of Medicine	....	1	....	....	1	....	....	....	....	....	....	1	....	1	136	....	....	....	....	....	21
22	University of Louisville Medical Department	2	....	....	1	....	....	....	....	1	1	....	1	31	1	2	77	....	1	....	1	22
23	Tulane University of Louisiana School of Medicine	60	1	23	2	....	2	....	1	11	9	....	2	1	....	1	1	93	....	....	....	23
24	Johns Hopkins University Medical Department	6	....	1	10	3	8	3	8	2	15	1	8	6	2	3	5	1	3	73	7	24
25	University of Maryland Sch. of Med. & Coll. of P. & S.	1	....	....	....	....	18	2	3	4	....	1	....	....	....	....	2	....	1	65	2	25
26	Boston University School of Medicine	1	....	....	1	....	8	....	....	....	4	....	....	....	....	1	....	....	13	....	49	26
27	College of Physicians and Surgeons, Boston *	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	70	27
28	Harvard University Medical School	3	....	....	21	7	12	....	2	2	6	1	10	2	3	2	3	....	29	3	129	28
29	Tufts College Medical School	1	....	....	....	....	20	....	....	....	....	....	1	....	....	....	....	....	15	....	305	29
30	Middlesex College of Medicine and Surgery.—N.†	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	121	30
31	University of Michigan Medical School	2	....	1	4	2	1	....	1	1	4	1	15	28	2	1	3	....	....	2	4	31
32	University of Michigan Homeo. Medical School.—H.	....	....	....	2	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	32
33	Detroit College of Medicine and Surgery	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	33
34	University of Minnesota Medical School	....	....	....	2	1	....	....	....	....	....	....	1	....	6	....	....	....	....	1	....	34
35	University of Mississippi School of Medicine	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	35
36	University of Missouri School of Medicine	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	36
37	Kansas City College of Medicine and Surgery.—N.*	....	....	....	....	....	....	....	....	....	....	....	....	....	....	20	....	....	....	....	....	37
38	Kansas City University of Phys. and Surgs.—N.	1	....	....	1	2	2	....	1	....	....	1	3	3	2	8	1	....	....	....	3	38
39	St. Louis College of Physicians and Surgeons †	....	2	....	....	....	....	....	....	....	....	....	14	....	....	8	....	....	....	....	....	39
40	St. Louis University School of Medicine	1	....	....	18	3	....	....	....	1	....	1	37	8	12	11	....	4	....	1	....	40
41	Washington University School of Medicine	....	....	7	11	5	....	....	....	....	1	....	31	1	6	12	1	....	....	....	1	41
42	Creighton University College of Medicine	....	....	....	1	5	....	....	....	....	....	2	2	2	22	9	....	....	....	....	....	42
43	University of Nebraska College of Medicine	....	....	....	7	4	1	....	....	....	....	1	1	....	9	6	....	....	....	....	....	43
44	Dartmouth Medical School	....	....	....	....	....	2	....	....	....	....	....	1	....	....	....	....	....	1	....	9	44
45	Albany Medical College	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1	45
46	University of Buffalo Medical Department	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	46
47	Columbia University College of Phys. and Surgs.	2	1	1	4	1	15	....	....	....	3	....	1	2	....	....	1	....	....	....	7	47
48	Cornell University Medical College	1	....	....	2	....	9	....	....	....	....	....	2	....	....	1	2	1	1	....	9	48
49	Long Island College Hospital	....	....	....	....	....	7	....	....	....	....	....	....	....	....	....	....	....	....	....	1	49
50	New York Homeopathic Med. Coll. & Flower Hosp.—H.	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	50
51	University and Bellevue Hospital Medical College	....	....	....	2	....	9	....	1	....	2	....	....	....	....	....	....	....	1	....	....	51
52	Syracuse University College of Medicine	....	....	....	....	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	3	52
53	University of North Carolina School of Medicine	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	53
54	Wake Forest College School of Medicine	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	54
55	University of North Dakota School of Medicine	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	55
56	Eclectic Medical College, Cincinnati.—E.	....	....	1	1	....	1	....	....	....	....	....	3	....	....	....	7	....	....	1	....	56
57	University of Cincinnati College of Medicine	....	....	....	1	....	....	....	....	....	....	....	3	11	....	1	13	....	....	....	....	57
58	Western Reserve University School of Medicine	2	....	....	....	....	....	....	....	2	....	....	....	1	....	2	....	....	2	....	....	58
59	Ohio State University College of Medicine	....	....	....	1	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	59
60	Ohio State University College of Homeo. Med.—H.	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	....	....	1	....	60
61	University of Oklahoma School of Medicine	....	....	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	61
62	University of Oregon Medical School	....	....	....	11	1	....	....	....	....	....	4	....	....	1	....	....	....	....	....	....	62
63	Hahnemann Medical College and Hosp. of Phila.—H.	....	....	....	2	....	1	3	....	....	....	....	....	....	1	....	1	....	....	....	....	63
64	Jefferson Medical College of Philadelphia	1	....	1	3	....	11	7	2	1	5	2	4	5	1	....	....	....	5	5	15	64
65	Temple University School of Medicine	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	65
66	University of Pennsylvania School of Medicine	2	....	....	5	....	4	1	....	2	1	....	2	3	2	4	2	....	2	6	2	66
67	Woman's Medical College of Pennsylvania	1	....	....	3	....	1	2	....	2	....	....	1	1	1	1	2	....	....	4	1	67
68	University of Pittsburgh School of Medicine	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	68
69	Medical College of the State of South Carolina	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	69
70	University of South Dakota College of Medicine	....	....	....	....	....	....	....	....	....	....	....	....	....	5	....	....	....	....	....	....	70
71	University of Tennessee College of Medicine	8	....	1	....	....	....	....	....	1	5	....	4	....	....	....	1	1	....	....	....	71
72	University of West Tennessee Medical Department †	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	72
73	Meharry Medical College	3	....	14	....	....	....	....	1	2	12	....	8	1	....	1	5	5	....	....	1	73
74	Vanderbilt University School of Medicine	23	....	5	....	....	....	....	....	2	5	....	....	....	....	....	15	1	....	....	....	74
75	Baylor University College of Medicine	1	....	1	1	....	....	....	....	....	....	....	....	....	1	1	....	1	....	....	....	75
76	University of Texas School of Medicine	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	76
77	University of Utah School of Medicine	....	....	....	1	....	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....	77
78	University of Vermont College of Medicine	....	....	....	....	....	7	....	....	1	....	....	....	....	....	....	....	....	6	....	6	78
79	Medical College of Virginia	....	....	....	....	....	1	....	1	1	....	....	....	....	....	....	....	1	....	2	....	79
80	University of Virginia Department of Medicine	1	....	....	1	....	2	....	2	5	3	....	....	....	....	....	2	1	....	2	1	80
81	West Virginia University School of Medicine	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1	81
82	University of Wisconsin Medical School	....	....	....	....	2	....	....	....	....	....	....	8	2	1	....	....	....	....	....	....	82
83	Marquette University School of Medicine	....	....	....	....	....	....	....	....	....	....	....	9	....	6	....	2	....	....	....	....	83
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

E.—Eclectic; H.—Homeopathic; N.—Nondescript.
* Figures are for 1920-21; distribution approximate.

† Figures and distribution approximate.

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		
Marginal Number	Michigan..........603	Minnesota..........471	Mississippi..........145	Missouri..........597	Montana..........29	Nebraska..........321	Nevada..........5	New Hampshire.....47	New Jersey..........426	New Mexico..........14	New York..........2,102	North Carolina.....340	North Dakota.....100	Ohio..........860	Oklahoma..........155	Oregon..........156	Pennsylvania.....1,191	Rhode Island......85	South Carolina.....188	South Dakota.....103	Tennessee..........190	Texas..........498	Utah..........110	Vermont..........86	Virginia..........329	Washington..........122	West Virginia.....178	Wisconsin..........446	Wyoming..........8	Philippines, etc. 129	Foreign..........314	Totals..........16,140	Marginal Number
1	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	1	....	1	....	....	....	1	....	....	....	....	....	....	62	1
2	....	....	....	....	....	....	....	....	1	....	5	....	....	....	....	....	1	....	....	....	....	2	....	....	....	....	....	1	....	....	2	34	2
3	10	5	....	2	....	10	1	....	....	1	3	1	1	2	2	6	2	....	....	1	4	....	....	....	1	14	....	1	....	2	14	198	3
4	1	....	....	....	....	1	1	....	....	....	1	....	....	2	....	2	....	....	....	....	....	1	2	....	....	3	....	1	....	3	2	167	4
5	....	....	....	....	....	1	....	....	....	....	1	....	....	1	1	3	....	....	....	....	....	....	1	....	....	1	....	....	....	....	2	233	5
6	....	....	....	1	....	....	....	....	....	2	2	....	....	....	1	....	....	....	....	1	....	2	1	....	1	....	1	....	1	1	2	100	6
7	....	....	....	....	....	....	....	....	4	....	12	....	....	12	....	1	4	1	1	....	....	....	....	....	....	....	....	....	....	1	3	165	7
8	1	4	....	....	1	....	....	....	34	....	41	....	1	2	....	....	31	8	....	....	....	1	....	....	4	....	....	....	....	10	1	204	8
9	1	1	....	....	....	....	....	....	12	....	17	3	1	3	....	....	8	....	....	....	....	....	6	....	8	....	1	....	....	1	12	149	9
10	2	....	3	2	....	....	....	....	3	....	11	16	....	5	2	....	12	2	6	....	3	4	....	....	21	....	2	....	....	4	19	199	10
11	....	....	3	2	....	....	....	....	....	....	1	8	....	....	....	....	....	....	3	....	7	....	....	....	1	....	1	....	....	....	1	220	11
12	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	3	....	....	....	....	....	1	....	....	....	....	....	2	89	12
13	....	....	....	1	....	1	....	....	....	....	2	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	4	6	175	13
14	2	2	....	3	....	....	....	....	2	....	8	....	2	7	1	....	4	....	1	2	....	1	....	....	2	1	....	....	....	11	16	110	14
15	8	2	....	3	....	....	....	....	....	....	5	....	....	2	....	1	4	....	....	....	1	....	....	....	1	1	2	5	....	9	3	231	15
16	16	9	9	18	2	8	....	....	3	....	3	....	11	11	8	3	6	....	....	4	1	6	10	....	....	22	....	18	....	3	10	451	16
17	13	13	3	7	4	12	2	2	1	1	7	1	14	20	1	10	8	....	1	25	4	15	8	....	1	12	1	62	1	6	17	712	17
18	6	5	....	2	1	2	....	....	....	1	3	....	6	2	....	....	5	....	1	4	....	....	2	....	....	2	....	19	....	7	4	421	18
19	1	3	....	....	....	....	....	....	....	....	3	1	....	7	....	....	1	....	....	....	....	....	....	....	1	....	....	....	....	1	1	274	19
20	....	7	....	....	....	2	....	....	2	....	....	....	....	1	....	....	....	....	....	3	....	2	....	....	....	....	....	3	....	4	....	313	20
21	....	....	....	9	....	....	....	....	....	1	....	....	....	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	1	157	21
22	1	....	....	2	....	....	....	....	....	1	2	1	....	15	....	2	2	....	1	....	2	....	....	....	5	....	9	1	....	....	....	163	22
23	....	....	34	1	....	....	....	....	2	....	11	15	....	....	4	....	2	....	3	1	5	43	1	....	2	....	....	....	....	....	9	340	23
24	5	1	1	2	....	2	....	....	9	....	27	12	1	17	1	4	26	4	11	1	4	10	....	....	19	2	8	1	1	....	15	349	24
25	2	....	....	....	....	....	....	....	40	....	62	18	....	1	....	....	38	2	1	....	1	....	3	....	5	....	24	....	....	....	3	299	25
26	....	....	....	....	....	1	....	3	4	....	48	2	....	1	....	....	1	3	3	....	....	....	....	1	3	....	....	1	....	5	8	161	26
27	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	70	27
28	7	2	1	14	1	10	....	8	13	....	39	1	3	21	5	9	18	15	3	2	2	10	4	2	4	4	3	12	1	1	21	471	28
29	1	....	....	....	....	....	....	17	6	....	33	....	....	....	....	....	3	31	....	....	....	....	....	1	....	....	....	....	....	....	8	442	29
30	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	121	30
31	294	4	....	5	....	3	....	2	8	1	38	3	....	58	....	1	29	2	1	1	2	....	....	1	2	4	1	3	....	5	18	558	31
32	38	....	....	....	....	1	....	....	....	....	6	....	2	3	....	....	4	....	1	....	....	....	....	....	....	....	....	1	....	1	....	61	32
33	159	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	1	166	33
34	....	253	....	1	1	....	....	1	....	....	1	1	8	....	....	....	....	....	....	6	....	....	....	....	....	3	....	5	....	....	8	399	34
35	....	....	48	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	2	....	....	....	....	....	....	....	1	....	54	35
36	....	....	....	78	....	....	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	84	36
37	....	....	....	70	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	90	37
38	....	2	1	22	....	....	1	....	2	....	3	....	....	....	1	1	3	....	....	....	....	....	1	....	1	3	....	1	....	2	8	80	38
39	....	....	....	90	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	5	120	39
40	11	11	....	103	1	....	....	....	2	2	8	1	3	35	1	1	3	....	....	2	....	1	....	....	1	2	....	6	1	5	6	303	40
41	1	2	1	110	4	1	....	....	1	1	2	....	1	2	1	....	1	....	....	2	....	3	6	....	....	4	....	8	....	3	5	235	41
42	....	6	....	2	6	62	....	....	....	1	....	....	2	1	....	....	....	....	....	8	....	....	....	....	....	6	....	....	....	1	....	138	42
43	....	4	....	6	2	193	....	....	....	....	3	....	....	....	....	1	....	....	....	3	....	....	....	....	....	....	....	3	2	8	....	254	43
44	....	....	....	1	....	1	....	6	....	....	6	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	28	44
45	....	....	....	....	....	....	....	....	3	....	78	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	4	88	45
46	....	....	....	....	....	....	....	....	....	....	196	....	....	2	....	....	11	....	....	....	....	....	....	....	....	....	....	....	....	....	1	212	46
47	....	....	1	1	....	....	....	1	38	....	251	1	....	4	....	....	3	2	....	....	1	1	1	2	1	....	1	1	....	1	7	356	47
48	....	....	....	....	....	1	....	2	22	....	135	2	....	1	....	....	8	1	2	....	....	....	2	2	....	1	1	....	....	1	4	213	48
49	....	....	....	....	....	....	....	....	11	....	288	....	....	....	....	....	3	....	....	....	....	....	....	1	....	....	....	....	....	....	....	311	49
50	....	....	....	....	....	....	....	....	5	....	126	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	3	136	50
51	....	....	4	3	....	....	....	....	63	....	328	....	....	1	....	....	5	....	....	....	1	....	1	....	....	....	....	....	....	....	4	425	51
52	....	....	....	....	....	....	....	....	5	....	143	4	....	....	....	....	5	....	....	....	....	....	....	....	1	....	....	....	....	1	3	165	52
53	....	....	....	....	....	....	....	....	....	....	....	78	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	81	53
54	....	....	....	....	....	....	....	....	2	....	2	32	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	39	54
55	....	2	....	....	2	....	....	....	....	....	....	....	39	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	43	55
56	3	....	....	1	....	....	....	....	1	....	22	....	....	35	....	....	6	....	....	....	....	1	....	....	....	....	1	....	....	....	1	85	56
57	....	2	....	....	....	1	....	....	....	....	....	....	....	152	....	....	1	....	....	....	2	....	....	....	1	....	12	1	....	2	4	207	57
58	1	....	....	2	....	1	....	....	1	....	2	....	....	110	....	....	13	....	....	....	....	....	1	....	2	1	6	2	....	....	3	154	58
59	1	....	1	....	....	....	....	....	1	....	1	....	....	212	....	....	2	....	1	....	....	....	....	....	....	....	2	....	....	3	1	227	59
60	....	....	....	....	....	....	....	....	....	....	2	....	....	42	....	....	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	53	60
61	1	....	....	1	....	....	....	....	....	....	4	....	....	....	102	....	....	....	....	....	....	2	....	....	....	1	....	....	....	3	1	117	61
62	....	1	....	....	3	....	....	....	....	1	....	....	....	....	....	106	....	....	....	....	....	....	....	....	....	26	....	....	....	....	....	154	62
63	....	1	....	....	....	....	....	....	20	....	11	....	....	2	....	....	108	3	....	....	....	....	....	....	2	....	1	....	....	....	1	154	63
64	1	1	1	5	....	2	....	1	43	....	22	37	2	23	2	4	262	4	8	....	2	4	8	1	6	2	23	4	....	7	4	547	64
65	....	....	....	....	....	....	....	....	11	....	3	1	....	....	....	....	70	....	....	....	....	....	....	....	....	....	1	....	....	1	1	90	65
66	1	4	5	6	....	1	....	....	29	....	8	32	2	6	....	1	245	1	1	2	4	7	7	....	4	4	4	14	....	5	5	436	66
67	1	....	....	1	....	1	....	....	8	....	15	4	....	7	....	....	49	....	2	....	2	....	....	1	2	....	....	....	....	....	8	121	67
68	....	1	....	....	....	....	....	....	....	....	2	....	....	11	....	....	153	....	....	....	....	....	....	....	....	....	....	....	....	....	....	168	68
69	....	....	....	....	....	....	....	....	1	....	....	1	....	....	....	....	....	....	104	....	....	....	....	....	1	....	....	....	....	....	1	109	69
70	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	34	....	....	....	....	....	....	....	....	....	....	....	43	70
71	2	....	6	2	....	1	....	....	1	....	4	1	....	....	3	....	....	....	1	....	47	14	....	....	3	....	1	....	....	....	1	108	71
72	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	7	....	....	....	....	....	....	....	....	....	....	7	72
73	3	....	19	14	....	1	....	....	....	....	2	18	....	2	6	....	1	....	15	....	9	17	....	....	8	....	1	....	....	....	11	180	73
74	....	....	1	2	....	....	....	....	1	....	3	5	....	1	2	....	....	....	3	....	71	7	....	....	....	....	....	....	....	....	2	149	74
75	1	....	....	....	....	....	....	....	4	....	2	1	....	....	4	....	....	1	....	....	....	91	....	....	....	....	1	....	....	....	1	112	75
76	....	....	....	....	....	....	....	....	....	....	1	....	....	....	2	....	....	....	....	....	....	251	....	....	....	....	....	1	....	....	1	256	76
77	....	....	....	....	....	....	....	....	....	....	3	....	....	1	1	....	1	....	....	....	....	....	43	....	....	1	....	....	1	....	2	58	77
78	....	....	....	....	....	....	....	4	3	....	12	....	....	....	....	....	1	3	....	....	....	....	....	73	....	....	....	....	....	....	1	117	78
79	....	....	....	1	....	....	....	....	1	....	1	24	....	....	....	....	3	....	1	....	....	....	1	....	117	....	6	1	....	1	....	163	79
80	....	....	3	....	....	....	....	....	....	....	2	13	....	....	1	....	2	....	9	....	5	....	....	....	93	1	2	....	....	....	1	152	80
81	....	....	....	....	....	....	....	....	3	....	16	1	....	8	....	....	12	....	....	....	....	....	....	....	....	....	61	....	....	1	....	104	81
82	1	3	....	1	1	....	....	....	....	1	....	....	....	1	....	....	2	1	....	....	....	....	....	....	....	....	1	134	....	....	1	160	82
83	7	17	....	....	....	1	....	....	....	....	2	....	....	3	....	....	....	....	....	1	....	....	....	....	....	1	....	136	....	1	1	187	83
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		

TABLE 3—MEDICAL STUDENTS SHOWN BY CLASSES

Name of College	Enrolled During 1921–22					
	1st year	2d year	3d year	4th year	5th year	Totals
University of Alabama School of Med.*..	40	22	.....	.....	.....	62
University of Arkansas Medical Dept.*...	22	12	.....	.....	.....	34
College of Medical Evangelists...........	74	64	37	23	.....	198
Stanford University School of Medicine...	51	39	29	19	29	167
University of California Medical School..	57	54	44	42	36	233
University of Colorado School of Med. ..	39	22	24	15	.....	100
Yale University School of Medicine.......	55	47	40	23	.....	165
Georgetown University School of Med. ...	78	68	36	22	.....	204
George Washington University Med. Sch.	68	48	17	16	.....	149
Howard University School of Medicine...	99	45	31	24	.....	199
Emory University School of Medicine.....	60	56	53	51	.....	220
University of Georgia Medical Dept.	32	34	10	13	.....	89
Chicago Medical School....................	71	16	36	52	.....	175
Hahnemann Med. College of Chicago.—H.	34	36	27	13	.....	110
Loyola University School of Medicine....	84	54	24	33	36	231
Northwestern University Medical School..	107	87	94	87	76	451
Rush Medical College (Univ. of Chicago)	131	132	154	162	133	712
University of Illinois College of Med.	120	94	87	50	70	421
Indiana University School of Medicine....	112	66	61	35	.....	274
State University of Iowa College of Med.	137	81	55	40	.....	313
University of Kansas School of Medicine.	81	36	20	20	.....	157
University of Louisville Medical Dept.	62	51	29	21	.....	163
Tulane Univ. of Louisiana School of Med.	91	90	86	73	.....	340
Johns Hopkins University Medical Dept. ..	92	81	95	81	.....	349
University of Maryland School of Medicine and College of Phys. and Surgs. ..	118	65	60	56	.....	299
Boston University School of Medicine†....	54	58	25	24	.....	161
College of Phys. and Surgs., Boston.....	17	18	16	19	.....	70
Harvard University Medical School......	125	121	123	102	.....	471
Tufts College Medical School..............	141	153	71	77	.....	442
Middlesex College of Med. and Surg.—N.‡	24	35	35	27	.....	121
University of Michigan Medical School....	224	150	111	73	.....	558
Univ. of Michigan Homeo. Med. Sch.—H.	18	13	22	8	.....	61
Detroit College of Medicine and Surgery..	75	42	26	23	.....	166
University of Minnesota Medical School..	95	90	66	46	102	399
University of Mississippi School of Med.*	29	25	.....	.....	.....	54
University of Missouri School of Med.*...	50	34	.....	.....	.....	84
Kansas City College of Med. & Surg.—N.†	30	26	20	14	.....	90
Kansas City Univ. of Phys. & Surgs.—N.	16	9	23	32	.....	80
St. Louis College of Physicians and Surgeons‡	13	19	28	60	.....	120
St. Louis University School of Medicine..	108	75	75	45	.....	303
Washington University School of Med. ..	71	60	55	49	.....	235
Creighton University College of Medicine.	42	39	36	21	.....	138
University of Nebraska College of Med. ..	98	63	69	24	.....	254
Dartmouth Medical School*...............	16	12	.....	.....	.....	28
Albany Medical College....................	31	30	15	12	.....	88
University of Buffalo Medical Dept.	75	62	52	23	.....	212
Columbia Univ. College of Phys. & Surgs.	103	91	92	70	.....	356
Cornell University Medical College........	46	59	65	43	.....	213
Long Island College Hospital.............	111	54	98	48	.....	311
New York Homeopathic Medical College and Flower Hospital.—H.	57	42	18	19	.....	136
University and Bellevue Hosp. Med. Coll.	151	110	88	76	.....	425
Syracuse University College of Medicine..	52	42	36	35	.....	165
University of No. Carolina Sch. of Med.*	39	42	.....	.....	.....	81
Wake Forest College School of Med.*....	19	20	.....	.....	.....	39
University of No. Dakota Sch. of Med.*..	23	20	.....	.....	.....	43
Eclectic Medical College, Cincinnati.—E. ..	15	22	14	34	.....	85
University of Cincinnati College of Med.	50	48	62	47	.....	207
Western Reserve University Sch. of Med.	57	41	30	26	.....	154
Ohio State University College of Medicine	98	55	41	33	.....	227
Ohio State University College of Homeopathic Medicine.—H.	27	9	9	8	.....	53
University of Oklahoma School of Med. ..	45	33	24	15	.....	117
University of Oregon Medical School.....	66	48	29	11	.....	154
Hahnemann Medical College and Hospital of Philadelphia.—H.	56	54	30	17	.....	157
Jefferson Medical College of Philadelphia.	168	135	156	88	.....	547
Temple University School of Medicine....	36	9	21	24	.....	90
University of Pennsylvania Sch. of Med.	100	92	125	119	.....	436
Woman's Medical College of Pennsylvania	37	31	21	32	.....	121
University of Pittsburgh School of Med.	64	39	38	27	.....	168
Medical Coll. of the State of So. Carolina	42	28	26	13	.....	109
University of So. Dakota Coll. of Med.*..	30	13	.....	.....	.....	43
University of Tennessee College of Med. .	47	30	20	11	.....	108
University of W. Tennessee Med. Dept.‡..	.....	.....	3	4	.....	7
Meharry Medical College	29	51	66	34	.....	180
Vanderbilt University School of Medicine	48	50	38	13	.....	149
Baylor University College of Medicine....	42	27	19	24	.....	112
University of Texas School of Medicine..	94	76	44	42	.....	256
University of Utah School of Medicine*..	24	34	.....	.....	.....	58
University of Vermont College of Med. ..	46	33	22	16	.....	117
Medical College of Virginia...............	50	41	44	28	.....	163
University of Virginia Dept. of Medicine..	66	36	27	23	.....	152
West Virginia University School of Med.*	52	52	.....	.....	.....	104
University of Wisconsin Medical School*..	90	70	.....	.....	.....	160
Marquette University School of Medicine.	65	48	32	19	23	187
Totals for 1922..............................	5412	4219	3355	2649	505	16140
Totals for 1921..............................	4825	3588	2637	3416	406	14872
Totals for 1920..............................	4234	2837	3464	3263	290	14088

E.—Eclectic; H.—Homeopathic; N.—Nondescript.
* Gives only the first two years of the medical course.
† Figures given are for 1920-21.
‡ Figures and distribution are approximate.

(*Continued from page 633*)

TUITION AND OTHER FEES

Attention is called in Table 1, on pages 630-632, to the amount charged by the various medical colleges per annum for tuition, matriculation, and laboratory and graduation fees for each student. In Table 10, the eighty-three colleges have been grouped according to the amount of fees charged and according to their classification by the Council on Medical Education and Hospitals. Thirteen colleges charge fees of $125 or less per year; thirty-eight between $125 and $225; twenty-four between $225 and $325, and six charge above $325. Of the thirteen colleges charging $125 or less eleven (78.6 per cent.) are listed among Class A (acceptable) colleges [2] by the Council on Medical Education, while two are in Class C. The eleven Class A colleges having these low fees include the schools of medicine of the state universities of Arkansas, Georgia, Missouri, Oklahoma, North Dakota, South Dakota, Texas and West Virginia—for residents of those states. On the other hand, five colleges listed by the Council in Class C charge fees of $175 to $225 per year. Diplomas from Class C colleges are reported as not recognized by from forty-two to forty-seven state licensing boards.[3] No intelligent student would knowingly spend his time and money in a low-grade college, the diplomas of which are not recognized by many states, when in the same time, and for even less money, he could attend some of the best-equipped colleges, the diplomas of which are recognized everywhere. Although forty-two colleges listed in Class A charge fees ranging from $175 to $350 per year for each student, the actual expense for teaching that student for the year in these colleges is much more than the fee charged. This larger expenditure is possible because the colleges receive either state aid or private endowment. This shows that no medical college can properly teach medicine on the income received from fees alone. Although during the last few years fees have been increased, this in no way compares with the greatly increased cost of furnishing a medical education. Although fees have been moderately advanced, at the same time, greater

TABLE 10.—College Fees

Total Fees	Number of Colleges			
	Class A	Class B	Class C	Total
$ 75 or less..........	6	..	..	6
75 to $125..........	5	..	2	7
125 to 175..........	15	3	1	19
175 to 225..........	13	2	4	19
225 to 275..........	14	..	..	14
275 to 325..........	9	1	..	10
Above 325..........	6	..	..	6
Totals..........	68	6	7	81

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[2] See classification on page 642.

[3] See The Journal A. M. A., April 29, 1922, p. 1306, Table D.

provision has been made for scholarships and loan funds (see page 638) for benefit of deserving students who are financially poor.

COLLEGES, STUDENTS AND GRADUATES BY STATES

Illinois formerly had the largest number of medical colleges (Table 11), but for the last four years the first place has been held by New York, where there are still eight colleges. Illinois, Missouri and Pennsylvania have six colleges each; Massachusetts has five, and Tennessee has four. Of Class C colleges, however, Missouri has three, Massachusetts has two, and there is one each in Illinois and Tennessee. In Missouri the Class C colleges exist because that board does not have or does not exert the power to have their charters revoked.

TABLE 11.—MEDICAL COLLEGES, STUDENTS AND GRADUATES BY STATES

State	Colleges		Students		Graduates		Graduates with B.S. or A.B.
	Class A and B	Class C	Men	Women	Men	Women	
Alabama	1	....	62	....	....	....	....
Arkansas	1	....	33	1	....	....	....
California	3	....	489	109	83	9	88
Colorado	1	....	91	9	15	....	11
Connecticut	1	....	156	9	21	2	16
Dist. of Columbia	3	....	540	12	59	....	29
Georgia	2	....	308	1	63	....	28
Illinois	5	1	1,965	135	375	15	226
Indiana	1	....	260	14	33	....	33
Iowa	1	....	301	12	35	3	23
Kansas	1	....	147	10	22	2	21
Kentucky	1	....	158	5	21	....	8
Louisiana	1	....	327	13	66	5	30
Maryland	2	....	594	54	122	13	110
Massachusetts	3	2	1,212	53	255	10	100
Michigan	2	....	742	43	91	7	37
Minnesota	1	....	368	31	77	3	79
Mississippi	1	....	52	2	....	....	....
Missouri	3	3	882	30	164	5	51
Nebraska	2	....	377	15	36	1	20
New Hampshire	1	....	28	....	....	....	....
New York	8	....	1,766	140	305	21	210
North Carolina	2	....	119	1	....	....	....
North Dakota	1	....	42	1	....	....	....
Ohio	4	....	691	35	144	5	92
Oklahoma	1	....	114	3	15	....	13
Oregon	1	....	138	16	7	3	7
Pennsylvania	6	....	1,356	163	261	39	128
South Carolina	1	....	104	5	12	1	2
South Dakota	1	....	43	....	....	....	....
Tennessee	3	1	438	6	56	....	24
Texas	2	....	348	20	59	6	24
Utah	1	....	57	1	....	....	....
Vermont	1	....	114	3	16	....	6
Virginia	2	....	294	21	44	3	20
West Virginia	1	....	102	2	....	....	....
Wisconsin	2	....	333	14	18	1	19
Totals	74	7	15,151	989	2,375	154	1,455

For the last four years New York has had the largest number of students enrolled. This year Illinois has 2,100, followed by New York with 1,906 and Pennsylvania with 1,519. Illinois leads also in the number of graduates, having reported 390, followed by New York with 326, Pennsylvania with 300, Massachusetts with 265 and Missouri with 169.

QUALIFICATIONS OF STUDENTS AND GRADUATES

Table 12 shows the students and graduates of the last seven years grouped according to their classification by the Council on Medical Education and Hospitals. Note that during the nine years the percentage of students enrolled in Class A colleges has increased from 65.4 to 90.6, and that since 1917 the total number of students in attendance at these schools has increased from 11,317 to 14,625. Note, on the other hand, that both the numbers and the percentages of students enrolled in Class B and Class C colleges have been reduced. The percentage of students in Class B colleges has been reduced from 24.4 to 5.3 and in Class C colleges from 10.2 to 4.1. Of graduates, also, the percentage in Class A colleges shows an increase, while in Class B and Class C colleges there has been a decrease except for a slight increase this year in Class C colleges. Such reductions as there have been in the total number of students and graduates, therefore, have been largely at the expense of the lower grade colleges, while the numbers of students and graduates in the better colleges have been increased.

HINTS TO PROSPECTIVE MEDICAL STUDENTS

The student who is contemplating the study of medicine should read with care the instructions entitled "Choice of a Medical School" beginning on page 638. The selection of the school in which he is to obtain his medical training is a matter of extreme importance and should be considered by the student with special care. He should note the standards of premedical education which are given on page 639, he should note the subjects required by the individual medical schools which, if different from those outlined by the Council on Medical Education and Hospitals, will be found in the descriptive statements of those colleges appearing on pages 649 to 658. A careful review of the material published this week will be of great service to such students.

GRADUATE MEDICAL EDUCATION

The facilities for graduate medical instruction in the United States are set forth on the next few pages. Not only are the separate graduate medical schools given, but also the opportunities available in undergraduate medical schools. In the latter, the courses vary somewhat from year to year, but the outlines given indicate the variety and extent of such work. It is hoped that by the publication each year of these data opportunities in undergraduate schools may be enlarged and a greater use be made of the abundance of clinical material in this country. The majority of undergraduate medical schools are now on a par with those in other leading countries; their future develop-

TABLE 12.—STUDENTS AND GRADUATES ACCORDING TO CLASSIFICATION

Year	Students						Graduates					
	Colleges Rated in Class						Colleges Rated in Class					
	A	%	B	%	C	%	A	%	B	%	C	%
1913	11,122	65.4	4,158	24.4	1,735	10.2	2,539	63.8	1,050	26.4	392	9.8
1914	12,336	74.7	2,838	17.2	1,328	8.1	2,626	73.1	686	19.1	282	7.8
1915	11,314	76.0	2,668	17.9	909	6.1	2,629	74.4	688	19.4	219	6.2
1916	11,162	79.6	2,087	14.9	773	5.5	2,630	74.7	695	19.8	193	5.5
1917	11,317	82.2	1,761	12.8	686	5.0	2,577	76.3	648	19.2	154	4.5
1918	11,522	84.5	1,488	10.9	620	4.5	2,024	75.8	399	14.9	247	9.2
1919	11,466	87.9	1,086	8.3	500	3.8	2,220	83.6	268	10.1	168	6.3
1920	12,610	89.6	680	4.8	798	5.6	2,690	88.4	152	5.0	205	6.6
1921	13,487	90.5	832	5.6	553	3.9	2,812	88.1	200	6.3	180	5.6
1922	14,625	90.6	852	5.3	663	4.1	2,204	87.1	143	5.7	182	7.2

ment need not be hindered by providing also for the giving of graduate courses.

FOREIGN MEDICAL SCHOOLS

One pages 644 to 646 will be found a complete list of medical schools in foreign countries. Altogether, it will be noted that there are 270 in all other countries where, at the present time, there are eighty-one in the United States. In 1906 there were 154 in all other countries whereas the United States had 162. In 1906 the educational standards of medical schools in the United States, with a few exceptions, were quite low as compared with those in leading nations abroad. At the present time, however, the standards of seventy-four of the eighty-one medical schools are practically on a par with the educational standards abroad, and some of the medical schools here now exceed many of those abroad in entrance requirements, if not also in endowments, buildings and equipment.

Scholarships in Medical Schools

As evidence that provision is being made for worthy students, regardless of their financial status, 534 scholarships are reported this year in the following forty-six medical schools:

University of Alabama School of Medicine, Tuscaloosa	67
Stanford University Medical School,* San Francisco	2
University of California Medical School,* San Francisco	6
University of Colorado School of Medicine,* Denver	1
Yale University School of Medicine,* New Haven	2
Georgetown University School of Medicine, Washington	2
Emory University Medical School,* Atlanta	11
Northwestern University School of Medicine,* Chicago	1
Rush Medical College, Chicago	7
University of Illinois College of Medicine, Chicago	84
Indiana University School of Medicine,* Bloomington and Indianapolis	12
State University of Iowa College of Medicine, Iowa City	1
University of Kansas School of Medicine,* Kansas City	1
Johns Hopkins University Medical Department, Baltimore	6
University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore	8
Boston University School of Medicine,* Boston	16
Medical School of Harvard University,* Boston	50
Detroit College of Medicine and Surgery, Detroit	8
University of Missouri School of Medicine,* Columbia	10
Washington University School of Medicine, St. Louis	2
University of Nebraska College of Medicine,* Omaha	6
Dartmouth Medical School,* Hanover, N. H.	2
Albany Medical College, Albany, N. Y.	11
University of Buffalo Department of Medicine,* Buffalo	1
Columbia University College of Physicians and Surgeons, New York	36
Cornell University Medical College,* New York	3
Syracuse University College of Medicine, Syracuse	1
University and Bellevue Hospital Medical College,* New York	1
University of North Carolina School of Medicine, Chapel Hill	1
University of Cincinnati College of Medicine,* Cincinnati	12
University of Oregon Department of Medicine,* Portland	5
Hahnemann Medical College and Hospital of Philadelphia*	12
Jefferson Medical College, Philadelphia	3
Temple University Department of Medicine, Philadelphia	3
University of Pennsylvania School of Medicine,* Philadelphia	4
University of Pittsburgh School of Medicine, Pittsburgh	3
Woman's Medical College of Pennsylvania,* Philadelphia	30
Medical College of the State of South Carolina, Charleston	8
University of Tennessee College of Medicine, Memphis	15
Vanderbilt University Medical Department, Nashville, Tenn.	4
University of Texas Department of Medicine,* Galveston	2
University of Vermont Medical School*	55
Medical College of Virginia, Richmond	10
University of Virginia Department of Medicine,* Charlottesville	2
West Virginia University School of Medicine,* Morgantown	1
University of Wisconsin Medical School, Madison	6
Total in 46 medical schools	534

* Have loan funds also.

Loan Funds

Besides the twenty-four colleges marked by an asterisk (*) in the above list which have loan funds for deserving but needy students, such funds are available also at the five following medical schools:

College of Medical Evangelists, Loma Linda, Calif.
Tulane University of Louisiana School of Medicine, New Orleans.
University of Michigan Medical School, Ann Arbor.
Wake Forest College School of Medicine, Wake Forest, N. C.
University of North Dakota School of Medicine, University.

CHOICE OF A MEDICAL SCHOOL

For the student who has decided to study medicine the first and most important step is the selection of a medical school; a false step here may handicap him for life.

Before choosing a medical school the student should obtain information in regard to its requirements of preliminary education; the character of its teaching; its classification; the tuition fees charged and—most important—whether or not its diplomas are recognized by all state medical boards.

ADEQUATE ENTRANCE QUALIFICATIONS

The student should make sure that his preliminary education is sufficient to meet the requirements of the state licensing boards of the country. He should know that at the present time thirty-eight[1] state licensing boards (73 per cent.) require that before beginning the study of medicine the student must have completed *two years* of work in an approved college of liberal arts, in addition to a four-year high school education.[2] Although he may not at first seek a license in one of these thirty-five states, he may later miss a great opportunity by being thus debarred. He should know also that all the better medical colleges now require this higher preliminary education, since—most important of all—the student needs it to understand and master the difficult and complex subjects of the modern medical college course. Lower entrance requirements by any medical college, therefore, should be regarded as an indication that the medical training furnished will be correspondingly low.

BETTER MEDICAL TRAINING ESSENTIAL

Medicine is now based on scientific knowledge, without which any physician will be seriously handicapped. Adequate instruction in the recognition, treatment and prevention of diseases can be given only in acceptable (Class A) medical schools, which have expert teachers, well-equipped laboratories, and dispensaries and hospitals where the student at the bedside can study patients having all varieties of sickness and injuries.

IS THE MEDICAL COLLEGE RECOGNIZED?

Formerly a course in almost any medical college furnished an adequate qualification for the license to practice medicine in all states. At present, however, state licensing boards are refusing to recognize medical colleges which are deemed not properly equipped to furnish a training in modern medicine. The student should know that the diplomas granted by some medical schools are not recognized in as high as from 40 to 46 states.[3] A diploma from one of these medical colleges, therefore, would not qualify him to practice medicine in any of those states. The student must make sure, not only that he has adequate preliminary education, but also that he has secured his medical training in a college recognized in all states.

CONSIDER CAREFULLY THE COST

The student, of course, is bound to consider the expense of his medical training, and herein lies the bait by which some inferior colleges which profess deep interest in "the poor boy" endeavor to attract students. If the training is not thorough and up to date, the student should know that the training furnished will be a mighty poor investment at any price. As a matter of fact, and as may be noted in Table 1, (opp. p. 23), the total fees charged by some of the best (Class A) medical colleges, particularly the medical departments of some state universities, are lower than those charged by some of the poorly equipped (Class C) institutions which are not recognized by the majority of state licensing boards.

In the same length of time, therefore, and often for even lower fees than he would pay in a poorly equipped institution, the student may acquire his education in one of the best medical colleges of the land. Although some of the better schools do charge higher fees, they spend on each student per year several times the amount of money that the student pays for tuition. This they are able to do because of their larger incomes from endowments or state aid. It would be poor economy, therefore, for a student to enter a low-grade college whose diplomas are not recognized in the majority of states, when for a few additional dollars each year he can enter a thoroughly equipped institution, receive a far better medical training and obtain a diploma recognized everywhere. Even if one should be required to work one's way through, in whole or in part, the opportunities for doing so are usually more abundant in the better than in the lower standard colleges. As a rule, however, the student who works his way through college appreciates not only the value of money, but also the value of the medical course he is getting, and many such students are found in the high-grade medical colleges. There are now more than 300 free scholarships, as well as generous loan funds, available for deserving students in the better medical colleges.[4]

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[1] These states are listed on page 658.

[2] The courses required and recommended in the high school and two-year premedical college courses are set forth on pages 639-640.

[3] See J. A. M. A. 78: 1306 (April 29) 1922.

GET RELIABLE INFORMATION

How may the student secure reliable information on these matters? Some medical colleges advertise extensively in newspapers and popular magazines and through announcements and circulars containing exaggerated, if not misleading, statements. *Of course, such advertisements do not show the more important fact that their diplomas are reported as not recognized in from 40 to 46 states.* It is essential, therefore, that the student should secure information from impartial and reliable sources, so as to make sure he is not enticed into a low-grade institution. To inform himself thoroughly, therefore, he should not depend alone on the announcements of the medical schools. After extensive and repeated investigations the medical schools of the country have been rated by the Council in three classes, namely, A, B and C, according to their degree of excellence.[5] If the student is otherwise in doubt, he will not make a mistake by choosing one of the colleges in Class A. By so doing he will not only obtain a better training in medicine but also, after graduation, will be eligible to secure a license in any state he may choose.

A STRONG AND SURE FOUNDATION

In his preliminary and medical education the student should bear in mind that he is *laying the foundation for the rest of his life.* If he finds that additional preliminary education is needed to enter one of the better medical colleges, he should consider the time well spent, since he is all the more sure of having laid a solid foundation. Although all professions in this country are crowded, there is always room for the thoroughly competent. On the other hand, the student will be disappointed if, because of lower entrance requirements or other allurements, he is induced to get his training in a poorly equipped college and finds after graduation that his diploma is not recognized in many states, and that otherwise he is handicapped for life.

AVOID CULTS AND FADS

Among the worst pitfalls confronting the present day student is the number of institutions representing various unscientific, or pseudo-scientific cults, such as osteopathy, chiropractic, etc., which profess to train those who desire to treat human ailments.[6] Medical knowledge is now based on scientific facts and there is no longer room for the differences of opinion which in earlier days were justifiable. One medical schools are now the medical departments of universities of long established reputation—the best evidence that medicine as taught in medical schools is recognized as reliable. The theories advanced by osteopaths, chiropractors and other unscientific fads, however, have received no such endorsements and there is no acceptable proof of their having a reliable foundation. No one can afford to confine his training to the narrow theories held by any cult but should obtain a thorough, all-around scientific training by which he will be prepared to care intelligently for any form of human ailment or disorder which presents itself and to apply skilfully any form of treatment which each particular patient may require. One must have a thorough training in *all the fundamentals of medicine* before he can intelligently employ any particular method of treatment, even as the member of an orchestra must have a thorough training in all the fundamentals of music before he can play any particular instrument in that orchestra. One must first become a good general practitioner of medicine; then if he wishes to specialize along any particular line he will naturally secure further training for such specialty.

ESSENTIALS OF AN ACCEPTABLE MEDICAL COLLEGE

1. The minimum requirement for admission to an acceptable medical college is a four-year high school education or its full equivalent and two years of work in a college of arts and sciences approved by the Council on Medical Education and Hospitals, as follows:

I. High School Requirements

(*a*) For admission to the two-year premedical college course, students shall have completed a four-year course of at least fifteen units in a standard accredited high school or other institution of standard secondary school grade, or have the equivalent as demonstrated by examinations conducted by the College Entrance Examination Board, or by the authorized examiner of a standard college or university approved by the Council on Medical Education and Hospitals. A detailed statement of attendance at the secondary school, and a transcript of the student's work, should be kept on file by the college authorities. This evidence of actual attendance at the secondary schools should be obtained, no matter whether the student is admitted to the freshman or to higher classes.

SCHEDULE OF SUBJECTS REQUIRED OR ACCEPTED FOR ENTRANCE TO THE PREMEDICAL COLLEGE COURSE

Subjects	Units *	Required
GROUP I, ENGLISH—		
Literature and composition	3-4	3
GROUP II, FOREIGN LANGUAGES—		
Latin	1-4	2†
Greek	1-3	
French or German	1-4	
Other foreign languages	1-4	
GROUP III, MATHEMATICS—		
Elementary algebra	1	1
Advanced algebra	½-1	..
Plane geometry	1	1
Solid geometry	½	..
Trigonometry	½	..
GROUP IV, HISTORY—		
Ancient history	½-1	1
Medieval and modern history	½-1	
English history	½-1	
American history	½-1	
Civil government	½-1	
GROUP V, SCIENCE—		
Botany	½-1	..
Zoology	½1-	..
Chemistry	1	..
Physics	1	..
Physiography	½-1	..
Physiology	½-1	..
Astronomy	½	..
Geology	½-1	..
GROUP VI, MISCELLANEOUS—		
Agriculture	1-2	..
Bookkeeping	½-1	..
Business law	½	..
Commercial geography	½-1	..
Domestic science	1-2	..
Drawing, freehand and mechanical	½-2	..
Economics and economic history	½-1	..
Manual training	1-2	..
Music: Appreciation or harmony	1-2	..

* A unit is the credit value of at least thirty-six weeks' work of four or five recitation periods per week, each recitation period to be not less than forty minutes. In other words a unit represents a year's study in any subject in a secondary school constituting approximately a quarter of a full year's work. A satisfactory year's work in any subject cannot be accomplished under ordinary circumstances in less than 120 sixty-minute hours, or their equivalent.

† Both of the required units of foreign language must be of the same language, but the two units may be presented in any one of the languages specified.

Of the fifteen units of high school work, eight units are required, as indicated in the foregoing schedule; the remainder may be made up from any of the other subjects in the schedule.

(*b*) Credits for admission to the premedical college course may be granted for the subjects shown in the accompanying list and for any other subject counted by a standard accredited high school as a part of the requirements for its diploma, provided that at least eleven units must be offered in Groups I-V.

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[4] A list of colleges which provide scholarships and loan funds appears on page 638.

[5] See classification on page 642.

[6] Special pamphlets, bearing on the various pseudo-medical or so-called "drugless" cults, will be furnished on application.

II. Premedical College Course

(*c*) The minimum requirement for admission to acceptable medical schools, in addition to the high school work specified above, will be sixty semester hours of collegiate work, extending through two years, of thirty-two weeks each, exclusive of holidays, in a college approved by the Council on Medical Education and Hospitals. The subjects included in the two years of college work should be in accordance with the following schedule:

SCHEDULE OF SUBJECTS OF THE TWO-YEAR PREMEDICAL COLLEGE COURSE

Sixty Semester Hours[*] Required

Required Subjects:	Semester Hours
Chemistry (a)	12
Physics (b)	8
Biology (c)	8
English composition and literature (d)	6
Other nonscience subjects (e)	12
Subjects Strongly Urged:	
A modern foreign language (f)	6-12
Advanced botany or advanced zoology	3- 6
Psychology and logic	3- 6
Advanced mathematics, including algebra and trigonometry	3- 6
Additional courses in chemistry	3- 6

Other Suggested Electives:
English (additional), economics, history, sociology, political science, mathematics, Latin, Greek, drawing.

[*] A semester hour is the credit value of sixteen weeks' work consisting of one lecture or recitation period per week, each period to be not less than fifty minutes net, at least two hours of laboratory work to be considered as the equivalent of one lecture or recitation period.

SUGGESTIONS REGARDING INDIVIDUAL SUBJECTS

(*a*) *Chemistry.*—Twelve semester hours required of which at least eight semester hours must be in general inorganic chemistry, including four semester hours of laboratory work and four semester hours in organic chemistry, including two semester hours of laboratory work. In the interpretation of this rule, work in qualitative analysis may be counted as general inorganic chemistry.

(*b*) *Physics.*—Eight semester hours required, of which at least two must be laboratory work. It is urged that this course be preceded by a course in trigonometry.

(*c*) *Biology.*—Eight semester hours required, of which four must consist of laboratory work. This requirement may be satisfied by a course of eight semester hours in either general biology or zoology, or by courses of four semester hours each in zoology and botany, but not by botany alone.

(*d*) *English Composition and Literature.*—The usual introductory college course of six semester hours, or its equivalent, is required.

(*e*) *Nonscience Subjects.*—Of the sixty semester hours required as the measurement of two years of college work, at least eighteen, including the six semester hours of English, should be in subjects other than the physical, chemical or biologic sciences.

(*f*) *Foreign Language.*—A reading knowledge of a modern foreign language is strongly urged. French and German have the closest bearing on modern medical literature. If the reading knowledge in one of these languages is obtained on the basis of high school work, the student is urged to take the other language in his college course. It is not considered advisable, however, to spend more than twelve of the required sixty semester hours on foreign languages.

Recognition.—This two-year premedical course in both quantity and quality must be such as to make it acceptable as the equivalent of the first two years of the course in reputable, approved colleges of arts and sciences leading to the degree of Bachelor of Science.

APPROVED COLLEGES OF ARTS AND SCIENCES

A tentative list of colleges of arts and sciences approved by the Council on Medical Education and Hospitals has been prepared, and will be occasionally revised. By an approved college (of arts and sciences) is meant one whose standing has been vouched for by some standardizing agency in whose methods the Council has confidence.

PREMEDICAL COURSES IN MEDICAL COLLEGES—JUNIOR COLLEGES

Premedical college courses given in or by medical schools, by normal schools, or advance years taken in high schools, will not be considered as acceptable unless they have been investigated and approved by some association of colleges and secondary schools or other approved agency having to do with the standardizing of liberal arts colleges, and unless they are found to be a full equivalent of the first two years of the course leading to the Bachelor of Science degree.

III. The Medical School

ADMINISTRATION OF ENTRANCE REQUIREMENTS

2. The admission of students to the medical school must be in the hands of a responsible committee or examiner whose records shall always be open for inspection. Documentary evidence of the student's preliminary education should be obtained and kept on file. When the medical school is an integral part of the university, this work usually devolves on the university examiner. Unless the university examiner and his records are closely accessible, however, some officer at the medical school should obtain and keep on file documentary evidence of each student's preliminary education, including both high school and collegiate work. The records should show especially that the required amount of work in the premedical sciences, including laboratory experiments, has been completed.

OTHER MEDICAL SCHOOL REQUIREMENTS

3. The college should require that students be in actual attendance in the college *within the first week* of each annual session and thereafter.

4. Actual attendance at classes should be insisted on except for good cause, such as for sickness, and no credit should be given for any course when the attendance has been less than 80 per cent. of the full time.

5. (*a*) Full advanced standing may be granted to students only for work done in other acceptable medical schools, and in granting advanced standing there should be no discrimination against the college's full-course students. Official verification of the student's previous medical work should be obtained by direct correspondence with the college previously attended, and his preliminary qualifications should also be verified and recorded the same as for freshman students. (*b*) In *exceptional cases* students who possess the required premedical qualifications and who have completed three or more years of work in Class B medical schools may be given advanced standing but not higher than *entrance* to the third year (junior) class, and no credit should be given in any subject except on recommendation of the head of the department teaching that subject. (*c*) In *exceptional cases* also students who possess the required premedical qualifications and who have completed three or more years of work in Class C colleges may be given advanced standing but not higher than *entrance* to the second year (sophomore) class, and then only after thorough examinations in all first year subjects have been passed.

SUPERVISION, EQUIPMENT, TEACHERS

6. There should be careful and intelligent supervision of the entire school by the dean or other executive officer who holds, and has sufficient authority to carry out fair ideals of medical education as determined by the present day knowledge of medicine.

7. There should be a good system of records showing conveniently and in detail the credentials, attendance, grades and accounts of the students, by means of which an exact knowledge can be obtained regarding each student's work. Records should also be kept showing readily the attendance of patients at the teaching hospitals and dispensaries; the maternity cases attended by students, and the postmortem cases used in teaching.

8. The college curriculum should be fully graded and should cover four sessions of at least thirty-two weeks each, exclusive of time required for matriculation and holidays, and at least thirty hours per week of actual work. The courses offered in the various subjects should be set forth by departments (anatomy, physiology, etc.) in the annual announcement, showing for each course its number, subject, content, character (lecture, recitation, laboratory or clinic), length of time, when, where, and by whom given, and the amount of credit allowed. The courses for each class should also be clearly set forth in a printed class schedule, for the guidance of the students.

(*a*) The college should give two years of work consisting largely of laboratory work in well equipped laboratories of anatomy, histology, embryology, physiology, physiologic chemistry, bacteriology, pathology, pharmacology, therapeutics and clinical diagnosis. Present-day medical knowledge makes it essential that these subjects be in charge of full-time, well-trained teachers.

(*b*) Two years of clinical work, largely in hospitals and dispensaries, with courses in medicine (including physical diagnosis, pediatrics, nervous and mental diseases), surgery (including surgical anatomy and operative surgery on the cadaver), obstetrics, gynecology, laryngology, rhinology, ophthalmology, otology, dermatology, hygiene and medical jurisprudence. With the higher entrance requirements time is now available in the latter part of the second year for beginning courses in physical diagnosis and the principles of surgery.

(*c*) As soon as conditions warrant, relations should be established with a number of approved hospitals so that a fifth undergraduate year may be required to be spent by the student as an intern under the continued supervision of the medical school.

FACULTY

9. (*a*) The college should provide at least *eight expert thoroughly trained professors in the laboratory branches,* salaried so that they may devote their entire time to instruction and to that research without which they cannot well keep up with the rapid progress being made in their subjects.[7] For colleges having *sixty students or less* in each class, there should be at least one full-time salaried assistant each in the departments of (1) anatomy, (2) physiology, (3) pathology and bacteriology, and (4) physiologic chemistry and pharmacology. There should be also one additional assistant provided in each of these departments for *each additional thirty students enrolled.* This represents a low average of the full-time assistants already employed by the acceptable medical colleges.

(*b*) The faculty should be made up of graduates of institutions recognized as medical colleges who have had a training in all departments of medicine. Nonmedical men should be selected as teachers in medical schools only under exceptional circumstances and only when medical men of equal special capacity are not available. The faculty should be organized, each department having its head professor, its associate professor, assistant professor, instructor, etc., each having his particular subjects for the teaching of which he is responsible to the head of the department.

CLINICAL FACILITIES AND INSTRUCTION

10. (*a*) The college should own or entirely control a hospital in order that students may come into close and extended contact with patients under the supervision of the attending staff. This hospital should be in close proximity to the college and have a daily average (for senior classes of 100 students or *less*) of not less than 200 patients who can be utilized for clinical teaching, these patients to be of such character as to permit the students to see and study the common variety of surgical and medical cases as well as a fair number in each of the so-called specialties. In the use of this material *bedside and ward clinics* should be developed for sections of from five to ten students, and for the seniors, a certain number of patients in medicine, surgery and the specialties should be assigned to each student under a well supervised clinical clerk system. The treatment and care of these patients should be particularly observed and recorded by the student under the strict supervision of the intern, or the attending staff of the hospital.

(*b*) The college should also have ample hospital facilities for children's diseases, contagious diseases and nervous and mental diseases.

(*c*) The college should own or control a dispensary, or outpatient department, the attendance to be a daily average of 100 patients (visits) (for senior classes of 100 students *or less*), the patients to be carefully classified, good histories and records of the patients to be kept and the material to be well used. The attending staff should be made up of good teachers, and should be well organized and be prompt and regular in attendance.

(*d*) At least six maternity cases should be provided for each senior student, who should have actual charge of these cases under the supervision of the attending physician. Careful records of each case should be handed in by the student.

(*e*) Facilities should be provided for at least thirty necropsies (for senior classes of 100 students *or less*) during each college session which are attended and participated in by senior students. These, as a rule, should be in the teaching hospital controlled by the medical school and performed by the professor of pathology. The so-called clinical-pathologic conferences should be more widely developed in connection with the postmortems.

OTHER TEACHING FACILITIES AND FINANCES

11. The college should have a working medical library, to include the more modern text and reference books with the *Index Medicus,* the Surgeon-General's Index and other serviceable indexes. The library should receive regularly thirty or more leading medical periodicals, the current numbers of which should be in racks or on tables easily accessible to the students. At the end of each year these periodicals should be bound and added to the files of bound periodicals. The library room should be properly lighted and heated, and open during all or the greater part of the day; it should be equipped with suitable card indexes as well as with tables and chairs, and have a competent librarian in charge.

12. There should be a working medical museum having its various anatomic, embryologic, pathologic and other specimens carefully prepared, labeled and indexed so that any specimen may be easily found and employed for teaching purposes. It is suggested that so far as possible with each pathologic specimen coming from postmortems there also be kept the record of the postmortem, the clinical history of the patient on whom the necropsy was held and microscopic slides showing the minute structures of the disease shown in the gross specimen. The museum furnishes an excellent means of correlating the work of the department of pathology with that of the clinical departments.

13. There should be sufficient dissecting material to enable each student individually to dissect at least the lateral half of the human cadaver, to provide cross-sections and other demonstration material and to allow of a thorough course for each senior in operative surgery on the cadaver.

14. For modern experimental laboratory work in physiology, pharmacology and bacteriology as well as for medical research, a supply of animals—frogs, turtles, rabbits and guinea-pigs, if not also cats and dogs—is essential. Proper provision, also, is necessary for the housing and care of such animals. In any use made of animals every precaution should be taken to prevent needless suffering, and work by students should be carefully supervised.

15. Each college should have a supply of such useful auxiliary apparatus as a stereopticon, a reflectoscope, carefully

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[7] These professors should have a definite responsibility in the conduct of the college, and their first and chief interest should be the training of medical students. It is suggested that four of these professors be placed at the head of the departments of (*a*) anatomy, (*b*) physiology and physiologic chemistry, (*c*) pathology and bacteriology, and (*d*) pharmacology and therapeutics. The other four might with advantage be assigned, one each, to (*e*) histology and embryology, under the department of anatomy, and to the department of (*f*) pathology and bacteriology, and (*g*) physiology and pharmacology, and to the departments of (*h*) either internal medicine or surgery.

prepared charts, embryologic or other models, manikins; dummies for use in bandaging, a roentgen-ray and other apparatus now so generally used in medical teaching.

16. The college should show evidences of thorough organization and of reasonably modern methods in all departments, and evidences that the equipment and facilities are *being intelligently used* in the training of medical students.

17. A clear statement of the college's requirements for admission, tuition, time of attendance on the classes, sessions, courses offered and graduation should be clearly set forth, together with complete classified lists of its matriculants and latest graduating class in regular annual catalogues or announcements.

18. Statistics show[8] that modern medicine cannot be acceptably taught by a medical school depending solely on the income from students' fees. No medical school should expect to secure admission to, or be retained in Class A, therefore, which does not have an annual income of at least $25,000 in addition to the amount obtained from students' fees.

IV. Classification of Medical Colleges

Revised to Aug. 15, 1922

SCHEDULE FOR GRADING MEDICAL SCHOOLS

After careful inspection, medical schools are rated on a civil service basis on a scale of 100 points. Data relating to each school will be grouped under four general heads in such manner that the groups will have as nearly equal importance as possible, each group being allowed a possible 25 points. The revised schedule under the four general heads is as follows:

1. **Faculty.**—Number; qualifications (standing in profession. evidences of special training, teaching experience, etc.); research ability; efficiency; proportion of time to teaching; proportion to student enrolment; organization of departments; completeness of department staffs, including dieners, employees, etc.; esprit de corps.

2. **Product.**—Qualifications of students admitted; student organizations; esprit de corps; records of graduates before state and national boards; research; articles written; excellence as teachers; membership in medical organizations; reputation in profession; other evidences of character of training; reputation of college.

3. **Administration and Supervision.**—Curriculum: grade of course; sequence of subjects; arrangement of subjects in class roster and by departments in annual announcements; completeness of curriculum. Division of students in sections, ward classes, etc. Efficiency of routine. Faculty meetings. Supervision of entrance requirements, of teaching in college and in dispensary and hospital. Records: entrance requirements; class grades; promotion of students; dispensary and hospital records; attendance of teachers and students; conditions, etc.; completeness. Budget: use made of funds; proportion to salaries, etc.

4. **Buildings and Equipment.**—College building, including class rooms, laboratories, library, museum, storage rooms, animal houses and their contents. Dispensary: rooms used for; accessibility; number and regularity of staff; quantity and use of clinical material; character of histories and records. Hospital: accessibility; ownership or control; quantity, variety and use of clinical material. Other equipment. Apparatus. Funds: in addition to students' fees; endowed chairs, fellowships, etc.

Medical schools obtaining 70 per cent. or above are rated in Class A, those obtaining from 50 to 70 per cent. in Class B, and those obtaining 50 per cent. or less in Class C.

Meaning of Classes A, B and C

Class A Colleges are those which are acceptable; Class B, those which, under their present organization, give promise of being made acceptable by general improvements, and Class C those

(*a*) Which require a complete reorganization to make them acceptable.

(*b*) Which do not keep satisfactory records of their students in regard to entrance requirements, attendance, grades in courses, division into classes and reasons for promotion.

(*c*) Which do not enforce their requirements in regard to admission (including those admitted to advanced standing), promotion and graduation.

(*d*) Which give the major portion of their instruction after 4 o'clock in the afternoon.

(*e*) Which are privately owned and conducted for profit.

(*f*) Which for other specific reasons are not eligible for inclusion in Class B.

CLASS A—ACCEPTABLE MEDICAL COLLEGES

ALABAMA

University of Ala. School of Med.*..University (Tuscaloosa)

ARKANSAS

University of Arkansas Medical Department[1]....Little Rock

CALIFORNIA

Stanford Univ. School of Med................San Francisco
University of California Medical School......San Francisco

COLORADO

University of Colorado School of Med......Boulder-Denver

CONNECTICUT

Yale University School of Medicine............New Haven

DISTRICT OF COLUMBIA

Georgetown University School of Medicine......Washington
George Washington University Medical School..Washington
Howard University School of Medicine[2]........Washington

GEORGIA

Emory University School of Medicine[3]..............Atlanta
University of Georgia Medical Department[4]........Augusta

ILLINOIS

Loyola University School of Medicine[5]............Chicago
Northwestern University Medical School............Chicago
Rush Medical College (University of Chicago)......Chicago
University of Illinois College of Medicine..........Chicago

INDIANA

Indiana Univ. School of Med......Bloomington-Indianapolis

IOWA

State University of Iowa College of Medicine....Iowa City

KANSAS

University of Kansas School of Med.....Lawrence-Rosedale

KENTUCKY

University of Louisville Medical Department[6]....Louisville

LOUISIANA

Tulane Univ. of Louisiana School of Med......New Orleans

MARYLAND

Johns Hopkins University Medical Department....Baltimore
University of Maryland School of Medicine and
the College of Physicians and Surgeons........Baltimore

MASSACHUSETTS

Boston University School of Medicine.................Boston
Medical School of Harvard University...............Boston
Tufts College Medical School.........................Boston

MICHIGAN

Detroit College of Medicine and Surgery[7]...........Detroit
University of Michigan Medical School..........Ann Arbor

MINNESOTA

University of Minnesota Medical School........Minneapolis

MISSISSIPPI

University of Mississippi School of Medicine*......Oxford

MISSOURI

St. Louis University School of Medicine............St. Louis
University of Missouri School of Medicine*......Columbia
Washington University Medical School.............St. Louis

NEBRASKA

John A. Creighton Medical College[8]................Omaha
University of Nebraska College of Medicine.........Omaha

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* Gives only the first two years of the medical course.

[1] Raised to Class A, June 9, 1919.

[2] Rating raised to Class A June 6, 1910.

[3] Rating raised to Class A Feb. 24, 1914; formerly the Atlanta Medical College.

[4] Class A rating restored Feb. 24, 1913.

[5] Rating raised to Class A March 1, 1920.

[6] Rating raised to Class A June 6, 1910

[7] Class A rating restored June 21, 1914.

[8] Class A rating restored Feb. 4, 1917.

[8] See "Medical College Finances," J. A. M. A., April 8, 1916, p. 1115.

New Hampshire

Dartmouth Medical School*........................Hanover

New York

Albany Medical College..............................Albany
Columbia Univ. Coll. of Phys. and Surgs....New York City
Cornell University Medical College...........New York City
Long Island College Hospital[9]....................Brooklyn
Syracuse University College of Medicine...........Syracuse
University and Bellevue Hospital Med. Coll..New York City
University of Buffalo Department of Medicine........Buffalo

North Carolina

University of North Carolina School of Med.*...Chapel Hill
Wake Forest College School of Medicine*....Wake Forest

North Dakota

University of North Dakota School of Medicine*..University

Ohio

Ohio State University College of Medicine........Columbus
University of Cincinnati College of Medicine.....Cincinnati
Western Reserve University School of Medicine....Cleveland

Oklahoma

Univ. of Oklahoma School of Med.[10]..Norman-Oklahoma City

Oregon

University of Oregon Medical School..............Portland

Pennsylvania

Hahnemann Medical College and Hospital......Philadelphia
Jefferson Medical College of Philadelphia......Philadelphia
University of Pennsylvania School of Med......Philadelphia
University of Pittsburgh School of Medicine[11]....Pittsburgh
Woman's Medical College of Pennsylvania......Philadelphia

South Carolina

Medical College of the State of South Carolina[12]..Charleston

South Dakota

University of South Dakota College of Medicine*..Vermilion

Tennessee

University of Tennessee College of Medicine[13]......Memphis
Vanderbilt University Medical Department........Nashville

Texas

Baylor University College of Medicine[14]..............Dallas
University of Texas Department of Medicine......Galveston

Utah

University of Utah School of Medicine*......Salt Lake City

Vermont

University of Vermont College of Medicine......Burlington

Virginia

Medical College of Virginia......................Richmond
University of Virginia Department of Med...Charlottesville

West Virginia

West Virginia Univ. School of Medicine*[15].....Morgantown

Wisconsin

Marquette University School of Medicine[16].......Milwaukee
University of Wisconsin Medical School*..........Madison
Total, 68.

CLASS B—COLLEGES NEEDING GENERAL IMPROVEMENTS TO BE MADE ACCEPTABLE

California

College of Medical Evangelists[17]...Loma Linda-Los Angeles

Illinois

Hahnemann Medical College[18]....................Chicago

New York

New York Homeopathic Medical College and
Flower Hospital[19]........................New York City

Ohio

Eclectic Medical College.........................Cincinnati

Pennsylvania

Temple University Department of Medicine[20]....Philadelphia

Tennessee

Meharry Medical College[21]..................Nashville
Total, 6.

CLASS C—COLLEGES REQUIRING A COMPLETE REORGANIZATION TO MAKE THEM ACCEPTABLE

Illinois

Chicago Medical School[22]..........................Chicago

Massachusetts

College of Physicians and Surgeons[23]...............Boston
Middlesex College of Medicine and Surgery[24]....Cambridge

Missouri

Kansas City University of Phys. and Surgs.[25]....Kansas City
St. Louis College of Physicians and Surgeons[26]....St. Louis

Tennessee

University of West Tenn. Coll. of Med. and Surg..Memphis

UNCLASSIFIED

Kansas City College of Medicine and Surgery...Kansas City

This college is an offshoot of another Class C institution, the Eclectic Medical University, which has since ceased to exist. The new college has refused to have inspections made, but an abundance of information on file indicates that no rating higher than Class C could be given it. It is reported as not recognized by the licensing boards of forty states, including its home state—Missouri.

Entrance Requirements of Medical Colleges

Seventy-five medical schools are now requiring, as a minimum for entrance, *two years* or more of work in a college of liberal arts in addition to a four-year high-school education, and voluntarily submit reports to the Council by which the enforcement of their published requirements may be verified. The years when each college puts into effect, respectively, the one-year and the two-year requirements, and the rating of each college, are as follows:

ALABAMA College	One Year	Two Years	College Rating
University of Alabama School of Medicine........	1914	1915	A

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* Gives only the first two years of the medical course.
9. Class A rating restored June 21, 1914.
10. Rating raised to Class A March 1, 1920.
11. Rating raised to Class A June 6, 1910.
12. Class A rating restored Feb. 6, 1916.
13. Rating raised to Class A June 21, 1914.
14. Rating raised to Class A June 12, 1916.
15. Class A rating restored Feb. 4, 1917.
16. Rating raised to Class A Feb. 15, 1915.
17. Rating raised to Class B Feb. 3, 1918.
18. Rating dropped to Class B June 3, 1912.
19. Rating dropped to Class B Feb. 15, 1915.
20. Rating raised to Class B June 6, 1910.
21. Rating dropped to Class B Feb. 24, 1914.
22. Formerly the Chicago Hospital College of Medicine. Last inspected April 23, 1918.
23. Rated in Class C since 1907. Last inspected Jan. 7, 1918.
24. This is the medical department of the so-called "University of Massachusetts." It was rated in Class C, Feb. 4, 1918. For several years it occupied the same building as the Massachusetts College of Osteopathy and, on inspection, the two were found to be almost indistinguishable. It has granted liberal advanced standing for courses taken in osteopathic institutions. It secured the old uncanceled charter of the Worcester Medical College of Boston, otherwise, it could hardly have obtained a charter under the strict laws now regulating the chartering of educational institutions in Massachusetts. Its predecessor was an eclectic, botanico-medical affair chartered in 1848 which had a rather precarious existence. It underwent a reorganization in 1852; moved to Boston in 1857; returned to Worcester in 1858, and became extinct in 1859. The new medical school has affiliated itself with schools of dentistry, pharmacy, chiropody, optometry, etc., under the high sounding title of the "University of Massachusetts." According to report, the latter has not secured authority from the state to grant degrees in arts or sciences and its name is not found on the list of colleges or universities approved by any recognized standardizing agency. The medical school is reported as not recognized by the medical licensing boards of forty-six states.
25. Formerly the Central College of Osteopathy; in 1917 under an amended charter took the name of Central College Medical Department; assumed present title in 1918. Rated in Class C March 15, 1918.
26. Rating dropped to Class C July 1, 1909. In 1915 it merged with the Medical Department of the National University of Arts and Sciences, but in 1917 it was reestablished. In 1918 it was reported not recognized by the Missouri State Board of Health.

ARKANSAS			
University of Arkansas Medical Department	1915	1918	A
CALIFORNIA			
College of Medical Evangelists	1914	1915	B
Stanford School of Medicine	....	1909	A
University of California Medical School	....	1905	A
COLORADO			
University of Colorado School of Medicine	....	1910	A
CONNECTICUT			
Yale University School of Medicine	....	1909	A
DISTRICT OF COLUMBIA			
Georgetown University School of Medicine	....	1912	A
George Washington University Medical School	1914	1918	A
Howard University School of Medicine	1910	1914	A
GEORGIA			
Emory University School of Medicine, Atlanta	1914	1918	A
University of Georgia Medical Department	1914	1918	A
ILLINOIS			
Loyola University School of Medicine	1915	1918	A
Hahnemann Medical College	1914	1916	B
Northwestern University Medical School	1908	1911	A
Rush Medical College (University of Chicago)	....	1904	A
University of Illinois College of Medicine	1913	1914	A
INDIANA			
Indiana University School of Medicine	1909	1910	A
IOWA			
State University of Iowa College of Medicine	1909	1910	A
KANSAS			
University of Kansas School of Medicine	....	1909	A
KENTUCKY			
University of Louisville Medical Department	1914	1918	A
LOUISIANA			
Tulane University of Louisiana School of Medicine	1910	1918	A
MARYLAND			
Johns Hopkins University Medical Department	....	1893	A
University of Maryland School of Medicine and College of Physicians and Surgeons	1914	1918	A
MASSACHUSETTS			
Boston University School of Medicine	1914	1916	A
Medical School of Harvard University	....	1900	A
Tufts College Medical School	1914	1918	A
MICHIGAN			
Detroit College of Medicine and Surgery	1914	1918	A
University of Michigan Medical School	....	1909	A
MINNESOTA			
University of Minnesota Medical School	....	1907	A
MISSISSIPPI			
University of Mississippi School of Medicine	1914	1918	A
MISSOURI			
St. Louis University School of Medicine	1910	1918	A
University of Missouri School of Medicine	1906	1910	A
Washington University Medical School	1910	1912	A
NEBRASKA			
John A. Creighton Medical College	1914	1918	A
University of Nebraska College of Medicine	1908	1909	A
NEW HAMPSHIRE			
Dartmouth Medical School	....	1910	A
NEW YORK			
Albany Medical College	1914	1918	A
Columbia University College of Phys. and Surg.	....	1910	A
Cornell University Medical College	....	1908	A
Long Island College Hospital	1914	1918	A
New York Homeo. Med. Coll. and Flower Hospital	1915	1919	B
Syracuse University College of Medicine	1909	1910	A
University and Bellevue Hospital Medical College	1912	1918	A
University of Buffalo Department of Medicine	1914	1918	A
NORTH CAROLINA			
Wake Forest College School of Medicine	....	1908	A
University of North Carolina School of Medicine	1910	1917	A
NORTH DAKOTA			
University of North Dakota School of Medicine	....	1907	A
OHIO			
Eclectic Medical College	1915	1918	B
Ohio State University College of Medicine	1914	1915	A
University of Cincinnati College of Medicine	1910	1913	A
Western Reserve University School of Medicine	....	1901	A
OKLAHOMA			
University of Oklahoma School of Medicine	1914	1917	A
OREGON			
University of Oregon Department of Medicine	1910	1915	A
PENNSYLVANIA			
Hahnemann Medical College and Hospital	1914	1917	A
Jefferson Medical College	1914	1917	A
Temple University Medical Department	1914	1918	B
University of Pennsylvania School of Medicine	1909	1910	A
University of Pittsburgh School of Medicine	1911	1913	A
Woman's Medical College of Pennsylvania	1914	1915	A
SOUTH CAROLINA			
Medical College of the State of South Carolina	1914	1916	A
SOUTH DAKOTA			
University of South Dakota College of Medicine	1908	1909	A
TENNESSEE			
Meharry Medical College	1914	1918	B
Vanderbilt University Medical Department	1914	1918	A
University of Tennessee College of Medicine	1914	1918	A
TEXAS			
Baylor University College of Medicine	1913	1918	A
University of Texas Department of Medicine	1910	1917	A
UTAH			
University of Utah School of Medicine	1909	1910	A
VERMONT			
University of Vermont College of Medicine	1912	1918	A
VIRGINIA			
Medical College of Virginia	1914	1915	A
University of Virginia Department of Medicine	1910	1917	A
WEST VIRGINIA			
West Virginia University School of Medicine	1911	1917	A
WISCONSIN			
Marquette University School of Medicine	1913	1915	A
University of Wisconsin Medical School	....	1907	A
Total, 74.			

The seven following medical colleges either have not announced the higher entrance requirements or evidence has not been received to show that they have been enforced for all students enrolled:

	Rating
Chicago Medical School	C
College of Physicians and Surgeons, Boston	C
Middlesex College of Medicine and Surgery, Cambridge, Mass.	C
Kansas City College of Medicine and Surgery	*
Kansas City University of Physicians and Surgeons	C†
St. Louis College of Physicians and Surgeons	C
University of West Tenn. Coll. of Med. and Surg., Memphis	C

* This college is an offshoot of the Eclectic Medical University; it has refused to have an inspection made. It is reported not recognized by the Missouri State Board of Health and by licensing boards of 40 other states.

† This college was formerly the Central College of Osteopathy; in 1916 it assumed the title Central College Medical Department, and took its present name in 1918.

FOREIGN MEDICAL COLLEGES

(Revised to Aug. 15, 1922)

This list has been prepared from data collected by the Council on Medical Education and Hospitals:

ARGENTINE REPUBLIC

Buenos Aires.—Universidad Nacional de Buenos Aires.
Cordova.—Universidad Nacional de Cordoba.
La Plata.—Universidad Nacional de La Plata.
Rosario.—Universidad del Litoral.

AUSTRALIA

Adelaide.—University of Adelaide.
Melbourne.—University of Melbourne.
Sydney.—University of Sydney.

AUSTRIA

Graz, Styria.—K. K. Karl Franzens Universität.
Innsbruck, Tyrol.—K. K. Leopold Franzens Universität.
Vienna, Nether Austria.—K. K. Universität.

BELGIUM

Brussels.—Université Libre de Bruxelles.
Ghent.—Université de l'Etat de Gand.
Liége.—Université de Liége.
Louvain.—Université Catholique.

BOLIVIA

La Paz.—Universidad de La Paz.
Sucre.—Universidad de Sucre.

BRAZIL

Bahia.—Faculdade de Medicina, Cirurgia e Pharmacia.
Bello Horizonte, Minas.—Faculdade de Medicina e Cirurgia.
Manaos, Amazonas.—Universidade de Manaos.
Porto Alegre.—Escola de Medicina e Odontologia de Porto Alegre.
Porto Alegre.—Faculdade Livre de Medicina e Pharmacia.
Rio de Janeiro.—Faculdade de Medicina, Cirurgia e Pharmacia.
São Paulo.—Faculdade de Medicina e Cirurgia.

CANADA

Edmonton, Alberta.—University of Alberta, Faculty of Medicine.
Halifax, Nova Scotia.—Dalhousie University.
Kingston, Ontario.—Queen's University.
London, Ontario.—Western University.
Montreal, Quebec.—McGill University.

Montreal, Quebec.—Montreal School of Medicine.
Quebec, Quebec.—Université Laval.
Toronto, Ontario.—University of Toronto.
Winnipeg, Manitoba.—University of Manitoba (Manitoba Medical College).

CHILE

Santiago.—Universidad de Chile.

CHINA

City Province College
Canton, Kwangtung.—Chung-fa Medical College.
Canton, Kwangtung.—Hackett Medical College (Women).
Canton, Kwangtung.—Kung Yee Medical College.
Canton, Kwangtung.—Kwangtung Provincial Medical College.
Canton, Kwangtung.—Kwang Wa Medical College.
Canton. Kwangtung.—Liang Yueh Medical College.
Changsha, Hunan.—Hunan-Yale College of Medicine.*
Chengtu, Szechuan.—West China Christian University School of Medicine.
Foochow, Fukien.—Union Medical College.
Hangchow, Chekiang.—Chekiang Provincial Medical College.
Hangchow, Chekiang.—Hangchow Medical Training College.
Hankow, Hupeh.—Union Medical College.
Hongkong, Hongkong.—Hongkong University School of Medicine.
Moukden, Manchuria.—Moukden Medical College.*
Peking, Chihli.—Board of Education Medical College.
Peking, Chihli.—Union Medical College.*
Peking, Chihli.—Union Medical College for Women.
Shanghai, Kiangsu.—German School of Medicine.
Shanghai, Kiangsu.—Pennsylvania St. John's Medical School.*
Soochow, Kiangsu.—Elizabeth Blake Medical Training College.
Soochow, Kiangsu.—Kiangsu Provisional Medical College.
Soochow, Kiangsu.—Woman's Medical College.
Tientsin, Chihli.—Army Medical College.
Tientsin, Chihli.—Navy Medical College.
Tsinanfu, Shantung.—Shantung Christian University School of Medicine.*

The five colleges indicated by an asterisk (*) are eligible to membership in the Association of Medical Colleges of China. Membership in that association is limited to such colleges as provide a four-year medical course, preceded by adequate college courses, with laboratory work, in physics, chemistry and biology, based on high school graduation.

COLOMBIA

Bogota.—Universidad de Bogota.
Cartagena.—Universidad de Cartagena.

COSTA RICA

San Jose.—Escuela de Medicina y Farmacia.

CUBA

Havana.—Universidad de la Habana.

CZECHOSLOVAKIA

Prague.—K. K. Deutsche Karl Ferdinands Universität.
Prague.—C. K. Ceská Universita Karlo-Ferdinandova.

DENMARK

Copenhagen.—Kjobenhavns Universitet.

ECUADOR

Cuenca.—Universidad del Azuay.
Guayaquil.—Universidad del Guayas.
Quito.—Universidad Central de Ecuador.

EGYPT

Cairo.—Kasr il Aini (School of Medicine).

ENGLAND

Birmingham.—University of Birmingham.
Bristol.—University of Bristol.
Cambridge.—University of Cambridge.
Durham.—Durham University (Durham College of Medicine).
Leeds.—University of Leeds.
Liverpool.—University of Liverpool.
London.—University of London (including the following Medical Schools: (*a*) St. Bartholomew's Hospital, (*b*) Charing Cross Hospital, (*c*) St. George's Hospital, (*d*) Guy's Hospital, (*e*) King's College, (*f*) London Hospital, (*g*) St. Mary's Hospital, (*h*) Middlesex Hospital, (*i*) St. Thomas Hospital (*j*) University College, (*k*) Westminster Hospital, and (*l*) Royal Free Hospital (School of Medicine for Women).
Manchester.—Victoria University (Owen's College, founded in 1851, was merged into Victoria University in 1905).
Oxford.—University of Oxford.
Sheffield.—University of Sheffield.

FINLAND

Helsingfors.—University of Helsingfors.

FRANCE

Faculties of Medicine (to degree of doctor of medicine, including the five required examinations.)
Bordeaux.—Université de Bordeaux.
Lille.—Université de Lille.
Lyons.—Université de Lyons.
Montpellier.—Université de Montpellier.
Nancy.—Université de Nancy.
Paris.—Université de Paris.
Strasbourg.—Université de Strasbourg.
Toulouse.—Université de Toulouse.
Preparatory Schools of Medicine.—Graduates of the 16 following schools are allowed to take the first two examinations if they are presided over by some member of a medical faculty:
(*a*) "*Full Exercise,*" or complete course (covering the work of 16 trimesters).
  Algiers (Africa).—Académie d'Algier.
  Marseilles.—Université d'Aix Marseille.
  Nantes.—Ecole de Plein Exercice de Médecine et de Pharmaçie (part of the University of Rennes).
  Rennes.—Université de Rennes.
(*b*) *Reorganized Schools.*—(Completing the first 12 trimesters).
  Amiens.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Lille).
  Angers.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Rennes).
  Besancon.—Université de Besancon.
  Caen.—Université de Caen.
  Clermont.—Université de Clermont.
  Dijon.—Université de Dijon.
  Grenoble.—Université de Grenoble.
  Limoges.—Ecole de Médecine et de Pharmacie (part of the University of Poitiers).
  Poitiers.—Université de Poitiers.
  Reims.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Paris).
  Rouen.—Ecole de Médecine et de Pharmacie (part of the University of Caen).
  Tours.—Ecole Préparatoire de Médecine et de Pharmacie (part of the University of Poitiers).

GERMANY

Berlin, Prussia.—Königliche Friedrich-Wilhelm Universität.
Bonn, Prussia.—Rheinische Friedrich-Wilhelms-Universität.
Breslau, Prussia.—Königliche Universität.
Erlangen, Bavaria.—Königliche Friedrich-Alexanders Universität.
Frankfort-on-the-Main.—Universität.
Freiberg, Baden.—Grossherzogliche Badische Albert-Ludwigs-Universität.
Giessen, Hesse.—Grossherzogliche Hessische Ludwigs-Universität.
Göttingen, Prussia.—Königliche Georg-August-Universität.
Greifswald, Prussia.—Königliche Universität.
Halle, Prussia.—Vereinigte Friedrichs-Universität, Halle-Wittenberg.
Heidelberg, Baden.—Grossherzogliche Ruprecht-Karls-Universität.
Jena, Thuringia.—Grossherzogliche und Herzogliche Sächsiche Gesamt, Universität.
Kiel, Prussia.—Königliche Christian-Albrechts-Universität.
Königsberg, Prussia.—Königliche Albertus-Universität.
Leipzig, Saxony.—Universität.
Marburg, Prussia.—Universität.
Munich, Bavaria.—Königliche Bayr. Ludwig-Maximilians-Universität.
Rostock, Mecklenburg.—Universität.
Tübingen, Wurttemberg.—Königliche Eberhard-Karls-Universität.
Würzburg, Bavaria.—Königliche Julius-Maximilians Universität.

GREECE

Athens.—National University.

GUATEMALA

Guatemala.—Facultad de Medicina y Cirugia.

HAITI

Port au Prince.—L'Ecole Nationale de Médecine.

HONDURAS

Tegucigalpa.—Facultad de Medicina.

HUNGARY

Budapest. — Budapesti Királyi Magyar Tudomány-Egyetem (Royal Hungarian University).
Pressburg.—Royal Hungarian University.

ICELAND

Reykjavik.—Loeknaskoli (School of Physicians).

INDIA

Allahabad.—University of Allahabad.
Bombay.—University of Bombay (Grant Medical College).
Calcutta.—University of Calcutta (Medical College of Bengal).
Lahore.—Punjab University (Lahore Medical College).
Madras.—University of Madras (Madras Medical College).
Ceylon (Columbo).—The Ceylon Medical College.

Note.—The colleges named above are accredited by the Examining Board in England. There is another medical college at Calcutta (Belgachia Medical College), a private enterprise managed by Bengali medical men. There is also, at Lucknow, the King George's Medical College. These are not reported as recognized by the Examining Board in England. Minor medical colleges, which are also not accredited, are located at Agra, Ahmedabad, Dacca, Dibragarh, Hyderabad, Lahore, Poona, Rangoon, Rayapuram, Tanjore and Vizagapatam. In 1916 the first college for women in India, known as the Hardinge Women's Medical College, was opened at Delhi.

IRELAND

Belfast.—Queen's University.
Dublin.—National University of Ireland (including University College, Dublin; University College, Cork; University College, Galway).
Dublin.—University of Dublin (The School of Physic in Ireland, Trinity College).
Dublin.—Royal College of Surgeons in Ireland Schools of Surgery.

ITALY

Bologna.—Regia Università degli Studi.
Cagliari, Sardinia.—Università degli Studi.
Camerino.—Libera Università degli Studi. Gives only the first four years of the six-year medical course and does not grant degrees.
Catania.—Regia Università degli Studi di Catania.
Ferrara.—Libera Università degli Studi di Ferrara.
Florence.—Regia Instituto di Studi Superiori, Practici e di Perfezionamento.
Genoa.—Regia Università degli Studi.
Messina.—Regia Università degli Studi.
Milan.—Regia Università degli Studi.
Modena.—Regia Università degli Studi.
Naples.—Regia Università degli Studi.
Padua.—Regia Università degli Studi.
Palermo.—Regia Università degli Studi.
Parma.—Regia Università degli Studi.
Pavia.—Regia Università degli Studi.
Perugia.—Università Libra degli Studi.
Pisa.—Regia Università degli Studi.
Rome.—Regia Università degli Studi.
Sassari.—Regia Università degli Studi.
Siena.—Regia Università degli Studi.
Turin.—Regia Università degli Studi.

JAPAN

Chiba.—Chiba Special Medical School.
Fukuoka.—Kyushu Imperial University Medical College.
(Formerly a part of Kyoto Imperial University.)
Kanazawa.—Kanazawa Special Medical School.
Kumamoto.—Kumamoto Special Medical School.
Kumamoto.—Shunu Medical College (extinct in 1896).
Kyoto.—Kyoto Imperial University, Medical College.[1]
Kyoto.—Kyoto Prefecture, Special Medical School.
Moukden.—South Manchuria Medical School.
Nagasaki.—Nagasaki Special Medical School.
Nagoya.—Aichi Prefecture, Special Medical School.
Niigata.—Niigata Special Medical School.
Okayama.—Okayama Special Medical School.
Osaka.—Osaka Prefecture, Higher Medical School.[1]
Sendai.—Tohoku Imperial University Medical College.[1]
Tansui, Taiwan.—Taiwan (Formosa) Medical School.[2]
Tokyo.—Nippon Special Medical School.[3]
Tokyo.—Sai Sei Medical College (Extinct August, 1903).
Tokyo.—Tokyo Charity Hospital Special Medical School.
Tokyo.—Tokyo Imperial University, Medical College.[1]
Tokyo.—Tokyo Woman's Special Medical School.[3]

1. For admission require graduation from the "Third Department of the Higher Schools," which covers three years of premedical training following graduation from the Middle Schools.

2. A medical school conducted by the Japanese government, primarily for the aborigines of Taiwan (Formosa). Only a common school education required for admission. Graduates licensed to practice in Tansui only.

3. Graduates not licensed by the Japanese government unless they pass a special examination.

JAVA

Batavia.—Schoot Tot Opleiding van Inl. Artsen.

KOREA

Seoul.—Severance Union Medical College.

MADAGASCAR

Tananarivo.—Ecole de Médecine.

MALAYA

Singapore.—King Edward VII College of Medicine.

MALTA

Malta.—University of Malta Medical School.

MEXICO

Jalisco, Guadalajara.—Escuela de Medicina y de Farmacia de Guadalajara.
Mexico.—Escuela Nacional de Medicina.
Mexico.—Escuela Homeopatica Nacional.
Mexico.—Escuela Libre de Homeopatia.
Mexico.—Escuela Medico-Militar.
Monterey.—Escuela de Medicina.
Morelia.—Escuela de Medicina del Estado de Michoacan de Ocampo.
Oaxaca.—Escuela de Medicina.
Puebla.—Escuela de Medicina y Farmacia.
San Luis Potosi.—Instituto Literario y Cientifico (Escuela de Medicina de San Luis Potosi).
Merida, Yucatan.—Escuela de Medicina y de Farmacia de Yucatan.

NETHERLANDS

Amsterdam.—Universiteit van Amsterdam.
Groningen.—Rijks-Universiteit te Groningen.
Leyden.—Rijks-Universiteit.
Utrecht.—Rijks-Universiteit.

NEW ZEALAND

Dunedin.—University of Otago. (This is the recognized school of medicine among the four affiliated colleges which constitute the University of New Zealand. The first year in medicine may be taken at any of the other three affiliated colleges.)

NICARAGUA

Leon.—Universidad de Nicaragua.

NORWAY

Christiania.—Kongelige Frederiks Universitet.

PARAGUAY

Asuncion.—Universidad Nacional.

PERSIA

Urumia.—Urumia College Medical Department.

PERU

Lima.—Universidad Mayor de San Marcos.

POLAND

Cracow.—University of Cracow.
Lvow.—University of Lvow.
Warsaw.—University of Warsaw.

PORTUGAL

Coimbra.—Universidade de Coimbra.
Lisbon.—Escola Medico-Cirurgica.
Oporto.—Escola Medico-Cirurgica.

ROUMANIA

Bukharest.—Universitatea din Bucuresti.
Jassy.—Universitatea din Jasi.
Klausenburg.—Kolozsvári Magyar Királyi Ferencz-József Tudomány-Egyetem (Royal Hungarian Franz-Joseph University).

RUSSIA

Jurjev (formerly Dorpat).—Imperatorski Jurjevskij Universitet.
Kazan.—Imperatorskij Kasanskij Universitet.
Kharkov.—Imperatorskij Charkovskij Universitet.
Kief.—Imperatorskij Universitet Sv. Vladimira.
Moscow.—Imperatorskij Moskovskii Universitet.
Odessa.—Imperatorskij Novorossijskij Universitet.
Petrograd.—Imperial Univ. of Petrograd.
Tomsk, Siberia.—Tomskij Universitet.

It is not known whether all these medical schools are now existing.

SAN SALVADOR

San Salvador.—University of San Salvador.

SANTO DOMINGO

Santo Domingo.—University of Santo Domingo Fac. of Med. and Natural Sciences.

SCOTLAND

Aberdeen.—University of Aberdeen.
Dundee.—University of St. Andrews (University College).
Edinburgh.—University of Edinburgh.
Edinburgh.—School of Medicine of the Royal Colleges (including the Surgeons' Hall School).
Glasgow.—University of Glasgow (including Queen Margaret College).
Glasgow.—Anderson's College Medical School.
Glasgow.—St. Mungo's College and Glasgow Royal Infirmary.
Glasgow.—Western Medical School (closed 1915).

SIAM

Bangkok.—Chulalongkorana University.

SOUTH AFRICA

Cape Town.—South African Medical College.
Johannesburg.—University of the Witwatersrand.

SPAIN

Barcelona.—Universidad.
Cadiz.—Facultad de Medicina.
Granada.—Universidad.
Madrid.—Universidad Central de España.
Salamanca.—Universidad.
Santiago.—Universidad.
Saragossa.—Universidad.
Seville.—Universidad. (To this university also belongs the Medical Faculty at Cadiz.)
Valencia.—Universidad.
Valladolid.—Universidad.

SWEDEN

Lund.—Kungl. Karolinska Universitetet.
Stockholm.—Karolinska Institutet (Medico-Chirurgical Institute).
(This institute has the same chancellor as the universities at Lund and Upsala, and is guided by a similar constitution.)
Upsala.—Kungl. Universitetet i Upsala.

SWITZERLAND

Basel.—Universität de Basel.
Berne.—Kantonale Universität.
Fribourg.—Universität de Fribourg.
Geneva.—Université de Genève.
Lausanne.—Université de Lausanne.
Neuchâtel.—Université de Neuchâtel.
Zurich.—Universität.

SYRIA

Beirut.—American University Medical School.
Beirut.—Université Saint Joseph de Beyrouth.

TURKEY

Constantinople.—University of Constantinople. (Another medical department of this university is located at Damascus.)

URUGUAY

Montevideo.—Universidad.

VENEZUELA

Caracas.—Escuela de Medicina de Caracas.
Merida.—Universidad de Merida.
Note.—Medicine is taught at the two active institutions but the M.D. degree is conferred by the Secretary of Public Instruction.

WALES

Cardiff.—University of Wales (Cardiff School of Medicine).
(Gives only the first three years of the medical course.)

MEDICAL COLLEGES OF THE WORLD

Nation	Colleges	Nation	Colleges
Argentina	4	Korea	1
Austria	3	Madagascar	1
Belgium	4	Malaya	1
Bolivia	2	Malta	1
Brazil	7	Mexico	11
Canada	9	Netherlands	4
Chile	1	New Zealand	1
China	25	Nicaragua	1
Colombia	2	Norway	1
Costa Rica	1	Paraguay	1
Cuba	1	Persia	1
Czechoslovakia	2	Peru	1
Denmark	1	Poland	3
Ecuador	3	Portugal	3
Egypt	1	Roumania	3
England	21	Russia	7
Finland	1	San Salvador	1
France	8	Santo Domingo	1
Germany	20	Scotland	8
Greece	1	Siam	1
Guatemala	1	South Africa	2
Haiti	1	Spain	10
Honduras	1	Sweden	3
Hungary	2	Switzerland	7
Iceland	1	Syria	2
India	20	Turkey	1
Ireland	4	Uruguay	1
Italy	21	United States	81
Japan	20	Venezuela	2
Java	1	Wales	1

Total medical colleges in all countries 351

There are also about 20 sectarian schools in the United States, the graduates of which treat diseases, giving this country a total of 101

GRADUATE COURSES IN PUBLIC HEALTH

Graduate courses in public health have been established in connection with eleven medical schools, the first of which was at the University of Pennsylvania in 1909; the latest is that in connection with the medical department of Howard University, which began its course in 1922. Yale University established its course in public health in 1917. Two institutions, the University of Colorado and Tulane University, suspended their course in 1918. Seven of the schools have courses leading to the degree of Doctor of Public Health (Dr.P.H.) after a two year course and one (the Detroit College of Medicine and Surgery) offers it after a one year course. The University of California offers instead the degree of Graduate in Public Health (Gr.P.H.) after a two year course. After a one year course the degree of Certified Sanitarian (C.S.) is offered by the University of Pennsylvania and Howard University to graduates of colleges of arts and sciences. Six of the schools grant a certificate in public health (C.P.H.) after a one year course. The degree of Master of Public Health (M.P.H.) is offered after a one year course by the University of Wisconsin Medical School. The Master in Arts in Public Health [M.A. (P.H.)] is offered by the University of California Medical School, and the Master in Science in Public Health [M.S. (P.H.)] by the University of Michigan and by Howard University. The courses offered by the eleven schools of public health are as follows:

The University of California: Courses began in 1915; number of instructors, 20; three courses leading to degree of Gr.P.H.: (a) a four year course covering two years in the college of letters and science and two years in the graduate division; (b) a two year course in the graduate division for graduates of the College of Civil Engineering who have completed the work in sanitary engineering, and (c) a course of one and a half years in the grade division for students who have completed three and a half years of the medical course. Completion of this third course gives the degrees of M.D. and Gr.P.H. The University of California also offers a one year course to persons holding a bachelor's degree based on a major in public health for the degree of Master in Arts in Public Health [M.A. (P.H.)]. A thesis is required for the degree. The course extends from August to May.

Yale University Graduate Course in Public Health: The graduate course in public health at Yale University School of Medicine was first established in 1917, and during 1921-1922 there were seventeen instructors. A one year course leads to the certificate in public health (C.P.H.), a three year course leads to the degree of Doctor of Philosophy (Ph.D.), and to medical graduates only, a two year course leads to the degree of Doctor of Public Health (Dr.P.H.). Theses are required in all cases. The fees are $200 per year. The course extends from October to June. During 1921-1922, 21 students were enrolled, and in June, 1922, 5 certificates and 4 degrees were granted.

Johns Hopkins University School of Hygiene and Public Health was opened in October, 1918. There are 12 professors and 37 lecturers, associates and instructors, a total of 49. Four courses are offered: (a) A two year course leading to the degree of Dr.P.H., requiring for admission a bachelor's degree and a degree in medicine. The degree of M.D. and the degree of Dr.P.H. may be obtained in a combined course of five years. A thesis is required for graduation. (b) A three year course leading to the degree of Doctor of Science in Hygiene requiring for admission a bachelor's degree and adequate training in physics, chemistry, biology and the medical sciences, anatomy, physiology and pathology. A written and oral examination and a dissertation embodying the results of an independent investigation are required for graduation. (c) A two year course leading to the degree of Bachelor of Science in Hygiene, the course consisting of combined work in the medical school and the School of Hygiene and Public Health. For admission the applicant must have completed at least two years of work in an approved college and have studied courses in physics, biology, inorganic and organic chemistry. (d) A one year course leading to a certificate in public health is also offered to graduates of approved medical schools or graduates in arts or sciences who present evidence of satisfactory training in the physical and medical sciences. An intensive course of six weeks for public health officers is offered at the beginning of the second trimester. The fees charged are $250 per year. Courses for special students are $50 per trimester. Altogether 141 students were enrolled during 1921-1922, including 14 who were candidates for degrees and 6 for the certificate in public health. The course extends from October 3 to June 13.

Howard University School of Public Health and Hygiene will open at the beginning of the fall term, 1922. Five courses offered: (a) one year course to graduates in medicine leading to degrees of Certified Sanitarian (C.S.) or Bachelor of Science (B.S.) in Public Health. (b) Two years course to graduates in medicine leading to degree of Doctor of Public Health (Dr.P.H.). (c) Fifth year in medicine to Howard University medical students immediately following their graduation leading to the degree of Doctor of Public Health (Dr.P.H.). For graduates of recognized colleges and universities a one year course leading to the certificate in public health (C.P.H.) and a two year course leading to the degree of Master of Science (M.S.) is offered. For information write to Dr. Algernon B. Jackson, Director.

Medical School of Harvard University: The School of Public Health was opened in 1910; there are 42 instructors. A one year course is offered leading to a certificate in public health. For admission the applicant must have completed two years of work in a recognized medical school, or have received a bachelor's degree from an approved college or technical school, or have had special experience in public health work. In any instance he must show evidence of having completed satisfactory courses in physics, chemistry and biology and modern languages and the fundamental medical sciences. Although not a prerequisite, all candidates are advised to obtain a medical degree before specializing in public health work. Fees are $250 per year. Students enrolled in 1921-1922, 35; certificates in public health awarded, 13. Course extends from October to June.

Detroit College of Medicine and Surgery: The course began in 1913 with ten instructors. A one year course leading to the degree of Doctor of Public Health (Dr.P.H.) is offered to graduates of approved medical schools. The work is conducted at the college, the Detroit City Board of Health, and the Municipal Contagious Hospital. It includes sanitary engineering, laboratory, clinical and field work. Fees are $200 per year. No thesis required. No students enrolled during the past session. Mr. J. Werness, Registrar. The course extends from September to June.

The University of Michigan Graduate School: The graduate courses in public health were established in the University of Michigan in 1913. The number of instructors is approximately 12. Two courses are offered—one to graduates in arts and sciences or medicine extending from one to two years, leading to the degree of Master of Science in Public Health; the other a course of from two to three years in length for graduates in arts or sciences and medicine, leading to the degree of Doctor of Public Health (Dr.P.H.). For residents of Michigan the fees consist of $10 matriculation and $82 for men students and $77 for women; for nonresidents of Michigan, matriculation $25 and an annual fee of $107 for men and $102 for women. A thesis is required for the degree of Dr.P.H. There is a summer session, but the regular session extends from September 26 to June 18. In 1921-1922, 5 students were enrolled. Dr. Alfred H. Lloyd, Dean.

Albany Medical College: Postgraduate courses in infectious diseases and public health were begun in 1919. Of the class of 1922, 23 physicians received the certificates, having completed the course. The total number of certificates issued since 1919 for the course is 128. Dr. Charles C. Duryee, Director of Course.

University and Bellevue Hospital Medical College: The graduate course in public health began in 1916. Two courses are offered—a two year course leading to the degree of Doctor of Public Health for graduates of approved medical schools, and a course leading to a certificate of attendance. This may be taken in 26 days of residence or as a correspondence course requiring a study of about 3,000 pages on public health subjects, especially adapted for health officers. The tuition for Dr.P.H. course is $200 for the first year and $25 for the second. The fee for either the correspondence or the 26 days residence course is $30, including the matriculation fee. For the correspondence course the last week must be spent in residence. The courses begin in October. There were 30 health officers who took the correspondence course last year and 11 who took the residence course. Two are taking the Dr.P.H. course.

The University of Pennsylvania: The graduate courses in public hygiene began in 1906; there are 19 instructors; two courses are offered, —a two year course for graduates in medicine leading to the degree of Dr.P.H., and a one year course for graduates of arts or science leading to the degree of Certified Sanitarian. A thesis is required for graduation. The fees are $250 per year. There were 4 students during 1921-1922; 3 graduates. The course extends from October to June.

The University of Wisconsin: Graduate courses in public health began in 1910. There are eight teachers. Two courses are offered—a one year course for graduates in medicine, leading to the degree of Master of Public Health (M.P.H.); the other a two year course for physicians, leading to the degree of Doctor of Public Health. Fees are $50 per year for residents of Wisconsin and $170 for nonresidents. A thesis is required for graduation. Address inquiries to Miss Grace E. Brewster, Secretary, Medical School.

GRADUATE COURSES IN MEDICAL SCHOOLS

Special correspondence with medical schools shows that there are many opportunities for graduate study which physicians have not been able to take advantage of through the lack of knowledge in regard to them. The following list has been prepared to correct this deficiency. More complete information can be obtained by correspondence with the medical school concerned.

CALIFORNIA

Stanford University School of Medicine, San Francisco.—Graduate courses are open to physicians: (a) Mid-day clinics, 11: 30 to 12: 30 daily, covering medicine, medical specialties, surgical specialties, obstetrics, gynecology and pathologic conferences free of charge. (b) Clinical demonstrations at the San Francisco Hospital. On Thursdays beginning at 9 a. m., the work is in surgery and the surgical specialties; on Fridays, beginning 9 a. m., medicine and the medical specialties. These courses are free of charge. (c) Assistantships in clinics and laboratories. A physician may be assigned to some research problem or receive regular instruction from a member of the staff. For the latter an appropriate fee is charged and a nominal fee also for material used. During the last five years an average of 28 physicians each year has occupied these assistantships.

University of California Medical School.—Resident positions are open to properly qualified medical graduates as follows: In the University Hospital: A resident position in general medicine and four assistant residentships, one each in general medicine and dermatology; in neuropsychiatry and infirmary; in outpatient department; in medical research. Besides a residentship in surgery, there are five assistant residentships, one each in general surgery, urology, orthopedic surgery, ophthalmology, otorhinolaryngology, outpatient department and surgical pathology. There are a residentship and two assistant residentships each in pediatrics and in obstetrics and gynecology. There is one residentship each in pathology and in biochemistry and clinical laboratories. In the San Francisco Hospital there are two positions as house officers in medicine and tuberculosis; two in surgery; one in pediatrics and isolation and one in obstetrics and gynecology. Special courses to physicians and advanced students are open in the departments of anatomy (at Berkeley) neuro-surgery, pathology, and research medicine.

COLORADO

University of Colorado School of Medicine, Boulder-Denver.—During the present summer, courses for physicians were given in bacteriology, biochemistry, blood chemistry, anatomy, histology, embryology, clinical laboratory technic, advanced pathology and ophthalmology. The session extended from June 12 to August 27, divided into two terms. Physicians may register for either term or for the entire quarter.

ILLINOIS

Rush Medical College, Chicago.—The following courses are offered for physicians: (a) A course on tuberculosis. (b) Special course for three or four physicians who are willing to spend a full year in diseases of the ear, nose and throat. (c) Attendance at arena clinics for which a visitor's ticket for a week is issued—registration not limited. (d) Opportunities for a few physicians for investigative work in the sciences fundamental to medicine, including pathology. Fees: $25 for each major's work, or $75 for a full quarter.

University of Illinois College of Medicine, Chicago.—The summer quarter is devoted to graduate work and courses for physicians, and during the remainder of the year a large number of fellowships are available in courses leading to the degrees of Master of Science and Doctor of Philosophy. Special opportunities for individual research work in anatomy, biochemistry, pharmacology, and pathology and bacteriology were offered during the present summer quarter.

INDIANA

Indiana University School of Medicine, Indianapolis.—At any time during the year special arrangements will be made for the physicians of Indiana who make application to receive instruction with the medical students or alone. During the summer a well arranged six weeks' course is offered to the physicians of Indiana in medicine, surgery, pathology (including immunology and bacteriology) and biochemistry.

IOWA

State University of Iowa College of Medicine, Iowa City.—During the present summer a four weeks' general clinical course limited to 12 physicians was offered. There are opportunities for physicians to act as clinical assistants, research workers, hospital chemists, etc., in the various departments of the medical school. Special opportunities are always open for physicians with research ability.

MARYLAND

Johns Hopkins University Medical Department, Baltimore.—During the present summer a six weeks' course in medical diagnosis was offered, limited to twenty physicians. The course consisted in ward rounds, lectures, clinics, group courses, physical diagnosis, laboratory work in clinical microscopy, and group clinics in the special study of syphilis. Opportunities for advanced work open to a certain number of qualified men. The work is arranged for after personal communication between the applicants and the heads of the various departments.

University of Maryland School of Medicine, Baltmore.—Courses are open for physicians in anatomy, pathology, bacteriology, clinical laboratory, operative surgery, obstetrics, genito-urinary diseases, roentgenology and pediatrics. Arrangements made by personal communication.

MICHIGAN

University of Michigan Medical School, Ann Arbor.—The regular laboratory and clinical courses in the school are open to qualified physicians. In addition special work is arranged along all clinical and laboratory branches to meet the special needs of the applicant. Such courses may lead to the degrees of Master of Science or Doctor of Philosophy.

MISSOURI

Washington University School of Medicine, St. Louis.—Washington University School of Medicine has established a series of postgraduate medical courses in all the various clinical branches. These courses make use of the laboratory, clinical and library facilities of the school and its allied hospitals. The courses are planned so as to run approximately four weeks once a year and to consist of subjects so grouped as to furnish the student a comprehensive training in the works he selects. This is accomplished by combining with the major subjects numerous fundamentally related subjects of lesser, though vital, importance. In addition to these combined courses, detached courses are offered, thus affording students a wide range of selection. The plan of instruction furthermore provides for one and two year courses in some of the specialties so as to furnish opportunities to men desiring to qualify as specialists. A descriptive pamphlet is available for all applicants who request it by addressing the Dean.

NEBRASKA

University of Nebraska College of Medicine, Omaha.—A special two weeks' course for practitioners is offered each June. Subjects stressed are physical diagnosis; general medical and surgical diagnosis; pediatrics, including infant feeding; syphilis and skin. Ward walks in the University Hospital are conducted twice daily. Evening illustrated lectures cover topics of general medical and surgical interest. The wards of the University Hospital and the outpatient department are utilized for clinical material.

NEW YORK

Long Island College Hospital, Brooklyn.—Courses open in anatomy, embryology, neuro-anatomy, histology, bacteriology, biochemistry, physiology, preventive medicine and hygiene. Also opportunities for research work in anatomy, biochemistry and physiology. Postgraduate courses in anatomy, physiology, genito-urinary, surgery, medicine, bacteriology, biochemistry, obstetrics and gynecology, otolaryngology, pediatrics and pathology are offered annually for six weeks from May 15. Arrangements made by personal communication.

University and Bellevue Hospital College of Medicine.—Various graduate courses are open for physicians as follows: research courses in anatomy, embryology, chemistry, physiology, pharmacology and therapeutics, as well as special courses in pathology, bacteriology and surgery. Clinical courses occupying about six weeks each are also offered in medicine and physical diagnosis, clinical and operative gynecology, genito-urinary diseases, laryngology, ophthalmology, pediatrics and dermatology.

OHIO

Western Reserve University School of Medicine, Cleveland.—Special review courses for physicians in medicine and surgery, including some of the specialties, during May and June of each year. Courses limited to 20 men. An effort is made to occupy the physician's entire time from 8 a. m. to 5 p. m. During the remainder of the year arrangements may be made with individual instructors for advanced research work in clinical and laboratory subjects. For information address the registrar.

PENNSYLVANIA

University of Pittsburgh School of Medicine.—A general course of instruction by lectures, clinics and demonstrations. Summer course, two weeks, beginning early in June. Fee, $50. Write to Edith S. Glenn, Secretary.

VIRGINIA

Medical College of Virginia, Richmond.—Opportunities open for a few physicians to take courses in the combined laboratories of the college of the state board of health and of the Richmond City Board of Health.

ONTARIO

University of Toronto, Faculty of Medicine, Toronto.—Graduate courses in clinical and laboratory work are available to physicians on application. During the last season, two short courses were given for physicians, covering intensively one of the subjects of medicine, surgery, obstetrics and gynecology. The summer course in pediatrics was repeated. Several series of lectures were delivered before medical societies throughout Ontario in addition to a large number of single lectures. Physicians may register and attend by the month any of the undergraduate clinical courses of the final year.

GRADUATE MEDICAL SCHOOLS

There are now eighteen graduate medical schools in the United States. These are commonly referred to as postgraduate medical schools. Of these institutions, seven are connected with universities in which the graduate teaching is, or will be, as thoroughly and scientifically given as are the courses of the undergraduate medical school. The universities having graduate schools are the Universities of California, Tulane, Harvard, Minnesota and Pennsylvania. The University of Chicago has received a generous endowment preparatory to the establishing of a large graduate school. Active steps toward this end will be taken in the near future. Following is the complete list of graduate medical schools:

CALIFORNIA

San Francisco Polyclinic and Post-Graduate School, 1535 Jackson St., San Francisco. The dean is Dr. H. D'Arcy Power.

Graduate School of Medicine of the University of California, Buena Vista and Alpine St., Los Angeles. Organized 1914. Formerly the University of Southern California College of Medicine. The dean is Dr. George H. Kress.

ILLINOIS

Chicago Polyclinic, 219-221 W. Chicago Ave., Chicago. The secretary is Dr. Malcolm L. Harris, 32 N. State St.

Illinois Post-Graduate Medical School, 1844 W. Harrison St., Chicago. The secretary is Dr. James A. Clark.

Post-Graduate Medical School, 2400 Dearborn St., Chicago. The secretary is Dr. Emil Ries, 77 E. Washington St.

Chicago Eye, Ear, Nose and Throat College, 235 W. Washington St., Chicago. The secretary is Dr. John R. Hoffman, 31 N. State St.

Provident Hospital Post-Graduate School, 16 W. 36th St., Chicago. For colored physicians. The dean is Dr. George C. Hall.

LOUISIANA

New Orleans Polyclinic. Post-Graduate School of Medicine of the Tulane University of Louisiana, Tulane Ave. and Liberty St., New Orleans. The dean is Dr. Charles L. Chassaignac.

Loyola Post-Graduate School of Medicine, 1533 Tulane Ave., New Orleans. The secretary is Dr. Joseph A. Danna.

MASSACHUSETTS

Harvard Medical School, Courses for Graduates, 240 Longwood Ave., Boston. Organized as a separate division of the Medical School, 1912; all instructions under the charge of the Faculty of Medicine. Instruction given throughout the year. The officer in charge is the assistant dean.

MINNESOTA

University of Minnesota Graduate School of Medicine, Minneapolis. Organized 1914. In 1915, the resources and facilities of the Mayo Foundation were added, with the staff, clinics, laboratories, library and records at Rochester, Minn. A nine months' course of advanced work is offered in the science departments giving the fundamental training essential in ophthalmology and otolaryngology, will begin Sept. 28, 1922. It includes anatomy, embryology and histology of the sense organs and of the head region; physiologic optics; physiology of the special senses and of speech; pathology and bacteriology as applied to the eye, ear, nose and throat. The course includes lectures, demonstrations, quizzes and clinical work in the outpatient department. The course is limited to ten students. There are also two teaching fellowships, each available in internal medicine, surgery, obstetrics, ophthalmology and otolaryngology, pediatrics, and mental and nervous diseases. Five others are available in the laboratory sciences, and eighty-six others are available under the Mayo Foundation. Courses in various specialties leading to higher degrees in medicine (M.A., M.S., Ph.D.). Instruction throughout the year. The dean is Guy Stanton Ford, Ph.D., Minneapolis.

NEW YORK

The New York Association for Medical Education is organized to collect information regarding available graduate medical instruction; to work for the improvement of existing courses and the establishment and development of new opportunities for advanced study; to bring about an affiliation between medical schools and hospitals whose facilities have not before been utilized for teaching purposes; and to serve as a bureau of information and assistance to prospective students. The executive offices are at the Academy of Medicine Bldg., 17 W. 43d St., New York. The graduate schools are as follows:

New York Post-Graduate Medical School, 2d. Ave. and 20th St., New York City. The secretary is Dr. J. Bentley Squier.

New York Polyclinic Medical School, 341-51 W. 50th St., New York City. Is to be taken over and the work developed by Columbia University. The president is Dr. John A. Wyeth, 341 W. 50th St.

Manhattan Eye, Ear and Throat Hospital and Medical School, 210 E. 64th St., New York City. The secretary is Dr. Samuel J. Kopetzky.

School of Ophthalmology and Otology, 13th St. and 2d Ave., New York City. The secretary is Dr. George S. Rixon, 40 E. 41st St.

College of the New York Ophthalmic Hospital, 23d. St. and Third Ave., New York City. The secretary is Dr. W. C. McKnight, 13 Central Park West.

Herman Krapp Memorial Eye Hospital, S. W. corner of 57th St. and 10th Avenue, New York City. The secretary is Gerald H. Grout.

PENNSYLVANIA

Graduate School of Medicine of the University of Pennsylvania, Philadelphia. Organized 1916 by a merger with the University of the Medico-Chirurgical College of Philadelphia. The Philadelphia Polyclinic was merged in 1918. The faculty includes about 230 teachers. Courses extending over from four to twelve months in medicine, pediatrics, neurology, dermatology, syphilology, roentgenology, surgery, gynecology, obstetrics, orthopedics, urology, proctology, ophthalmology, otolaryngology and the medical sciences. Fees: Four month courses, $200; eight months, $400; twelve months, $600. Special schedules (few only), special fees. The dean is Dr. George H. Meeker.

DESCRIPTION OF MEDICAL COLLEGES

Below are given brief descriptions of the medical colleges in the United States and Canada that are legally chartered to teach medicine, several of which do not grant degrees. The name, address, year of organization, history and date when first class graduated are given in each instance. Unless otherwise stated, a class graduated each subsequent year. Where official reports have been received from the college, information regarding faculty, entrance requirements, length of term, fees, students (excluding specials and postgraduates), graduates, name of dean and next session is given without discrimination. In a few instances in which such reports were not received, the information published is from other reliable sources. Figures for graduates include all who graduated since July 1, 1921. Extract of rules and the membership of the Association of American Medical Colleges are shown following the list of colleges. Figures showing population of cities and states are taken from the United States Census Bureau's estimate for 1922. Statements have been added showing the preliminary requirements held by state licensing boards where those requirements include one or two years of collegiate work. Ten states, Alaska (Ter.), Illinois, Iowa, Michigan, New Jersey, North Dakota, Pennsylvania, Rhode Island, Texas and Washington, require also a year's hospital internship as an essential qualification for a license.

ALABAMA

Alabama, population 2,348,174, has one medical college, the School of Medicine of the University of Alabama, located in Tuscaloosa, a city with a population of 11,996.

In order to secure licenses to practice medicine in Alabama, students must complete two years of work in an approved college of liberal arts, including courses in physics, chemistry, biology and a modern language, prior to entering on the study of medicine.

Tuscaloosa

University of Alabama School of Medicine, University Campus, Tuscaloosa.—Organized in 1859 at Mobile as the Medical College of Alabama. Classes graduated in 1861 and subsequent years excepting 1862 to 1868, inclusive. Reorganized in 1897 as the medical department of the University of Alabama. Present title assumed in 1907 when all property was transferred to the University of Alabama. In 1920 clinical teaching was suspended and the medical school was removed to the university campus at Tuscaloosa. The course of study covers two years of thirty-four weeks each. The Dean is Dr. Clyde Brooks. Total registration for 1921-1922 was 62. The fifty-seventh session begins Sept. 4, 1922, and ends May 22, 1923.

ARKANSAS

Arkansas, population 1,752,204, has one medical college, the Medical Department of the University of Arkansas, located in Little Rock, a city of 65,142.

To secure licenses to practice medicine in Arkansas, students must complete two years of collegiate work, including college courses in physics, chemistry, biology and a modern language, before beginning the study of medicine.

Little Rock

University of Arkansas Medical Department, Markham and Center Streets.—Organized in 1879 as the Medical Department of Arkansas Industrial University. It assumed the present title in 1899. In 1911 the College of Physicians and Surgeons united with it and the new school was made an integral part of the University of Arkansas. The first class was graduated in 1880. Clinical teaching was temporarily suspended in 1918. The faculty consists of 13 professors and 7 lecturers and assistants, total 20. Instruction in the junior year will be resumed at the session of 1922-1923, and in the senior year at the beginning of the session of 1923-1924. Entrance requirements are two years of collegiate work in addition to a four-year high school course. The course of study covers two years of thirty-four weeks each. The fees are $50 each year. The Dean is Dr. Morgan Smith. Total registration 1921-1922 was 34. The forty-fourth session begins Sept. 20, 1922, and ends June 7, 1923.

CALIFORNIA

California, population 3,426,861, has three medical colleges. Two are located in San Francisco, a city of 506,676 inhabitants. They are Stanford University School of Medicine and the College of Medicine of the University of California. The College of Medical Evangelists is located at Loma Linda and Los Angeles, the latter city having a population of 576,673.

To secure licenses to practice medicine in California under the "physician's and surgeon's" certificate, students must complete at least one year of recognized collegiate work including college courses in physics, chemistry, biology and a modern language before beginning the study of medicine.

Berkeley-San Francisco

University of California Medical School, University Campus, Berkeley; Second and Parnassus Avenues, San Francisco.—Organized in 1863 as the Toland Medical College. The first class graduated in 1864. In 1872 it became the Medical Department of the University of California. In 1909 the College of Medicine of the University of Southern California, at Los Angeles, by legislative enactment, became a clinical department. This Los Angeles portion was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged, and elective chairs in homeopathic materia medica and therapeutics were provided. Three years of collegiate work are required for admission. The work of the first year and a half is given at Berkeley and the work of the last two and a half years at San Francisco. The faculty is composed of 57 professors and 130 associates and assistants, a total of 187. The course covers five years of eight months each, the fifth year to consist of an internship or of special work in a department of the medical school. Fees for the four years, respectively, for residents of California or $290, $248, $235 and $225; nonresidents are charged $300 additional each year. Total registration for 1921-1922 was 233, graduates 41. The fiftieth session begins Aug. 2, 1922, and ends May 16, 1923.

Loma Linda-Los Angeles

College of Medical Evangelists.—Organized in 1909. The faculty numbers 109. The first class graduated in 1914. The laboratory departments are at Loma Linda; the clinical departments at Los Angeles. The faculty is composed of 55 professors and 82 associates and assistants, a total of 137. The course extends over four years of nine months each. Two years of college work are required for admission. The total fees for the four years, respectively, are $236, $231, $211 and $221. The President is Dr. Newton Evans, Loma Linda, Calif., and the Dean is Dr. P. T. Magan, Los Angeles. The total registration for 1921-1922 was 198; graduates, 23. This college taught also 14 students of the College of Physicians and Surgeons of Los Angeles, all of whom obtained degrees from the latter college, and one student of the College of Physicians and Surgeons of San Francisco, who was granted a degree from the last-named institution. The fourteenth session begins Sept. 3, 1922, and ends May 24, 1923.

San Francisco-Palo Alto

Stanford University School of Medicine, University Campus, Palo Alto, and Sacramento and Webster Streets, San Francisco.—Organized in 1908 when, by an agreement, the interests of Cooper Medical College were taken over. The first class was graduated in 1913. The faculty consists of 73 professors and 43 lecturers, assistants, etc., a total of 116. Three years of collegiate work are required for admission. The school has the quarter system and the completion of any three quarters constitutes a college year. The course covers five years of nine months each, including a year of practical or intern work. The total fees for each of the first four years are, respectively, $264, $264, $186 and $186. The Dean is Dr. W. Ophüls, San Francisco. The total registration for 1921-1922 was 167; graduates 28. The thirteenth session begins Oct. 2, 1922, and ends June 18, 1923.

COLORADO

Colorado, with a population of 939,629, has one medical college, the University of Colorado School of Medicine. The first two years of the course are given at Boulder, the seat of the university, while the last two, or clinical years, are given in Denver, which has a population of 256,491.

The Colorado State Board of Medical Examiners will register without further examination graduates of medical colleges in good standing who present licenses issued after examination by any other licensing board. The law permits any one, graduate or nongraduate, to try the board's written examination.

Boulder-Denver

University of Colorado School of Medicine.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged Jan. 1, 1911. The faculty embraces 37 professors and 28 lecturers, instructors and assistants, a total of 65. The work embraces a graded course of four years of nine months each. The entrance requirements are two years of college work counting toward a degree in arts in an accredited college or university. The fees for residents of Colorado, for each of the four years, are, respectively, $139, $139, $100, $100, and $30 more each year for nonresidents. The Dean is Dr. Charles N. Meader. The total registration for 1921-1922 was 100, graduates, 15. The forty-first session begins Sept. 25, 1922, and ends June 11, 1923.

CONNECTICUT

Connecticut, with a population of 1,380,631, has one medical college, Yale University School of Medicine, located in New Haven, population 162,537.

Students who desire to practice medicine in Connecticut will not be eligible unless, prior to entering the study of medicine, they complete, in addition to an accredited four-year high school education, at least nine months of collegiate work including college courses in physics, chemistry and general biology.

New Haven

Yale University School of Medicine, 150 York Street and at corner Congress Avenue and Cedar Street.—Chartered in 1810 as the Medical Institution of Yale College. Organized in 1812; instruction began in 1813; first class graduated in 1814. A new charter in 1879 changed the name to the Medical Department of Yale College. In 1884, the Connecticut Medical Society surrendered such authority as had been granted by the first charter. In 1887, Yale College became Yale University. The faculty consists of 24 professors and 94 lecturers and assistants, a total of 118. The requirements for admission are three years of collegiate work plus evidence of satisfactory completion of courses in general physics, general inorganic chemistry, general biology, organic chemistry and physical chemistry or laboratory physics, all reasonably equivalent to the courses in these subjects in Yale University. The student also must have two years of French or German. The course covers four years of nine months each. The fees for the four years, respectively, are $305, $300, $300 and $320. The Dean is Dr. Milton C. Winternitz. The total registration for 1921-1922 was 165, graduates, 23. The one hundred and tenth session begins Sept. 28, 1922, and ends June 20, 1923.

DISTRICT OF COLUMBIA

The District of Columbia, population 437,571, has three medical colleges: George Washington University Medical School, Georgetown University School of Medicine and Howard University School of Medicine.

Washington

George Washington University Medical School, 1335 H Street, N.-W.—Organized in 1825 as the Medical Department of Columbian College. Also authorized to use the name National Medical College. Classes were graduated in 1826 and in all subsequent years, except 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department. In 1904, by an act of Congress, the title of George Washington University was granted to the institution. The faculty is composed of 48 professors and 54 instructors, demonstrators and assistants, a total of 102. Two years of collegiate work are required for admission. The course covers four years of thirty-four weeks each. The fees for the four years, respectively, are $231, $228, $228 and $218. The Dean is Dr. William C. Borden. The total registration for 1921-1922 was 149, graduates, 15. The one hundredth session begins Sept. 27, 1922, and ends June 6, 1923.

Georgetown University School of Medicine, 920 H Street, N.-W.—Organized in 1851. The first class graduated in 1852. The faculty contains 55 professors, 40 instructors and assistants; total, 95. Two years of collegiate work are required for entrance. The course of study covers four terms of eight and one half months each. The fees for each of the four sessions, respectively, are $215, $200, $200 and $210. The Dean is Dr. George M. Kober. The registration for 1921-1922 was 204; graduates, 22. The seventy-second session begins Sept. 27, 1922, and ends June 12, 1923.

Howard University School of Medicine, Fifth and W Streets, N.-W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Colored students compose a majority of those in attendance. The faculty comprises 17 professors and 25 lecturers and assistants, 42 in all. The admission requirements are two years of collegiate work, including physics, chemistry, botany and zoology, English and two years of French or German. The course covers four years of thirty-three weeks each. The fees of each of the four sessions, respectively, are $163, $158, $158 and $165. The Dean is Dr. Edward A. Balloch. Registration for 1921-1922 was 199; graduates, 22. The fifty-fifth session begins Oct. 2, 1922, and ends June 8, 1923.

GEORGIA

Georgia, population 2,895,832, has two medical colleges, University of Georgia Medical Department, located in Augusta, population 52,548, and the Emory University School of Medicine in Atlanta, a city of 200,616.

In order to secure a license to practice medicine in Georgia, students must complete two years of work in an approved college of liberal arts and sciences, including courses in physics, chemistry and biology, prior to entering on the study of medicine.

Atlanta

Emory University School of Medicine, 98 N. Butler Street.—Organized in 1854. Classes graduated 1855 to 1861, when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874. In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with the Atlanta School of Medicine (organized in 1905), reassuming the name of Atlanta Medical College. Became the Medical Department of Emory University in 1915; assumed present title in 1917. Two years of collegiate work are required for admission. The faculty has 18 professors and 93 associates and assistants, a total of 111. The course of study is four years of thirty-four weeks each. The fees for each of the four years, respectively, are $240, $220, $215 and $243. The Dean is Dr. W. S. Elkin. Total registration for 1921-1922 was 220; graduates, 50. The next session begins Sept. 27, 1922, and ends June 5, 1923.

Augusta

University of Georgia Medical Department, University Place.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia. Entire property transferred to the university in 1911. Classes were graduated in 1833 and in all subsequent years except 1862 and 1863. The faculty includes 19 professors and 34 assistants, 53 in all. Two years of collegiate work are required for entrance. The course is four years of thirty-four weeks each. Fees are $5 for matriculation and $60 each year for residents of Georgia and $150 each year for nonresidents. The Dean is Dr. W. H. Doughty, Jr. The total registration for 1921-1922 was 89; graduates, 13. The ninety-first session begins Sept. 14, 1922, and ends May 28, 1923.

ILLINOIS

Illinois, population 6,485,280, has six medical colleges, one of which gives instruction at night, all located in Chicago, a city of 2,701,705 inhabitants. They are as follows: Rush Medical College, Northwestern University Medical School, University of Illinois College of Medicine, Loyola University

School of Medicine, Hahnemann Medical College and the Chicago Medical School.

To be eligible for license to practice medicine in Illinois, students must complete two years of collegiate work including courses in physics, chemistry, biology and a modern language before entering on the study of medicine. Graduates of 1923 and thereafter must complete also a year's internship in a hospital.

Chicago

Rush Medical College.—Founded in 1837; organized in 1843; was the medical department of Lake Forest University from 1887 until 1898, when it became affiliated with the University of Chicago. The first class graduated in 1844. The faculty is composed of 109 professors, 135 associates, instructors, etc., a total of 244. The requirements for admission are two years of college work, including courses in college chemistry, physics and biology, and a reading knowledge of German or French. Three years of college work will be required beginning with the Autumn Quarter of 1922. Classes are limited to 100 students in each of the freshman and sophomore classes, and to 120 students in each of the clinical years. No application for admission is accepted after September 1. The school operates under the "quarter system" in which the year is divided into four quarters of twelve weeks each; the completion of the work of three of these quarters gives credit for a college year. The course covers four years of eight and a half months each, and a fifth year, consisting of a hospital internship or of a fellowship in one of the departments. All freshman and sophomore studies are given at the University of Chicago. The clinical years are given in the building at the corner of Wood and Harrison Streets. The tuition fees for each of the four years, respectively, are $235, $225, $225 and $245. The Deans are Dr. Frank Billings and Dr. John M. Dodson. Total registration for 1921-1922 was 712; graduates, 137. The seventy-ninth session begins Oct. 2, 1922, and ends June 16, 1923.

Northwestern University Medical School, 2421 South Dearborn Street.—Organized in 1859 as the Medical Department of Lind University. First class graduated in 1860. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869, but retained the name of Chicago Medical College until 1891, when the present name was taken. Became an integral part of Northwestern University in 1905. The faculty comprises 68 professors and 97 lecturers and assistants, a total of 165. The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University, plus two years of college work, including courses in physics, chemistry, biology and a modern language. The course covers four years of eight months each. The fees for the four years, respectively, are $220, $220, $216 and $210. The Dean is Dr. Arthur I. Kendall. The total registration for 1921-1922 was 451; graduates, 78. The sixty-third session begins Oct. 3, 1922, and ends June 16, 1923.

University of Illinois College of Medicine, 508 S. Honore Street.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1897 and an integral part in 1910. The relationship with the university was canceled in June, 1912, but restored in March, 1913, when the present title was assumed. Two years of collegiate work are required for admission. The curriculum covers four years of thirty-three weeks each, and a year's internship in an approved hospital. The faculty is composed of 67 professors, 100 assistants and instructors, a total of 167. The total fees are $165 each year for resident students and $35 more for nonresidents. The Dean is Dr. Albert C. Eycleshymer. The total registration for 1921-1922 was 421; graduates, 48. The forty-first session begins Oct. 2, 1922, and ends June 19, 1923.

Loyola University School of Medicine, 706 S. Lincoln St., Chicago.—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery. Eclecticism dropped and title of Bennett Medical College assumed in 1909. First class graduated in 1870, and a class graduated each subsequent year. Absorbed the Illinois Medical College in 1910 and the Reliance Medical College in 1911. In 1910 it became by affiliation the School of Medicine of Loyola University; the university assumed full control in 1915. Took over by purchase the Chicago College of Medicine and Surgery in 1917. Two years of college work are required for admission. The faculty is composed of 65 professors, 72 assistants and instructors, a total of 137. The total fees for the four years are, respectively, $250, $250, $250 and $275. The Dean is Dr. Louis D. Moorhead. The total enrolment for 1921-1922 was 231; graduates, 64. The next session begins Oct. 2, 1922, and ends June 16, 1923.

Hahnemann Medical College of Chicago, 2811 Cottage Grove Avenue.—Organized in 1859. The first class was graduated in 1861. Absorbed the Chicago Homeopathic Medical College in 1904. The faculty includes 44 professors and 39 lecturers, assistants, etc., a total of 83. Two years of collegiate work are required for admission. The course extends over four years of thirty-five weeks each. The tuition fees for each of the years is $200. The Dean is Dr. John C. Blake. The total registration for 1921-1922 was 110; graduates, 13. The sixty-third session begins Sept. 25, 1922, and ends June 14, 1923.

Chicago Medical School, an afternoon and night school, located at 3832 Rhodes Avenue.—Organized in 1911 as the Chicago Hospital College of Medicine; chartered in 1912. In December, 1917, the classes of the Jenner Medical College were transferred to it. Total registration for 1921-1922 was 175; graduates, 50. *Official reports state that the diplomas from this college are not recognized by the licensing boards of forty-five states.*

INDIANA

Indiana, population 2,930,390, has one medical college, the Indiana University School of Medicine, located at Indianapolis, a city of 314,194 people, except that the work of the first year is offered also at Bloomington, the seat of the University.

Students who intend to practice medicine in Indiana must complete two years of collegiate work, in addition to an accredited four-year high school course, prior to beginning the study of medicine.

Bloomington and Indianapolis

Indiana University School of Medicine.—Organized in 1903, but did not give all of the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879), merged into it. The first class was graduated in 1908. The faculty consists of 64 professors and 100 lecturers, associates and assistants, a total of 164. Two years of collegiate work are required for admission. The work of the first year is emphasized only at Bloomington. The work of the other three years is all at Indianapolis. The fees for the four years, respectively, are $125, $125, $150 and $150. Matriculation fee, $5; microscope fee, $5 to $7.50 per semester. A fifth optional intern year leading to the "M.D. cum laude" has been added. The Assistant Dean at Bloomington is Dr. B. D. Myers; the Dean is Dr. Charles P. Emerson, Indianapolis. The total registration for 1921-1922 was 274; graduates, 33. The next session begins Sept. 11, 1922, and ends June 6, 1923.

IOWA

Iowa, population 2,404,021, has one medical college, the College of Medicine of the State University of Iowa, located in Iowa City, population 11,267.

Students who desire to practice medicine in Iowa must complete two years of work in an approved college of liberal arts prior to beginning the study of medicine, this preliminary college work to have included courses in physics, chemistry, biology and a foreign language.

Iowa City

State University of Iowa College of Medicine, University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. The faculty is made up of 30 professors, 44 lecturers, demonstrators and assistants, a total of 74. Two years of collegiate work, including courses in physics, chemistry, biology, French or German and English, are required for admission. The course of study covers four years of thirty-four weeks each. The tuition fee for residents of Iowa is $150 per year and for nonresidents $175, plus a matriculation fee of $10 and a graduation fee of $10. The Dean is Dr. Lee Wallace Dean, Iowa City. Total registration for 1921-1922 was 313; graduates, 38. The fifty-third session begins Sept. 25, 1922, and ends June 5, 1923.

KANSAS

Kansas, population 1,769,257, has one medical college. The School of Medicine of the University of Kansas gives its first two years in Lawrence, population 12,456, and the last two years in Rosedale, a suburb of Kansas City, which with Kansas City, Mo., have a combined population of 433,261.

Students who desire to practice medicine in Kansas must complete at least two years of collegiate work including college courses in physics, chemistry and biology in addition to an accredited four-year high school course.

Lawrence and Rosedale

University of Kansas School of Medicine.—Organized in 1880. It offered only the first two years of the medical course until in 1905, when it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. First class graduated in 1906. The clinical courses are given at Rosedale. Absorbed Kansas Medical College in 1913. The faculty, including lecturers and clinical assistants, numbers 62. The requirements for admission are two years of collegiate work. The course covers four years of nine months each. The total fees for residents of the state for each of the four years are, respectively, $131, $131, $133 and $133. For nonresidents the fees of the first two years are $141 each year. The Associate Dean is Dr. M. D. Sudler. The total registration for 1921-1922 was 157; graduates, 24. The forty-third session begins Sept. 11, 1922, and ends June 4, 1923.

KENTUCKY

Kentucky, population 2,416,630, has one medical college, the University of Louisville Medical Department, situated in Louisville, a city of 234,891 inhabitants.

To be eligible for license to practice medicine in Kentucky, students must complete two years of college work, including courses in physics, chemistry, biology and a modern language prior to beginning the study of medicine.

Louisville

University of Louisville Medical Department, First and Chestnut Streets.—Organized in 1837 as the Louisville Medical Institute. The first class graduated in 1838, and a class graduated in each subsequent year except in 1863. In 1846 the present name was assumed. In 1907 it absorbed the Kentucky University Medical Department. In 1908 it absorbed the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. Two years of collegiate work are required for admission. It has a faculty of 29 professors and 90 lecturers and assistants, a total of 119. The course covers four years of thirty-four weeks each. The fees for the four years, respectively, are $265, $265, $272 and $292. The Dean is Dr. Henry Enos Tuley. The total registration for 1921-1922 was 163; graduates, 21. The next session begins Sept. 19, 1922, and ends June 4, 1923.

LOUISIANA

Louisiana, having a population of 1,798,509, contains one medical college, the School of Medicine of the Tulane University of Louisiana, situated in New Orleans, a city of 387,219.

Students who desire to practice medicine in Louisiana must complete, at an approved college or university, two years of college work, including biology, physics, chemistry and a modern language, before entering on the study of medicine.

New Orleans

Tulane University of Louisiana School of Medicine, University Campus and 1551 Canal Street.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years except 1863-1865, inclusive. It was transferred to the Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University of Louisiana in 1884. Present name in 1913, when it became the School of Medicine of the College of Medicine of the Tulane University of Louisiana. The faculty has 36 professors and 112 assistant professors, instructors, demonstrators, etc., a total of 148. The course covers four years of thirty-four weeks each. Two years of collegiate work are required for admission. Total fees for each of the four years, respectively, are $225, $225, $215 and $245. The Dean is Dr. Charles C. Bass. The total registration for 1921-1922 was 340; graduates, 71. The eighty-eighth session begins Sept. 22, 1922, and ends June 6, 1923.

MARYLAND

Maryland, with a population of 1,449,661, contains two medical colleges, located in Baltimore, a city with 733,826 inhabitants. They are as follows: Johns Hopkins University Medical Department, and the University of Maryland School of Medicine and College of Physicians and Surgeons, the last two having been merged.

To be eligible to practice medicine in Maryland, students, in addition to a four-year high school education, must complete at least two years of college work including courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine.

Baltimore

Johns Hopkins University Medical Department, Washington and Monument Streets.—Organized in 1893. The first class graduated in 1897. The faculty consists of 52 professors and 153 clinical professors, etc., a total of 205. The requirements for admission demand that the applicant either has (*a*) completed the chemical-biologic course which leads to the A.B. degree in the university, or (*b*) graduated at an approved college or scientific school and has a knowledge of French and German (two years of college instruction), physics and biology, such as may be obtained from a year's course, and a three years' course in chemistry. The course extends over four years of eight and one-half months each. The total fees for each of the four years are, respectively, $317, $267, $267, $267. The Dean is Dr. J. Whitridge Williams. Total registration for 1921-1922 was 349; graduates, 80. The thirtieth session begins Oct. 2, 1922, and ends June 12, 1923.

University of Maryland School of Medicine and the College of Physicians and Surgeons, Lombard and Greene Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged into it in 1913. In 1915 the College of Physicians and Surgeons was merged and the present name assumed. The faculty consists of 83 professors and 103 instructors and assistants, a total of 186. Two years of collegiate work are required for admission. The course covers four years of eight months each. The total fees are $265 each year. The Dean is Dr. J. M. H. Rowland. Total registration for 1921-1922 was 299; graduates, 55. The one hundred and sixteenth session begins Oct. 2, 1922, and ends June 9, 1923.

MASSACHUSETTS

Massachusetts, population 3,852,356, has five medical colleges: Medical School of Harvard University, Boston University School of Medicine, Tufts College Medical School, College of Physicians and Surgeons and the Middlesex College of Medicine and Surgery. They are all situated in Boston, a city of 748,060, except the last named, which is in Cambridge, a city of 109,694.

Boston

Medical School of Harvard University, 240 Longwood Avenue.—Organized in 1782. The first class graduated in 1788. It has a faculty of 74 professors and 207 instructors and assistants, a total of 281. Candidates for admission must present a college degree or two years of work leading to such a degree with standing in the upper third of the class. The college work must include a year of physics, biology, general chemistry, a half year of organic chemistry, and a reading knowledge of French or German. The total fees for each of the four years are $305, $300, $300 and $300. The Dean is Dr. David L. Edsall. The total registration for 1921-1922 was 471; graduates, 112. The one hundred and forty-first session begins Sept. 25, 1922, and ends June 21, 1923.

Boston University School of Medicine, 80 East Concord Street.—Organized in 1873. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class graduated in 1874. Became nonsectarian in 1918. Two years of collegiate work are required for admission. The faculty includes 22 professors, 71 associates, etc., making a total of 93. The course covers four years of thirty-five weeks each. Total fees for each of the four years, respectively, are $260, $230, $230 and $240. The Dean is Dr. John P. Sutherland. Total registration for 1921-1922 was 161; graduates, 24. The fiftieth session begins Sept. 28, 1922, and ends June 18, 1923.

Tufts College Medical School, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. It has a faculty of 48 professors and 97 assistants, lecturers, etc., a total of 145. Two years of collegiate work are required for admission. The course covers four years of eight months each. The total fees for each of the four years are $260, $245, $235 and $240. The Acting Dean is Dr. Frank G. Wheatley. Total registration for 1921-1922 was 442; graduates, 83. The twenty-seventh session begins Sept. 27, 1922, and ends May 29, 1923.

College of Physicians and Surgeons, 517 Shawmut Avenue.—Organized in 1880. The first class graduated in 1882. Total attendance of medical students during 1921-1922 was about 70. There were 19 graduates. *This college has been reported not recognized by the Massachusetts Medical Society and by the licensing boards of forty-five states.*

Cambridge

Middlesex College of Medicine and Surgery, Cambridge.—Organized in 1914 under the charter of the Worcester Medical College, which became extinct in 1859. A class was graduated in 1915 and each subsequent year. Was closely related in its interests with an osteopathic college and granted a liberal advanced standing for work done in that and other osteopathic colleges. During 1921-1922 it had a total enrolment of 121; graduates, 27. *This college has been reported as not recognized by the licensing boards of forty-six states.*

MICHIGAN

Michigan, population 3,668,412, has two medical colleges. The University of Michigan Medical School is located at Ann Arbor, a city of 19,516 people. The Detroit College of Medicine and Surgery is located at Detroit, a city of 993,678 inhabitants. Students who desire to practice medicine in Michigan, in addition to an accredited four-year high school education, must complete two years of work in an approved college of liberal arts, including college courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine.

Ann Arbor

University of Michigan Medical School.—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. It has a faculty composed of 16 professors and 92 associates, instructors, etc., a total of 108. The entrance requirements are two years of college work, including courses in chemistry, physics and biology, with laboratory work, and a reading knowledge of one modern language. The curriculum embraces four years of nine months each. The total fees for Michigan students are $140 each year and $200 for nonresidents. The matriculation fee for residents is $10; for nonresidents, $25. The Dean is Dr. Hugh Cabot. The total registration for 1921-1922 was 558; graduates, 67. The seventy-third session begins Sept. 25, 1922, and ends June 18, 1923.

Detroit

Detroit College of Medicine and Surgery, 1516 St. Antoine St.—Organized as the Detroit College of Medicine in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. Reorganized with present title in 1913. The first class graduated in 1886. In 1918 it became a municipal institution under the control of the Detroit Board of Education. Entrance requirements are two years of collegiate work. The faculty embraces 23 professors, 176 lecturers, etc., a total of 199. The course covers five years of nine months each (including the hospital intern year). The total fees each year are $150—if residents of Detroit the fees are $25. The Dean is Dr. W. H. MacCraken. The total registration for 1921-1922 was 166; graduates, 23. The thirty-eighth session begins Oct. 2, 1922, and ends June 16, 1923.

MINNESOTA

Minnesota, population 2,387,125, contains one medical school, the University of Minnesota Medical School, situated in Minneapolis, a city of 380,582 inhabitants.

Students intending to practice medicine in Minnesota, in addition to an accredited four-year high school education, must complete two years of college work the equivalent of that done in the liberal arts department of the University of Minnesota, including courses in physics, chemistry and biology, prior to beginning the study of medicine.

Minneapolis

University of Minnesota Medical School.—Organized in 1883 as the University of Minnesota College of Medicine and Surgery, reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. The faculty includes 115 professors and 122 instructors and assistants, a total of 237. The curriculum covers four years of nine months each, and a year's internship in an approved hospital. The school is operated on the four-quarter plan. The entrance requirements are two years of university work, which must include six semester credits of rhetoric, eight semester credits of physics; twelve credits of general chemistry, qualitative analysis and organic chemistry; eight credits of zoology, and a reading knowledge of French or German. Students are required to secure a degree of B.S. or A.B. before receiving the degree of Bachelor of Medicine (M.B.) which is granted at the end of the four-year course. The M.D. is conferred after a year of intern work or of advanced laboratory work has been completed. Classes are graduated twice a year, in June and in December. Total fees are $199 for residents and $229 for nonresidents, each year of three quarters. The Dean is Dr. E. P. Lyon. The total registration for 1921-1922 was 399; graduates, 80. The thirty-fourth session begins Sept. 27, 1922, and ends June 20, 1923. The summer quarter begins June 26.

MISSISSIPPI

Mississippi, population 1,790.618, has one medical college, the Department of Medicine of the University of Mississippi, which is located at Oxford, a city of 2,150 inhabitants.

Students desiring to practice medicine in Mississippi, in addition to a standard four-year high school education, must complete two years of work in an approved college or university, including courses in physics, chemistry, biology and a modern language, before entering on the study of medicine.

Oxford

University of Mississippi School of Medicine.—Organized in 1903. Gives only the first two years of the medical course. In 1908 a clinical department was established at Vicksburg, but was discontinued in 1910 after graduating one class. The session extends over eight and a half months. Entrance requirements are two years of collegiate work. The total fees each year are $140. The faculty numbers 18. The Dean is Dr. W. S. Leathers. The total registration for 1921-1922 was 54. The twentieth session begins Sept. 20, 1922, and ends June 5, 1923.

MISSOURI

Missouri, population 3,404,055, has six medical colleges. St. Louis, population 772,897, contains three of these, viz., the School of Medicine of St. Louis University, Washington University Medical School, and the St. Louis College of Physicians and Surgeons. Kansas City, which, with Kansas City, Kansas, has a population of 433,261, has two colleges, the Kansas City College of Medicine and Surgery and the Kansas City University of Physicians and Surgeons, neither of which is approved as reputable by the Missouri State Board of Health. The School of Medicine of the University of Missouri is at Columbia, a town of 10,392 people.

Columbia

University of Missouri School of Medicine.—Organized at St. Louis in 1845; was discontinued in 1855, but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. The faculty includes 11 professors and 20 assistant professors, lecturers, etc., a total of 31. The course covers two years of thirty-two weeks each. The entrance requirements are two years of college work including French or German, 8 hours; general zoology, 8 hours; physics, 8 hours; inorganic chemistry, 8 hours; organic chemistry, 5 hours, and general bacteriology, 3 hours. Total fees are $100 for each year. Nonresidents of the state pay $10 per term extra. The Dean is Dr. Guy L. Noyes. Total registration for 1921-1922 was 84. The next session begins Aug. 29, 1922, and ends April 25, 1923.

Kansas City

Kansas City College of Medicine and Surgery, Twenty-Third and Holmes Streets.—Organized in 1915 as an offshoot of the Eclectic Medical University, a Class C medical school, now extinct. It claims to be an eclectic college, but is reported not recognized as such by the National Eclectic Medical Association. Total registration for 1921-1922 was about 90; graduates, 14. Since this school is an offshoot of a Class C medical college and is *reported not recognized by the Missouri State Board of Health and by the licensing boards of forty-two other states,* no higher rating can be granted to it, pending an inspection, which it has refused.

Kansas City University of Physicians and Surgeons, 729 Troost Street.—Originally chartered in 1903 as the Central College of Osteopathy; charter amended in 1917, by which it obtained the right to grant degrees in medicine, and the name was changed to the Central College Medical Department. Present title in 1918. Very liberal advanced standing allowed for work done in osteopathic colleges, and it still has osteopathic classes. Total enrolment in 1921-1922 was 80; graduates, 32. Rated in Class C by the Council on Medical Education. *Reported not recognized by the licensing boards of Missouri and of forty-seven other states.*

St. Louis

Washington University School of Medicine, Kingshighway and Euclid Avenue.—Organized in 1842 as the Medical Department of St. Louis University. In 1835 it was chartered as an independent institution under the name of St. Louis Medical College. The first class graduated in 1843. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. The faculty comprises 38 professors and 110 lecturers, instructors, etc., a total of 148. Two years of college work are required for admission, including courses in English, physics, chemistry and biology, and a reading knowledge of German or French. The course is four years of eight months each. The total fees for the four years are, respectively, $315, $210, $210 and $215. The Dean is Dr. Nathaniel Allison. The total registration for 1921-1922 was 235; graduates, 48. The next session begins Sept. 28, 1922, and ends June 14, 1923.

St. Louis University School of Medicine, 1402 South Grand Avenue.—Organized in 1901 as the Marion-Sims-Beaumont Medical College by union of Marion Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. First class graduated in 1902. It became the Medical Department of St. Louis University in 1903. The faculty is composed of 61 professors and 102 lecturers and assistants, a total of 163. Two years of collegiate work are required for admission. The curriculum covers four years of thirty-two weeks each. The summer season is optional. The total fees are $250 each year. The Dean is Dr. Hanau W. Loeb. The total registration for 1921-1922 was 303; graduates, 39. The next session begins Oct. 2, 1922, and ends June 1, 1923.

St. Louis College of Physicians and Surgeons, Jefferson and Gamble Streets.—Organized in 1869. Classes graduated in 1870 and each subsequent year until 1873, when it suspended. Reorganized in 1879. Classes graduated in 1880 and subsequent years until 1915, when it merged with the Medical Department of the National University of Arts and Sciences. Reestablished in 1916. Registration during 1921-1922 was 120; graduates, 34. *This college is reported as not recognized by the licensing boards of Missouri and forty-seven other states.*

NEBRASKA

Nebraska, population 1,296,372, has two medical colleges, the University of Nebraska College of Medicine and the Creighton University College of Medicine, both in Omaha, population 191,601.

Omaha

Creighton University College of Medicine, Fourteenth and Davenport Streets.—Organized in 1892 as the John A. Creighton Medical College. Present title in 1921. The first class graduated in 1893. It has a faculty of 25 professors and 43 instructors, lecturers and assistants, a total of 68. Two years of collegiate work are required for admission. The course of study embraces four years of eight months each. Continuous session adopted for seniors only. The total fees each year for the four years are, respectively, $180, $170, $170 and $180. The Dean is Dr. Hermann von W. Schulte. Total registration for 1921-1922 was 138; graduates, 20. The forty-first session begins Sept. 20, 1922, and ends June 2, 1923.

University of Nebraska College of Medicine, Forty-Second Street and Dewey Avenue.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The first two years were given at Lincoln and the last two in Omaha until 1913, when all four years were transferred to Omaha. The faculty is composed of 25 professors and 48 lecturers and instructors, total 73. Two years of collegiate work are required for admission, including courses in physics, chemistry and zoology. The fees for each of the four years, respectively, are $145, $140, $130 and $130. The Dean is Dr. Irving S. Cutter. Total registration for 1921-1922 was 254; graduates, 17. The next session begins Sept. 15, 1922, and ends May 31, 1923.

NEW HAMPSHIRE

New Hampshire, population 443,083, has one medical college, located at Hanover, population 1,551.

Students desiring to practice medicine in New Hampshire, in addition to a four-year high school education, must complete at least two years of work in an approved college of liberal arts, prior to beginning the study of medicine.

Dartmouth Medical School.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Clinical teaching was discontinued in 1914. The faculty is made up of 10 professors and 2 instructors, a total of 12. Three years of collegiate work are required for admission. The course covers nine calendar months in each year, or eight months of actual teaching. Candidates for the A.B. or B.S. degree in Dartmouth College may substitute the work of the first year in medicine for that of the senior year in the academic department. The fees for each year are $250. Dean, Dr. John M. Gile; Secretary, Colin C. Stewart. The total registration for 1921-1922 was 28. The next session opens Sept. 21, 1922, and ends June 19, 1923.

NEW YORK

New York State, population 10,384,829, has eight medical colleges. Five of these, College of Physicians and Surgeons (Columbia University), Cornell University Medical College, the University and Bellevue Hospital Medical College, Long Island College Hospital and the New York Homeopathic Medical College and Flower Hospital, are located in New York City, population 5,620,048. Albany Medical College is located in Albany, a city of 113,344 people. The University of Buffalo Medical Department is situated in Buffalo, population 506,775. The College of Medicine, Syracuse University, is in Syracuse, a city of 171,717 inhabitants.

Students who desire to practice in New York must complete two years of college work before entering on the study of medicine.

Albany

Albany Medical College, 58-64 Eagle Street.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915 Union University assumed educational control. The faculty is composed of 25 professors and 71 instructors, assistants, etc., a total of 96. Two years of collegiate work, including college courses in physics, chemistry (including organic), biology, English, and a modern foreign language, are required for admission. The curriculum covers four years of eight months each. The total fees for the four years, respectively, are $220, $205, $205 and $205. The Dean is Dr. Thomas Ordway. The total registration for 1921-1922 was 88; graduates, 12. The ninety-second session begins Sept. 25, 1922, and ends June 11, 1923.

Buffalo

University of Buffalo Medical Department, High Street, near Main.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. The faculty is composed of 40 professors and 89 lecturers, assistants, etc., a total of 129. Two years of collegiate work, including college courses in physics, chemistry, biology, English and French or German are required for admission. The course covers four years of eight months each. The total fees for each of the four years are $292, matriculation fee, $5. The Dean is Dr. C. Sumner Jones. Total registration for 1921-1922 was 212; graduates, 22. The seventy-seventh session begins Sept. 25, 1922, and ends June 13, 1923.

New York

Columbia University College of Physicians and Surgeons, 437 West Fifty-Ninth Street.—Organized in 1807 by the regents of the University of the State of New York as their medical department. The first class graduated in 1811. In 1860 it became, by affiliation, the Medical Department of Columbia College. It was made a permanent part of Columbia College by legislative enactment in 1891. That institution became Columbia University in 1896. The faculty is composed of 99 professors and 204 instructors, demonstrators, etc., a total of 303. Two years of collegiate work of 72 points, including courses in physics, chemistry, biology, English and either French or German, are required for admission. The work covers four years of eight months each. The Dean is Dr. William Darrach. The total fees for the four years, respectively, are $332, $332, $332 and $352. Total registration for 1921-1922 was 356; graduates, 68. The one hundred and fifteenth session begins Sept. 27, 1922, and ends June 6, 1923.

Cornell University Medical College, First Avenue and Twenty-Eighth Street, New York City, and Ithaca.—Organized in 1898. The first class was graduated in 1899. The work of the first year may be taken either in Ithaca or New York. The faculty is composed of 62 professors and 103 assistants, lecturers, instructors, etc., a total of 165. All candidates for admission must be graduates of approved colleges or scientific schools or seniors of approved colleges which will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the Bachelor degree on the completion of the year's work. The candidate must also have such knowledge of physics, inorganic chemistry and biology as may be obtained in college by a year's course in these subjects when accompanied by laboratory work. The fees for each of the four years are, respectively, $345, $335, $335 and $350. The Dean is Dr. Walter L. Niles. Total registration for 1921-1922 was 213; graduates, 43. The twenty-fifth session begins Sept. 26, 1922, and ends June 7, 1923.

Long Island College Hospital, 350 Henry Street, Brooklyn.—Organized in 1858. The first class graduated in 1860. It has a faculty of 46 professors and 85 assistants, instructors, etc., a total of 131. Two years of collegiate work, including college courses in physics, chemistry and biology, are required for admission. The course covers four years of eight months each. The fees for the four years, respectively, are $356, $350, $350 and $380. The Dean is Prof. Adam M. Miller. Total registration for 1921-1922 was 311; graduates, 47. The sixty-fifth session begins Sept. 25, 1922, and ends May 31, 1923.

New York Homeopathic Medical College and Flower Hospital, Eastern Boulevard, between Sixty-Third and Sixty-Fourth Streets.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title New York Homeopathic Medical College was assumed in 1869. Present title assumed in 1908. The first class graduated in 1861. The course covers four years of eight months each. It has a faculty of 31 professors and 38 lecturers and assistants, a total of 69. The total fees for the four years are, respectively, $300, $300, $300 and $330. The fees for new students entering during 1922-1923 is $250, plus $10 matriculation fee. Total registration for 1921-1922 was 136; graduates, 19. The sixty-third session begins Sept. 18, 1922, and ends May 9, 1923.

University and Bellevue Hospital Medical College, 338 East Twenty-Sixth Street.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. First class graduated in 1899. The faculty is composed of 80 professors and 135 instructors, etc., in all, 215. The course covers four years of eight months each. Entrance requirements are two years of collegiate work, in addition to a standard four-year high school course, including college courses in physics, chemistry and biology. The fees for each of the four years are, respectively, $350, $320, $320 and $345. The Dean is Dr. Samuel A. Brown. Total registration for 1921-1922 was 425; graduates, 79. The next session begins Sept. 13, 1922, and ends June 13, 1923.

Syracuse

Syracuse University College of Medicine, 307-311 Orange Street.—Organized in 1872, when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875, when a compulsory three-year graded course was established. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. Two years of a recognized college course are required for admission. The course covers four years of thirty-four weeks each. The fees for each of the four years are, respectively, $324, $324, $324 and $334. The faculty is composed of 32 professors and 83 associate and assistant professors, lecturers and instructors, a total of 115. The Dean is Dr. Herman G. Weiskotten. The total enrolment for 1921-1922 was 165; graduates, 36. The fifty-second session begins Sept. 20, 1922, and ends June 13, 1923.

NORTH CAROLINA

North Carolina, population 2,559,123; has two medical schools, each of which gives only the first two years of the medical course. The School of Medicine of the University of North Carolina is located at Chapel Hill, population 1,483. Wake Forest College School of Medicine is at Wake Forest, population 1,425.

Students intending to practice medicine in North Carolina must complete two years of college work including courses in physics, chemistry and biology in addition to 14 units of high school work before beginning the study of medicine.

Chapel Hill

University of North Carolina School of Medicine.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. Two years of collegiate work are required for admission. The faculty is composed of 14 professors and 11 lecturers, assistants, etc., a total of 25. The fees for each year are $195. The Dean is Dr. I. H. Manning. The total registration for 1921-1922 was 81. The thirty-seventh session begins Sept. 28, 1922, and ends June 9, 1923.

Wake Forest

Wake Forest College School of Medicine.—This school was organized in 1902. The faculty, including the professors of chemistry, physics and biology, numbers 10 professors and 5 assistants. Only the first two years of the medical course are offered after the completion of freshman and sophomore college work, and on this combined course the B.S. degree is conferred. Each annual course extends over nine months. The fees for each year aggregate $200. The Dean is Dr. Thurman D. Kitchen. The total registration for 1921-1922 was 39. The twenty-first session begins Sept. 5, 1922, and ends May 25, 1923.

NORTH DAKOTA

North Dakota, population 645,680, has one medical college, the School of Medicine of the University of North Dakota, which is situated at University, a suburb of Grand Forks, a city of 14,010 people. It gives only the first two years of the medical course.

Students intending to practice medicine in North Dakota, in addition to a four-year high school education, must complete two years of work in an approved college of liberal arts including courses in Latin, physics, chemistry, botany and zoology, prior to beginning the study of medicine, and must show evidence of having spent at least one year as an intern in a hospital.

University

UNIVERSITY OF NORTH DAKOTA SCHOOL OF MEDICINE.—Organized in 1905. Offers only the first two years of the medical course. Two years' work in a college of liberal arts is required for admission. The fees are about $50 each year. The faculty consists of 9 professors and 8 instructors, a total of 17. The Dean is Dr. Harley E. French. The total registration for 1921-1922 was 43. The seventeenth session begins Sept. 22, 1922, and ends June 12, 1923.

OHIO

Ohio, population 5,759,394, has four medical colleges. Two of these, the Medical College of the University of Cincinnati and the Eclectic Medical College, are located in Cincinnati, a city of 401,247 inhabitants. Cleveland, population 796,841, contains one medical school, Western Reserve University School of Medicine. Columbus, population 237,031, contains the Ohio State University College of Medicine.

Cincinnati

UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE, Eden Avenue, Cincinnati General Hospital.—Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852). The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged into the University, when the title of Ohio-Miami Medical College of the University of Cincinnati was taken. Present title assumed in 1915. Two years of college work are required for admission. The faculty consists of 76 professors, 101 associates, assistants, etc., a total of 177. The course covers four years of eight months each. The fees for each of the four years, respectively, are $320, $320, $270 and $215. The Dean is Dr. Henry Page. The total registration for 1921-1922 was 207; graduates, 47. The next session begins Oct. 2, 1922, and ends June 16, 1923.

ECLECTIC MEDICAL COLLEGE, 630 West Sixth Street.—Organized in 1833 at Worthington as the Worthington Medical College. Removed to Cincinnati in 1843. In 1845 it was chartered as the Eclectic Medical Institute. In 1857 the American Medical College, organized in 1839, was merged into it, and in 1859 the Eclectic College of Medicine and Surgery, organized in 1856, was merged into it. In 1910 it assumed its present title. Classes were graduated in 1833 and in all subsequent years except 1839 to 1843, inclusive. It has a faculty of 30 professors and 16 lecturers and assistants, a total of 46. Two years of college work are required for admission. The course covers four years of eight months each. The total fees for the four years, respectively, are $170, $160, $160 and $160. The Secretary is Dr. John K. Scudder. Total registration for 1921-1922 was 85; graduates, 34. The next session begins Sept. 14, 1922, and ends May 14, 1923.

Cleveland

WESTERN RESERVE UNIVERSITY SCHOOL OF MEDICINE, 1353 East Ninth Street.—Organized in 1843 as the Cleveland Medical College. The first class graduated in 1844. It assumed the present title in 1881. In 1910 the Cleveland College of Physicians and Surgeons was merged. The faculty includes 18 professors and 130 lecturers, assistants, etc., a total of 148. The curriculum embraces three years of eight and one-half months each and one year of eleven months. Three years of college work are required for admission. The total fees for each of the four years are, respectively, $275, $260, $250 and $255. The Dean is Dr. C. A. Hamann. The total registration for 1921-1922 was 154; graduates, 26. The eightieth session begins Sept. 28, 1922, and ends June 14, 1923.

Columbus

OHIO STATE UNIVERSITY COLLEGE OF MEDICINE, 710 North Park Street.—Organized in 1907 as the Starling-Ohio Medical College by the union of Starling Medical College (organized 1847) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. The faculty consists of 42 professors and 54 lecturers, demonstrators, etc., a total of 96. Two years of collegiate work are required for admission. The course covers four years of eight months each. Tuition fees are $150 each year for residents of Ohio; for nonresidents, the fees are $200. The Dean is Dr. Eugene F. McCampbell. The total registration for 1921-1922 was 227; graduates, 35. The next session begins Sept. 28, 1922, and ends June 12, 1923.

OKLAHOMA

Oklahoma, population 2,028,283, has one medical college, the School of Medicine of the University of Oklahoma. The work of the first and second years is given on the academic campus at Norman, a city of about 5,004 inhabitants. The work of the third and fourth years is given in Oklahoma City, which has a population of 91,295 and which is eighteen miles north of Norman.

Students intending to practice medicine in Oklahoma, in addition to a four-year high school education, must complete two years of work in an approved college of liberal arts, including courses in physics, chemistry, biology and a modern language prior to beginning the study of medicine.

Norman and Oklahoma City

UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE.—Organized in 1900. Gave only the first two years of the medical course at Norman until 1910, when a clinical department was established at Oklahoma City. It has a faculty of 52 professors and 19 assistant instructors, a total of 71. Two years of collegiate work are required for admission. The course is four years of nine months each. An optional course of six years is offered for the degree of B.S. and M.D. The total fees for the four years are, respectively, $62, $70, $22 and $22. The Dean is Dr. Le Roy Long, 325 East Fourth Street, Oklahoma City. The total registration for 1921-1922 was 117; graduates, 15. The session begins Sept. 14, 1922, and ends June 5, 1923.

OREGON

Oregon, population 783,389, has one medical college, the University of Oregon Medical School, located in Portland, a city of 258,288 population.

Portland

UNIVERSITY OF OREGON MEDICAL SCHOOL, Marquam Hill.—Organized in 1887. The first class graduated in 1888. A class graduated each subsequent year except 1898. Became an integral part of the University of Oregon in 1910. The Willamette University Medical Department was merged in 1913. It has a faculty of 45 professors and 54 lecturers, assistants, etc., a total of 99. Entrance requirements are two years of college work or its equivalent. Beginning with 1924 entrance requirements will be three years of college work. The course is four years of eight months each. The total fees for the four years are, respectively, $165, $160, $160 and $160. The Dean is Dr. Richard B. Dillehunt. The total registration for 1921-1922 was 154; graduates, 10. The thirty-sixth session begins Oct. 2, 1922, and ends June 1, 1923.

PENNSYLVANIA

Pennsylvania, population 8,720,017, has six medical colleges. Of these, Philadelphia, having a population of 1,823,779, contains five, as follows: University of Pennsylvania School of Medicine, Jefferson Medical College, Hahnemann Medical College and Hospital, Woman's Medical College of Pennsylvania and Temple University Department of Medicine. The other school, the School of Medicine of the University of Pittsburgh, is situated in Pittsburgh, a city of 588,343.

Students intending to practice medicine in Pennsylvania, in addition to a four-year high school education, must complete a year's work in an approved college of liberal arts, including college courses in physics, chemistry and biology, before beginning the study of medicine. They must also have completed an internship of at least one year in an approved hospital.

Philadelphia

UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE, Thirty-Sixth Street and Hamilton Walk.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772-1779, inclusive. The original title was the Department of Medicine, College of Philadelphia. The present title, School of Medicine of the University of Pennsylvania, was adopted in 1909. It granted the first medical diploma issued in America. In 1916 it took over the Medico-Chirurgical College of Philadelphia to develop it as a graduate school. The faculty consists of 60 professors, associate, adjunct and assistant professors, and 120 lecturers, associates, instructors, etc., a total of 180. The requirements for admission are a standard four-year high school course or its equivalent, plus three years of work in an approved college of arts and science, including courses in French or German, and in physics, chemistry and general biology or zoology, with appropriate laboratory exercises. During the session of 1923-1924, all students will be required to have a college degree or to have completed three years of collegiate training with the provision that the Bachelor's degree will be given in the first year medicine. The first and second year classes are limited to 100 students; third and fourth to 125 each. The course embraces four years of study of thirty-five weeks each. The total fees for each of the four years are, respectively, $348, $320, $320 and $324. The Dean is Dr. William Pepper. Total registration for 1921-1922 was 436; graduates, 118. The one hundred and fifty-seventh session begins Sept. 29, 1922, and ends June 20, 1923.

JEFFERSON MEDICAL COLLEGE, Tenth and Walnut Streets.—Organized in 1825 with its present title as the Medical Department of Jefferson College, Cannonsburg, Pa. Classes have been graduated annually since 1826. In 1838 a separate university charter was granted without change of title, since which time it has continued under the direction of its own board of trustees. It has a faculty of 46 professors, associate and assistant professors, and 127 associates, lecturers, demonstrators and instructors, a total of 173. Entrance requirements are a completed standard four-year high school or college preparatory course, or the equivalent, and in addition two years of work leading to a degree in an approved college of arts and science amounting to at least 60 semester hours, including specified courses in physics, general and organic chemistry and biology, with laboratory work in each subject. The course of study covers four years of eight and a half months each. The fees are about $325 each year, with a matriculation fee of $5 paid on admission. The Dean is Dr. Ross V. Patterson. The total registration for 1921-1922 was 547; graduates, 88. The ninety-eighth session begins Sept. 25, 1922, and ends June 1, 1923.

Woman's Medical College of Pennsylvania, Twenty-First and N. College Avenue.—Organized in 1850. Classes were graduated in 1852 and in all subsequent years except 1862. It has a faculty of 20 professors and 49 assistants, lecturers, etc., in all 69. Entrance requirements are a completed course in a standard secondary school, and in addition two years of collegiate work, including courses in physics, chemistry, biology and French or German. The curriculum covers four years of eight months each. Fees for each of the four years are, respectively, $225, $204, $227 and $209. The Dean is Dr. Martha Tracy. The total registration for 1921-1922 was 121; graduates, 32. The eighty-third session begins Sept. 27, 1922, and ends June 13, 1923.

Hahnemann Medical College and Hospital of Philadelphia, 220-24 North Broad Street.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the latter title. Assumed present title in 1885. The first class graduated in 1849. Entrance requirements are a completed course in a standard secondary school and in addition two years devoted to a college course, including English and either French, German or Spanish, physics, chemistry and biology. It has a faculty of 34 professors and 78 lecturers, instructors, etc., in all 112. The work covers four years of eight and a half months each. Total fees are $250 each year. The Dean is Dr. William A. Pearson. The total registration for the college year 1921-1922 was 157; graduates, 17. The seventy-fifth session begins Oct. 2, 1922, and ends June 7, 1923.

The Temple University School of Medicine, Eighteenth and Buttonwood Streets.—Organized in 1901. The first class graduated in 1904. The faculty numbers 115. Two years of college work are required for admission. The fees for each of the four years, respectively, are $180, $175, $165 and $170. The Dean is Dr. Frank C. Hammond. The total registration for 1921-1922 was 90; graduates, 19. The twenty-second session begins Sept. 25, 1922, and ends June 14, 1923.

Pittsburgh

University of Pittsburgh School of Medicine, Bigelow Boulevard.—Organized in 1886, as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910. The first class graduated in 1887. The faculty is composed of 17 professors and 118 associates, assistants, etc., 135 in all. Entrance requirements are two years of college work, including English, chemistry (inorganic and organic), physics, biology and a reading knowledge of French or German, Italian or Spanish. The course of study is four years of eight and a half months each. The total fees for the four years, respectively, are $325, $310, $310 and $320. The Dean is Dr. Raleigh R. Huggins. The total registration for 1921-1922 was 168; graduates, 26. The thirty-seventh session begins Sept. 25, 1922, and ends June 13, 1923.

SOUTH CAROLINA

South Carolina, population 1,683,724, has one medical college, situated in Charleston, a city of 67,957 people.

Students intending to practice medicine in South Carolina must complete, in addition to 14 units of high school work, two years in an approved college, including courses in English, physics, chemistry and biology.

Charleston

The Medical College of the State of South Carolina, 16 Lucas Street.—Organized in 1823 as the Medical College of South Carolina. The first class graduated in 1825. In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838. Classes were graduated in all years except 1862 to 1865, inclusive. In 1913, by legislative enactment, it became a state institution. It has a faculty of 34 professors and 27 lecturers, instructors, etc., a total of 61. The course covers four years of eight months each. Two years of collegiate work including courses in physics, chemistry, biology and a modern foreign language are required for admission, in addition to a standard high school preparation. The total fees are $165 annually. The Dean is Dr. Robert Wilson, Jr. Total enrolment for 1921-1922 was 109; graduates, 13. The ninety-fourth session begins Sept. 21, 1922, and ends June 7, 1923.

SOUTH DAKOTA

South Dakota, population 636,547, has one medical college, the University of South Dakota College of Medicine, located at Vermilion, a town of 2,590 people.

Students intending to practice medicine in South Dakota must show that they matriculated in and graduated from medical colleges which required at least two years of collegiate work for admission, including courses in physics, chemistry, biology and a modern language.

Vermilion

University of South Dakota College of Medicine.—Organized in 1907. Offers only the first two years of the medical course. Two years' work in a college of liberal arts are required for admission. The fees are $60 each year. The faculty numbers 10. The Dean is Christian P. Lommen, B.S. The total registration for 1921-1922 was 43. The sixteenth session begins Sept. 15, 1922, and ends June 16, 1923.

TENNESSEE

Tennessee, population 2,337,885, has four medical colleges. Of these, Vanderbilt University School of Medicine and Meharry Medical College are situated in Nashville, a city with a population of 118,342. The College of Medicine of the University of Tennessee and the University of West Tennessee College of Medicine and Surgery are located in Memphis, population 162,351.

Students intending to practice medicine in Tennessee must complete two years of collegiate work, including courses in physics, chemistry, biology and a modern language, in addition to a four-year high school course, before entering on the study of medicine.

Memphis

University of Tennessee College of Medicine, three buildings, 879 Madison Avenue.—Organized in 1876 at Nashville as Nashville Medical College. First class graduated 1877, and a class graduated each subsequent year. Became Medical Department of University of Tennessee in 1879. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. This union was dissolved in 1911. The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor. In 1911 it moved to Memphis, where it united with the College of Physicians and Surgeons. The Memphis Hospital Medical College was merged in 1913. Lincoln Memorial University Medical Department was merged in 1914. The faculty includes 51 professors and 71 assistants, instructors, etc., a total of 122. Entrance requirements are a high school education plus two years of collegiate work. Students taking the two-year premedical course in Knoxville may secure the B.S. and M.D. degrees. The total fees for the four years, respectively, are $117, $112, $107 and $132 for bona fide residents of the state, and $50 more each year for nonresidents. The Acting Dean is Dr. James B. McElroy. Total registration for 1921-1922 was 108; graduates, 11. The next session begins Sept. 30, 1922, and ends June 11, 1923.

University of West Tennessee Medical Department, Colored. 1190 South Phillips Place.—Organized in 1900. The first class graduated in 1904, and a class graduated each subsequent year. Total registration for 1921-1922 was 7; graduates, 4. *Official reports indicate that the diplomas of this college are not recognized by the licensing boards of Tennessee and forty-six other states.*

Nashville

Vanderbilt University School of Medicine.—This school was founded in 1874. The first class graduated in 1875. The faculty consists of 40 professors and 50 lecturers, a total of 90. Two years of collegiate work is required for admission. The course covers four years of nearly eight and a half months each. The total fees for the four years, respectively, are $150, $150, $150 and $175. The Acting Dean is Dr. Lucius E. Burch. The total registration for 1921-1922 was 149; graduates, 13. The forty-ninth session begins Sept. 27, 1922, and ends June 13, 1923.

Meharry Medical College. Colored. 1118 First Avenue, South. —This school was organized in 1876 as the Medical Department of Central Tennessee College, which became Walden University in 1900. First class graduated in 1877. Obtained new charter independent of Walden University in 1916. The faculty is made up of 23 professors and 15 instructors, demonstrators, lecturers, etc, 38 in all. The work embraces four years of thirty-one weeks each. The total fees for each of the first three years are $152 and for the fourth year $172. The President is Dr. John J. Mullowney. Total registration for 1921-1922 was 180; graduates, 28. The forty-seventh session begins Oct. 2, 1922, and ends May 24, 1923.

TEXAS

Texas, population 4,663,228, has two medical colleges. The University of Texas School of Medicine is located at Galveston, a city of 44,255 inhabitants. The Baylor University College of Medicine is located in Dallas, population 158,976.

Students intending to practice medicine in Texas must complete at least a year of collegiate work, including courses in physics, chemistry, biology and modern language, in addition to a standard four-year high school course, before entering on the study of medicine.

Dallas

Baylor University College of Medicine, 720 College Avenue.—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University. It acquired the charter of Dallas Medical College in 1904. The first class graduated in 1901. The faculty consists of 44 professors and 39 instructors and assistants, a total of 83. Entrance requirements are two years of college work in addition to a four-year high school education. The course is four years of eight months each. The fees for each of the four years, respectively, are $195, $190, $190 and $185. The Dean is Dr. McIver Woody. Total registration for

1921-1922 was 112; graduates, 23. The twenty-third session begins Oct. 2, 1922, and ends June 10, 1923.

Galveston

University of Texas School of Medicine, Avenue B, between Ninth and Tenth Streets.—Organized in 1891. The first class graduated in 1892. It has a faculty of 11 professors and 32 lecturers and instructors, a total of 43. The curriculum embraces four years of eight months each. The entrance requirement is two years of collegiate work in addition to a four year high school education. The total fees for the four years, respectively, are $88, $58, $35 and $23 for residents of the state; $150 each year additional for nonresidents. The Acting Dean is Dr. W. Keiller. Total registration for 1921-1922 was 256; graduates, 42. The thirty-second session begins Sept. 30, 1922, and ends May 31, 1923.

UTAH

Utah, population 449,396, has one medical college, the School of Medicine of the University of Utah, situated at Salt Lake City, which has 118,110 people.

Students intending to practice medicine in Utah, in addition to a four-year high school education, must complete at least one year of collegiate work, including courses in physics, chemistry and biology, prior to beginning the study of medicine.

Salt Lake City

University of Utah School of Medicine.—Organized in 1906. Gives only first two years of medical course. Each course covers thirty-six weeks. Two years of collegiate work are required for admission. Beginning in 1924 three years of college work will be required for admission. The medical faculty consists of 11 professors and 15 lecturers and assistants, a total of 26. The fees are $130 each year. The Dean is Dr. Perry G. Snow. Total registration for 1921-1922 was 58. The sixteenth session begins Sept. 25, 1922, and ends June 7, 1923.

VERMONT

Vermont, population 352,428, has one medical school, located at Burlington, a town of 22,779 people.

Students who desire to practice medicine in Vermont, in addition to a standard four-year high school education, must complete two years of collegiate work, including college courses in physics, chemistry and biology, before entering on the study of medicine.

Burlington

University of Vermont College of Medicine, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. The faculty numbers 43. Two years of college work in addition to a four-year high school education are required for admission. The course of study covers four years of nine months each. The total fees for each of the first three years are $200 and $225 for the fourth year. The Dean is Dr. H. C. Tinkham. The total registration for 1921-1922 was 117; graduates, 16. The next session begins Sept. 20, 1922, and ends June 18, 1923.

VIRGINIA

Virginia, population 2,309,187, has two medical colleges, one, the Department of Medicine of the University of Virginia, situated in Charlottesville, population 10,688, and the Medical College of Virginia at Richmond, population 171,667.

Students desiring to practice in Virginia must be graduates of medical colleges which require that all students admitted shall have completed two years of collegiate work, including courses in physics, chemistry, biology and a modern language, preferably German, in addition to a four-year high school education.

Charlottesville

University of Virginia Department of Medicine.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. It has a faculty of 19 professors and 25 lecturers, instructors, assistants, etc., a total of 44. The requirements for admission are the completion of a four-year high school course, or its equivalent, and two years of college work devoted to English, mathematics, chemistry, physics and biology, and a foreign language. Total fees for the four years, respectively, are $235, $240, $180 and $175. The Dean is Dr. Theodore Hough. The total registration for 1921-1922 was 152; graduates, 20. The ninety-fourth session begins Sept. 14, 1922, and ends June 12, 1923.

Richmond

Medical College of Virginia, Marshall and College Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Classes were graduated in 1840 and in all subsequent years. It has a faculty of 44 professors and 60 lecturers, instructors, etc., a total of 104. The requirement for admission is a four-year high school education and in addition two years of collegiate work, including courses in physics, chemistry, biology and French or German. The course embraces four years of eight months each. Total fees for the four years, respectively, are $230, $230, $220 and $250. The Dean is Dr. E. C. L. Miller. The total registration for 1921-1922 was 163; graduates, 27. The eighty-fourth session begins Sept. 13, 1922, and ends June 5, 1923.

WEST VIRGINIA

West Virginia, population 1,463,701, has one medical college, the School of Medicine of West Virginia University, which offers the first two years of the medical course. It is located at Morgantown, a city of 12,127 population.

Students who desire to practice medicine in West Virginia must complete, in addition to a high school education, two years of collegiate work, including courses in physics, chemistry and biology, before entering on the study of medicine.

Morgantown

West Virginia University School of Medicine.—Organized in 1902, and gives only the first two years of the medical course. Two years of college work are required for admission and the Bachelor's degree will be granted to those who finish the two years in medicine. Session extends through nine months. The faculty numbers 15. Fees: For residents of the state, $90 each year; for nonresidents, $240. Cadets pay laboratory fees only. The Dean is Dr. John N. Simpson. The total registration for 1921-1922 was 104. The next session begins Sept. 18, 1922, and ends June 4, 1923.

WISCONSIN

Wisconsin, population 2,632,067, has two medical colleges, the Medical School of the University of Wisconsin, which teaches the first two years of the medical course, and is located at Madison, a city of 38,378 people, and the Marquette University School of Medicine, located at Milwaukee, a city of 457,147 people.

Students intending to practice medicine in Wisconsin, prior to entering a medical school, must complete, besides a four-year high school course, two years of collegiate work, including courses in physics, chemistry, biology and a modern language.

Madison

University of Wisconsin Medical School.—Organized in 1907. Gives only the first two years of the medical course. For matriculation at least two years in a college of arts and science or an equivalent training are required, including two years of Latin, a reading knowledge of French or German, and at least a year's work in physics, chemistry and biology. It has a faculty of 17 professors and 42 lecturers, instructors, etc., a total of 59. Tuition fees: for residents of the state, $90 for first year and $85 for second year; for nonresidents, $152 for first year and $147 for second year. The Dean is Dr. Charles R. Bardeen. The registration for 1921-1922 was 160. The fifteenth session begins Sept. 20, 1922, and ends June 12, 1923.

Milwaukee

Marquette University School of Medicine, Fourth Street and Reservoir Avenue.—Organized in December, 1912, by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. It has a faculty of 98. The entrance requirements are two years of college work, including courses in physics, chemistry, biology and a modern language. The curriculum covers four years of eight and a half months each. The fees for the four years, respectively, are $305, $295, $295 and $275. The Dean is Dr. Louis F. Jermain; the Dean of students is Dr. Eben J. Carey. The registration for 1921-1922 was 187; graduates, 19. The eleventh session begins Oct. 2, 1922, and ends June 14, 1923.

PHILIPPINE ISLANDS

The Philippine Archipelago, with a population of 10,607,872, has two medical colleges, the University of the Philippines College of Medicine and Surgery and the University of St. Thomas College of Medicine and Surgery. They are located in the city of Manila, which in 1914 had a population of 283,613.

Manila

University of the Philippines College of Medicine and Surgery, Manila.—Organized in 1907 as the Philippine Medical School, under the support of the government of the Philippine Islands. Present title in 1910. The faculty includes 35 professors and 36 lecturers, assistants, etc., a total of 71. A two-year collegiate course leading to the degree of bachelor of arts is required for admission, including courses in English, physics, chemistry, biology and either French or German. The course extends over five years. In the fifth year the students are assigned as clinical clerks in the Philippine General Hospital. The Dean is Dr. Fernando Calderon. The total registration for 1921-1922 was 127; graduates, 25. The sixteenth session began July 1, 1922, and ends April 4, 1923.

University of St. Thomas College of Medicine and Surgery, Manila.—Organized in 1907. The faculty includes 16 professors and

8 assistants, instructors, etc., a total of 24. The course extends over five years. The Dean is Jose L. de Castro. The total registration for 1921-1922 was 403; graduates, 45. The next session begins July 2, 1922, and ends March 31, 1923.

CANADA

The Dominion of Canada has nine medical colleges, six of which require a six-year course, including courses in physics, chemistry and biology. This course is practically equal to that in the colleges of the United States which require two years of college work for admission, including the science courses named.

Alberta

University of Alberta, Faculty of Medicine, Edmonton.—Organized in 1913. Offers the first four years of the six-year medical course. Faculty numbers 52. Fees for the first year are $90; for the second, third and fourth years, each $115. The Registrar is Cecil E. Race, B.A. The registration for 1921-1922 was 155. The tenth session begins Sept. 26, 1922, and ends May 11, 1923.

Manitoba

University of Manitoba Faculty of Medicine, Winnipeg.—Organized in 1883 as Manitoba Medical College; first class graduated in 1886, and a class graduated each subsequent year. The college transferred all its property to the University of Manitoba in 1919 and assumed the present title. The faculty numbers 113. The total fees for the five years, respectively, are $178, $173, $183, $183 and $173. Matriculation requirements include two years of college work in the Faculty of Arts and Science of a recognized university subsequent to the complete high school course required for entrance to the latter. The Dean is Dr. S. Willis Prowse. Total registration for 1921-1922 was 305; graduates, 29. The next session begins Sept. 5, 1922, and ends May 31, 1923.

Nova Scotia

Dalhousie University, Faculty of Medicine, Halifax, N. S.—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty, separate from the Halifax Medical College, in 1855. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the University. By an arrangement between Dalhousie University and the Provincial Medical Board of Nova Scotia, the final professional examinations are conducted conjointly by the university and the board, and candidates may qualify at the same time for their academic degrees and the provincial license. First class graduated in 1872. It has a faculty of 49 professors, lecturers and demonstrators. Requires matriculation, examination and a graded course of six years, including premedical courses in physics, chemistry and biology. The fees are $200 each year. The total registration for 1921-1922 was 140; graduates, 24. The Dean is Dr. John Stewart. The next session begins Oct. 2, 1922, and ends May 26, 1923.

Ontario

University of Toronto, Faculty of Medicine, Toronto.—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1902 it absorbed Victoria University, Medical Department, and in 1903 absorbed Trinity Medical College. The course of study covers six years of eight months each, the first two being devoted largely to physics, chemistry, biology and cultural courses in history, science and English. It has a faculty of 58 professors and 194 lecturers, associates, etc., a total of 252. The fees are $163 for the first four years and $191 for the fifth year. The Dean is Dr. A. Primrose. The total registration for 1921-1922 was 1,056; graduates, 138. The next session begins Sept. 26, 1922, and ends May 31, 1923.

Queen's University Faculty of Medicine, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty was originally a department of the university, but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston. In 1892 the school again became an integral part of Queen's University. The faculty includes 26 professors and 24 assistants, instructors, etc., a total of 50. The fees for the six years, respectively, $130, $135, $135, $144, $144 and $134; fee for M.D., C.M. degrees, $30. The course covers six years of thirty teaching weeks each, the first year including courses in physics, chemistry, biology, English and French or German. The total registration in 1921-1922 was 240; graduates, 40. The Dean is Dr. J. C. Connell. The next session begins Sept. 28, 1922, and ends May 26, 1923.

Western University, Faculty of Medicine, London.—Organized in 1881, first class graduated in 1883, and a class graduated each subsequent year. The medical school has been under the control of the Board of Governors of the Western University since 1913. The faculty numbers 55. The course is six years, of eight months each, the first year including premedical courses in physics, chemistry and biology. Beginning with the session of 1923-1924 two years of premedical college work will be required followed by a four year medical course. The total fees for the six years, respectively, are $155, $150, $150, $158, $158 and $183. The Acting Dean is Dr. Paul S. McKibben. Total registration for 1921-1922 was 121; graduates, 18. The next session begins Oct. 2, 1922, and ends May 25, 1923.

Montreal

McGill University, Faculty of Medicine.—Founded 1824 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-1839 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop College. The course extends over six years of eight months each, including the two preliminary years. The faculty numbers 150. The total fees each year are $200. The total registration for 1921-1922 was 705; graduates, 108. The Assistant Dean is Dr. John W. Scane. The next session begins Oct. 2, 1922, and ends June 10, 1923.

University of Montreal Medical Faculty, Montreal.—Organized in 1843, incorporated in 1845 as the Montreal School of Medicine and Surgery. In 1891, by act of parliament, the Medical Faculty of Laval University (organized in 1878) was absorbed. Present name, by act of Parliament, in 1920. A class was graduated in 1843 and in each subsequent year. The faculty numbers 80. The course extends over six years, including premedical courses in physics, chemistry and biology. The total fees each year are $175. The Dean is Louis de Harwood. The total registration for 1921-1922 was 321; graduates, 55. The next session begins Sept. 15, 1922, and ends June 15, 1923.

Quebec

Laval University Faculty of Medicine, Quebec.—The Quebec School of Medicine, organized in 1848, became in 1852 the Medical Department of Laval University; first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 35. The fees are $135 each year. The course extends over five years, the first year including courses in physics, chemistry and biology. The Secretary is Dr. Arthur Vallée, Quebec. Total registration for 1921-1922 was 163; graduates, 22.

State Requirements of Preliminary Education

There are now forty-two states (counting Alaska Ter.) which have adopted requirements of preliminary education in addition to a standard four-year high school education. These states, the number of college years required and the time the higher requirements became or become effective, are as follows:

State Examining Board of	One Year of College Work		Two Years of College Work	
	Affects Students Matriculating	Affects All Graduates	Affects Students Matriculating	Affects All Graduates
Alabama	....	....	1915-16	1919
Alaska	1914-15	1918	1918-19	1922
Arizona	1914-15	1918	1918-19	1922
Arkansas	1915-16	1919	1918-19	1922
California	1915-16	1919	....	....
Colorado	1908-09	1912	1910-11	1914
Connecticut	1911-12	1915	....	....
Delaware*	....	....	....	....
District of Columbia†	....	....	....	....
Florida	1914-15	1918	1918-19	1922
Georgia	....	....	1918-19	1922
Idaho	....	....	1915-16	1919
Illinois	1915-16	1919	1918-19	1922
Indiana	1910-11	1914	1911-12	1915
Iowa	....	....	1911-12	1915
Kansas	1910-11	1914	1918-19	1922
Kentucky	1914-15	1918	1918-19	1922
Louisiana	1915-16	1919	1918-19	1922
Maine	1915-16	1919	1916-17	1920
Maryland	1914-15	1918	1918-19	1922
Massachusetts†	....	....	....	....
Michigan	1914-15	1918	1918-19	1922
Minnesota	....	....	1908-09	1912
Mississippi	1915-16	1919	1919-20	1923
Missouri*	....	....	....	....
Montana	1914-15	1918	1918-19	1922
Nebraska*	....	....	....	....
Nevada*	....	....	....	....
New Hampshire	1914-15	1918	1915-16	1919
New Jersey	1915-16	1919	1917-18	1921
New Mexico	1914-15	1918	1918-19	1922
New York	1917-18	1921	1918-19	1922
North Carolina	1914-15	1918	1918-19	1922
North Dakota	....	....	1908-09	1912
Ohio*	....	....	....	....
Oklahoma	1914-15	1918	1917-18	1921
Oregon	....	....	1920-21	1924
Pennsylvania	1914-15	1918	....	....
Rhode Island	1914-15	1918	1918-19	1922
South Carolina	....	....	1918-19	1922
South Dakota	1908-09	1912	1911-12	1915
Tennessee	1916-17	1920	1918-19	1922
Texas	1914-15	1918	....	....
Utah	1913-14	1917	1922-23	1926
Vermont	1913-14	1917	1918-19	1922
Virginia	1914-15	1918	1917-18	1921
Washington	1914-15	1918	1918-19	1922
West Virginia	1917-18	1921	1920-21	1924
Wisconsin	....	....	1915-16	1919
Wyoming†	....	....	....	...

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* Require a four-year high school education or its equivalent.

† No fixed standard.

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership in this association are 15 units of high school work and two years (60 semester hours) of college work.

Curriculum: The entire course of four years shall consist of not less than 3,600 hours, and shall be grouped in divisions and subdivided into subjects, each division and each subject to be allotted approximately the number of hours and percentages of the whole shown in the following schedule:

DIVISION I.

Anatomy, 684 Hours (19%).	Minimum % of 3,600 Hours.
1. Gross anatomy, including clinical or applied anatomy	19%
2. Microscopic anatomy	
3. Embryology	

DIVISION II.

Physiology and Chemistry, 468 Hours (13%).	
1. Physiology	8%
2. Biochemistry	5%

DIVISION III.

Pathology and Bacteriology, 468 Hours (13%).	
1. Pathology, including necropsies	8 %
2. Bacteriology, including serology and immunology	3½%
3. Preventive medicine and public health	1½%

DIVISION IV.

Pharmacology, 216 Hours (6%).	
1. Materia medica and pharmacy	6%
2. Pharmacology	

DIVISION V.

Medicine and Medical Specialties, 900 Hours (25%).	
1. General medicine, including laboratory diagnosis	15 %
2. Pediatrics	4 %
3. Nervous and mental diseases	3½%
4. Dermatology and syphilis	2 %
5. Medical jurisprudence	½%

DIVISION VI.

Surgery and Surgical Specialties, 648 Hours (18%).	
1. Surgery	11 %
2. Orthopedic surgery	2 %
3. Urology	1 %
4. Ophthalmology	1½%
5. Otology, rhinology and laryngology	1½%
6. Roentgenology	1 %

DIVISION VII.

Obstetrics and Gynecology, 216 Hours (6%).	
1. Obstetrics, including obstetric surgery	4 %
2. Gynecology	2 %

When teaching conditions demand it, a subject may be transferred from one division to another.

MEMBERS OF ASSOCIATION

University of Alabama School of Medicine.
Stanford University School of Medicine.
University of California Medical School.
University of Colorado School of Medicine.
Yale University School of Medicine.
Georgetown University Medical School.
George Washington University School of Medicine.
Howard University School of Medicine.
Army Medical School.
Navy Medical School.
Emory University Medical Department.
University of Georgia College of Medicine.
Loyola University School of Medicine.
Northwestern University Medical School.
Rush Medical College.
University of Illinois College of Medicine.
Indiana University School of Medicine.
State University of Iowa College of Medicine.
University of Kansas School of Medicine.
University of Louisville Medical Department.
Tulane University of Louisiana School of Medicine.
Johns Hopkins University Medical Department.
University of Maryland School of Medicine and College of Physicians and Surgeons.
Boston University School of Medicine.
Medical School of Harvard University.
Tufts College Medical School.
Detroit College of Medicine and Surgery.
University of Michigan Medical School.
University of Minnesota Medical School.
University of Mississippi School of Medicine.
St. Louis University School of Medicine.
University of Missouri School of Medicine.
Washington University Medical School.
John A. Creighton Medical College.
University of Nebraska College of Medicine.
Columbia University College of Physicians and Surgeons.
Cornell University Medical College.
Long Island College Hospital.
Syracuse University College of Medicine.
University and Bellevue Hospital Medical College.
University of Buffalo Department of Medicine.
University of North Carolina School of Medicine.
Wake Forest College School of Medicine.
University of North Dakota School of Medicine.
Ohio State University College of Medicine.
University of Cincinnati College of Medicine.
Western Reserve University School of Medicine.
University of Oklahoma School of Medicine.
Hahnemann Medical College and Hospital.
Jefferson Medical College.
University of Pennsylvania School of Medicine.
University of Pittsburgh School of Medicine.
Woman's Medical College of Pennsylvania.
University of the Philippines College of Medicine and Surgery.
Medical College of the State of South Carolina.
University of South Dakota College of Medicine.
Meharry Medical College (Affiliated Member).
University of Tennessee College of Medicine.
Vanderbilt University Medical Department.
Baylor University College of Medicine.
University of Texas Medical Department.
University of Vermont College of Medicine.
Medical College of Virginia.
West Virginia University School of Medicine.
University of Virginia Department of Medicine.
Marquette University School of Medicine.
University of Wisconsin Medical School.

The secretary-treasurer of the Association is Dr. Fred C. Zapffe, 3431 Lexington Street, Chicago.

Hospital Intern Year

Eleven medical colleges have adopted the requirement of a fifth year to be spent by the student as an intern in an approved hospital or in other acceptable clinical work before the M.D. degree will be granted. These colleges and the years when the requirement became effective for matriculants and graduates are as follows:

	Affects Matriculants	Affects Graduates
University of Minnesota Medical School	1910-11	1915
Stanford University School of Medicine	1914-15	1919
Rush Medical College (University of Chicago)	1914-15	1919
University of California Medical School	1914-15	1919
Marquette University School of Medicine	1915-16	1920
Northwestern University Medical School	1915-16	1920
University of Illinois College of Medicine	1917-18	1922
Loyola University School of Medicine	1917-18	1922
Columbia Univ. Coll. of Phys. & Surgs., N. Y.	1918-19	1923
Detroit College of Medicine and Surgery	1919-20	1924
University of Nebraska College of Medicine	1922-23	1927

The hospital intern year has been adopted as an essential qualification for the license to practice in ten states, becoming effective in different years, as follows:

State Board of	Affects Student Matriculants	Affects All Applicants
Pennsylvania	1909-10	1914
New Jersey	1911-12	1916
Alaska	1912-13	1917
Rhode Island	1913-14	1917
North Dakota	1913-14	1918
Washington	1914-15	1919
Illinois	1917-18	1922
Michigan	1917-18	1922
Iowa	1918-19	1923
Texas	1919-20	1924

Metric System in England.—The advantages of the metric system have frequently been put forward, and though in many branches of science the system has secured a firm foothold, yet medicine, so far as clinical work is concerned, lags behind, apparently reluctant to make the experiment. . . . The present tendency is so clearly toward the approximation of scientific methods amongst all civilized nations that there need be no doubt that in the future the metric system will be adopted in this country.—*Lancet,* March 11, 1922.

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SATURDAY, AUGUST 19, 1922

MEDICAL EDUCATION—PROGRESS OF TWENTY-TWO YEARS

This week, for the twenty-second consecutive year, The Journal publishes statistics regarding medical education in the United States. During these years, medical education in this country has undergone extensive improvement, and educational standards have been brought to a reasonably high plane.

BEGINNING OF THE CAMPAIGN

In 1901, when The Journal first published its statistics regarding medical colleges, students and graduates, many of the 159 medical colleges listed in the first Educational Number were known to be joint stock corporations conducted largely for the profit of their owners. Little or no attention was then paid to entrance requirements, even by some of the larger colleges. In regard to the number and qualifications of teachers, the number and equipment of laboratories, the amount and use made of clinical material, or the methods of teaching employed, no definite information was available. No one, in fact, knew just how serious conditions in the medical schools actually were. Sectarian medicine was at its zenith, with twenty-two homeopathic and ten eclectic colleges. The enrolments in all medical schools had reached the enormous total of 26,417 students, and of these 5,444 graduated.

The campaign was begun, therefore, with the first publication of data in 1901. The information published showed the need of improvement, and this led to the creation in 1904 of a permanent committee of the American Medical Association—the Council on Medical Education—to centralize efforts in this particular work.

PROGRESS FROM 1906 TO 1910

As a part of its function, the Council on Medical Education naturally took over the work of collecting and tabulating statistics relating to medical education. A permanent secretary was employed; files were established for the information, and a careful and extensive study of medical education was begun. A study of medical education abroad showed that there were 154 medical schools in all the rest of the world,[1] while the United States alone had 160—a large oversupply. Except in a few medical schools, also, educational standards in this country were much lower than those abroad.[2] The Council immediately prepared two educational standards,[3] therefore, one for immediate adoption by the medical schools, and another, termed "the ideal standard," for later adoption. Mergers of medical schools were urged in cities or states where two or more existed by which, in each instance, one stronger and better institution resulted. An annual conference held each year since 1904 resulted in securing uniformity of action by all organizations interested in medical education. At these conferences the discussion of educational problems resulted in improved entrance standards and methods of teaching.

In 1906 the Council made its first tour of inspection of all medical schools, and in 1907 the first classification was prepared. This was read at the annual conference and at the meeting of the House of Delegates, and each college was notified of its position in the classification. The second tour of inspection was completed in 1910, and the second classification of medical schools was published.[4] Before the second inspection was made, the number of medical colleges had been reduced, largely by mergers, from 162 to 131; the number of graduates was reduced from 5,747 to 5,440, and the number of students from 28,142 to 21,526. By this time, also, many of the medical schools had undergone extensive internal development. Entrance standards had been raised; better teachers employed; better buildings erected; new laboratories established, and extensive clinical facilities secured. Where formerly only four medical schools were requiring any college work for admission, by 1910 thirty-five colleges and eight state licensing boards had adopted a requirement of one or two years of college work as a minimum standard of preliminary education. Through the inspections and other means of obtaining first hand information, the data published each year in the Educational Number were verified and made reliable.

Following the first inspection of the medical schools, at the urging of the Council, the Carnegie Foundation for the Advancement of Teaching consented to make a survey of the medical schools. As a consequence, the second tour of inspection was made jointly by representatives of the Council and the Foundation. In its report, the Carnegie Foundation made no classification and suggested no standards, but it did secure a wide publicity to its report, which was of great service in the later development of medical education.

PROGRESS FROM 1910 TO 1915

The information collected by the Council regarding all medical colleges, existing and extinct, during the first four year period (1905-1909) was sufficiently complete to permit the publication of a reliable chart,[5] which showed the number of medical colleges existing in the United States in every year since 1765, when the Department of Medicine of the College of Philadelphia—now the University of Pennsylvania—was organized. In 1910, also, a medical students' register was established through which a better record of the histories and educational qualifications of medical students has been secured, as well as the facts regarding their promotion from class to class. In the establishing of this register, the Council had a hearty and gratifying cooperation from the majority of medical schools. During the second five year period (1910-1915) two other complete inspections of medical colleges were made and new classifications were published.

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[1] List in J. A. M. A. **49**: 596 (Aug. 17) 1907.
[2] See chart in J. A. M. A. **55**: 680 (Aug. 10) 1910.
[3] J. A. M. A. **45**: 270 (July 22) 1905.
[4] J. A. M. A. **54**: 2061 (June 1) 1910.

During this period also twenty medical colleges were merged with others and sixteen became extinct, which further reduced the total number from 131 to ninety-five. The number of medical students was reduced from 21,526 to 14,891, and the number of graduates from 5,440 to 3,536. The number of medical colleges requiring one or two years of college work for admission was further increased from thirty-five (27 per cent.) to eighty-three (88 per cent.), and the number of licensing boards holding to these higher requirements was increased from eight to eighteen. Not only had the majority of medical colleges adopted the higher entrance requirements, but also, through the reliable data collected by the Council, the methods employed by each college in admitting students, and the strictness with which the entrance requirements were administered, were known with fair accuracy. The Council, therefore, was in position to recognize at once any faulty methods or "paper standards," which were not uncommon before the campaign for improvement began. The continuous agitation for better conditions, aided materially by the report of the Carnegie Foundation, appealed to philanthropists to such an extent that endowments for medical education were greatly increased, and large gifts for medical buildings, new laboratories, scholarships, endowed chairs and teaching hospitals became of frequent occurrence.

The fall of 1914 marked an epoch in the progress of medical education in the United States in that a year of college work, including courses in physics, chemistry and biology as a requirement for admission to medical schools, was made an essential for the Council's Class A rating. Thus, the standard which in 1905 had been termed "ideal" became the essential standard in 1914.

PROGRESS OF THE LAST SIX YEARS

In 1916, the entrance requirements of medical schools were further extended from one to two years of college work in addition to a high school education; by order of the House of Delegates, the latter standard was made an essential for the Class A rating, beginning Jan. 1, 1918. This was not a drastic ruling, since forty-six medical colleges and seventeen state licensing boards already had put that standard into effect.

By 1917, when the United States entered the World War, the total number of medical schools had been reduced to ninety-five, but the number of higher grade schools had been increased from four to eighty-six. For several years, also, the majority of graduates had received a much better training as a result of the greatly improved conditions in medical schools. It was these recent graduates, meanwhile, who in large proportions entered the government medical services and who became responsible for the medical welfare of America's soldiers and sailors. The campaign for improvement, which had made such rapid headway since 1904, was, therefore, of great benefit to the nation during the war.

Through the medical students' register, which contained the home addresses of the majority of medical students, information was secured which led to the retaining of students in the medical schools as members of the Medical Enlisted Reserve Corps, instead of having them drafted into the army, which would have resulted in the closing of many of the medical schools.

SUMMARY OF PROGRESS MADE

Medical education has been greatly improved, and educational standards have been placed on a par with those of other leading nations. In place of a large oversupply of medical schools, there are now eighty-one—a more normal supply—seventy-four of which are requiring for admission two or more years of college work. Besides the advance in the requirements for admission, many other improvements have been made. Endowments have been increased; new and larger medical buildings have been erected or entire teaching plants constructed; more and better equipped laboratories have been established; better hospital relations have been secured—several colleges having built hospitals of their own—and better teaching methods have been adopted. The number of students since 1904 was reduced from 28,142 to 16,140;[6] at the same time, the proportion of medical students in well equipped medical colleges has been increased from 3.9 per cent. to 96.1 per cent. Of medical graduates, likewise, although the total has been reduced by 40 per cent., the number coming from high grade, well equipped medical colleges has been increased from 5.6 per cent. to 94.4 per cent. The number of graduates this year—2,529—is the smallest number reported since the publishing of these statistics began. It is the war class and is made up of those matriculating in 1918, who were not subject to the draft or who did not enlist. Indications are that next year there will be approximately 3,500 graduates.

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[5] J. A. M. A. **61**: 578 (Aug. 23) 1913.

[6] The lowest number was 13,052 in 1919; enrolments are again on the increase.

The progress made in the campaign for the improvement of medical education was more rapid, and fewer difficulties were experienced than were anticipated at the beginning of the campaign. This was due largely to the cordial and ready cooperation by the officers of medical colleges and state licensing boards, both individually and in their national organizations. The publicity secured by the report of the Carnegie Foundation for the Advancement of Teaching aided generally in the campaign, and particularly in calling the attention of philanthropists to the financial needs of medical schools. The object sought has been attained, and medical education in the United States is now equal to, if it does not surpass, that in any other country.

THE METABOLISM OF NERVES

Although chemical change is today regarded as one of the most fundamental characteristics of biologic processes, it has not been easy to secure clear-cut evidence of such transformation of matter in the instance of the function of one of the important components of the body, the nervous tissue. For many years students of metabolism devoted energy and ingenuity to the task of detecting the possible wastes and catabolic products arising in the activity of the nervous structures. Comparisons of energy transformations and urinary composition were made under conditions of profound rest and nervous excitement or mental performance, without disclosing differences sufficient to warrant any conclusion respecting the possible chemical changes in nervous tissue incident to its normal functioning. At most, this outcome might be construed to indicate that such reactions as do occur are attended with changes too small to be measurable by the methods at our disposal. Furthermore, as a human adult weighing 150 pounds (68 kg.) has only 1.6 kg. of nervous tissue, or about one fortieth of his body weight, according to Donaldson, it is not surprising if even considerable increments or decrements in some of the normal catabolites of the organism, attributable to alterations in the small total amount of nervous tissue involved, should escape recognition in the larger total of the entire mass of chemically active tissues.

Nevertheless, there have been indications derived from other methods of investigation, notably the study of isolated nerves before and during stimulation, that have pointed significantly in the direction of chemical changes occurring in connection with the demonstrable physiologic reactions. In particular, Tashiro,[1] has been assiduous in his efforts in this field of study; by the use of an ingenious technic he has demonstrated that the resting nerve respires (that is, gives off carbon dioxid), and that this respiration increases during the passage of the impulse. His latest contribution,[2] also secured with the aid of microchemical methods, supplements the previous records with the demonstration that the nerve undergoes chemical reactions in which both acid-forming and base-forming substances are produced, the increase of carbon dioxid production during stimulation being accompanied by an increased production of a base, presumably ammonia. The difficulties of such research become more apparent from the statement that the methods employed permit the measurement of as little as 0.0000001 gm. ($\frac{1}{640000}$, grain) of ammonia.

It is idle at present to speculate on the significance of this discovery. The quantities of ammonia actually detected by Tashiro would correspond to 0.7 gm. a day for adult man, an amount so large that it must be assumed, in the absence of further information, that part of the nitrogenous base thus formed is reconverted into other products, such as urea. For the moment, the outstanding feature is the evidence that nerves, in common with other tissues, experience a nitrogenous metabolism.

THE PATHOLOGY OF AVITAMINOSIS

Much of the current vitamin hypothesis, at least so far as it concerns so-called vitamin B, received its earliest formulation from the outcome of studies of beriberi in the Far East. Eijkman, the pioneer in this field of investigation, designated the beriberi-like symptoms which he induced experimentally in fowls through feeding diets of polished rice as polyneuritis gallinarum. Other observers designated human beriberi as panneuritis endemica or neuritis multiplex endemica; and, accordingly, the human disease as well as the experimental beriberi of birds came to be regarded almost universally as a true polyneuritis—a degenerative, inflammatory condition of the peripheral nerves. The onset of the disease has become associated with a deficiency in the diet. Funk, who succeeded in relieving the characteristic disturbances in muscular coordination exhibited by birds on diets of milled rice, designated the hitherto unidentified dietary essential that promptly dispels the symptoms as the antiberiberi vitamin. From such beginnings the application of the word vitamin has gradually expanded until it is now used in a generic sense to indicate each of a number of distinct dietary factors which have not yet been identified, and which have in common the fact that they apparently are needed only in small quantities. In this respect, whatever they may prove to be in chemical composition, they differ from the common sources of energy and certain inorganic salts for which the need is measurably large.

Presently it was further demonstrated, notably through the researches of Hopkins in England and of Osborne, Mendel and McCollum in this country, that other species than man and birds suffer from comparable deficiencies in the diet, and are relieved or cured when the "accessory factors" are supplied. Somehow there has been a more or less tacit assumption that the "deficiency disease" of rats, mice, dogs, etc., deprived of sources of vitamin B is analogous to or identical with beriberi and polyneuritis gallinarum. Hofmeister[1] has recently made a study of the pathology of the nervous system in rats deprived of vitamin B, which leads him to protest against designating their symptoms as those of polyneuritis in the conventional sense. He was unable to discover any anatomic changes that can be designated as peripheral degeneration. The demonstrable lesions consist of alterations in the central nervous system in the severer types of deficiency disease. Most conspicuous are the multiple hemorrhages in the cerebellum and midbrain, followed by degeneration of associated nervous structures. There is an evident parallelism between the intensity of the nervous symptoms observed before death and the extent and distribution of the hemorrhagic damage. The pathology of the disorder, in rats, is comparable not with typical polyneuritis, but rather with a hemorrhagic encephalitis. Something similar is often observed in chronic intoxication with alcohol and certain heavy metals.

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[1] Tashiro, S.: Am. J. Physiol. **32**: 107, 1913.

[2] Tashiro, S.: Studies on Alkaligenesis in Tissues, I, Ammonia Production in the Nerve During Excitation, Am. J. Physiol. **60**: 519 (May) 1922.

Evidently there is no longer any justification for glibly designating all avitaminosis of the classic type —the result of lack of vitamin B—as polyneuritis or beriberi. Experimentalists have repeatedly raised the question as to the propriety of identifying as antineuritic vitamin the vitamin factor that restores growth and health, when animals have been deprived of it in their food. It is becoming more apparent in the experimental avitaminosis of animals, as it has long been evident in the clinic of human beriberi, that the effects may be manifold in character and that the nervous system may not be the only part of the organism seriously involved. We are only at the beginning of the pathology of avitaminosis.

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[1] Hofmeister, F.: Studien über qualitative Unterernährung, I Mitteilung, Die Rattenberiberi, Biochem. Ztschr. **128**: 540 (March 28) 1922.

Three Significant Medical Pamphlets.—Three small booklets, says Dr. A. Gilbert of Paris, have influenced considerably the development of the Paris Medical School. They are: *Statuts de la Faculté de médecine de Paris* (statutes of the School of Medicine of Paris); *Les rites, usages et louables coutumes de la Faculté de médecine de Paris* (Rituals, practices and praiseworthy customs of the School of Medicine of Paris); and *Calendrier médical à l'usage de la très salutaire Faculté parisienne* (Medical Calender prepared for the use of the most healthgiving Paris Faculty). The statutes or by-laws date from the twelfth century and were revised several times until 1751, when the last Latin edition was published. This was translated into French in 1754 by a naturalized Englishman, Bermingham. The by-laws remained in force until the school was closed by the French Revolution. The school was always very proud of its prerogatives as set down in the pamphlets, conformed its policy strictly to them through the centuries, and upheld their provisions even against the king.

Current Comment

REFERENDUM ON MISSOURI MEDICAL COLLEGE BILL DENIED

Early in 1921, a law was passed by the Missouri legislature removing the word "reputable" from the clause in the medical practice act relating to medical colleges. This took away from the state licensing board the authority to refuse to admit to its examinations graduates of low-grade medical schools. In spite of the protests of many prominent citizens and of the medical profession of the state, the bill was signed by the governor. Taking advantage of the provision for a referendum on bills of this sort, the medical profession, in a whirlwind campaign, secured 76,000 signatures to petitions asking for a referendum. The circuit court of Cole County ruled, however, that the petitions from one district did not contain the number required by law—the deficiency consisting, it is reported, of only four signatures! On July 18 of the present year, the state supreme court sustained the ruling of the circuit court, thus preventing the bill from being submitted to a referendum vote. The law enacted in 1921, therefore, now goes into effect. This law, it is understood, was passed under pressure brought by the friends of three medical colleges—one in St. Louis and two in Kansas City—which were not deemed reputable by the Missouri State Board of Health. The law does not help these colleges much since, even though they have forced recognition in Missouri, they still remain unrecognized in more than forty other states. The effect on the state, however, is disastrous, since the emasculation of the medical practice act makes Missouri the dumping ground, not only for the graduates of the three low-grade medical colleges within its borders, but also for the hordes of the ill-trained graduates of low-grade colleges of other parts of the country—graduates which forty other states will not accept. It is the people of Missouri who have to suffer for the ill-advised action of its lawmakers and public officials to whom they rightfully looked for protection.

THE ASPIRATION OF DUSTING POWDER—MENACE TO INFANTS

The comforts which progress has brought to mankind have not always been unalloyed blessings. Now and then, novel elements of danger or potential sources of harm attend the innovations of changing modes of life. Public health and personal welfare demand unremitting vigilance in the more strenuous, even if more tolerable, struggle for existence. Harm may lurk in unsuspected places. An illustration has recently been afforded by the report of Heiman and Aschner[1] of Mount Sinai Hospital, New York, on the effects of the aspiration of zinc stearate powder. Ever since the latter has begun to replace the long familiar talcum as a dusting powder in the nursery, there have been records of untoward results following accidental aspiration of the dust by children, to whom the containers are usually readily accessible. In some cases bronchopneumonia of a more or less fulminating type has ensued; in other infants an acute toxemia was the most conspicuous symptom; occasionally an initial partial asphyxia passes off without definite pulmonary involvement. Insufflation pneumonias produced with noninfective particles are well known in experimental pathology. Evidently the pneumonic lesions due to zinc stearate are analogous in origin. Talcum is probably capable of producing damage similar in type but lesser in degree; for whereas zinc stearate is tenacious, the physical properties of the talcum may permit easier expulsion of the foreign particles. At any rate, Heiman and Aschner frankly believe that the zinc stearate container, with its large perforations, as now prepared for the nursery is a distinct menace to the health of infants. Illuminating gas is a potential danger to grown-ups, but they have learned the way of safety without giving up the advantages of the toxic product.

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[1] Heiman, Henry, and Aschner, P. W.: The Aspiration of Stearate of Zinc in Infancy: A Clinical and Experimental Study, Am. J. Dis. Child. **23**: 503 (June) 1922.

STATE UNIVERSITIES AND HOMEOPATHY

In the past, several state universities, in response to political clamor, established departments of homeopathy and even of eclectic medicine in addition to their regular colleges of medicine. At the University of Nebraska, both homeopathic and eclectic departments were established in 1883. The eclectic department became extinct, however, in 1885, and in 1887 the university ceased to teach medicine altogether when the regular and homeopathic departments also were closed. The university did not resume the teaching of medicine until in 1902, when the present college of medicine was established. The homeopathic department was established at the University of Michigan in 1887; at the State University of Iowa in 1878; at the University of Minnesota in 1889, and at the Ohio State University in 1915. Thus each of these universities had two colleges of medicine and two groups of medical students. With the development of laboratory instruction, the students of the two colleges were taught together during the first two years by the professors of the college of medicine, but in the clinical subjects they were taught in two separate departments. There was a duplication in the instruction in the clinical subjects, therefore, in addition to the courses in materia medica and practice—the only subjects in which different points of view were held by the two colleges. Another irregularity arose when the colleges of medicine increased their requirements for admission to two years of college work, while the homeopathic colleges in three of the universities continued to require only a high school education or, later, one year of college work. Thus, during the first two years the classes in medicine included students admitted on two different grades of entrance qualifications. At the University of Minnesota, however, the higher entrance requirements were put into effect in the two colleges in the same year and within the next few years the enrolment in the homeopathic college dropped to so small a number that the college was abolished by the board of regents, and elective chairs in homeopathic materia medica and practice were established. This happened in 1909. Similar action was taken at the State University of Iowa in 1919, and during the present summer at the Michigan and Ohio State universities. At the Ohio State University, however, there are no elective chairs in homeopathic materia medica and practice. It was a glaring inconsistency for any reputable university to enter on the teaching of scientific medicine and at the same time establish a college to furnish instruction which was avowedly based on an unproved and narrow theory. It is encouraging, therefore, that all of our great universities have abandoned the support of any form of sectarian medicine and are leaving their medical teachers free to adopt and make use of any method or agency which, on due investigation, is found to be of value in the diagnosis, treatment or prevention of human diseases.

AGAIN THE POOR BOY AND MEDICAL EDUCATION

Long before the campaign began for the improvement of medical education, appeals were frequently being made for "the poor boy who wants to get a medical education," and, as the higher entrance standards began rapidly to be adopted by medical schools, appeals of this kind were repeatedly commented on by The Journal. The situation for the poor boy today is better, if anything, than it was twenty years ago. It is true that medical colleges have increased their requirements for admission from a high school education to two years of college work. The two years of college work, however, are no hindrance to the poor student; there are many colleges which provide abundant opportunities whereby students of limited means may work for all or part of their expenses. More time, indeed, is required, but these two years are well spent by the student in securing a better preparation for his medical studies. It is true, also, that the cost of conducting a medical school has been greatly increased during the last twenty years; but, during the same time, the fees paid by medical students have been only moderately advanced and cover only a small portion of the cost. Even the slightly increased fees, however, are more than offset by the establishment of free scholarships and generous loan funds in the better grade medical schools. The opportunities for the student of limited means to secure a medical education have in no way been diminished. As a matter of fact, the anxiety which is still being expressed for the boy who is poor in purse but not in intelligence is not warranted by the facts. Investigation discloses that many students of limited means are found in all of our high-grade medical schools, in which these students are enabled in various ways to work their way through. Meanwhile, it is the student of limited means who, as a rule, best appreciates the value of both time and money. He is not enticed by the pretentious statements of low-grade medical colleges, but usually selects the better institution. It is quite evident, therefore, that the improved standards of medical education are not hindering the student who is poor in purse from obtaining a medical education.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Hospital News.—The contract has been awarded for the new fifty-five bed hospital building to be erected at Birmingham. The institution will be known as the Birmingham General Hospital and will be operated by railway brotherhoods.——Formal resolutions for the joint upkeep of the Red Mountain Sanatorium, Birmingham, until the Ketona Sanatorium for tuberculous patients is erected, were passed by the board of revenue, July 26. When the permanent institution is erected, the board will maintain it on a fifty-fifty basis with the city. The Red Mountain Sanatorium was recently discontinued by the antituberculosis association.

Renovation of Eleemosynary Institutions.—Since October, 1919, renovations have been made at every eleemosynary institution in the state, and every institution will be thoroughly renovated by January, 1923. A modern hospital has been equipped by the state at the Boys' Industrial School, East Lake. Birmingham physicians who donate their services are in attendance. A new hospital has been erected at the State Training School for Girls, near Powderby. The first unit of the Home for Mental Inferiors has been completed near Tuscaloosa. This institution was authorized by the legislature in 1919. The Bryce Insane Hospital at Tuscaloosa is being generally renovated by the state. Extensive alterations have also been accomplished at the Searcy Insane Hospital for Negroes, at Mount Vernon.

CALIFORNIA

Hospital News.—The Covina Hospital, Covina, was formally opened to the public, July 20.——The heroism of Mrs. Ethel Moyer, Oakland nurse, who sacrificed her life to save the patients when the Hetch Hetchy Hospital burned, July 27, will be appropriately commemorated. The new hospital building planned to replace that destroyed will be called the Ethel Moyer Memorial Hospital.——The Horseshoe Sanatorium is being erected at Horseshoe Valley by Chester Conklin, screen comedian. Dr. John T. Bernard, former medical director of the Kern County Hospital, will be in charge of the sanatorium.

University of California.—Professor Samuel S. Maxwell, for several years associate professor in physiology, University of California, will head the medical department of the university with the opening of the fall semester, it was recently announced. Dr. Robert A. Gesell, professor of physiology, and Prof. Victor E. Emmell, Ph.D., associate professor in anatomy, have resigned. Prof. W. R. Bloor, Ph.D., professor of biochemistry, has resigned and will enter private practice. Professor Meyer will spend the next year on leave of absence studying in Switzerland, and Dr. Frederick P. Gay, professor of bacteriology, will study in the East for one year.

CONNECTICUT

Personal.—Dr. Thomas A. Woodruff, who gave up his practice to take over the management of the Lincoln Paper Mills at St. Catherines, Canada, has resigned that position and will resume the practice of ophthalmology at New London.——Dr. Harold W. Hersey, superintendent of the New Haven Hospital, has resigned to go on the administrative board of Columbia University and the Presbyterian Hospital, New York.

DISTRICT OF COLUMBIA

Home Care for Dependent Children.—Senator Calder of New York has introduced a bill in the Senate providing home care for dependent children of the District of Columbia.

FLORIDA

Personal.—Dr. Ralph N. Greene has been appointed the new director of St. Luke's Hospital, Jacksonville.——Dr. Jay A. Powell, West Palm Beach, has been appointed to succeed Dr. Albert H. King, recently deceased, as county physician and superintendent of the County Poor Farm.——Dr. Ernest B. Milam, Jacksonville, has been named to do the laboratory work for the Florida subdistrict office of the U. S. Veterans' Bureau.

Maternity Welfare.—A feature of the service under the Sheppard-Towner act in Florida will be a series of letters which will be sent out monthly to persons desiring them. About fifty have already registered for this series of educational letters and are receiving them from the state board of health. Under the provisions of the act, funds may not be applied to the purchase, erection, preservation or repair of any buildings or equipment, nor for the purchase or rental of any buildings or lands, nor for payment of any maternity or infancy pension, stipend or gratuity. The funds will be used to pay for the preparation of literature, the dissemination of the educational information and the employment of field workers and directors.

GEORGIA

Statue of Long in the Hall of Fame.—A resolution was presented to the House of Representatives of Georgia, July 12, to launch a campaign for $12,000 to place statues of Alexander H. Stephens and Dr. Crawford W. Long in the Hall of Fame, at Washington, D. C. The resolution provides for the appointment of three members of the house and two of the Senate to act with a committee of citizens to raise funds for the memorial.

ILLINOIS

Dr. Furstman Resigns.—Dr. Jacob M. Furstman has resigned as city health director of Bloomington to take effect August 31. Dr. Furstman will assume the duties of director of health of the Peoria public schools, having been elected by unanimous vote of the Peoria Board of Education.

Governor Dismisses Miller.—It is reported that Governor Small has dismissed W. H. H. Miller, director of the state department of registration and education, who was indicted by the grand jury at Chicago on a charge of selling numerous physicians' licenses and druggists' certificates. A. M. Shelton, Crystal Lake, for twelve years superintendent of schools in McHenry, has been appointed to succeed him. Miller's dismissal followed his refusal to resign after a medical board had recommended his removal some months ago and hundreds of letters from all parts of the state had been sent to Governor Small attacking Miller's administration.

Birth Registration Test.—Announcement has been made that the U. S. Bureau of the Census will make a test in Illinois during September and October of this year to determine how completely births are being reported. In anticipation of the test, the state director of public health has carried out a vigorous campaign in behalf of prompt and complete returns. Every practicing physician in the state whose correct name and address were obtainable has received a letter urging him to report at once all unregistered births that had occurred in his practice and to be especially prompt with current and future reports. County medical societies have also been solicited, with gratifying results, for active cooperation in this connection. A few delinquent physicians have been prosecuted. As a result of these activities, birth registration has increased about 10 per cent. during the last twelve months, and it is felt that this, coupled with renewed cooperative efforts on the part of physicians, will indicate a registration sufficiently complete to make Illinois eligible for the U. S. Registration Area.

Chicago

Personal.—Dr. Francis J. McNamara, chief physician of the Cook County Jail, Chicago, is successfully recovering from an appendectomy performed, August 1, at the Michael Reese Hospital.

INDIANA

Personal.—Dr. William F. King has been appointed secretary of the state board of health to succeed Dr. J. N. Hurty, resigned.——Dr. Frank M. Stackhouse, Kingman, will give up the practice of medicine for newspaper work. He has purchased an interest in a newspaper in Ohio.——Dr. Charles R. Doyne has been appointed chief of staff at the Indiana State Hospital for the Insane at Madison.——Dr. Forrest A. Chenoweth, Winchester, has been appointed by the U. S. Pension Board as a member of the Randolph County Board to succeed Dr. Charles E. Milligan, deceased.

IOWA

Personal.—Dr. Jeannette F. Throckmorton, Des Moines, is in England attending the Royal Institute of Public Health. ——Dr. Walter L. Bierring, Des Moines, has just returned from a trip abroad where he was awarded an honorary degree and membership in the Royal College of Physicians of Edinburgh, Scotland, July 18—a precedent of a hundred years' standing being broken on that occasion, it is stated. Another purpose of Dr. Bierring's trip was to investigate qualifying examinations for physicians on behalf of the National Board of Medical Examiners, in order that the examinations of America and Great Britain may be harmonized in such a way that physicians from either country will be recognized in both lands.

LOUISIANA

Eight Milk Dealers Fined.—Charged with violating the city milk ordinances, eight milk dealers of New Orleans were fined from $10 to $25 each, July 19, by Judge Leininger.

Personal.—Dr. G. W. Stephens, formerly of Shreveport, recently returned to the United States from Great Britain. Dr. Stephens, while practicing in Manila, P. I., joined the medical corps of the British Army as a captain, at Hongkong, in 1914. Since then he has served with the R. A. M. C. at Gallipoli, with Allenby in Palestine, and recently in Ireland. He was mustered out a few weeks ago and will return to his home in the South.——Dr. Charles H. Voss, New Orleans, will sail shortly for China as a medical missionary under the auspices of the foreign mission board of the Southern Presbyterian Church. Dr. Voss will sail, September 2, following a foreign missions conference at Montreat, N. C. He will be surgeon in charge of the Elizabeth Blake Hospital at Soochow.

MAINE

Sanatorium Dedicated.—The Presque Isle Sanatorium at Presque Isle, Houlton, was dedicated and formally opened to the public at the end of June. In connection with the opening, a house party was held to which all nurses in Aroostook County were invited.

New Hospital at Belfast.—A new hospital will be erected at Belfast at a cost of $40,000. This institution will be known as the Bradbury Memorial Hospital. Mr. and Mrs. Charles Bradbury of Belfast gave the C. Y. Cottrell estate to Dr. Eugene D. Tapley and on his death it will pass to the city. Many residents have donated sums of money and furniture for the new institution.

MARYLAND

Johns Hopkins University.—In the faculty of hygiene and public health of Johns Hopkins University, Baltimore, Dr. William W. Ford has been appointed professor of bacteriology, and Dr. Carroll G. Bull professor of immunology. In the faculty of medicine, Dr. Warfield T. Longcope has been made professor of medicine; Dr. Harold L. Amoss, associate professor of medicine; Dr. Robert S. Cunningham, associate professor of anatomy; Dr. William S. McCann, associate professor of medicine; Dr. Arthur L. Bloomfield, associate professor of medicine; Dr. Benjamin Kramer, associate professor of pediatrics; Dr. Esther L. Richards, associate professor of psychiatry; Dr. Albert Keidel, associate professor of clinical medicine; Dr. Wilburt C. Davison, associate in pediatrics; Dr. Leslie B. Hohman, associate in psychiatry; Dr. Phyllis G. Richter, associate in psychiatry; Dr. Emil Novak, associate in clinical gynecology; Dr. Ernest H. Gaither, associate in clinical medicine; Dr. Wilder G. Penfield, associate in neurology, and Dr. J. Earle Moore, associate in clinical medicine.

MASSACHUSETTS

Chiropractor Fined.—It is reported that Henry N. Doerr of Lawrence was fined $100 in a district court recently for practicing medicine without a license. State Officer Griffin stated that chiropractors were not allowed to practice in Massachusetts. The defendant appealed.

Harvard Cancer Commission.—The Harvard Corporation has recently announced the names of the members of the Cancer Commission and the officers of the Collis P. Huntington Memorial Hospital, their term of office to commence in September. Dr. Robert Battey Greenough has been reappointed director of the Cancer Commission and surgeon-in-charge at the Memorial Hospital. The others on both staffs are: the Cancer Commission, Dr. Channing Chamberlain Simmons, secretary; Dr. James Homer Wright, pathologist in charge of the free diagnosis service; William Duane, research fellow in physics; Dr. Henry Lyman, research fellow in chemistry; William T. Bovie, research fellow in biophysics; Dr. Stuart Mudd, assistant research fellow in biophysics; Charles Elisha Barr, research fellow in biophysics, and Walter Scott Hughes, assistant in biophysics. Huntington Memorial Hospital, Dr. Channing Chamberlain Simmons, surgeon; Dr. George Gilbert Smith, surgeon; Dr. George Adams Leland, Jr., assistant surgeon; Dr. Henry Asbury Christian, consulting physician; Dr. George Richards Minot, physician; Dr. Thomas Ellwood Buckman, assistant physician; Dr. Ernest Merrill Daland, surgeon to outpatients; Dr. Leland Sterling McKittrick, surgeon to outpatients; Dr. Daniel Crosby Greene, laryngologist; Dr. Lawrie Byron Morrison, consulting roentgenologist; Dr. Roy Green Giles, roentgenologist, and Dr. Arthur Moses Greenwood, assistant dermatologist.

MINNESOTA

Personal.—Dr. John W. Trippie of the Aberdeen Hospital for war veterans in St. Paul has been appointed as medical officer in charge of a new hospital for disabled soldiers in Memphis, Tenn.——Dr. Albert F. M. Green has resigned as staff physician at the Fergus Falls State Hospital, to accept the position of assistant superintendent at the New York Reformatory for Women, Bedford Hills, N. Y.——Dr. Bert G. Anderson, who has charge of the oral diagnosis at the Earl Clinic, St. Paul, has sailed for Pekin, China, where he will be instructor in the Peking Union Medical College.

Health Exhibits at State Fair.—Unique exhibits and entertainment features are being planned by seventeen public health agencies of the Twin Cities and the Northwest, for the purpose of educating visitors to the Minnesota State Fair in matters of health. This is the third year that a special building has been set aside at this fair for public health activities, and the Minnesota State Fair Board was the first board of its kind in the United States to create a special department of public health for a state fair. Subjects to be placed before fair visitors will include facts about preventable diseases; sanitation with reference to milk and water, and sewage disposal; venereal diseases; vital statistics, and child hygiene.

MISSOURI

Annual Clinic Week.—The Academy of Medicine of Kansas City has voted to establish a clinical week during the month of October every year. The clinics this year will be held, October 3-6. A banquet will be held October 4.

Gift to University.—The Wintersteiner Collection of 13,000 microscopic preparations of pathologic changes in the eye has been acquired by the St. Louis University through the generosity of Mr. Charles Rebstock of St. Louis. This collection, which is said to be the most complete in Europe, will be utilized for graduate instruction in ophthalmology.

MONTANA

State Public Health Association.—At the annual meeting of the association in Great Falls, Dr. Dean Lewis, Chicago; Dr. Ernest M. Hammes, St. Paul; Dr. James J. Waring, Denver, and Dr. Frederick C. Rodda, Minneapolis, gave addresses. Dr. George A. Fuson, Kalispell, Cascade County health officer, was elected president of the association, and Dr. William F. Cogswell, Helena, secretary of the state board of health, was elected secretary.

Health Conference.—A number of scientists doing research on spotted fever held a conference at Hamilton, recently, in the laboratory maintained there by the U. S. Public Health Service. Drs. Parker and Spencer, in charge of the work; Dr. Lunsford D. Fricks, in charge of the tick investigation work; Dr. T. N. King, representative of the bureau of entomology, and Dr. William F. Cogswell, secretary of the state board of health, were present. There have been several deaths in Montana this year from spotted fever, while the malady has also taken toll in Idaho, eastern Washington, Oregon, Colorado, Wyoming and Utah.

NEW YORK

Physician's License Revoked.—Official communication from the board of regents of the University of the State of New York states that the license of Dr. Joseph Arthur Talamo was revoked, June 27, for irregularity in his credentials.

New York City

Social Service Ward at Hospital.—St. Mark's Hospital recently opened a free social service ward for women and children to which all social agencies, hospitals, dispensaries and physicians are urged to refer their patients. The purpose of this ward is to give careful and scientific study and treatment to cases involving venereal disease and allied problems in the personal and family relations.

Public Health Lecture Program.—The bureau of public health education of the department of health will be prepared, beginning October 1, to give lectures on a wide range of subjects coming under the headings of personal hygiene and preventive medicine, industrial hygiene and sanitation, and on special diseases, as cancer, anthrax, heart disease, nephritis, diabetes and diseases of the circulatory system. Organizations desiring these lectures may communicate with the bureau. Specialists in these various fields who will volunteer to deliver lectures are invited to furnish the director of the bureau of public health education with information as to the subjects on which they are prepared to lecture and the times when they will be available. From January to May, 1922, a total of 1,875 lectures were furnished by the bureau, which reached an audience of 57,668 persons. Foreign language talks were given in Syrian, Italian, Russian, Yiddish and Spanish.

NORTH CAROLINA

Large Clinic Opened.—The Lenoir Clinic was opened at the beginning of August in Kinston. Ten rooms will be used for laboratory, consultation, administration and emergency hospital purposes. A number of whole and part-time physicians and nurses will be employed, together with sanitary inspectors, etc. An automobile has been donated by the negro citizens for the use of a nurse to work among them. Dr. William F. Hargrove donated a hospital table, and other gifts of operating tables and furnishings have been given by residents of Kinston.

OHIO

Cincinnati Hygiene Society.—At the recent annual meeting of the Cincinnati Social Hygiene Society, the following officers were elected for a fourth term: president, Dr. William S. Keller; vice president, Dr. Edwin W. Mitchell, and secretary-treasurer, Dr. Elizabeth Campbell.

Tribute to Deceased Physician.—In honor of the late Dr. George Burnet Orr of Cincinnati, a memorial window has been placed in Christ Episcopal Church, Cincinnati. The window, which was made in London, is the gift of Dr. Orr's family. The scene pictures the healing work of Christ's ministry.

Health Lectures for Teachers.—Beginning July 31, eighty counties will hold teachers' institutes until September 7. A speaker on health subjects is scheduled to appear at each, in connection with the recent health instructions given to students in Ohio by the department of education and the health department.

OKLAHOMA

Personal.—Dr. Cary W. Townsend has been appointed city physician of Oklahoma City, to succeed Dr. Joseph T. Martin who resigned June 1.——Dr. James Winter Brown, Tulsa, was recently successfully operated on for a brain tumor by Dr. Harvey Cushing at Boston. He is still in a very serious condition.

OREGON

Eastern Oregon District Medical Society.—The annual meeting of the society was held at Baker City, July 20, under the presidency of Dr. T. J. Higgins.

Hospital News.—A large residence owned by the Hembree estate, McMinnville, has been purchased for a hospital. Dr. Morrison of Carlton has furnished some of his hospital equipment, supplementing that of Dr. M. E. Reitzel, who will be director of the institution. Mrs. Versteeg will be matron. ——The Eugene Bible University will erect a hospital and sanatorium at Eugene in the near future it was recently announced. An initial expenditure of $100,000 will be made on the two institutions, which will be located in different parts of the city, and as the demand for more room grows the buildings will be enlarged. The first unit will have accommodation for 100 patients. It is understood that the institutions will be a center for the training of nurses for the foreign missionary field.

PENNSYLVANIA

Typhoid in Miners' Camps.—It is reported that typhoid fever has developed in the tent colonies of the striking miners throughout Fayette County. These miners had been drinking water from a spring that was closed by the authorities, August 7. A general investigation is being conducted in every mine settlement where evicted miners living in tents, and poorly fed and clothed, have been depending on springs, wells and creeks for their water supply. Dr. C. A. Atman, Fayette County representative of the state board of health, is in personal charge of the work. The spread of the disease is said to be rapid, more than fifty cases being reported in a few days.

Hospital News.—Construction work in York on an institution to be known as the White Rose Hospital will be started this summer.——Plans are being drawn for a hospital for Jersey Shore.——Cambria County will erect a new sanatorium at Ebensburg. It will be known as the Cambria County Tuberculosis Sanatorium.——A three-story brick structure costing $30,000 will be erected at Houston, to be known as the Francelia Bell Home for Old Ladies.——Plans are being drawn for the new Luzerne County Tuberculosis Hospital, to be erected at Drums. A nurses' home and a residence for the superintendent will be built, and the hospital will have accommodations for 100 patients.——A. W. Newell, Pittsburgh, has been appointed superintendent of the McKeesport Hospital, McKeesport, to succeed David F. Owen, who resigned to accept the superintendency of the Uniontown Hospital at Uniontown.——A nurses' home will be added to Windber Hospital.—— A new ward building and nurses' home are under construction at the Harrisburg Hospital. The ward building will be erected at a cost of $315,000. The nurses' home will be erected on River Street at a cost of $155,000.——Harriman Hospital, Bristol, was recently opened for inspection and the reception of patients. What was formerly the town of Harriman has become part of Bristol. Dr. George T. Fox, Bristol, acquired the building and equipment from the United States government, and has had it thoroughly renovated. While it will be a private hospital, it has been placed at the disposal of the citizens of Bristol.

Philadelphia

Health Campaign.—As part of a vigorous campaign by the department of health against insanitary housing conditions, forty-six offenders against sewage requirements were arraigned before Magistrate Renshaw for failure to comply with instructions to underdrain cesspools. More than half the offenders were fined from $4.50 to $25 and costs.

Physicians Ask Charter.—A number of prominent physicians joined in application in Common Pleas Court No. 5 for a charter for the Philadelphia Association for the Prevention and Relief of Heart Disease. The purposes for which the corporation is formed are to present to the public the great problem of heart disease; to offer a channel through which these problems may be approached, and by the scientific study of heart disease by the organization of heart clinics, by vocational guidance, by institutional care, and by the building and maintaining of convalescent homes, to make those suffering with heart disease more useful and contented members of society. In October, members of the society will go before the board of education to ask for specially constructed school buildings for children with heart disease. The efficiency of children has been raised 100 per cent. in New York by that means. Plans have been made for public lectures on the subject and lectures to nurses and schoolchildren. A hospital for the care of 100 children convalescent from heart disease will be built. Additional clinics will be established in the city hospitals to which all persons with the disease can report once a month for examination and care. Dr. Joseph Sailer is president of the society; Dr. George W. Norris, vice president, and Dr. William D. Stroud, secretary.

SOUTH CAROLINA

Memorial to Dr. Lynah.—The American Bronchoscopic Society has established a scholarship at the Medical College of the State of South Carolina, Charleston, in memory of the late Dr. Henry Lowndes Lynah, a graduate of that institution in 1900, formerly of Charleston and recently of New York. A resolution was adopted at the last meeting of the society that a scholarship of $100 be voted annually in memory of Henry L. Lynah, one of the founders of the society, to be applied to a scholarship to be established at the South Carolina Medical College, and that the dean of the medical school be empowered to award the scholarship to a deserving student.

UTAH

Personal.—Dr. Andrew J. Hosmer, Salt Lake City, has sailed for Europe.——Dr. George E. Robison, formerly of the Provo General Hospital, has gone to Salt Lake City to take up the roentgen-ray work formerly carried on by Dr. Charles W. Stewart, who has left the city and will reside in Los Angeles.

New Medical Society.—The first meeting of the Carbon County Medical Society was held at Price, July 14. The following officers were elected for the ensuing year: president, Dr. Frank F. Fisk, Price; vice president, Dr. Claude M. McDermid, Castle Gate, and secretary-treasurer, Dr. John A. Judy, Price. This society was organized, June 24, with headquarters at Price.

CANADA

University News.—A committee was appointed during the last session of the Ontario Legislature to investigate matters relating to the management of the University of Toronto, in its relation to the federated colleges and the medical council. ——The faculty of McGill University, Montreal, Quebec, has announced that the number of first year students will be limited to 100. The standard of admission will be senior matriculation of first year arts.——Construction of the new library for Queen's University, Kingston, Ont., will be commenced shortly. Estimates call for an expenditure of over $225,000.

Personal.—Dr. Madeleine de Rouville, chief of one of the clinics in Paris, recently arrived in Toronto, Ont., on a tour of study that will cover the whole continent. The lectures which Dr. de Rouville will deliver in Canada will be translated into English, and will be subsequently read before medical students at the University of Toronto.——At the annual convention of the National Council for Women at Fort William, June 25-28, Dr. Augusta Stowe-Gullen, Toronto, was elected provincial president for Ontario.——W. P. Mustard, Ph.D., of Johns Hopkins University, has been elected a corresponding fellow of the Royal Virgilian Academy of Mantua. Dr. Mustard is the first Canadian to receive this honor, it is alleged.

Public Health News.—The provincial board of health of Ontario has made arrangements to install a booth at the coming Canadian National Exhibition, where information on questions of public health will be supplied free of charge. The booth will be in charge of Dr. J. J. Middleton.——The outbreak of infantile paralysis is assuming alarming proportions in Hamilton, Ont. There have been three deaths reported so far, in a total of forty cases. Public places where children congregate will be closed by the board of health. The total number of cases in Brantford, Ont., has risen to five, with one death.——According to a recently issued health bulletin by Dr. C. J. Hastings, medical officer of health, Toronto, there were more deaths in Toronto, in 1921, from venereal diseases, than from either cancer or tuberculosis. There are six venereal disease clinics in Toronto, and during 1921 33,322 cases were given treatment.

Society News.—The second annual meeting of the Canadian Society of Anesthetists was held in Winnipeg, in conjunction with the Canadian Medical Association, under the presidency of Dr. Samuel Johnston. The following officers were elected for the ensuing year: president, Dr. David H. Arnott, London; vice president, Dr. Walter L. Muir, Halifax; executive for the United States, Dr. F. Hoeffer McMechan, Avon Lake, Ohio, U. S. A., and secretary-treasurer, Dr. Wesley Bourne, Montreal. Dr. Elmer I. McKesson, Toledo, Ohio, president of the National Anesthesia Research Society, spoke on "Eleven Years' Observation of the Minute Volume of Respiration in Anesthesia."——At the meeting of the Simcoe County Medical Association, July 6, in Barrie, Ontario, Dr. C. G. Rutherford, Orillia, was elected president, and Dr. Harry T. Arnall, Barrie, was elected secretary.——At the last meeting of the Hastings County Medical Association, at Belleville, Dr. William M. Mather, Tweed, was elected president and Dr. T. Daley, secretary-treasurer.——The third annual outing and meeting of practitioners of District No. 9 of the Ontario Medical Association was held at Sudbury, Ont., August 2. Addresses were delivered by Drs. E. W. Ross, F. W. Marlow, F. W. Routley, and R. I. Harris, of Toronto; also by Drs. G. W. Smith, North Bay; J. S. Freeborn, Magnetewan, and E. R. Secord, Brantford. The meeting was held under the auspices of the Sudbury District Medical Society, Dr. W. J. Cook of Sudbury being in charge.

GENERAL

Public Health Nursing on Indian Reservations.—To test the feasibility of public health nursing on the Indian reservations, the American Red Cross has inaugurated a survey among the Navajo, Pima and Popago and other reservations of Arizona, New Mexico and South Dakota. Three Red Cross nurses have been assigned to the survey, and the Red Cross has appropriated $9,000 to cover their salaries and expenses. The test is being made at the request of Charles H. Burke, U. S. Commissioner of Indian Affairs.

American Academy of Ophthalmology and Otolaryngology.—At the annual meeting of the academy, which meets in the Twin Cities, September 19-23, Prof. Robert Bárány, formerly of Vienna, and now of Upsala, Sweden, will be the guest of honor. He will present a paper entitled "A New Method of Radical Operation for Chronic Suppuration of the Ear." In the two weeks following the meeting, Professor Bárány will give a special graduate course in modern otology, emphasizing especially the newer methods employed in his clinic. This course will be given under the auspices of the Minnesota Academy of Ophthalmology and Otolaryngology.

Dinner for Dr. Work.—Postmaster General Hubert Work, formerly President of the American Medical Association, was the guest of honor at a dinner, July 26, in Washington, D. C. The dinner was given by the chargé d'affaires of the Panama legation, Señor Lefevre, in the presidential suite at the Willard Hotel, in honor of the committee of the American Medical Association appointed to cooperate with the board of directors of the Gorgas Memorial. His guests included Dr. de Schweinitz; the Undersecretary of State, Dr. Charles W. Richardson, Washington; Dr. Lund, Boston; Dr. L. S. Rowe, director general of the Pan-American Union; Admiral W. C. Braisted, chairman of the Gorgas Memorial; Surgeon General Merritte W. Ireland; Surgeon General Hugh S. Cumming and Surgeon General E. R. Stitt.

Formation of Health Unit Planned.—Plans are being made by the International Health Board to establish and maintain, in a county in a southern state, a health unit which will not only serve as a model to show what may be done in the conservation of health, but will also serve as a training ground for members of its staff, preparatory to service in foreign subtropical fields. This health unit will not be large, nor will its budget be heavy, or its personnel numerous. It will be modeled along the same lines as those operating at present under the direction of the state board of health, but the methods of the International Health Board will be followed in the study and method of handling certain diseases common to the tropics. Dr. Smiley, the representative of the International Health Board from New York, arrived in Columbia, S. C., July 24, to investigate conditions in South Carolina in this connection. He states that the health unit will probably start work in September.

Action on Dye Embargo.—Wide publicity has been given to the editorial of The Journal urging the retention of the embargo on dyes and drugs, by the prompt action of Senator Frelinghuysen of New Jersey in printing it in the *Congressional Record* of August 12. It is believed that this editorial voices the sentiment of the medical profession throughout the country on the wisdom of protecting the American dye industry and the related synthetic drug industry which has been built up during and since the World War. Members of the Senate during the past week have been flooded with letters and telegrams demanding that the embargo on dyes and synthetic drugs be continued. As the tariff bill now stands, these provisions are eliminated by a recent vote of the Senate in the Committee of the Whole. The Senate will be called on again this week to vote on this problem a second time. If the Senate fails to retain the embargo, the prediction is made that several hundred American manufacturers of dyes and synthetic medicines must close their plants and laboratories because they will be unable to face German competition.

Bequests and Donations.—The following bequests and donations have recently been announced:

Bowdoin College, Brunswick, Maine, $500,000, under the will of Edward H. Blake of Bangor, Maine.

Madison, Wis., $500,000 for the erection of a Methodist hospital in that city, by the will of the late Justice R. D. Marshall of Madison.

To establish a children's hospital at Grand Rapids, Mich., $350,000 by Charles R. Sligh of that city.

Uniontown Hospital, Uniontown, Pa., $300,000 for a nurses' home, anonymously.

Torrance, Calif., $100,000 for a hospital, by the will of Mr. Torrance, founder of the town.

Memorial Hospital, Nashua, N. H., $40,000, and $15,000 more bequeathed in trust during the lifetime of the three heirs, by the will of Mrs. Mary J. Crowley of Roslindale, Mass. About $300 to St. Joseph's Hospital and large amounts to various hospitals around Boston.

St. Luke's Hospital, Chicago, $40,000 in memory of her husband, by Mrs. John J. Borland. This fund is to endow a fellowship for clinical investigation, and will be under the supervision of Dr. Joseph A. Capps.

Rockingham Memorial Hospital, Harrisburg, Va., $25,000 for the erection of an addition, by J. F. Reherd of Harrisburg.

Knox County General Hospital, Rockland, Maine, $20,150 in pledges.

Good Samaritan Hospital, Los Angeles, $10,000 for a new wing, by the will of James Slauson of Los Angeles.

Miami Valley Hospital, Dayton, Ohio, $10,000, and Christ Hospital, Cincinnati, $5,000, by the will of Robert Johnson.

Jarman Memorial Hospital, Tuscola, Ill., 40 acres of land valued at $10,000, by Robert C. Macy of California.

Barlow Sanatorium, Los Angeles, $5,000, by the will of Mrs. Lucia W. Jennison of Covina, in memory of her husband and son.

Cape Cod Hospital, Hyannis, Mass., $5,000, anonymously.

Hollywood Hospital Company, Hollywood, Calif., $2,000, by Mrs. Catherine Winterhalder of that city.

Philadelphia Home for Incurables, $1,000, on the death of the annuitants of the estate of Jacob E. Hynemann. This estate, disposing of $50,000, is divided into a number of small bequests to other charities, and the residue is bequeathed to the Federations of Jewish Charities.

Beth Israel Hospital, Montefiore Home, Mount Sinai Hospital and the United Hebrew Charities, New York City, $1,000, each, by the will of Hirsh Rabinowitz.

Speers Memorial Hospital, Dayton, Ky., $1,000, by the will of A. L. Andrews of that city.

Lawrence General Hospital, $2,000; Lawrence Home for Aged People, $1,000, and the Lawrence Y. W. C. A., Lawrence, Mass., $1,000, by the will of Elizabeth Slater of Lawrence.

Old Ladies Home, Salem, Mass., $3,000, and the Salem Hospital, $2,000, under the will of Frances Browne.

Children's Free Hospital, Louisville, Ky., $500; his medical library and surgical instruments to his son on condition that some of the books and instruments are presented to a colored medical school, by the will of Dr. I. N. Bloom of Louisville, Ky.

Medford, Mass., for the establishment of the Lawrence Memorial Hospital, gift of a site by Mrs. Carolyn R. Lawrence and bequests by Daniel W. Lawrence and Roswell B. Lawrence.

West Reading, Pa., a site for the new Reading Hospital, by the Wyomissing Development Company.

LATIN AMERICA

Prize to Magalhães.—The *Brazil-Medico* mentions that the Durocher prize offered by the Academia Nacional de Medicina at Rio de Janeiro was awarded to Dr. Fernando Magalhães for his work entitled "Abdominal Cesarean Section." The committee awarding the prize stated that its award did not imply that it agreed altogether with the statements of the author.

Election of Officers.—The Academia Nacional de Medicina at Rio de Janeiro recently reelected its president, Dr. Miguel Couto. Dr. Juliano Moreira was elected vice president, Dr. Belmiro Valverde, first secretary, and Dr. Artidonio Pamplona, second secretary. The editors of the *Annaes* are Dr. Ferreira da Silva, Dr. H. Autran and Dr. F. Vaz. The Alvarenga prize was not awarded.

Memorial to Odriozola.—The first anniversary of the death of Dr. E. Odriozola of the chair of clinical medicine at the University of Lima, Peru, was the occasion of the unveiling of a statue in the Hospital "Dos de Mayo," and of a tablet in the hall of the medical faculty. The *Crónica Médica* gives illustrations of both and reproduces the addresses by different speakers. The authorities ordered the name of the hospital ward to be changed to "Servicio Ernesto Odriozola." The tablet was presented by the medical students, the statue by a committee of physicians.

Prizes Offered by the Havana Academy of Sciences.—The *Revista de Medicina y Cirugía* of Havana states that the Gutiérrez prize of 400 pesos wil be awarded by the Academia de Ciencias for the best work on the medical geography of some part of Cuba. The Cañongo prize of 200 pesos is offered for the best work on any scientific subject, and the Gordon gold medal for the best work on the "Physiologic Conception of Sleep." The competing articles must be sent in anonymously, and be in the hands of the secretary before March 30, 1923. The address is Academia, Cuba 84 A, Havana.

School Medical Inspection in El Salvador.—The *Boletin Sanitario* of El Salvador contains the fifty-four paragraphs of the school medical inspection decree of 1921. It provides for medical inspection not only of the children but for the teachers and school attendants. The teachers are required to appear for examination a week before school first opens. One paragraph specifies that no member of the teaching force is allowed to enter on his or her duties without presenting to the school authorities the certificate showing that the medical inspection had been successfully passed. The school medical section of the state department of public instruction comprises a medical director, subdirector and four inspectors, a dentist and an assistant dentist. All the boards of education, local boards of public health, sanitary and vaccination inspectors, professors of physical training, and the public health officers, are all ex officio auxiliaries of the school medical section.

National Prizes for Scientific Works.—The *Semana Médica* brings the report of the awarding of the national prizes given by Argentina for scientific productions during 1920 and 1921. The first prize for 1920, a sum of 30,000 pesos, was awarded to Dr. M. R. Castex for his work "Tardy Inherited Syphilis." It was briefly mentioned in these columns recently. The second prize was not awarded, but the third prize was divided between Dr. C. Heuser, for his "Manual of Radiology," and Dr. J. W. Tobias, for his publications on the epidemic of influenza. The first prize for 1921 was divided between Dr. E. A. Boero, for his work, "The Lower Segment of the Uterus During Delivery"; Dr. G. Bosch Arana for his research and publications on "Cineplastic Amputations" (also summarized in the Current Literature Department from time to time), and Dr. P. I. Elizalde for his work "Syphilitic Disease of the Lung." The second and third prizes for 1921 were not awarded.

Personal.—The Academia de Medicina of Rio de Janeiro has elected Dr. Angel H. Roffo to honorary membership. He is professor of pathologic anatomy at the University of Buenos Aires, director of the Cancer Institute, and a member of the editorial staff of the *Prensa Médica Argentina.*——Dr. Luis Güemes was recently presented with a gold medal by the medical force of the Hospital Nacional de Clínicas, the occasion being his retirement from the chair of clinical medicine at the University of Buenos Aires. He was presented also with an album from the general profession of the country, bearing the signatures of numerous friends and pupils. He has served as senator, and is a member of the committee publishing the *Semana Médica.*——Dr. A. Hidalgo Nevarez was appointed to represent the medical faculty of the University of Guayaquil at the festivities at Quito in honor of the centennial of a decisive battle in the struggle for independence. Dr. C. V. Coello was the official representative of the Sociedad Médico-Quirúrgica and its monthly organ, the *Anales.*——Dr. J. Coronel has been elected honorary member of the medical faculty of the University of Guayaquil.——The *Revista de Medicina y Cirugia* of Havana announces that Dr. Aristides Agramonte has been appointed secretary of the national public health service, which is a cabinet office, known officially as the Secretario de Sanidad y Beneficencia, and that Dr. M. G. Lebredo has been given the post of director de Sanidad. Both are on the editorial staff of the *Revista,* and the former is professor of bacteriology in the University of Havana.

FOREIGN

Fund for Russian Physicians.—The British Medical Association, on June 14, unanimously resolved that every member be asked to contribute 5 shillings each (about $1) in answer to the appeal of the starving medical men and their families in Russia. The total sum received up to July 3 was about $3,500.

Prize to Ravenna.—The Reale Istituto Veneto di Scienze of Venice awarded at its recent annual meeting the Balli-Valier prize of 6,000 liras to Prof. Ettore Ravenna of the Veterinary School of Modena for his monograph entitled "Endocarditis in Anthrax." This prize is conferred on the Italian scientist who has done most to advance the medical sciences during the preceding two years.

Retirement of Arnozan.—Without waiting for the age limit, Professor Arnozan has resigned the chair of clinical medicine at the University of Bordeaux. His friends are organizing a manifestation in his honor in November, and a bronze replica of the tablet it is planned to present to him will be given to all who subscribe 25 francs. Dr. Creyx, 10 rue Boudet, Bordeaux, is the treasurer of the fund.

Scarcity of Rabbits for Pasteur Treatment.—The *Deutsche medizinische Wochenschrift* relates that the Pasteur Institute of the Breslau University appeals to every one who desires to be treated for the bite of a supposedly rabid animal to bring one or two rabbits. The price paid for the rabbits will be refunded. Unless this is done, there may be danger of not being able to apply the treatment properly.

Tribute to Barduzzi.—A gold medal and a number of other gifts were presented to Prof. D. Barduzzi of Siena in July at an imposing ceremony as he took leave of the chair of skin diseases and syphilis, which he held until reaching the age for retirement. The occasion was also the fiftieth anniversary of his professional career. A history of his life and school was published and presented to him by the medical students, and a parchment address with numerous subscribers.

The Warsaw University Celebrates the Padua Septicentennial.—The *Riforma Medica* describes the ceremonial gathering at the University of Warsaw in honor of the celebration of the seven hundredth anniversary of the founding of the university at Padua. There was a large official representation from the government and scientific societies, and the speakers emphasized the influence on civilization of this early institute of learning. The famous Polish scientist Copernicus studied at Padua.

Memorial to Medical Officers.—The memorial tablet in memory of the officers and men of the Royal Army Medical Corps was unveiled at Westminister Abbey, London, July 17, by the Duke of Connaught. The tablet records the loss of 743 men and 6,130 noncommissioned officers and men. During the ceremony, the Duke of Connaught, colonel in chief of the R. A. M. C., asked the Dean of Westminster to accept a gift from the memorial fund of $50,000, as a contribution to the restoration fund of the abbey.

The Michelin Prize for a "More Babies" Pamphlet.—The French Alliance for Increasing the Population of France has offered a main prize of 50,000 francs and forty-five other prizes with a minimum of 1,000 francs each for the best works suitable to be printed and distributed as propaganda to combat the declining birth rate. The competing works must be in the hands of the Alliance before Dec 15, 1922. All must be inscribed "Prix Michelin de la Natalité" and addressed to the Alliance Nationale pour l'Accroissement de la population française, 10 rue Vivienne, Paris.

Personal.—Our German exchanges mention that Prof. O. Mayerhof of Kiel, known for research on physiology of muscle, has been invited to lecture at Cambridge on this subject.——The *Klinische Wochenschrift* states that Dr. J. Schneider of Milwaukee has been elected "honorary senator" by the University of Würzburg in recognition of his donation of 3,000,000 marks to the university on the recent anniversary of its foundation, 340 years ago. Würzburg was his alma mater.——Dr. W. Roux of Halle has been elected honorary member of the Academy of Medicine at Turin. The *Deutsche medizinische Wochenschrift* states that Professor Roux has presented to the Roux Foundation for research on the mechanics of development the 30,000 marks recently sent him by the St. Louis Emergency Relief Committee for German and Austrian Universities.——Dr. F. von Luschan, professor of anthropology at the University of Berlin, retires this year, having reached the age limit. He taught physiology at first.

Graduate Education in London.—A deputation received, July 13, by the minister of health, laid before him the present status of graduate medical education in London. The committee appointed by Dr. Addison, former minister of health, recommended that an institute or college of hygiene be established in London. This has been made possible by the munificent gift of the Rockefeller Foundation, and furthered by a promise from the minister of health of an annual grant of £25,000 for upkeep. A site has been selected and other arrangements are in progress. It was further recommended that a graduate medical school be established to serve as a center of a great teaching organization, in which the special hospitals of London, the Poor Law infirmaries and the medical schools, with their clinical units and research departments, would all find their place. It advised that, as an integral part of the organization, there should be a bureau or central office controlled by a committee of management and providing a library, a hostel and full facilities for social intercourse. Nothing has been done to advance this second recommendation, and it is on this point that the deputation made representations to the minister. The president of the Royal College of Physicians of London, the president of the Royal College of Surgeons of England and the chairman of the committee on graduate education of the British Medical Association, were among the members of the deputation.

Deaths in Other Countries

Sir **Edward Malins**, professor of midwifery at Birmingham University, England, died, July 23, aged 80.——Sir **William Bisset Berry**, at one time speaker of the Cape Colony Parliament; mayor of Queenstown, South Africa, aged 83.——Dr. **Charles Henry Brooking**, Paignton, England, July 16, aged 101.——Dr. **P. Miquel**, municipal bacteriologist at Paris and research worker in biologic chemistry, etc., aged 72.——Dr. **Ramón Torres Casanovas**, professor of surgical pathology, at the University of Barcelona and a member of the editorial staff of the *Revista Española de Medicina y Cirugía*.——Dr. **G. Scholinus**, proprietor of the private neurologic clinic at Pankow.——Dr. **C. Gangotena Chiriboga** of Quito.——Dr. **H. L. Soares da Camara** of Rio de Janeiro, formerly deputy from the state of Rio Grande do Norte.——The *Anales* of Guayaquil reports the tragic death of Dr. **A. Vásconez** of Ecuador, who has been practicing in La Plata, Argentina. He was leaving a patient at 11 p. m., and was shot by a policeman who mistook him for a burglar.

CORRECTION

Discussion on Endocrinology.—Dr. Walter B. Cannon writes that through a misunderstanding his remarks in the discussion of the symposium on endocrinology (The Journal, July 8) were not revised. The corrected discussion will appear in the transactions of the section. Dr. Cannon states "I should be glad to furnish an interpretation of them to any one who may be mystified by them." Dr. A. J. Carlson states that he neglected to include the word "not" in a sentence in his discussion. The sentence should have read: "I did not doubt Dr. Cannon's experimental facts."

Government Services

Silver Spring Training School

Silver Spring Training School is a new departure of the U. S. Veterans' Bureau in placement training, especially as it pertains to neurotic, shell shocked and nervous patients. Heretofore these men have been put directly into training in some shop or educational institution where they had to compete with normal men. In a large majority of cases, they have fallen down, not physically but mentally, thereby causing a great loss of time in eventual rehabilitation, and complete loss of money to the government. The class of men received there comprises the various grades of shell shock cases, neurasthenics, psychoneurotics, cases of mental inferiority without psychosis, and of hysteria and traumatic neurosis. These men have all been hospitalized for periods of from one to three years, and have attained the maximal benefit procurable by such means. Some of them have been in various types of training and have broken down physically and mentally. For such cases, Silver Spring is a last resource. For those who have not been in training, it is a try-out station where a man can be fitted into his right niche under competent supervision. All kinds of athletics are encouraged and made obligatory as much as possible by the medical department.

Change in Hospitalization Plans

Col. Charles R. Forbes, director of the U. S. Veterans' Bureau, has announced a new policy of hospitalization of disabled World War veterans which consists of changing many hospitals into training centers. The policy was based on conclusions reached after Colonel Forbes had made an inspection of nearly all the veterans' hospitals in the country, and he states that what the tuberculous and mental patients needed was some other kind of institution. About 65 per cent. of the tuberculous hospital inmates, it was learned, were walking patients who, together with the mental cases, would be better off elsewhere than in the atmosphere of a hospital. Colonel Forbes declared, in changing the bureau's policy, that he intended to take up the question of turning some of the present hospitals into training centers. In discussing the matter he said:

> Of course, there are many important angles to this problem, all of which are being worked out carefully by this office and the medical division of the bureau. Some of our hospitals can be converted into combination sanatoriums and training centers, where the men who have progressed physically to the working and planning stage will be given as much to do in their chosen vocational work as competent officials find they are able to without danger of a relapse. This will result in a better and a more contented mental state at once, and as the men improve their vocational work will be steadily increased. In many individual instances it will be possible, we hope, to permit student-patients of this sort to go to their homes, subject to reasonable regulations. For them we shall devise a simple inspection system as to their physical condition and to be assured that this latitude in their behalf is not abused. In all such instances the men will be allowed to go home for the final stages of their complete recovery and vocational training only after competent medical officers have found them near enough to good health to justify the step. We expect to keep these student-patients on the same pay status as they are at present. Our only object is to get the veterans away from the conventional hospital as soon as possible. There is no use restoring a man's body if he has to stay in a morbid atmosphere so long that his morale sinks to the point at which he is afraid to take the plunge again into civil life. Physicians and scientists agree that a system which revives physical functions at the expense of economic usefulness has betrayed its trust. The conception of a hospital's function as mere physical restoration is narrow, sectarian and obsolete. We believe that this plan, when fully worked out, which is being done speedily, is applicable not only in mental and tuberculous cases which have progressed sufficiently to benefit by it, but also to thousands of chronic general cases. The plan is designed to fit into a larger policy of applying long needed minimum standards in all hospitals.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 27, 1922.

British Congress of Obstetrics and Gynecology: Treatment of Eclampsia

The third British Congress of Obstetrics and Gynecology has been held at Liverpool under the presidency of Mr. Harold Clifford (Manchester). Except for an exhibition of pathologic specimens, the congress was devoted to a symposium on the treatment of eclampsia, in which the leading obstetricians of the day took part. Dr. T. W. Eden presented a report dealing with all cases of eclampsia admitted during the decade 1911-1921 at fifteen London hospitals. Only cases in which convulsions occurred are included, and cases of chronic renal disease complicated by uremic convulsions are, as far as possible, excluded. The patients numbered 547, of whom 427 recovered, the mortality being 22.1 per cent. As eclampsia varies greatly in severity in different cases, the comparison of different forms of treatment requires some grouping of cases; for if a treatment has been adopted only in mild cases, and another only in severe cases, the results in the two groups are not comparable. With this object, the effects on prognosis of coma, pulse rate, temperature, number of convulsions, amount of albumin in the urine, degree of edema, and blood pressure have been examined.

The symptoms showed that the phenomena to be regarded as danger signals are coma, a pulse over 120, a temperature above 103 F., convulsions numbering more than ten, a urine which solidifies on boiling, the absence of edema, and a blood pressure above 200 mm. When a patient exhibited only two of the foregoing symptoms, the case was classed as severe; when these phenomena were absent, as mild. Excluding fourteen moribund cases, there was a total of 425 cases, with a mean mortality of 16.2 per cent. If the cases are divided into mild and severe, the figures are: mild: number, 264; mortality, 6.4 per cent.; severe: number, 161; mortality, 32.4 per cent. The ratio of the mortality rate in mild and severe cases, therefore, is 1 : 5.

In regard to treatment, the cases were divided into five groups: 1. Natural delivery: total, eighty-nine; mean mortality, 12.3 per cent.; mild, fifty; mortality, 6 per cent.; severe, thirty-nine; mortality, 20.5 per cent. 2. Induction of labor, delivery thereafter being spontaneous: total, eighty-three; mean mortality, 9.6 per cent.; mild, fifty-nine; mortality, 5.1 per cent.; severe, twenty-four; mortality, 20.8 per cent. 3. Assisted delivery, mostly low forceps, with a small number of versions: total, 151, of which twenty-two patients died; mean mortality, 14.5 per cent.; mild, 100; mortality, 5 per cent.; severe, fifty-one; mortality, 33.3 per cent. 4. Cesarean section: vaginal operations, six; five patients recovered and one died; total, eighty-eight, of whom twenty-one died; mean mortality, 23.8 per cent.; mild, fifty-one; mortality, 9.8 per cent.; severe, thirty-seven; mortality, 43.2 per cent. 5. Accouchement forcé (nearly all forcible manual dilatation of the cervix): total, fourteen, of whom seven died; mean mortality, 50 per cent.; mild, four; mortality, 25 per cent.; severe, ten; mortality, 60 per cent.

If the mild cases in which delivery was made by the three simpler methods (1 to 3) are put together and compared with the severe cases in which delivery was made by the same methods, the mortality rates are 5.2 and 26.3 per cent., respectively; that is, the ratio of 1 :5 is almost exactly maintained. Comparing, in the same manner, the cesarean sections, the mild cases showed a mortality of 9.8 per cent., the severe 43.2 per cent., which also corresponds closely to the mean ratio of 1 : 5. The cases in which delivery was made by accouchement forcé are excluded, because the results condemn this method under any circumstances. Hence, it appears that cases which can be classified as severe show a mortality rate five times that of those classified as mild, no matter what method of delivery is adopted. It is also clear that the cases in which there was no obstetric interference, or in which only simple methods were adopted, show a much lower mortality than those in which delivery was made by cesarean section. Three conclusions are drawn: (*a*) Natural delivery or delivery by simple methods is attended by the smaller risk; (*b*) rapid and forcible dilatation of the cervix is attended with danger; (*c*) cesarean section impairs the chances of recovery, whether the case is mild or severe. An attempt was made to assess the value of the various methods of medical treatment, but no definite conclusion could be drawn, as the treatment in the large majority of cases ranged over several methods. However, the conclusion was drawn that the majority of the fatal cases were overtreated, and that in a considerable number the excessive treatment must have been a contributory factor in the fatal results. It is proposed to test comprehensively at the London hospitals one or more simple schemes of treatment.

THE DUBLIN METHOD

A paper which excited great interest and favorable comment was read by Dr. Bethel Solomons on the Dublin method. The main points are: 1. Starvation, everything except water being excluded. The food ingested and the toxic elements from the fetus require the same ferments in the blood to neutralize them; the fetal toxin takes some of the elements from the blood intended for the digestion of food, which leaves the latter with no ferment, and therefore the food acts as a toxin. The starvation should be continued for three days, after which, if there is no improvement, cesarean section or induction should be recommended. 2. Stomach lavage. 3. Bowel lavage. These are most important. 4. Morphin. The value of this drug is at present *sub judice*. 5. Injection of sodium bicarbonate solution under the breasts in all but the mildest cases. 6. Close observation of the patient, which will avoid many deaths from drowning by mucus. Nothing must be given by mouth to the unconscious patient. The fewer the convulsions, the greater the chance of recovery; therefore, convulsions must be controlled. The treatment controls the convulsions and allows time for the natural efforts of the body to split the toxins into some simpler product and thus render it innocuous. With regard to mortality, in Dr. Tweedy's mastership of the Rotunda Hospital the intern mortality rate was 8.82 per cent. in sixty-eight cases; while, if the extern results were included, the rate fell to 8 per cent. There were no deaths in the last twenty-nine cases, showing the better results following improved technic.

Third International Congress of the History of Medicine

At the Third International Congress of the History of Medicine, held in London, the countries represented were Belgium, Czechoslovakia, Denmark, Egypt, France, Greece, Holland, Italy, Portugal, Roumania, Spain, Switzerland and the United States. Lord Onslow, parliamentary secretary to the ministry of health, welcomed the delegates on behalf of the government. The president, Dr. Charles Singer, lecturer on the history of medicine, London University, said that the history of medicine, like other evolutionary studies, gave an interest and a meaning to present phenomena that could be obtained through no other channel. Some still thought that medical history was best left to the spare time of professional medical men who had the leisure and literary gifts for its pursuit. The work of such men had been one of the greatest glories of British learning. In the past, British achievements in the department of the history of medicine had been wholly their work. The most eminent exponents of the subject in this country were men who had given to its study the time they could spare from the practice of their profession. He mentioned their president of honor, Sir Norman Moore, and Sir Clifford Allbutt, as two veterans in the study of medical history. They were prevented by advancing years from being present; but in their place they had two men who were active exponents of the subject, who by their skill, learning, integrity and kindliness had earned the affection and respect of the entire English-speaking medical profession—he referred to the vice president of honor, Sir D'Arcy Power, and to the treasurer, Dr. W. G. Spencer. He coupled with their names that of Dr. Raymond Crawford. The fact that England had produced such men and many others of the same type proved that first-class historical work could be produced in the intervals of a busy professional life. Their work demonstrated the humane and educational value of the history of medicine. Once the topic entered the curriculum, the need for special teachers became apparent. That need had begun to be recognized and to be met in this country, and it was his hope that before this congress assembled again it would be more adequately and more widely met throughout the civilized world. The history of medicine was not only a subject to attract and amuse but also a discipline, full of humanity and philosophy, covering more than half of the field of studies known under the name of the history of science. The thoughts of our century were separated from those of the past by the fertilizing doctrine of evolution, and it had helped to stimulate the historian's studies in biologistic research. The history of medicine gave to the physician in practicing his profession or in carrying out researches the only footing to withstand the cynicism of the period of life when the ardor of youth had disappeared without being replaced by the mellowness of age.

BERLIN

(From Our Regular Correspondent)

July 22, 1922.

Germany's New Law Pertaining to Juvenile Welfare

Section 1 of the law pertaining to juvenile welfare states that every German child is entitled to receive such an education as will render him (or her) physically, mentally and socially fit. The rights and duties of the parents with respect to the education of their children are not affected by this law. Against the will of the parents or guardian, intervention is admissible only when the law specifically allows it. Public assistance to juveniles is not given unless a child's right to an education is not being fulfilled by the family. The juvenile welfare societies *(Jugendämter)* are the organs through which public assistance to juveniles will be given, except under certain conditions in which other authorities are compelled to intervene. The duties of the *Jugendämter* are to protect foster-children, to assist in matters pertaining to guardianship, to care for needy minors, to assist by way of supervision of delinquents and in the education of neglected children, to aid in juvenile court matters, to cooperate in the supervision of child labor and the employment of juveniles, to help in providing for war orphans and the children of the war injured, and to render aid to the police authorities in the matter of juvenile welfare in general. Still further duties of the *Jugendämter* are: to provide opportunities for holding councils in matters pertaining to juveniles, protection of mothers before and after childbirth, infant welfare, welfare of children under school age, welfare of children of school age during the hours out of school, and the welfare of juveniles who have left school. The *Landesjugendämter* (provincial *Jugendämter*) are the central offices in each state or province, which exercise a general control over the *Jugendämter* in the various municipalities and endeavor to establish a uniform policy and see that it is carried out. A council on juvenile welfare has also been added to the office of the minister of the interior. It is the duty of the *Reichsjugendamt* (central *Jugendamt* of the empire) to collect information pertaining to welfare work in general and to communicate such information to the *Landesämter*, and to provide in other ways for the dissemination of information on the subject of child and juvenile welfare.

The Effect Colors Exert on the Mind

The Deutsche Gesellschaft für Licht- und Farbenforschung of Munich has published for schools, sanatoriums, hospitals, etc., a series of charts with which to teach by the object method what has been ascertained in regard to the hygiene of colors. In order to understand the psychology of colors and to make proper use of them in interior and exterior decoration it is necessary to become familiar with the effects that they exert on the mind, and more particularly, the emotions. White makes a room larger and lighter, but it appears cold and empty. A crimson hue imparts an air of delicacy. Children in a room with crimson-tinted walls and light that passes through crimson shades work eagerly and more than usual. Yellow makes a room appear to be flooded with light, gives the feeling of sun warmth and produces a sense of comfort. Otherwise dingy rooms are enlivened and made more cheerful by yellow wallpaper. Orange exerts the most marked warmth giving effect and disposes to cheerfulness. Orange colored curtains in a bedroom produce a tinting effect that has a stimulative influence on the nerves. Red is the color that best represents spontaneous youthful joy, but it is the hardest on the eyes. A pure neutral red causes unrest; persons inclined to melancholy are put in a livelier frame of mind, but persons who are nervous should avoid red. Violet exerts a depressing effect. Blue has a calming and soothing effect. Patients will sleep better with a night-lamp, if provided with a blue shade, than they will in the dark. Green has a calming influence. Gray, if it covers a wide area, is barren and dreary. Persons become depressed in such dingy rooms and give evidence of lack of interest in their work. Especially patients are likely to be thrown into an unhappy frame of mind by dark and somber surroundings. Even though these conclusions may not be universally true, they at least deserve attention in the furnishing of our homes, and especially of hospital wards.

PARIS

(From Our Regular Correspondent)

July 28, 1922.

Second Congress of the Association of French-Speaking Pediatricians

The second congress of the Association des pédiatres de langue française, which was originally supposed to meet in Lyons in 1914 but which was postponed on account of the war, was held in Paris, July 10-12, under the presidency of Dr. Edmond Weill, professor of clinical pediatrics of the Faculté de médecine at Lyons. Among the subjects on the program, three deserve particular attention: (1) diabetes mellitus in children; (2) congenital scoliosis, and (3) rôle of the pituitary and the pineal bodies in infantile dystrophy.

DIABETES MELLITUS IN CHILDREN

Dr. Paul Rohmer of Strasbourg stated that, clinically, infantile diabetes falls into three divisions: prediabetic states; mild diabetes, which is probably identical with renal diabetes, and "habitual" diabetes, which is almost always a grave type. Prediabetic states in children have not as yet been the object of systematic research. One incentive to study them lies in the fact that the familial character of the disease is found more frequently in children than in adults. It has long been known that children of a lymphatic temperament very commonly present sugar in the urine (Comby, Terrien).

A second form of glycosuria that merits the particular attention of pediatricians is a type which, owing to its usual benign evolution, detracts from the grave character of habitual infantile diabetes and presents cases that are called "diabètes innocents" (Salomon) and that betrays certain points of resemblance with renal diabetes. As for habitual diabetes in children, it progresses more or less rapidly, with a regularity which might be termed monotonous, nearly always toward a fatal outcome. As regards etiology, syphilis may well be suspected. Another factor that is frequently noted in connection with observations on infantile diabetes is its hereditary, or more particularly, its familial character. What it is that makes infantile diabetes particularly grave is not known. Some have attempted to explain the frequency of acidosis by assuming relatively small stores of alkaline salts in the body of the patient. Others, again, have pointed to a possible increase in cellular metabolism in the child, calling to mind the fact that, under similar conditions in hyperthyroidism, disturbances of the sugar regulatory center are likewise noted.

As for treatment, restriction of diet, in general, has become the fundamental principle of modern management of diabetes —at least, of grave diabetes, and every case of infantile diabetes should be regarded as grave diabetes, even though it may present a benign aspect. Lowering the protein intake to the limit of what is compatible with the needs of the organism is fully as important, sometimes even more essential, than the restriction of carbohydrates. Dr. Lereboullet of Paris emphasized particularly the importance of prediabetic states and the need of examining the brothers and sisters of diabetic children, in order to discover the first signs of diabetes that might develop later in a frank form. While he recognized the importance of the conception of renal diabetes, he stated there was need of care lest too absolute conclusions should be drawn. Two of his patients who presented symptoms of renal diabetes, including notably the absence of pathologic glycemia, had, nevertheless, severe attacks of acetonemia. Lereboullet likewise pointed out the absence of hereditary syphilis in a large number of cases observed by him and stated that the application of antisyphilitic treatment in such cases was of little avail. However, he recognizes the importance of the rôle, at least from the provocative standpoint, of accidental acute infections, and reported a case in which influenza appeared to be the point of departure.

Dr. P. Nobécourt, professor of clinical pediatrics of the Faculté de médecine in Paris, warned against instituting a too strict carbohydrate diet. Lereboullet also pointed to the same danger.

Congenital Scoliosis

Drs. Mouchet and Carle Roederer, of Paris, stated that scoliosis without bone anomalies presents, as a rule, a favorable prognosis. It is, to be sure, less frequent than scoliosis with vertebral anomalies. Among cases of the latter, scoliosis with a semivertebra (*hémivertèbre*) is the most common. These semivertebrae may constitute a supernumerary addition to the spine or they may take the place of normal vertebrae. The supernumerary semivertebra is situated more commonly at the left in the lumbar region, it being found especially frequently between the first and second vertebrae. Hemiatrophy of a normal vertebra occurs most frequently in the superior dorsal region. There are frequent remote concomitant anomalies, such as clubfoot, congenital luxation of the hip joint, imperforate anus or other conditions affecting the spinal column or the vertebrae (absence, excessive number, ankylosis). Scoliosis with a semivertebra may be noted at birth or when the child first begins to walk. It is characterized by a more or less rigid deflection, together with gibbosity. Palpation will locate, along the line of the spinous processes, in the convex groove, the side of the semivertebra, protruding at times like a second spinous process. This scoliosis results from bad sitting and walking postures, so that, when a child is 3 years old, the compensations are already accentuated. Restoration of normal equilibrium is usually comparatively easy.

In the type of scoliosis with tardy manifestation are found lateral curvatures associated with anomalies in the form of supernumerary vertebrae or, more especially, missing vertebrae, in which the cervical region is the part most frequently affected. Scoliosis resulting from true ankylosis concerns more particularly the atlas, which is united with the occipital bone only at one edge. Synostosis may also be noted between the atlas and the axis or between the axis and the third cervical vertebra. Scoliosis may be associated also with rare cases of anterior spina bifida or, more commonly, with the posterior type, which is especially frequent in the lumbosacral region. This last type is also found combined with anomalies of the fifth lumbar vertebra, which is so frequently abnormal that we scarcely know what the normal form is. As a rule, scoliosis associated with slight malformations of the fifth lumbar vertebra is one of the tardiest types in its development. The compensation is often very great.

In arriving at a diagnosis, two main questions are to be considered: What evidence is there for congenital scoliosis? With which type of scoliosis are we dealing? In early infancy, scoliosis may easily be confused with Pott's disease or rachitic deformity. There are certain differential signs which point rather to scoliosis with a semivertebra, such as shortness of the primary dorsolumbar curve or its high location in the upper dorsal region, together with an elevated position of the scapula. But we must rely on roentgenography to give the final diagnostic decision in the presence of vertebral anomalies.

The results of treatment depend to a great extent on how early it is begun. The prognosis of scoliosis with a semivertebra, in particular, is perhaps not so grave as was formerly supposed; in the first place, because the curvature is abrupt, and secondly, because it has occurred at the expense of only one vertebra, and third, because, being situated at the level of the upper lumbar region, a compensation curvature may develop below and another above. Diagnosis of these compensation curvatures will give the essential indications for orthopedic treatment. Very young children will be placed in a plaster trough that will bring about overcorrection. Later, a celluloid jacket is substituted for the trough and manual corrections are begun as soon as possible. A little later still, an attempt will be made, by means of proper exercises and the use of traction and compression maneuvers, to correct lateral deflections and to strengthen the muscles, in order that their action may preserve the corrected positions. As for surgical treatment, attempts have been made to consolidate the fifth transverse process with the sacrum, and in one case a bony graft was used. It is possible that a fixed bony graft, following the technic of Albee, would be an operative procedure that might be useful in a few carefully selected cases. Nové-Josserand of Lyons, Comby of Paris and Haverschmidt of Utrecht emphasized the part that heredity plays in the production of scoliosis, and especially of the mild type affecting the dorsal region in the second period of childhood, which physicians are most frequently called on to treat.

Marriages

Shirley Carlton Lyons, Rochester, Minn., to Miss Marion Brown of New Orleans, at Rochester, June 30.

Williamson Haley Rogers, Wilson, Okla., to Miss Juanita Tidmore, of Abilene, Texas, June 19.

John Keely, Miami, Fla., to Miss May Bodine Walker of Louisville, Ga., at New York City in July.

Richard Elseph Anderson, Willmar, Minn., to Miss Carolina M. Schwartz of Chicago, June 24.

William Joseph Frawley, Appleton, Wis., to Miss Ruth Lefebvre of Chilton, Wis., June 10.

Lawrence Joseph Leonard to Miss Vera May Buckholz, both of Minneapolis, June 29.

Grover C. Daniel, Fallsburg, Ky., to Miss Elma L. Gahler of Rochester, Minn., July 11.

Delizon Arthur Foote, Omaha, to Miss Lulu N. Mazwell of Fremont, Neb., recently.

Ernest Lightfoot Strader to Miss Blanche Lizee, both of Cannon Falls, June 28.

Gerald L. Higgins to Miss Pauline E. Schenck, both of Jersey City, N. J., July 7.

Otto Theodore Gunther to Miss Norma Prange, both of Sheboygan, Wis., June 17.

Edward B. Felter, Plymouth, Wis., to Miss Marie Buuch of Milwaukee, June 15.

Leroy Crummer to Mrs. Myrtle Kelley, both of Omaha, in July.

Deaths

Henry P. Geib, Stamford, Conn.; Bellevue Hospital Medical College, New York, 1869; veteran of the Civil War; surgeon general of the state under Governor Harrison; representative in the Connecticut legislature, 1883; formerly president of the Fairfield County Medical Society, and at one time vice president of the Connecticut State Medical Society; formerly on the staff of St. John's Hospital; recently surgeon on a United Fruit Company ship; was found dead in his room, August 5, from accidental asphyxiation, aged 74.

Lyman L. Uhls ⊕ Overland Park, Kansas; Rush Medical College, Chicago, 1884; for fourteen years superintendent of the Osawatomie State Hospital for the Insane; head of the Uhls Sanatorium, Overland Park; was elected a member of the state legislature in 1918 and in 1920; professor of psychiatry at the University of Kansas School of Medicine; member of the American Medico-Psychological Association; died, August 4, aged 65, at the Research Hospital, Kansas City, Mo.

William Shelley Hutton ⊕ Fornfelt, Mo.; University of Nashville Medical Department, Nashville, Tenn., 1900; formerly secretary of the Southeast Missouri Medical Society; at one time physician to State Hospital No. 4 for the Insane, Farmington; aged 43; was drowned, July 3, in the Mississippi River at Gray's Point, with his 16 year old son, when trying to save him from drowning.

John Joseph MacKenzie, Toronto, Ont., Canada; University of Toronto, Faculty of Medicine, 1899; professor of pathology and bacteriology at his alma mater; served with the Canadian Army Medical Corps in Saloniki during the World War; member of the American Association of Pathology and Bacteriology; died, August 1, aged 57, from acute ulcerative endocarditis.

James Bailey Rogers, Cincinnati; Vanderbilt University Medical Department, Nashville, Tenn., 1910; formerly bacteriologist at the Edward Sanatorium, Naperville, Ill.; served as pathologist and instructor of bacteriology at the University of Cincinnati Medical College, from 1918-1921; died, July 15, aged 36, from tuberculosis, at the Edward Sanatorium, Naperville.

George Y. McCracken ⊕ Philadelphia; University of Pennsylvania, Philadelphia, 1876; formerly on the staffs of the Wills Eye and Ear and St. Mary's Hospitals; member of the Medico-Legal Society of Philadelphia; died, July 26, aged 67, from cerebral hemorrhage, in Yellowstone National Park, while on his vacation.

Alexander Joseph Rooney, Wrington, Somerset, England; Bellevue Hospital Medical College, New York City, 1867; member of the Medical Society of the State of New York; formerly a practicing physician in Brooklyn; for many years a police surgeon, health inspector, and coroner of Brooklyn; removed to England in 1917; died, July 31, aged 83.

William Davis Granger, Tuckahoe, N. Y.; New York University Medical College, New York City, 1879; member of the Medical Society of the State of New York; member of the New York Neurological Society and the American Medico-Psychological Association; died, July 30, aged 75, at Squirrel Island, Maine.

Louis Dominick Robinson, Montgomery, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1896; member of the Medical Association of the State of Alabama; died, July 30, aged 48, at the Washington County Hospital, Hagerstown, Md., following an operation.

Emma Lucas Johnston, Los Angeles; Women's Medical College of Pennsylvania, Philadelphia, 1892; formerly health officer of Peoria, Ill.; at one time served as resident physician at the State Asylum, Pueblo, Colo.; died, July 28, aged 68, from brain lesion complicating arteriosclerosis.

Joseph G. Ellis, Denison, Texas; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1879; member of the State Medical Association of Texas; member of the school board; at one time served the city as alderman; died, July 29, aged 73.

Joseph J. Duncan, Jr. ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsbugh, 1895; ophthalmologist; formerly surgeon to the Eye, Ear and Throat Hospital, Pittsburgh; member of the American Ophthalmological Society; died, July 27, aged 50, at the Presbyterian Hospital.

Frederick Augustus Davis, Boston; Hahnemann Medical College and Hospital of Philadelphia, 1884; member and at one time president of the Massachusetts Surgical and Gynecological Society; for four years lecturer at Boston University School of Medicine; died, July 29, aged 61.

Philip Taylor, Richmond, Va.; Columbia University College of Physicians and Surgeons, New York, 1876; at one time served on the staff of the Royal Eye Hospital, Manchester, England; member of the Medical Society of Virginia; died, August 1, aged 72.

Bascom James Vance ⊕ Checotah, Okla.; University of Nashville Medical Department, Nashville, Tenn., 1890; at one time president of the Oklahoma State Medical Association; specialized in obstetrics; died, July 27, aged 69, in a hospital at Muskogee, from pneumonia.

Jacob S. Shoff, Chattanooga, Tenn.; Medical College of Ohio, Cincinnati, 1881; Bellevue Hospital Medical College, New York City, 1882; professor of materia medica and therapy at the Chattanooga Medical College; died, recently in New York City, aged 66.

Rice Houston Lindaman, Littlestown, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1904; member of the Medical Society of the State of Pennsylvania; died, July 26, aged 41, at the West Side Sanatorium, York, Pa., following an appendectomy.

John Francis Hardman, Greenwich, Conn.; New York University Medical College, New York City, 1895; superintendent of the Blythewood Sanatorium, Greenwich; died, June 30, aged 55, from cerebral hemorrhage, at the Davenport Hotel, Stamford.

Albert William Colwill, Boston; Tufts College Medical School, Boston, 1912; instructor in pharmacology and biochemistry at his alma mater; died suddenly, July 17, aged 38, in a motion picture theater at Back Bay, from heart disease.

Robert Linn Allison, Eau Claire, Pa.; Medical College of Indiana, Indianapolis, 1896; member of the Medical Society of the State of Pennsylvania; at one time member of the local school board; died, July 26, from cerebral hemorrhage, aged 58.

George Munroe Palmer, Boston; Medical School of Harvard University, Boston, 1892; also a chemist; member of the Massachusetts Medical Society; was found dead, July 21, in Floating Bridge Pond with his jugular vein severed, aged 58.

William Albert Cundy, Pasadena, Calif.; Gross Medical College, Denver, Colo., 1896; at one time was mayor of Aurora, Colo.; died, July 25, aged 62, from injuries received in a motor accident.

⊕ Indicates "Fellow" of the American Medical Association.

Samuel Alden Conklin, Canton, Ohio; Western Reserve University School of Medicine, Cleveland, 1869; practitioner in Canton for more than half a century; formerly member of the state board of health; died, July 18, aged 81.

John H. Miller ⊕ Pawtucket, R. I.; Maryland Medical College, Baltimore, 1907; former health officer of Lincoln; member of the staff of St. Joseph's Hospital, Providence, where he died, August 3, from heart disease, aged 45.

Annie Smith Campbell, New York City; New York Medical College and Hospital for Women, 1882; formerly professor of anatomy at her alma mater; died, July 11, from carcinomatosis of the abdomen, aged 60.

Miles J. Walker, York, S. C.; Louisville (Ky.) Medical College, 1879; member of the South Carolina Medical Association; member of the state board of health; died, July 11, aged 65, at a hospital in Richmond.

George Edgar Lothrop, Brookline, Mass.; Dartmouth Medical School, Hanover, N. H., 1871; proprietor of several Boston theaters; died, August 3, aged 70, at the Massachusetts General Hospital, Boston.

Ralph Emerson Stocker, Brimley, Mich; Detroit College of Medicine, 1907; Indian Service, Bay Mills School; member of the Michigan State Medical Society; died, July 23, aged 40, from diabetes mellitus.

Daniel A. Haney, Newnan, Ga.; Atlanta College of Physicians and Surgeons, 1910; member of the Medical Association of Georgia; died suddenly, July 25, aged 40, at Franklin, N. C., from chronic nephritis.

John M. Duff, Madison, S. D.; University of Buffalo (N. Y.) Department of Medicine, 1870; health officer of Lake County; died, July 7, aged 78, from arteriosclerosis and cerebral hemorrhage.

Robert Thomas Porter, Walkerton, Ont., Canada; University of Michigan, Ann Arbor, 1866; Victoria University Medical Department, Victoria, Ont., 1867; died, June 27, at the General Hospital.

Samuel Henry Hill, Carrollton, Ala.; University of Louisville Medical Department, Louisville, Ky., 1870; member of the Kentucky State Medical Association; died recently, aged 75, from appendicitis.

William John Stevenson, Georgetown, Conn.; Royal College of Surgeons, School of Surgery, Dublin, Ireland, 1874; died, July 17, aged 71, at the Danbury Hospital, from heart disease.

Burt P. Hoyer, Buffalo; University of Buffalo, 1882; member of the Medical Society of the State of New York; formerly medical examiner for Erie County; died, August 3, aged 64.

Stacy M. Wilson, Bridgeton, N. J.; University of Pennsylvania, Philadelphia, 1869; member of the Medical Society of New Jersey; veteran of the Civil War; died, July 28, aged 72.

Arthur R. Sholars, Orange, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1900; member of the Louisiana State Medical Society; died, June 15, aged 47.

George Henry Talbot, Newton, Mass.; Boston University School of Medicine, Boston, 1882; visiting physician at the Newton Hospital; died, July 28, aged 62, following a long illness.

John Small Dyer, Winter Harbor, Me.; Medical School of Maine, Portland, 1904; member of the Maine Medical Association; died suddenly, July 9, aged 52, from angina pectoris.

J. F. Lawshe, Swayzee, Ind.; Kentucky School of Medicine, Louisville, 1881; for thirteen years postmaster of Swayzee; died suddenly, July 26, aged 63, from heart disease.

William Jerome Bazemore, Chattanooga, Tenn.; University of Louisville Medical Department, Louisville, Ky., 1872; veteran of the Civil War; died, July 31, aged 78.

Prier J. Hermon, Raymond, Ill.; Rush Medical College, Chicago, 1863; died, July 24, aged 88, from injuries received when he fell off the porch two weeks previously.

John Willard Crossan, Centerville, Del.; University of Pennsylvania, Philadelphia, 1894; member of the Delaware State Medical Society; died, June 27, aged 49.

George Washington Barrett ⊕ Denver; Tufts College Medical School, Boston, 1903; died, July 27, aged 51, at St. Luke's Hospital, from pleuropneumonia.

Edna May Jeffries Trewin ⊕ Buchanan, Mich.; University of Michigan, Ann Arbor, 1912; died suddenly, July 28, aged 54, from cerebral hemorrhage.

T. Ninomiya, Kohala, Hawaii; Taisei Medical School, Tokyo, Japan, 1899; died recently in Hiloshima, Japan, aged 50, from chronic nephritis.

Elam S. Gibbs, Monticello, Minn.; University of Wooster Medical Department, Cleveland, 1869; died recently, aged 75, from cerebral hemorrhage.

Petros Constantinides, Toronto, Canada; Toronto School of Medicine, 1865; M.R.C.S., England, 1889; died, June 10, aged 78, from senility.

Benjamin L. Kershner, Dalmatia, Pa.; Jefferson Medical College of Philadelphia, 1871; died, August 3, aged 72, from cerebral hemorrhage.

Charles Alfred Smith ⊕ Osceola, Mo.; St. Louis College of Physicians and Surgeons, 1899; died, June 8, aged 48, from cerebral hemorrhage.

William Giles Martin, Topeka, Kan.; Rush Medical College, Chicago, 1888; died recently, aged 69, at Ottawa, Kan., from angina pectoris.

Jacob J. Goodman, New York; New York University Medical College, New York City, 1875; died, August 2, aged 69, from thrombosis.

Thomas M. Hartsfield, Hillsboro, Texas; Memphis (Tenn.) Hospital Medical College, 1901; died, July 3, aged 52, in a sanatorium at Waco.

Joseph M. Powers, Warrensburg, Mo.; Eclectic Medical College, Cincinnati, 1875; died recently, aged 73, from chronic interstitial nephritis.

Nathan J. Paddock, Syracuse, N. Y.; New York University Medical College, 1879; died suddenly, July 25, aged 71, from heart disease.

William George Kanter, Detroit; Detroit College of Medicine and Surgery, 1906; for several years city physician; died, July 18, aged 36.

Louis W. Ehrlich, St. Louis; Marion-Sims College of Medicine, St. Louis, 1892; died, June 18, aged 57, from hydronephrosis.

T. A. Brady, Cuba, Ky.; Memphis Hospital Medical College, Memphis, Tenn., 1893; died, July 22, aged 78, from heart disease.

Eugene S. Huntress, Farmington, N. H. (licensed, New Hampshire, 1897); died recently, aged 62, from chronic nephritis.

Joseph Mathias Walborn, Gratz, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1887; died, July 29, aged 61.

John I. Lane, Brooklet, Ga.; Louisville Medical College, Louisville, Ky., 1870; mayor of Brooklet; died, July 10, aged 73.

James W. McClure, Sedalia, Mo.; St. Louis Medical College, St. Louis, 1867; also a druggist; died, July 25, aged 79.

Henry Shipman Jewett, Brooklyn; New York University Medical College, 1886 died, August 4, aged 86, from senility.

Alonzo J. Edson, Rockford, Ill.; Eclectic College of Medicine and Surgery, Cincinnati, 1857; died, June 5, aged 95.

William H. Bailey, Cabot, Ark. (licensed, Arkansas, 1903); died, July 23, aged 51, following a long illness.

George B. Smith, Omaha; Indiana Medical College, Indianapolis, 1872; died, July 14, aged 80, from senility.

William Hurd Fisher ⊕ Buffalo; University of Buffalo Department of Medicine, 1919; died, July 17, aged 25.

Abner H. Boyd, Winchester, Kan.; Louisville Medical College, 1884; died, June 23, aged 62, from heart disease.

Arlington Stephenson ⊕ Ottawa, Ohio; Cincinnati College of Medicine and Surgery, 1878; died, July 17, aged 71.

Hugh Thurman, Fayetteville, Ark.; Gate City Medical College, Texarkana, Texas, 1902; died, July 20, aged 43.

David S. Kinsey, Muncie, Ind. (licensed years of practice, Indiana, 1897); died, July 27, aged 77, from paresis.

William Arthur Lester, Onalaska, Wis.; Rush Medical College, Chicago, 1881; died, May 17, aged 66.

John A. Mason, Chattanooga, Tenn.; University of Michigan, Ann Arbor, 1905; died, recently, aged 45.

John Frank Benham, Mooresville, Ind.; Medical College of Ohio, Cincinnati, 1890; died recently.

William M. Solomon, North Little Rock, Ark. (licensed, Arkansas, 1903); died, July 30, aged 50.

James M. Nix, Adona, Ark. (licensed, Arkansas, 1903); died, June 30, aged 67, from paresis.

Correspondence

DIAGNOSTIC SURVEYS AND ASYLUM REFORM

To the Editor: — Probably no subject appeals to general practitioners more than does the care of epileptics, insane and associated classes. Estimates based on the findings of the National Committee on Mental Hygiene indicate that there are approximately 400,000 such cases under institutional treatment in the United States today. No section of the country is immune. The general practitioner is the attendant in the first instance, and remains the family adviser not only of institutionalized cases but also of the probably quarter of a million other cases not now in institutions.

Among the more recent developments is the relationship of focal infections — located in the teeth, tonsils, sinuses, intestines, etc.—to the causation of "epilepsy" and "insanity." Individual cases and groups of cases have been reported in which convulsions and mental disturbances have ceased following the removal of foci of infection. The interest of the general practitioner, and the protection of the general public, to say nothing of the welfare of the patients themselves, demand that observations such as these from reliable sources be not ignored. Only a very few of even the large institutions are either organized or equipped to ascertain the basic facts as to focal infections among their populations; and no diagnostic survey of the kind demanded by modern scientific developments has ever been made.

In these circumstances it seems important that the general medical profession shall exert its influence to assist medical officers of these institutions in all efforts to secure an actual diagnostic study of their respective populations. This can probably best be done by securing, first, adequate equipment and, secondly, independent diagnostic commissions in each state. In this way the underlying pathologic and diagnostic facts will be ascertained, while the medical officers of the institutions, whatever may be their views as to the scientific questions involved, will be given not only valuable assistance but also protection against possible imputations of bias.

Charles A. L. Reed, M.D., Cincinnati.

MISUSE OF THE WORD "EXTRACT"

To the Editor:—We are wont to popularize the usage of wrong terms until they reach a vogue and become common. As an example is the use of the word "extract" when applied to a desiccated gland product, when nothing like an extract is meant. Gould's dictionary says that an extract is "the condensed active principle of a drug." To be sure, a certain amount of moisture is removed by desiccation, but this does not make such a product an extract.

E. G. Kyte, M.D., Indianapolis.

PHYSICIANS INVITED TO ASSOCIATION FOR ADVANCEMENT OF SCIENCE

To the Editor:—It is desired to secure for membership in the American Association for the Advancement of Science a larger number of medical men. For this reason, at its recent meeting, the Executive Committee of the Council of the American Association for the Advancement of Science voted to invite the Members and Fellows of the Americal Medical Association to full membership without the payment of the usual five dollar entrance fee—that is, to admit them simply on the payment of the annual dues, namely, $5 a year.

It is unnecessary, of course, to take space here to inform medical men what the American Association for the Advancement of Science has done and is doing to advance science in the United States.

I shall be glad to hear from any Members or Fellows of the Association who desire further information.

Burton E. Livingston, Permanent Secretary,
Smithsonian Institute Building,
Washington, D. C.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SPRUE

To the Editor:—1. Is it settled that *Monilia psilosis* is the specific cause of sprue? 2. What is the result of treatment by monilia vaccines? 3. What is the best treatment for sprue? 4. What is the most complete and up-to-date work on sprue?

C. Pupo, M.D., San José, Costa Rica, Central America.

Answer.—1. The etiology of sprue is not known, but, of many etiologic theories, the monilia or oidium theory is most generally accepted.

2. Ashford, Michel, Taylor and others who have used monilia vaccines claim satisfactory results. Of sixty-two patients thus treated, forty-nine were reported as cured, twelve as improved, and one died (Michel).

3. The treatment of sprue, as yet, is symptomatic. Castellani and Chalmers say: "An attempt must be made to soothe the alimentary canal and to give it as little work to do as possible, so that it may repair itself. This line of treatment will necessitate rest in bed and a careful diet after the bowels have been swept as clear as possible of decomposing material." They say, further, that "the real basis of the treatment of sprue is the milk diet." Bovaird says of the treatment of sprue: "The one recommendation which seems to have general acceptance is that the diet must consist largely of fruit. The fame of strawberries in this relation is well known." An ethereal extract of strawberries for the treatment of sprue was recently described (*Brit. M. J.* **1**:718 [May 6] 1922) by Castellani and Browning.

4. Recent articles on sprue have been written by:

Bovaird, David: A Study of Tropical Sprue or Psilosis, The Journal, Sept. 3, 1921, p. 753.
Ashford, B. K.: Sprue, a Mycosis Superimposed on a State of Deficiency in Certain Essential Food Elements, *Am. J. Trop. Med.* **2**: 139-150 (March) 1922.
Michel, C.: Monilia Vaccine in Sprue, *J. Infect. Dis.* **22**: 53 (Jan.) 1918.
Rogers, L.: Vaccine Treatment of Sprue, *Indian M. Gaz.* **53**: 121 (April) 1918.
Castellani, A.: Treatment of Sprue by Massive Doses of Sodium Bicarbonate, *Brit. M. J.* **1**: 338 (March 5) 1921.
Ashford, B. K.: Dietetic Deficiencies Predisposing to Sprue, Pellagra and Beriberi in Porto Rico, *Bull. Porto Rico M. A.* **15**: 249-259 (Dec.) 1921.
Brown, T. R.: Employment of Pancreatic Extract in Treatment of Sprue, *Am. J. M. Sc.* **161**: 501 (April) 1921.
Castellani and Chalmers: Manual of Tropical Medicine, New York, William Wood & Co., 1920.
Byam and Archibald: The Practice of Medicine in the Tropics, London, Oxford Medical Publications, 1921.
Manson-Bahr: Manson's Tropical Diseases, New York, William Wood & Co., 1921.

PINTA

To the Editor:—I would appreciate your publishing something about the causative organism of pinta, a skin disease very frequent in this region, its treatment and a list of reference books I may consult. Please omit my name.

M. J., M.D., Iguala, Mexico.

Answer.—Pinta is a disease variously designated as mal del pinto o de pinta, mal de los pintos (Mexico); carate (Colombia); cute (Venezuela), and quirica (Panama). It is supposed to be caused by several fungi, such as *Aspergillus, Penicillium, Monilia, Montoyella,* and perhaps a trichophyton. In the Mexican letter (The Journal, Oct. 1, 1921, p. 1116) there appeared a review of Dr. J. Gonzáles' investigations on the disease in Mexico and of his theory that the mosquito is the vector of the parasite.

References:

Montoya and Flórez: Thèse de Paris, 1898.
Castellani and Chalmers: Manual of Tropical Medicine, New York, William Wood & Co.
Sutton, R. L.: Diseases of the Skin, St. Louis, C. V. Mosby Company.
Lasso Meneses, S.: Dermatología y la Enfermedad Azul de los Indios de Chillo, Guayaquil thesis, 1921.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 5. Sec., Dr. Harry C. DeVighne, Juneau.

IDAHO: Boise, Oct. 3. Director, Mr. Paul Davis, Boise.

MASSACHUSETTS: Boston, Sept. 12-14. Sec., Dr. Samuel H. Calderood, State House, Boston.

MINNESOTA: Minneapolis, Oct. 3-5. Sec., Dr. Thomas S. McDavitt, 39 Lowry Bldg., St. Paul.

MONTANA: Helena, Oct. 3. Sec., Dr. S. A. Cooney, Power Bldg., elena.

NEW HAMPSHIRE: Concord, Sept. 7-8. Sec., Dr. Charles Duncan, oncord.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 25-28. ss't. Professional Examinations, Mr. Herbert J. Hamilton, State Eduation, Albany.

PORTO RICO: San Juan, Oct. 3. Sec., Dr. M. Quevedo Baez, Box 804, an Juan.

Missouri January Examination

Dr. Cortez F. Enloe, secretary, Missouri State Board of ealth, reports the written examination held at St. Louis, an. 23-26, 1922. The examination covered 14 subjects and ncluded 105 questions. An average of 75 per cent. was equired to pass. Of the 32 candidates examined, 28 passed nd 4 failed, and one candidate, a graduate of the Kansas edical College in 1900, with an average of 79.1 per cent., as licensed by special examination. The following colleges ere represented:

College	Year Grad.	Per Cent.
PASSED		
hicago College of Medicine and Surgery	(1915)	79.2
orthwestern University	(1920)	85.1
ush Medical College	(1920)	78.1
t. Louis University School of Medicine	(1908) 83, (1921)	80.1, 85.7, (1922) 79.3, 79.6, 82.1, 82.3, 82.6, 84.1, 84.3, 84.8, 84.9, 86.6, 87.3
ashington University	(1918) 83.7, (1920)	82.7, 87.2, (1921) 78.1, 81.7, 86.7, 87.6
eharry Medical College	(1921)	75, 76
ueen's University	(1916)	88.2
FAILED		
altimore Medical College	(1894)	*
t. Louis College of Physicians and Surgeons	(1915)	40, (1917) 44.1, (1918) *

* No grade given.

North Carolina June Examination

Dr. Kemp P. B. Bonner, secretary, North Carolina State oard of Medical Examiners, reports the oral and written xamination held at Raleigh, June 26-30, 1922. The examation covered 7 subjects and included 70 questions. An verage of 80 per cent. was required to pass. Of the 45 canidates examined, 37 passed and 8 failed. Twenty candiates were licensed by reciprocity. The following colleges ere represented:

College	Year Grad.	Per Cent.
PASSED		
eorge Washington University	(1921)	88
oward University	(1922)	80
mory University	(1920) 84, (1922)	84, 89
ulane University	(1922) 80, 87, 88,	88, 91
niversity of Maryland	(1921) 88, (1922) 83,	84, 92
arvard University	(1922)	86
fferson Medical College	(1921) 81, 88, (1922)	81, 83, 83, 84, 85, 85, 86, 87, 87, 89, 93
niversity of Pennsylvania	(1922) 87, 87, 89, 90,	92, 93
edical College of Virginia	(1922) 83,	89, 89
FAILED		
oward University	(1920)	74
mory University	(1922)	76
ulane University	(1922)	77
ational University of Arts and Sciences	(1916)	60
fferson Medical College	(1922)	74
eharry Medical College	(1918) 77, (1920)	75
edical College of Virginia	(1921)	76

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
tlanta College of Physicians and Surgeons	(1913)	Georgia
tlanta Medical College	(1892)	S. Carolina
tlanta School of Medicine	(1913)	Georgia
niversity of Georgia	(1888), (1898)	Georgia
hns Hopkins University	(1899) Michigan, (1916)	Virginia
niversity of Maryland	(1896)	Georgia
arvard University	(1902) Massachusetts, (1918)	S. Carolina
niversity of Michigan Medical School	(1910)	Ohio
ncoln Memorial University	(1899)	S. Carolina
ll. of Phys. and Surgs. in the City of New York	(1885)	New Jersey
lumbia University	(1919)	New York
orth Carolina Medical College	(1906)	Oklahoma
fferson Medical College	(1910) Pennsylvania, (1917)	S. Carolina
edical Coll. of the State of South Carolina	(1907), (1913)	S. Carolina
niversity of Nashville	(1905)	S. Carolina

Book Notices

CLINICAL SURGICAL DIAGNOSIS FOR STUDENTS AND PRACTITIONERS. By F. de Quervain, Professor of Surgery and Director of the Surgical Clinic at the University of Berne. Translated by J. Snowman, M.D. Third English edition. Cloth. Price, $14. Pp. 914, with 738 illustrations. New York: William Wood & Company, 1921.

When an author possessing such extraordinary clinical experience as Quervain combines with this experience great pedagogic ability and fine literary form, the results should approach the ideal. Books on surgical diagnosis are few; they represent years of compilation of material; and in order not to be weak where the experience of the author has been scant, they must be written by one who has had the opportunity to study a wealth of material, and keep excellent records. Originality is an outstanding feature of this work; facts are clearly and forcefully put. The dogmatic attitude often displayed is justified by the author's experience, and the aid to forcefulness which such dogmatism lends. This is not a textbook that an undergraduate student will easily read "from cover to cover." It is too lengthy; it contains myriads of closely stated facts; and the author's method of frequently citing case reports to illustrate clinical pictures is more readily grasped by the clinician than by the student. The usual outline is followed, beginning with the head and ending with the extremities. The chapters dealing with the abdomen are brilliant. One exception to be noted is the lack of attention devoted to the dyspepsias of extragastric origin. The extremities are treated as a regional anatomy would treat them. This method is open to the criticism of requiring repetition; nevertheless, these are excellent chapters. The illustrations are well chosen. The book, as a whole, is one that an experienced surgeon may study with profit.

THE SPLEEN AND SOME OF ITS DISEASES. Being the Bradshaw Lecture of the Royal College of Surgeons of England, 1920. By Sir Berkeley Moynihan. Cloth. Price, $5 net. Pp. 129, with 13 illustrations. Philadelphia: W. B. Saunders Company, 1921.

This volume, written in the usual clear style of the author, contains an interesting and instructive summary of what is known at present concerning the spleen. There probably have been more hypotheses and theories suggested regarding the function of the spleen than of any other organ in the body. The problems of the function of the spleen and the relations, if any, of this organ to certain disease conditions have not been easy to solve, nor are they by any means entirely solved now. It is interesting to follow the gropings of physiologists, pathologists and clinicians through darkness into a faint light, for the light which is shed on the spleen is still quite dim. It is encouraging, however, to note that our knowledge has advanced to the point at which the spleen is no longer viewed as an isolated organ independent of the rest of the body, but is in function and dysfunction correlated with other organs and systems. The progress that has been made in this direction is clearly set forth by the author.

DIE INNERE SEKRETION. Eine Einführung für Studierende und Aerzte. Von Dr. Arthur Weil, Privatdozen der Physiologie an der Universität Halle. Second edition. Paper. Price, 90 marks. Pp. 146, with 46 illustrations. Berlin: Julius Springer, 1922.

This book contains a brief summary of the facts and theories in the field of endocrinology, intended primarily for medical students and practitioners. It is a compilation by a teacher, rather than a monograph by a worker in the field. The plan of the book is excellent. Each functional system of the body, such as the circulation, nervous system and alimentary canal, is considered from the point of view of the action of "hormones" on it. But the exposition is inferior to the plan. In many cases the author shows the lack of critical judgment of a compiler. For example, he states as a demonstrated fact the secretory control of the vagus nerves on the islands of Langerhans in the pancreas. The book is well illustrated, but there are no references to the original literature. Many medical students and practitioners want to consult the original literature; monographs on special phases of physiology and medicine written especially for these groups should accordingly contain references to the most important original investigations in the field.

LE DISPENSAIRE MARIN. Un Organisme Nouveau de Puériculture. Par J. Jarricott, Membre Conseiller du Bureau Permanent de L'Union Internationale pour la Protection de L'Enfance du Premier Age. Paper. Price, 60 francs net. Pp. 637, with 216 illustrations. Paris: Masson & Cie, 1921.

This is a monograph on the use of sea water in the treatment of malnutrition in infants and young children. The sea water is given by mouth or rectally. Most of the book is taken up with detailed case reports. It is amply illustrated with pictures of the children before and after treatment, and with charts of weight curves and comparative results. The treatment is simple and easily applied, but one wonders whether the exaggerated claims of the author are justified in view of the complicated conditions which must be met, and the great variation in the reactions which such children show to treatment.

Medicolegal

Roentgenograms and Subjects for Expert Testimony

(Asch v. Washburn Lignite Coal Co. et al. (N. D.), 186 N. W. R. 757)

The Supreme Court of North Dakota says that there were introduced in evidence in this personal injury case, in behalf of the plaintiff, two roentgenograms, one of a portion of the plaintiff's spine, and the other of one of his feet. The physician who took these roentgenograms was placed on the stand as a witness for the plaintiff. After identifying the plates, and stating that they were in the same condition as when they were taken, he was permitted to interpret and explain them. He was also permitted to give his opinion as an expert as to the nature and extent of the injuries as disclosed by such plates. It was contended that the rulings incident to the reception of all of this evidence were erroneous. But the court deems it proper to say that it was not apparent that the trial court erred in admitting the roentgenograms in evidence. Nor does this court believe that the court erred in permitting the physician to explain the roentgenograms. One of them showed a dislocation or subluxation of a vertebra. The other showed a fracture of a small bone in one of the plaintiff's feet. While it is true the roentgenograms themselves were the best evidence of what they showed, it is equally true that a roentgenogram may wholly fail to convey to an ordinary layman the facts as they actually are there shown; and the court believes that it is proper for an expert to explain a roentgenogram in particulars that are not understood by a layman. Nor does this court believe that the trial court erred in permitting the physician to give his opinion as an expert as to the nature and extent of the injury, and its probable duration and effect. The authorities generally hold these matters to be a proper subject of expert testimony. In short, the court holds that where roentgenograms have been proved by a physician, it is competent for him to explain them to the jury in particulars that are not understood by laymen; also, that it is proper to receive the opinions of medical experts as to the nature and extent of personal injuries.

Competent Testimony as to Blood and Bloodstains; Use of Commercial Serums

(Mohler v. Commonwealth (Va.), 111 S. E. R. 454)

The Supreme Court of Appeals of Virginia says that, in this homicide case, a physician who was also city coroner and fully qualified as an expert in such chemical analyses testified that, in his opinion, certain stains submitted to him for examination were human blood, and that the substances submitted to him for tests were human blood. He testified that he first undertook to produce the serum which was necessary by inoculating rabbits; but, for reasons which he explained, determined not to use the serum so made by himself in a test of such a delicate nature and probably having such far-reaching consequences. Instead, he bought a serum prepared by a firm of recognized chemists for the express purpose of making the blood tests; that before using it he fully tested it, in order to discover whether it was reliable, on samples of blood which he knew to be human blood as well as on samples of the blood of a chicken, a hog, a mule and a sheep; and that, when thus fully tested, it indicated that it had been properly prepared and was in all respects suitable for such a test. The court considers that the testimony of this witness was singularly clear and satisfactory, was properly introduced in every respect and was worthy of the consideration of the jury in the determination of the fact which the commonwealth was endeavoring to establish. The assignment of error with regard to it was clearly without merit.

Damages Allowed Physician for Personal Injury

(Stevenson v. Davis, Director General of Railroads (Pa.), 116 Atl. R. 318)

The Supreme Court of Pennsylvania says that the plaintiff, a practicing physician, aged 69, while a passenger in a car was struck on the head by a suit case or hand satchel falling from a rack above the seat in which he was sitting. There was evidence that he was rendered unconscious, and, as a result of the injury, became unable to practice his profession to the same extent as before the accident, his earnings having decreased from $7 or $10 a day to $2.50 a day; that his eyesight and memory had become impaired, as had also his general physical condition. A verdict was rendered in his favor for $7,250. The court below having refused a new trial, the defendant appealed. The statement of the question involved was whether the size of the verdict was manifestly too great and plainly the result of prejudice. The supreme court found nothing in the record indicating prejudice against the defendant, and it cannot say that the verdict was so excessive as to warrant its inference on that ground, in view of the testimony establishing the injury received by the plaintiff and its effect on him and the resultant decrease in the receipts from his professional calling; wherefore, the judgment for the plaintiff is affirmed.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Minneapolis, Sept. 19-23. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Sec'y.
American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Albany, N. Y., Sept. 19-21. Dr. James E. Davis, 111 Josephine Ave., Detroit, Secretary.
American Child Hygiene Association, Washington, D. C., Oct. 12-14. Miss G. B. Knipp, 111 Cathedral St., Baltimore, Md., Secretary.
American Electro-Therapeutic Association, New York, Sept. 19-22. Dr. A. Bern Hirsh, 71 W. 94th St., New York, Secretary.
American Roentgen Ray Society, Los Angeles, Sept. 12-16. Dr. H. E. Potter, 122 S. Michigan Ave., Chicago, Secretary.
Association of Military Surgeons of the United States, Washington, D. C., Oct. 12-14. Col. James Robb Church, M. C., U. S. Army, Medical Museum and Library, Washington, D. C., Secretary.
Colorado State Medical Society, Colorado Springs, Oct. 3-5. Dr. F. B. Stephenson, Metropolitan Bldg., Denver, Secretary.
Delaware State Medical Society, Dover, Oct. 10. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.
Indiana State Medical Association, Muncie, Sept. 27-29. Dr. Charles N. Combs, Terre Haute, Secretary.
Medical Association of the Southwest, Hot Springs, Ark., Oct. 4-6. Dr. W. H. Bailey, 115 West 21st Street, Oklahoma City, Okla., Sec'y.
Minnesota State Medical Association, Minneapolis, Oct. 12-13. Dr. Carl B. Drake, Central Bank Building, St. Paul, Secretary.
Mississippi Valley Medical Association, Rochester, Minn., Oct. 10-12. Dr. Henry Enos Tuley, 244 Francis Bldg., Louisville, Ky., Secretary.
Missouri Valley, Medical Society of the, St. Joseph, Mo., Sept. 21-22. Dr. Charles W. Fassett, 115 E. 31st St., Kansas City, Mo., Secretary.
Nevada State Medical Association, Reno, Oct. 6-7. Dr. Horace J. Brown, Goldfield, Secretary.
Pacific Coast Oto-Ophthalmological Society, Salt Lake City, Sept. 14-16. Dr. Edward D. LeCompte, Boston Bldg., Salt Lake City, Utah, Sec'y.
Pennsylvania, Medical Society of the State of, Scranton, Oct. 2-5. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.
Utah State Medical Association, Salt Lake City, Aug. 31-Sept. 2. Dr. W. L. Rich, Boston Bldg., Salt Lake City, Secretary.
Vermont State Medical Society, Burlington, Oct. 12-13. Dr. W. G. Ricker, St. Johnsbury, Secretary.
Washington State Medical Association, Tacoma, Sept. 5-6. Dr. C. H. Thomson, 508 Cobb Bldg., Seattle, Secretary.
Wisconsin, State Medical Society of, Green Lake, Sept. 6-8. Dr. Rock Sleyster, Wauwatosa, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

July, 1922, **30**, No. 4

Reaction of Cells Lining Peritoneal Cavity, Including Germinal Epithelium of Ovary, to Vital Dyes. R. S. Cunningham, Baltimore.—p. 399.

Changes in Vaginal Epithelium of Guinea-Pig During Oestrous Cycle. R. M. Selle.—p. 429.

*Nature of Mitochondria. III. Demonstration of Mitochondria by Bacteriologic Methods. IV. Comparative Study of Morphogenesis of Rootnodule Bacteria and Chloroplasts. I. E. Wallin, Boulder, Colo.—p. 451.

Differential Susceptibility as Basis for Modification and Control of Development in Frog. II. Types of Modification Seen in Later Developmental Stages. A. W. Bellamy.—p. 473.

Particular Form of Atresia of Follicules of De Graaf (Lapine), Revealed by Iron Tannate Method. A. L. Salazar, Portugal.—p. 503.

Nature of Mitochondria.—Wallin submits evidence which he believes supports the conclusion that mitochondria are symbiotic bacteria in the cytoplasm of the cells of all higher organisms whose symbiotic existence had its inception at the dawn of phylogenetic evolution.

American Journal of Obstetrics and Gynecology, St. Louis

July, 1922, **4**, No. 1

*Pregnancy and Heart Disease from Medical Viewpoint. W. W. Herrick, New York.—p. 1.

*Effect of Injection of Extract of Anterior Lobe of Pituitary Gland on Organs of Generation. I: Kross, New York.—p. 19.

*Phenoltetrachlorphthalein Test for Liver Function in Pregnancy. P. F. Williams, Philadelphia.—p. 26.

Uterine Polyps. S. H. Geist, New York.—p. 30.

*Syphilis in Relation to Abortion, Stillbirths and Infant Mortality. W. G. Cosbie, Toronto, Ont.—p. 40.

Hydatidiform Mole: Report of Ten Cases. G. L. Brodhead, and F. A. Kassebohm, New York.—p. 45.

Pregnancy Toxemia Known as Eclampsia. R. McPherson, New York.—p. 50.

Better Obstetrics and Problem of Birth Injuries of New-Born Infant. H. Ehrenfest, St. Louis.—p. 61.

Organic Diseases of Nervous System Complicating Pregnancy: Report of Two Cases. E. A. Shumann and H. S. Fist, Philadelphia.—p. 67.

*Abdominal Pregnancy as Observed in Charity Hospital of New Orleans. P. Graffagnino, New Orleans.—p. 71.

Pregnancy and Heart Disease.—Herrick's experience with forty cases of chronic valvular disease in pregancy has emphasized the importance of the following points: An antenatal clinic is essential in detecting the early evidences of decompensation. All cases showing decompensation in any period of pregnancy should be admitted to the hospital and given medical treatment, no matter what the stage of pregnancy. Induction of labor should never be attempted in a case of decompensation until thorough trial has been made of medical measures. The response to medical treatment of the average case of chronic valvular disease of the heart in pregnancy is satisfactory, and the same principles govern its treatment as govern the treatment of such cases not associated with pregancy. The termination of pregnancy in the presence of chronic valvular disease of the heart is not a matter about which hard and fast rules can be laid down. In general, if decompensation occurs early in pregnancy, or if it does not respond to medical treatment, if it has occurred and been severe despite proper care in previous pregnancies and if the signs and symptoms indicate serious lesion, termination is usually wise. The method by which pregnancy should be terminated is largely an obstetric question, the point of greatest importance being the guarantee of a short and easy second stage.

Effect of Anterior Pituitary Lobe on Generative Organs.—Kross states that extract of anterior pituitary lobe has no stimulating effect, either on growth in general or on the sexual maturity and activity of the organs of generation in the white rat.

Phenoltetrachlorphthalein Test for Liver Function in Pregnancy.—From Williams' work it would appear that the functional activities of the liver are under a greater strain in the pregnant than in the nonpregnant state. The liver, under this augmentation of its functional capacity, undergoes a mild degree of fatty degeneration in normal pregnancy, which condition increases at times, under the various morbid conditions peculiar to pregnancy, to extreme degrees of degeneration, necrosis, hemorrhage and autolysis. The degenerations of the liver are probably secondary to the causes of the toxemias, and may be largely due to an exhaustion of its glycogenic ability. The various tests for determining the functional ability of the liver in pregnancy are not sufficiently valuable from a quantitative standpoint. The phenoltetrachlorphthalein duoden elimination time test has been performed on a number of normally pregnant women, with fairly constant end reactions, and in several pathologic cases, with variable results where liver damage might reasonably be suspected to be present.

Syphilis in Relation to Abortion and Infant Mortality.—Four and three tenths per cent. of 1,674 mothers reacted positively to the Wasserman test. Fifty-three children were born to mothers with definitely positive reactions. Of these twenty-eight gave positive cord Wassermann reactions, twenty-one were negative and in four the tests were not categorized. Of the twenty-eight positive children ten are still alive, at ages varying from a few months to between 2 and 3 years. Ten have died and eight have been lost to the records. Of the twenty-one children with negative reactions thirteen are living, one has died and seven are off the records. One of the four in which the reaction was indefinite is known to be alive, the other three cannot be traced. In fifty pregnancies in syphilitic mothers, there were fourteen stillbirths and twelve deaths of the infant, yielding a birth rate loss of slightly more than 50 per cent.

Abdominal Pregnancy.—Each of Graffagnino's eleven patients was a colored woman. The ages ranged from 20 to 90, in the last instance the diagnosis being established by postmortem many years after the pregnancy occurred. The only fatality in the series of operated cases occurred in the only case in which the fetus was viable. In the other cases, in which the operation was deferred beyond term, or where the child was taken before the patient was at term, the results were uniformly successful, proving, in Graffagnino's opinion, that abdominal section, where the diagnosis of abdominal pregnancy is established, has not higher mortality than ordinary gynecologic surgery, provided the operation is timed correctly.

American Journal of Ophthalmology, Chicago

July, 1922, **5**, No. 7

Lipemia Retinalis: Report of Three Cases. H. P. Wagener, Rochester, Minn.—p. 521.

So-Called Solid Edema; Lymphoma. A. J. Bedell, Albany, N. Y.—p. 526.

Retinitis Proliferans from Anemia Produced by Hodgkin's Disease. G. H. Bell, New York.—p. 531.

Intra-ocular Foreign Body of Forty-Six Years' Duration. W. S. Franklin and F. C. Cordes, San Francisco.—p. 533.

Technic of Observation with Gullstrand Slit Lamp. R. Von Der Heydt, Chicago.—p. 537.

Homatropin Cycloplegia. Its Efficiency and Dangers. W. W. Lewis, St. Paul.—p. 540.

Entropion Following Influenza, with New Surgical Procedure. C. A. Clapp, Baltimore.—p. 542.

Wrestlers' Trachoma. J. M. Patton, Omaha.—p. 545.

Superficial Punctate Keratitis. E. D. Watkins, Memphis, Tenn.—p. 546.

Two Cases of Exophthalmos. H. J. Heeb and W. Van De Erve, Milwaukee.—p. 548.

Archives of Internal Medicine, Chicago

July, 1922, **30**, No. 1

Functions and Integration of Intercostal Muscle. C. F. Hoover, Cleveland.—p. 1.

*Estimation of Normal Vital Capacity; with Especial Reference to Effect of Posture. C. D. Christie and A. J. Beams, Cleveland.—p. 34.

*Capillary Blood Pressure in Arterial Hypertension. E. P. Boas and S. Frant, New York.—p. 40.

*Electrocardiographic Study of Fifty Patients During Operation. W. G. Lennox, Peking, China; R. C. Graves and S. A. Levine, Boston.—p. 57.

*Physiology of Liver. II. Effect of Removal of Liver on Blood Sugar Level. F. C. Mann and T. B. Magath, Rochester, Minn.—p. 73.

*Elimination of Arsenic in Urine of Syphilitic Patients After Intravenous Injection of Arsphenamin. C. Weiss and G. W. Raiziss, Philadelphia.—p. 85.

*Comparison of Capillary and Venous Blood in Pernicious Anemia. W. W. Duke and D. D. Stofer, Kansas City, Mo.—p. 94.

Studies on Nature of Nonspecific Protein in Disease Processes. IV. Blood Fragility, Reticulation and Blood Chemistry. R. M. Greenthal and G. M. Brown, Ann Arbor, Mich.—p. 99.
*Dietetic Treatment of Chronic Arthritis and Its Relationship to Sugar Tolerance. A. A. Fletcher, Toronto.—p. 106.
Variations in Aliquot Fractions of Gastric Contents. N. Kopeloff, New York.—p. 118.

Effect of Posture on Vital Capacity.—After computing the averages of all estimations on 290 normal men and women, Christie and Beams found that there was 5.5 per cent. less vital capacity in the lying than in the sitting position. About 80 per cent. of all persons breathed 6 or 7 per cent. less when lying. No difference in chest conformation accounted for these variations. The only thing which seemed to point to a different response from certain types of chest was in the case of obese women. In every instance the fleshy female breathed about 15 per cent. less lying than sitting. Individuals of the same sex and body weight have very great differences in their vital capacity; individuals of the same sex and height have more nearly the same vital capacity. It was found that only about 8 per cent. of all males and about 9 per cent. of all females, when grouped according to body surface, missed their respective group average by more than minus 10 per cent.

Capillary Blood Pressure in Arterial Hypertension.—Boas and Frant state that in patients with normal blood pressures the blood pressure in the capillaries of the fingers rarely exceeds 30 mm. of mercury. Patients with hypertension fall within two groups that cannot be differentiated clinically. In the first group the capillary pressure ranges between 21 and 70 mm. of mercury, rarely higher and only very exceptionally lower. Most of the readings fall between 30 and 60. In the second group the capillary pressure falls within the range of normal, with a tendency to be low rather than high. It is possible that patients who exhibit high capillary pressures are suffering from a general capillary disease with a glomerulonephritis as one of the manifestations. If this view is confirmed, the estimation of the capillary pressure may prove an important aid in the differential diagnosis of glomerulonephritis from other forms of kidney disease. In essential hypertension the capillary pressure is low. In any given individual varying pressures are usually observed in different capillaries. The variability of the capillary pressure is greater in patients with high readings. It depends on physiologic as well as on anatomic moments. Mechanical stimulation of the capillaries will alter the blood flow, as well as the blood pressure within the capillaries.

Electrocardiographic Studies.—In many cases studied by Lennox et al. the electrocardiographic tracings revealed a heart rate considerably faster than the pulse rate recorded by the anesthetist. About one half of the cases showed some abnormality of the mechanism of the heart beat, not present in preliminary tracings, the most prominent being: paroxysmal auricular tachycardia; premature beats, and marked displacement of the cardiac pacemaker. Various factors which might contribute to the production of the abnormalities named are analyzed. Only those which might possibly be concerned with alterations in vagal tone seem to be of importance. The observed abnormalities of the heart beat were transient and unassociated with clinical signs of embarrassed circulation. In the main, they were of physiological rather than of clinical significance.

Effect of Hepatectomy on Blood Sugar.—Mann and Magath noted a marked and progressive decrease in the blood sugar following total removal of the liver. The glycogen content of the muscles also decreases. Coincident with this decrease in blood sugar, a characteristic group of symptoms develop and progress until death occurs. This effect of hepatectomy on blood sugar has been observed in markedly different species; namely, dog, goose, turtle, and fish. In each species investigated, removal of the liver produced a marked decrease in blood sugar. The relationship of the decrease in blood sugar and the development of the characteristic symptoms seems to be one of cause and effect.

Elimination of Arsenic After Arsphenamin Administration.—The elimination of arsenic in the urine was studied by Weiss and Raiziss in three cases of tertiary syphilis which were under arsphenamin treatment. Very small quantities of arsenic, detectable only by very delicate methods of analysis, were found in the daily urine. Thus, after a dose of 0.6 gm. containing from 187 to 188.6 mg. arsenic, from 3 to 8.8 per cent. was eliminated in three days and from 4.9 to 13.5 per cent. in the course of a fortnight. By far the greatest amount of arsenic eliminated by the kidneys is, therefore, found in the urine of the first three days after injection. During the succeeding days the amounts gradually decline until by the fourteenth day they usually fall to a level of from 0.1 to 0.5 mg. which approaches the limit of accuracy of the method used.

Capillary and Venous Blood in Pernicious Anemia.—Capillary red blood cell counts made by Duke and Stofer on patients with pernicious anemia were on an average 17.6 per cent. higher than similar counts made on venous bloods at the same time. An increased number of macrocytes was observed in capillary blood as compared with venous blood. This striking difference between the capillary and venous counts, the authors believe, is caused by a tendency for the larger red blood cells (macrocytes) to lag in the narrow capillary bed where the rate of flow of blood is slow and the pulse is lost. It is believed that this accounts, in part for the circumstance that a patient with pernicious anemia may have relatively good color of skin and lips even though he may be gravely anemic. This is misleading and frequently obscures the real gravity of the situation.

Diet in Arthritis and Sugar Tolerance.—Of 100 cases of chronic arthritis investigated by Fletcher, reduction of diet alone appeared to result in the recovery of eight patients and in quite evident improvement in forty-three. The sugar tolerance was decreased in the large majority of these cases, and this decrease showed no relationship to the severity of the disease. Patients who have a low tolerance are much more frequently benefited by reduction in diet than those cases with a normal tolerance. In certain cases of chronic arthritis, dietetic regulation appears to be the most effective form of treatment, and while the value of such treatment in an individual case cannot be determined with certainty, the lowering of the sugar tolerance is a useful clinical indication for this procedure. Female patients derive greater benefit from such treatment that men, and, as a rule, they show a lower tolerance.

Archives of Surgery, Chicago

July, 1922, 5, No. 1

*Residual Lactation Acini in Female Breast. J. McFarland, Philadelphia.—p. 1.
*Proper Treatment of Chronic Malign Diseases of Superficial Lymph Glands. J. L. Yates, Milwaukee.—p. 65.
Value of Artificial Aids to Respiration in "Acute Operative Collapse of Lungs" (Surgical Pneumothorax) Occurring in Course of Intrathoracic Operations. R. Matas, New Orleans.—p. 110.
Negative Chamber in Open Pneumothorax. W. Meyer, New York.—p. 134.
*Value of Ventriculograms in Localization of Intracranial Lesions. E. B. Towne, San Francisco.—p. 144.
*Changes in Morphology and Function of Bone Marrow After Splenectomy. E. M. Johnstone, Rochester, Minn.—p. 159.
*Pathologic Changes in Muscle as Result of Disturbances of Circulation. Experimental Study of Volkmann's Ischemic Paralysis. B. Brooks, St. Louis.—p. 188.

Residual Lactation Acini in Female Breast.—The accumulated cellular and amorphous debris resulting from involution, McFarland says, sometimes obstructs the outlets of the ducts and acini, leading to retention of secretion and exudation of fluid with cyst formation. The pressure exerted on the surrounding tissue. by the growing cyst gives rise to sensory disturbances that vary in intensity according to the firmness or softness of the stroma. In a breast with stroma largely mucinoid or adipose, they may occasion no symptoms. The cysts are benign and harmless. If they become large their excision may be indicated to make the patient more comfortable. Cancer cysts are not specific entities. They are the result of the accidental coexistence of cysts and cancer in the same breast. Original contiguity followed by increase in the size of each determines final continuity. The so-called chronic cystic mastitis is not inflammatory, and is not a pathologic entity; it is nothing but a result—or at most a perversion—of involution. It would, therefore, be desirable to abandon the term, and call the condition "cystic disturbance of the breast," or if it seems better to retain one of the older designations, that of Warren—"abnormal involution"—is probably least objectionable. The only difficulty lies in clearly defining when the process of involution can be said to become abnormal, when it is so diversified.

Treatment of Malign Diseases of Superficial Lymph Glands.—The operative methods described by Yates have been evolved from fifteen years' experience in treating the most malignant lymphomas, those due to the Hodgkin's group of diseases. They have been applied also in combating carcinomatous and tuberculous adenitis wherein the problems and solutions are quite identical. Locations of dangerous glands have been determined at operation and at necropsy. Unusually extensive excisions are advocated because less radical operations have been followed by recurrences, and the reasons for the recurrences were found to have been affected glands that could have been excised at the first operation without having added materially to the patient's burdens. Studies of tissues removed from patients suffering from cancer or tuberculosis have demonstrated that although the lymph gland involvement in these diseases is usually less general than it is in the diffuse types of Hodgkin's discase or lymphocytic leukemia, nevertheless, virtually any of the glands and rarely all of the glands so affected may be invaded by tuberculosis and cancer. Technical details are given which are applicable to all dissections. Briefly, they are: Skin flaps should be reflected completely as the first step, kept covered with warm moist gauze, and protected from pressure until replaced. Dissections of deep tissues should be concentric; as soon as an area is exposed, bleeding vessels should be ligated and hot moist dressings applied. Sharp dissection is superior. After dissection is completed, dead spaces are obliterated so far as possible by suture or tissues so fixed by suture that the pressure of bandages will lead to their obliteration. A muscle floor is to be fashioned on which the skin flaps, that have become skin grafts to a large extent, shall rest and from which they are to obtain their circulation. Accurate hemostasis is imperative. Drainage is not always necessary; but if small soft tubes are used and removed early, smooth healing is more certain. Accurate approximation of the skin incisions minimizes scars.

Value of Ventriculograms in Brain Lesions.—Three cases of obstructive hydrocephalus and one of brain tumor are reported by Towne in which roentgenograms were made of air-filled cerebral ventricles for the differentiation of the types of hydrocephalus and for the localization of brain tumors. Three were different types of obstructive internal hydrocephalus in infants; and in each, the site of the obstruction was demonstrated by the ventriculogram. One of these cases is an example of the rare condition of obstructive hydrocephalus of one lateral ventricle. In the fourth case, the clinical symptoms suggested a frontal lobe tumor; but there was nothing to indicate which hemisphere was involved. The ventriculogram showed that it lay on the left side, where it was found at operation.

Changes in Bone Marrow After Splenectomy.—The new method of marrow study which Johnstone devised for this series of experiments consists of five essential features: (1) A rib marrow specimen removed before splenectomy is used as a control for a series of subsequent specimens removed at intervals after splenectomy. (2) Series of similar rib marrow specimens from normal nonsplenectomized dogs furnished an additional control for the experiments. (3) Rib marrow specimens removed at frequent intervals after splenectomy give a connected picture of marrow changes. (4) The observations on the marrow are correlated with parallel observations on the blood and on the general condition of the animal. (5) Ether anesthesia and cocain anesthesia are used in separate series of experiments in order to test the influence of the anesthetic on the marrow.

Changes in Muscle Result of Circulation Disturbances.—That the classic picture of Volkmann's ischemic paralysis could only be explained on the basis of acute venous obstruction is quite clear to Brooks. As a matter of fact, however, it is customary to refer to every case of contracture following the application of a tight bandage, tourniquet, plaster cast, or splint as Volkmann's ischemic contracture. Undoubtedly, he says, some of these cases are due to pure local pressure necrosis, entirely analogous to the decubitus ulcer, or pressure sore on the heel or over the anterior superior iliac spine from continued pressure of a plaster cast. In those instances in which a bandage or splint is applied to an extremity presumably never so tight as to obstruct immediately and completely the circulation distal to constriction, and in which there follows in the course of a few hours great pain and cyanosis which make the constriction no longer bearable, and in which removal of the splint is followed by swelling, heat, tenderness, and a rapidly developing contracture, one is forced to the assumption that the etiologic factor is either an acute venous obstruction or a temporary pressure anemia followed by a reestablishment of circulation through the damaged tissue. The ease with which the former is reproduced experimentally is evidence of its being the most important etiologic factor of contractures following the application of constricting dressings in the treatment of fractures. The reproduction of areas of degeneration and subsequent fibrosis of muscles by temporary anemia is so difficult experimentally that it is rather unlikely that the exact set of conditions for its causation would be present in any clinical instance.

Arkansas Medical Society Journal, Little Rock

July, 1922, **19**, No. 2

Physician; His Professional and Civic Duties. C. H. Cargile, Bentonville.—p. 15.
Importance of Birth and Death Registration. G. A. Warren, Black Rock.—p. 18.

Canadian Medical Association Journal, Toronto

July, 1922, **12**, No. 7

Syphilis—Three Years' Observation. E. J. Trow, Toronto.—p. 455.
Medical Care of Postoperative Abdominal Cases. R. D. Rudolf, Toronto.—p. 458.
*Infantile Eczema. H. Spohn, Vancouver, B. C.—p. 461.
Exanthem Subitum—Report of Five Cases. A. Goldbloom, Montreal.—p. 467.
*Formol-Gel Reaction in Blood Serum of Syphilitics. C. A. Watson, Montreal.—p. 469.
Clinical Diagnosis of Syphilis. H. A. Dixon, Toronto.—p. 470.
Pyelitis During Pregnancy and Puerperium. C. J. Currie, Toronto.—p. 474.
Use of Roentgen-Rays in Diseases of Skin. G. E. Richards, Toronto.—p. 478.
Eye Conditions in Pregnancy. C. Graef, New York.—p. 481.
Cause, Symptoms and Diagnosis of Nasal Sinusitis in Their Relation to General Practice. W. S. Hunt, Port Arthur.—p. 484.
*Simple Cross Agglutination Test for Blood Donors, Using Hemolysed Blood. N. M. Guiou, Ottawa.—p. 488.
Bronchopneumonia Following Aspiration of Zinc Stearate Powder. A. Goldbloom, Montreal.—p. 491.
Phlegmonous Gastritis with Cirrhosis of Liver. J. P. Anderson, Toronto.—p. 492.

Infantile Eczema.—Thirty-three breast fed infants, twenty-two fed on cow's milk and sugar, and fifteen on mixed feedings, with cow's milk were studied by Spohn. In 39 per cent. there was a definite family history of either eczema, persistent head colds, bronchitis or asthma. Fifty-seven per cent. were over weight or normal in weight. In 70 per cent. of the breast fed of this series there was a history of being fed every three hours or oftener. In 63 per cent. there was a definite history of fat intolerance. In 56 per cent. sugar had an irritating effect on the skin condition. Dietotherapy and local treatment meets generally with a quick response. Sixty-five per cent. were clear of eczema in less than three months and remained clear if they adhered to treatment. Twenty-four per cent. took from three months to 9 months to become clear, i. e., 89 per cent. were able to keep clear of eczema. Three cases showed only slight improvement.

Formol Gel Reaction in Syphilis.—Of 114 unanalyzed cases, examined by Watson, there was an agreement between the Wassermann and formol-gel reactions in seventy-four cases, or 65 per cent. Of the eighty-seven analyzed cases there was an agreement in 60 of them, or 65 per cent. Watson is of the opinion that the "formol-gel" test is not as reliable as the Wassermann reaction.

Agglutination Test for Blood Donors.—The test described by Guiou depends for a reaction on rapid freezing and thawing of a few drops of blood mixed with isotonic sodium citrate solution.

Colorado Medicine, Denver

July, 1922, **19**, No. 7

Antivivisection vs. Modern Medicine. G. W. Stiles, Denver.—p. 134.
Stomach and Circulatory Systems as Related to One Another. J. L. Mortimer, Denver.—p. 142.

Operative Treatment of Goiter. L. Freeman, Denver.—p. 144.
Chronic Carbon Monoxid Amblyopia. H. M. Thompson, Pueblo.—p. 145.
Extensive Case of Verrucae Plantares. G. P. Lingenfelter, Denver.—p. 147.

Indiana State Medical Association Journal, Ft. Wayne

July, 1922, **15**, No. 7

*Abdominal Trauma. W. U. Kennedy, New Castle.—p. 221.
Sterility in Female. G. B. Jackson, Indianapolis.—p. 224.
Aspects of Recent Surgical Progress. W. E. Gabe, Indianapolis.—p. 229.
Case of Bezold's Mastoiditis Preceded by Thirty Years Middle Ear Suppuration. C. N. Howard, Warsaw.—p. 232.
Shall We Advertise? E. G. Reynard, Union City.—p. 235.

Abdominal Trauma.—Kennedy discusses five cases from which he is convinced that trauma may, by its action on the sympathetic, set up a type of peritonitis, nonseptic in character, relatively slow in development but capable of producing almost irremediable damage. The diagnosis rests on a history of abdominal trauma, with shock which is soon ameliorated, a persistent abdominal rigidity which continues after the patient should be free from symptoms, a persistent nausea, a more or less fixed doughy mass, obstinate constipation increasing in severity, a nearly silent abdomen with peristalsis abruptly terminating at a fixed place, when it can at all be elicited, and a gradual toxemia from intestinal statis. The roentgen ray will show an ill defined mass of barium in the small intestine, usually somewhat movable, with definite delay in the head of the meal reaching the cecum, without the definite outline of a diverticulum and with a larger outline than a diverticulum, the colon showing no abnormality. Auscultation will reveal evidences quite equal to that gained by percussion or palpation and in this as well as other forms of obstruction, the silence is significant. In certain phases it is permissible to use small injections of pituitary extract to emphasize blocking of peristalsis. In the acute types, an immediate laparotomy is indicated to establish the pathologic condition and to do such form of repair as will reestablish the fecal current. The widespread adhesions may be dissected loose and used to partly cover raw surfaces, supplementing these with omental flaps and Cargile membrane. In the more chronic types a reestablishment of current would be difficult and in such instances short circuiting will be indicated and even resection of masses of agglutinated bowel.

Iowa State Medical Society Journal, Des Moines

July, 1922, **12**, No. 7

Relation of Splenic Syndromes to Pathology of Blood. W. J. Mayo, Rochester, Minn.—p. 243.
Diagnosis of Foreign Bodies in Bronchi. T. McCrae, Philadelphia.—p. 248.
Fractures of Lower End of Radius. P. A. Bendixen, Davenport.—p. 252.
Mental Standardization. F. A. Ely, Des Moines.—p. 259.
Surgical Injuries to Bile Passages. A. E. Acher, Fort Dodge.—p. 262.
Sheppard-Towner Bill. K. Harpel, Boone.—p. 265.

Journal of General Physiology, Baltimore

July, 1922, **4**, No. 6

Stability of Bacterial Suspensions. I. Convenient Cell for Microscopic Cataphoresis Experiments. J. H. Northrop, New York.—p. 629.
An Apparatus for Macroscopic Cataphoresis Experiments. J. H. Northrop and G. E. Cullen, New York.—p. 635.
Stability of Bacteriol Suspensions. II. Agglutination of Bacillus of Rabbit Septicemia and of Bacillus Typhosus by Electrolytes. J. H. Northrup and P. H. De Kruif, New York.—p. 639.
Id. III. Agglutination in Presence of Proteins, Normal Serum, and Immune Serum. J. H. Northrop and P. H. De Kruif, New York.—p. 655.
Flocculation of Bacteria by Proteins. A. H. Eggerth and M. Bellows, Brooklyn.—p. 669.
Further Studies on Eosin Hemolysis. C. L. A. Schmidt and G. F. Norman, Berkeley, Calif.—p. 681.
Calibration of Osterhout Respiratory Apparatus for Absolute Quantities of Carbon Dioxide. G. H. Parker, Boston.—p. 689.
Studies in Physical Chemistry of Proteins. I. Solubility of Certain Proteins at Their Isoelectric Points. E. J. Cohn, Boston.—p. 697.
Cell Penetration by Acids. V. Note on Estimation of Permeability Changes. W. J. Crozier, New Brunswick.—p. 723.
Combination of Gelatin with Hydrochloric Acid. D. I. Hitchcock, New York.—p. 733.
Mechanism by Which Trivalent and Tetravalent Ions Produce an Electrical Charge on Isoelectric Protein. J. Loeb, New York.—p. 741.
Ionizing Influence of Salts with Trivalent and Tetravalent Ions on Crystalline Egg Albumin at Isoelectric Point. J. Loeb, New York.—p. 759.
Influence of Aggregates on Membrane Potentials and Osmotic Pressure of Protein Solutions. J. Loeb, New York.—p. 769.

Journal of Metabolic Research, Morristown, N. J.

April, 1922, **1**, No. 4

*Nutritional Factors in Growth of Yeasts and Bacteria. I. Vitamins. L. Freedman and C. Funk, New York.—p. 457.
Comparison of Nitrogenous Metabolism During Single and Fractional Feedings. A. Chanutin and L. B. Mendel, New Haven, Conn.—p. 481.
*Trial of Eucalyptus Infusion in Diabetes. H. J. John, Morristown.—p. 489.
*Glucose Tolerance and Its Value in Diagnosis. H. J. John, Cleveland.—p. 497.
Improved Alimentary Glucose Tolerance Test. C. Beeler, A. W. Bryan, E. P. Cathcart, R. Fitz, Rochester, Minn.—p. 549.

Nutritional Factors in Growth of Yeasts and Bacteria.—Freedman and Funk assert that with these substances in their natural mediums there are present in beef and beef heart infusions, peptone and autolyzed brewers' yeast, certain substances which show a strong growth stimulating activity on both hemolytic streptococci and yeast cells. These substances can be extracted from their natural sources by shaking with certain adsorbents, such as fullers' earth and norit charcoal, and can be recovered by extracting the absorbents with baryta and acetic acid, respectively. The properties of these substances show them to be of a vitamin-like nature; and they are either identical with the vitamin D described by Funk and Dubin or are of a similar nature. There is also present in beef and beef heart infusions another substance which is necessary for the growth of hemolytic bacteria, and this substance is thought to be associated with hemoglobin.

Eucalyptus Infusion in Diabetes.—John states that the infusion of eucalyptus leaves has no influence on diabetes. These negative observations under accurately controlled conditions will serve to overthrow the former claims of clinical benefits. It still stands as a fact that no drug has ever been found to possess any specific action on diabetes.

Diagnostic Value of Glucose Tolerance.—The sugar analyses of blood and urine made by John in a series of varied cases show gradation of assimilation which may be designated as (1) strong normal, (2) normal, (3) weak normal or prediabetic, (4) diabetic. With all possible allowances for uncertainties presented by renal glycosuria, toxic or infectious states, or other endocrine disorders, the simple glucose test revealed many cases of early or latent diabetes, in which prophylactic dietary regulation is a rational procedure. Studies of the largest possible numbers of such cases over the longest possible period of time will be necessary to establish their progress with certainty, but it seems probable that many cases of diabetes may be prevented by diet instituted on the basis of glucose tolerance tests in the prediabetic stage.

Maine Medical Association Journal, Portland

July, 1922, **12**, No. 12

Observations on Practice of Medicine. E. E. Brown, Bangor.—p. 355.

Minnesota Medicine, St. Paul

July, 1922, **5**, No. 7

Surgical Treatment of Goiter. A. Schwyzer, St. Paul.—p. 397.
Treatment of Empyema. A. C. Barker, Fergus Falls.—p. 399.
*Thyroid Therapy. R. G. Allison, Minneapolis.—p. 404.
Next Step in Control of Tuberculosis. R. Bosworth, St. Paul.—p. 409.
Surgery in Perforation of Typhoid Ulcer. F. C. Schuldt, St. Paul.—p. 414.
Chloroform Anesthesia. P. F. Holm, Wells.—p. 419.
Thyroid and Its Relationship to Nervous and Mental Symptoms. C. R. Ball, St. Paul.—p. 423.

Thyroid Therapy; Roentgen Ray.—Of twenty-seven cases of exophthalmic goiter without complications which were subjected to roentgen-ray treatment by Allison, twenty-four patients are well, both from the clinical and laboratory standpoint. The treatment has been complete for nearly eight months. The remaining three cases came to operation. Of these three, one was definitely improved before operation and the other two were normal a few months after operation. Of six cases of postoperative hyperthyroidism, which had relapsed, one showed a definite cure. The other five showed no improvement. Of three cases of thyrotoxic adenoma none showed any response to roentgen-ray therapy. The only patient operated on during an increasing basal metabolic rate died an operative death. No bad results or complications have occurred.

South Carolina Medical Association Journal, Greenville

July, 1922, **18**, No. 7

Acute Osteomyelitis in Children. G. H. Bunch, Columbia.—p. 185.
Aortic Insufficiency. J. F. Woods, Charleston.—p. 188.
Sacral Anaesthesia. J. J. Ravenel, Charleston.—p. 190.
Abdominal Migraine. R. P. Finney, Gaffney.—p. 192.
Gastrogenic Diarrhea. G. M. Niles, Atlanta.—p. 193.

Southern Medical Journal, Birmingham, Ala.

July, 1922, **15**, No. 7

*Diagnosis of Pulmonary Tuberculosis. L. Hamman, Baltimore.—p. 523.
*Teaching of Infant Feeding. W. McK. Marriott, St. Louis.—p. 530.
*Classification of Birth Paralyses as Endocrines. L. B. Clarke, Atlanta, Ga.—p. 534.
Endocrines in Children. W. W. Harper, Salem, Ala.—p. 536.
*Diverticula of Esophagus. C. G. Lucas, Louisville, Ky.—p. 542.
Significance and Diagnosis of Cardiac Anginal Pains. D. D. Paulus, Oklahoma City, Okla.—p. 545.
*Pellagra in Young Child. R. A. Strong, Pass Christian, Miss.—p. 550.
Summer Peak of Infant Mortality in South Carolina, 1921: Preventive Measures Instituted. E. A. Hines, Seneca, S. C.—p. 552.
Plastic Operations for Defects Due to Noma. J. S. Horsley, Richmond, Va.—p. 557.
Eclampsia and Pre-Eclamptic Conditions. G. H. Lee, Galveston, Tex. —p. 561.
More Common Causes of Chronic Urinary Obstruction in Male Children. W. A. Frontz, Baltimore.—p. 570.
Frequently Violated Principles in Obstetrics. W. A. Fowler, Oklahoma City, Okla.—p. 577.
Glaucoma Following Cataract Extraction. W. Ralston and E. L. Goar, Houston, Tex.—p. 581.
Increasing Importance of Peroral Endoscopy. T. E. Carmody, Denver. —p. 585.

Diagnosis of Pulmonary Tuberculosis.—The results of treatment in pulmonary tuberculosis, Hamman states, vary directly with the earliness of diagnosis. This imposes on the physician the duty to be ever alert to the early manifestations of the disease. Unfortunately, the natural progress of the infection makes it impossible for him to detect all instances of the disease at an early stage, for many pass at a stroke from health to an advanced stage. In those instances beginning in a more gradual fashion accurate diagnosis requires all the means of investigation that the physician can summon to his aid. Not the history alone, nor the physical examination alone, nor the roentgen ray alone, nor the sputum alone, nor tuberculin alone, can solve the problem. He who uses one of these methods to the exclusion of the others is sure to come to grief. Indeed, with all of them at hand final judgment is frequently difficult and sometimes impossible. The great obstacle in the way of satisfactory early diagnosis is the prevalence of tuberculous infection. There is as yet no way to distinguish in the large group of infected those about to develop manifest tuberculous disease.

Infant Feeding.—There is a science of infant nutrition, says Marriott, and a few simple foods, such as sweet and sour milk, milk curds and sugar, comprise the entire useful armamentarium. The indications for the use of these are simple and readily understood by any one. The apparently brilliant results from various unusual and complicated formulas can always be explained on the basis of the underlying principles and could have been accomplished just as well by simpler means.

Birth Paralyses Are Endocrinous.—Many cases showing mental or physical deficiency and birth paralysis Clarke asserts are due to disordered functions of the ductless glands. No case showing mental or physical deficiency should be dismissed as hopeless until it has been definitely established that it does not belong to this group. Early recognition followed by early and thorough treatment is necessary if the best results are to be obtained.

Diverticula of Esophagus.—Lucas reports two cases, in one a large diverticulum was found in the lower third of the esophagus, and in the other a small diverticulum, about the size of a twenty-five cent piece, was found in the cervical portion of the esophagus behind the cricoid cartilage on the right anterior wall.

Pellagra Not an Infection.—In Strong's case spinal fluid was injected into two monkeys but the results were negative after eight months' observation on the monkeys.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

July 8, 1922, **2**, No. 3210

*Problem of Radium Therapy of Cancer. A. Burrows.—p. 33.
Surgical Treatment of Chronic Ulcer of Body of Stomach. W. Billington.—p. 34.
Deep Therapy. C. C. Anderson.—p. 36.
*Results of Treatment in Syphilis of Central Nervous System. R. Hearn. —p. 37.
*Treatment and Prognosis of Leprosy. P. Harper.—p. 39.
Simple Portable Apparatus for Continuous Oxygen Administration. G. Bourne.—p. 40.
Treatment of Psoriasis by Manganese. J. Moore.—p. 41.
Zinc Ionization as Disinfectant in Local Sepsis Illustrated by Use in Chronic Otorrhea in Children. A. R. Friel.—p. 42.

Radium Therapy for Cancer.—Burrows asserts that 7.5 per cent. of all the cancer patients (mostly inoperable) who have come to Manchester for radium treatment are alive and well today after periods varying from two to seven years, and many patients with carcinoma of the cervix of the uterus, breast, skin, lip and other regions are in perfect health who would, but for radium, be dead; while endothelioma of the parotid gland and spindle cell sarcomas show still more gratifying results. Moreover, short of cure much valuable palliative work is done, while in nonmalignant conditions, such as exophthalmic goiter, Hodgkin's disease (when young), keloid, cavernous and capillary nevi, the percentage of cures is high; finally, radium is specific for excessive uterine hemorrhage and spring catarrh.

Syphilis of Central Nervous System.—One hundred cases of syphilis of the central nervous system are reviewed by Hearn. It appears that a man is much more likely to develop nervous syphilis if his primary sore is of the papulo-erosive type. In the 100 cases under review, sixty-four showed no trace of any scar; thirty-three showed the slight and almost invisible type of scar which follows a papulo-erosive chancre when it leaves any scar at all; two showed scars typical of a papulo-ulcerative chancre and in only one case did the scar prove that the original sore was a primary granulating chancre. The smaller and the more transient the original sore, the more likely is the patient to develop a nervous manifestation in later years. Seventeen cases were of the meningeal, interstitial, or late secondary type, and of these two were definite "neurorecurrences" following the use of arsphenamin. As the result of treatment, all these patients were restored to normal health, so far as could be determined both by clinical and pathologic means. However, patients who complained of tinnitus aurium never lost this distressing symptom. Degenerative or parenchymatous cases were materially benefited by treatment, so far as subjective symptoms were concerned. Eighty-three cases were treated, but in no instance was it found possible to bring about any alteration in the physical signs, or to effect any permanent improvement in the pathologic picture presented by the cerebrospinal fluid. The condition of the cerebrospinal fluid was found to be of no value in deciding whether a patient suffering from degenerative neurosyphilis should be treated. In contradiction to the generally accepted view, general paretics were improved, and the onset of insanity postponed, provided that they were brought under treatment before they had become obviously stupid and fatuous. When the latter stage was reached treatment was worse than useless and only accelerated the fatal termination.

Mortality of Leprosy.—In the first 157 deaths at Makogai, tuberculosis (forty-two) and sepsis (three) were the chief causes of death. Only fourteen patients died of leprosy. In many cases, Harper says, leprosy actually prolongs life, for if a man contracts the disease he orders his life sanely with the idea of combating not merely his leprosy but also the possibility of other diseases and vices.

July 15, 1922, **2**, No. 3211

*Process Which Results in Auricular Fibrillation. J. Mackenzie.—p. 71.
*Bone Grafting as Aid in Treatment of Tuberculous Spinal Caries. H. M. W. Gray.—p. 73.

Tendon Transplantation. R. Ollerenshaw.—p. 77.
*Value of Complement Fixation Test in Pulmonary Tuberculosis. A. L. Punch, L. and A. H. Gosse.—p. 79.
*Pathology of Fetal Maceration. G. I. Strachan.—p. 80.
Recovery of Vision After Incipient Panophthalmitis Following Cataract Extraction. H. Kirkpatrick.—p. 82.

Mechanics of Auricular Fibrillation.—Mackenzie discusses the mechanics of auricular fibrillation, a term which, he asserts, is not descriptive because the fibrillation is a result and not a cause. It would be more appropriate to describe the condition by the process which produces it, and in a sense the term "auricular paralysis" might be employed, seeing that it resembles paralyzed muscle. Fibrillation of a muscle results when it is uncontrolled by the motor nerve. There seems to be a law which governs the activity of muscles, in that so long as a muscle is under control of the nervous system, fibrillation does not occur. In the case of the ordinary muscles it is the nerves which exercise the control. The same law holds good for the heart, but in the case of the heart muscle it is the sino-auricular node and conducting system which exercise the control.

Bone Grafting for Tuberculous Spine.—Gray does not think that bridging the tips of the spinous processes of the vertebrae, as is done in Albee's operation, gives sufficient fixation, as there must be a certain amount of "give" in these spinous processes and grafts, at all events in the dorsal region, where the disease is most frequently situated. Fixation of the diseased part seems to be rather uncertain owing to the graft being inserted at such a distance from the articular process and intervertebral discs where movements can occur. Gray believes that this inadequate fixation is the cause of some of the unsatisfactory results following this operation, especially in younger children. In Hibbs' most recent method, if a continuous column of bone is formed between the laminae as well as between the spinous processes, fixation must be good, but the operation seems to be needlessly complicated and severe and not likely to be so uniformly successful as the operation Gray practices—the implantation of tibial transplants into grooves made in the spine. The periosteum of the spines and laminae is incised and reflected upward and downward off the outer and posterior aspects of these structures. The exposed bone is roughened by making small irregular incisions with a chisel and raising the edges of these incisions. The grafts are placed so that their periosteum is outermost. The edges of the aponeuroses are approximated across the midline by catgut sutures and the wound is closed without drainage. The pressure of the muscles and dressings is usually enough to keep the grafts in place.

Value of Complement Fixation Test in Pulmonary Tuberculosis.—Punch and Gosse have previously shown that a positive complement fixation test is obtained in 98 per cent. of cases with tubercle bacilli in the sputum. They have subsequently collected evidence which suggests that this small error of 2 per cent. occurs in cases of very sudden onset and running a very rapid course, in which presumably the tubercle bacilli are so virulent and the invasion so massive that those cells of the body which are responsible for the production of the complement fixing substances are overwhelmed with toxins and unable to respond to the call made on them. In the rare cases in which, with symptoms due to tuberculosis, the test is negative at first but later becomes positive, it is reasonable to assume that a sufficiently long interval has not elapsed from the time of infection for the complement fixing substances to be developed. In a series of controls consisting of healthy persons or patients suffering from diseases other than tuberculosis the test was negative in 98.5 per cent. In a series of fifty cases with symptoms strongly resembling those of pulmonary tuberculosis, and sometimes even with apical signs, giving a negative result to the test, forty-nine showed no further evidence of tuberculous infection from ten to twenty months later.

Pathology of Fetal Maceration.—Strachan contends that maceration is the result of retention of the dead fetus into utero whatever be the cause of the death. Maceration alone is no sign of the presence of syphilis. In the investigation of any macerated fetus, it is essential to have the placenta for examination also. The bony changes in any macerated fetus bear a superficial resemblance to the chondro-epiphysitis of syphilis and have to be differentiated carefully. The microscopic findings indicate a process of autolysis of the constituent cells of the various organs with edema of the interstitial tissue and extrusion of red blood cells. In the syphilitic cases the placenta will be thick and pale, while in the other cases hemorrhages and infarctions will often be present.

British Journal of Surgery, Bristol

July, 1922, **10**, No. 37

Eponyms: D'Arcy Power.—p. 1.
*Removal of Intrathoracic Tumors by Transsternal Route. T. P. Dunhill.—p. 4.
*Late Results of Manipulative Treatment of Congenital Dislocation of Hip. E. L. Evans.—p. 15.
*Late Results of Treatment of Congenital Dislocations of Hip. H. A. T. Fairbank—p. 24.
Acute Phlegmonous Gastritis: Report of Case. C. J. MacAuley.—p. 38.
*Tuberculous Chancre. J. A. Nixon and A. R. Short.—p. 44.
Plastic Repair of Face and Hand. J. J. M. Shaw.—p. 17.
*Osteo Arthritis: Principles Underlying Its Surgical Treatment. A. G. T. Fisher.—p. 52.
Pharyngeal Diverticulum and Its Surgical Treatment: Record of Two Cases. D. P. D. Wilkie and J. N. J. Hartley.—p. 81.
Remote Effects of Gunshot Wounds of Head L. B. Rawling.—p. 93.
Early Signs and Symptoms of Cholelithiasis. B. Moynihan.—p. 127.
Comparison of Cholecystostomy and Cholecystectomy. J. Sherren.—p. 135.
*Torsion of Hydatid of Morgagni. A. J. Walton.—p. 151.
Case of Primary Jejunal Ulcer. A. J. Walton.—p. 152.
*Large Ureteral Calculus. P. M. Heath.—p. 153.
*Curious Hernia. D. C. L. Fitzwilliams—p. 155.

Removal of Intrathoracic Tumors by Transsternal Route.—In the three cases cited by Dunhill the tumors were removed through an incision which split the upper half of the sternum. Urgent necessity compelled intervention, unless the patients were to be left to their fate. The difficulty of respiration had reached a degree which, in the first case, was incompatible with exertion; and in the other two cases was rapidly becoming incompatible with life. The first case was one of intrathoracic fibroma of unusually large size weighing 1 pound 3½ ounces. Cases 2 and 3 were intrathoracic enlargements of the thyroid.

Treatment of Congenital Dislocations of Hip.—Evans is of the opinion that no surgeon should attempt the treatment of a congenitally displaced hip unless he is able to obtain roentgen-ray proof of treatment of his positions in plaster, and of the subsequent growth of the acetabulum and upper end of the femur, and unless he has had considerable opportunity of observing the methods and results of others. In this way only can the percentages of successes be increased. He analyzes his results in forty-nine cases.

Manipulation Treatment of Congenital Dislocation of Hip.—Fairbank says that an anatomic cure ought to be obtained by manipulative reduction in about 75 per cent. of the unilateral and 50 per cent. of the bilateral cases. In the vast majority of these the function should be excellent, at any rate for many years. Of those giving an imperfect result by the manipulative method, some additional "cures" should be obtained by a second manipulative reduction, followed in two or three weeks' time by open operation, the object of which is the making of an upper lip for the acetabulum without opening the joint. This Fairbank regards as a much less grave operation than open reduction. Open reduction should not be necessary in the younger cases, but is specially to be considered in those cases of the middle age group in which manipulative reduction has proved impossible. Only in carefully selected cases should this operation be performed after the age of 6 years. After reduction, full right angle abduction should be maintained for a minimum of six months. Physical treatment after removal of the plaster cast, in all but the youngest patients, may exert a permanent influence on the function of the hip, but it probably has no effect on the anatomic result.

Tuberculous Chancre of Skin.—There is a variety of tuberculosis of the skin which so closely resembles a primary syphilitic sore that, on the rare occasions when it occurs, it is likely to be diagnosed as extragenital chancre. These primary tuberculous ulcers are probably due to inoculation of tubercle bacilli into persons who have a latent tuberculous infection. Their tissues become intolerant to the presence of the bacilli. The ulcer at the site of a subsequent inoculation represents the efforts of the tissues to expel the bacilli by local necrosis where they have lodged. The diagnosis of tuberculous chancre can only be made by excising part, or the whole, of the ulcer and examining the tissue for tubercle bacilli, either by staining or, if this proves negative, by animal inoculation. A negative result, Nixon and Short state, should never be accepted without animal inoculation. To illustrate the character and behavior of this form of tuberculous lesion they report four cases. One patient had a pimple on her chin; the second had an ulcer over the middle of the right patella; the third had a small hard tumor on the conjunctiva in the fornix at the external canthus, with swelling of the lids and general injection; and the fourth had a red proliferating growth, about the size of a filbert, extending from the filtrum of the nose to the border of the lip, and slightly overhanging the lower lip.

Treatment of Osteo-Arthritis.—The general principles of treatment which are particularly applicable to the earlier and active stages of the disease, and for the infective or toxic group, including the "senile" variety laid down by Fisher are: (1) Eradication, as far as possible, of any focus or foci of toxic absorption, including measures that prevent the formation or assist the elimination of systemic toxins. (2) The cessation, particularly in uniarticular cases and in the lower extremity, of pressure between diseased articular surfaces. (3) Local treatment to the joints themselves to stimulate defensive reaction of articular elements, and to prevent ankylosis. (4) Dietetic and medicinal treatment.

Torsion of Hydatid of Morgagni.—Walton reports what he asserts is the third case of the kind. It occurred in a boy, aged 13, who noticed a sudden onset of severe pain in the left testicle while at school. He did not vomit, and his bowels were moving regularly. The pain persisted that night. An emergency operation was performed in the belief that the condition was one of torsion of the testicle. On opening the tunica vaginalis a large, swollen hydatid of Morgagni was seen. It was attached to the outer side of the testicle, and there was a pedicle about a quarter of an inch long which was twisted in two complete revolutions. There was no mesentery between the testicle and epididymis, and no evidence of torsion of the cord. The tunica vaginalis was sutured, the testicle replaced, and the wound closed.

Large Ureteral Calculus.—Heath's specimen measured 6 inches in length, was 1 inch in diameter and weighed 1,075 grains, or 65.8 gm.

Appendix Epiploica Herniated.—Fitzwilliams cites the case of a man, aged 50, who had double inguinal hernias which were operated on in 1913. A year later both had recurred, and he had worn a truss since then. The right side had always been worse than the left, and gave him much trouble, as the truss did not control it. At the operation the sac was laid bare, quite black, and obviously containing something, and that something black, strangulated and dead. The neck of the sac was right up against a piece of large intestine, and the long process in the sac was at first thought to be a appendix, though on the left side of the body. On cutting it open, the mass was found to have been an enormously enlarged appendix epiploica, which had been attached to the sigmoid colon. The symptoms were not those of strangulation, except for the fact that there was no impulse on coughing. The bowels moved well after castor oil. Symptoms of very acute sciatica down the left leg were evidently the reflected pain from the sigmoid colon. The symptoms corresponded exactly to those found both in Littre's and in Richter's hernia. This curious form of hernia might justly be classified as a third form of hernia involving the bowel in which the lumen of the bowel is not obstructed.

Irish Journal of Medical Science, Dublin

June, 1922, Series 5, No. 4

Intrathecal Tumor of Cervical Spinal Cord. W. Pearson.—p. 145.
Treatment of Diphtheria by Antitoxin. H. C. Drury.—p. 153.
Treatment of Some Acute Infections. W. Crofton.—p. 159.
Two Fatal Cases of Erysipelas Associated with Streptococcal Septicemia. J. H. Pollock.—p. 172.

Lancet, London

July 15, 1922, 2, No. 5159

*Clinical Symptoms of Cerebellar Disease. G. Holmes.—p. 111.
*Experimental Bases of Theory of Gangrena Arteriitica Suprarenalis. V. A. Oppel.—p. 116.
*Alcohol Injection in Facial Neuralgia. W. Harris.—p. 122.
*Venous Angeioma of Cerebral Cortex: Report of Case. C. Worster-Drought.—p. 125.
*Intestinal Flora: As Revealed by Use of New Culture Medium. D. C. Watson.—p. 127.

Clinical Symptoms of Cerebellar Disease.—Holmes' observations do not lend support to the theory of circumscribed functional representation of different parts of the body in the lateral lobes. He has invariably found that the symptoms produced by a small lesion were never limited to one limb or a segment of a limb; that if any abnormality could be detected in the arm, the leg was affected too, and that there was very frequently in addition some disturbances in the functions of the cranial nerves. In a certain number of cases, however, the one limb seemed to be relatively more affected than the other, the leg being more involved by caudal and mesial lesions, and the arm by the more anterior lesions. It is possible, then, Holmes thinks, that there is a "prevalence of representation" in Rossi's sense, the arm being represented more anteriorly and the leg more posteriorly, but this localization is so indefinite that he would not regard it as a trustworthy guide in the diagnosis of a small lesion, such as cortical tumor. Two clinical facts are brought out by Holmes' observations that tend to invalidate many of the schemes of cortical localization that have been put forward. In the first place, Bolk and many of his followers have claimed that the ocular movements are represented in the lobus anterior or superior vermis, but, Holmes has observed nystagmus or other disturbances of the ocular movements in practically all local lesions, no matter what their situation was. In the second place, Bolk placed the representation of the organs of phonation and articulation in the lobus anterior, and Rothmann and Katzenstein and others have described a cortical center for the larynx here, too, but in Holmes' experience speech may be affected by lesions of any portion of either the vermis or lateral lobes, though it is more liable to be severely disturbed when the vermis is injured. These observations consequently lend no support to a circumscribed or focal representation of different portions of the body in the cortex of the cerebellum, apart from the fact that the vermis is concerned mainly with movements requiring the cooperation of muscles on the two sides of the body, and the lateral lobes mainly with the functions of the homolateral limbs.

Cause of Suprarenal Arterial Gangrene.—In 1921, Oppel suggested that so-called idiopathic gangrene is the result of excessive activity of the suprarenal glands. In gangrena arteriitica suprarenalis one not infrequently observes a spasm of the arteries causing complete blanching of the fingers—i. e., a spasm up to 100 per cent., with ischemic pains, etc., and this spasm must be ascribed to a comparatively trifling increase in the quantity of epinephrin in the blood of such patients. Oppel asserts that in human pathology, in suprarenal arterial gangrene, the concentrations of epinephrin must be less than 1 : 100,000,000, for concentrations of approximately 1 : 80,000,000 cause ischemic paralyses, which, if such concentration were maintained, would rapidly end in gangrene of the limb, and not even of one limb but of all four simultaneously. Clinically, nothing of the kind is seen. In human pathology, the hyperepinephrinemia assumed to exist only gradually disturbs the nutrition of the arterial walls in the first instance, resulting in a series of pathologic changes in them and in the contained blood. Hyman hyperepinephrinemia can be detected in an increase of the vasoconstrictor effect of the blood serum of so-called spontaneous grangrene cases. But, in separated ears and fingers, which have lost some of the sensitiveness, the conditions are too rough for the detection of hyperepinephrinemia in the blood plasma. Clinically, the result of treatment of so-called spontaneous gangrene cases by excision of the left suprarenal, on the one hand, and the pathologic anatomic data on the other, support Oppel's thesis.

Alcohol Injection in Facial Neuralgia.—Strong alcohol, being a tissue fixative, coagulates the albuminous elements of the nerve fibers and dissolves the fatty sheath of Schwann. Degeneration downward of the nerve, then, results from the point of injection, and the process has been termed neurolysis. Regeneration of the nerve fiber occurs in the ordinary course, and may be more or less complete in two years. In Harris' experience, sensation never returns so fully in the third division as after injection of the second division. Freedom from the neuralgia may practically be guaranteed for twelve months, if the nerve has been properly hit, and in the majority of his cases the immunity from pain has been much longer, ranging up to thirteen years in the case of third division neuralgia already referred to. Four and five years is a quite common period for the immunity to last. In many scores of cases in which Harris injected the gasscrian ganglion there seems no reason why, in those with total anesthesia, the cure may not be as permanent as in cases of complete gasserectomy or resection of the sensory root behind the ganglion, though injection operation is indefinitely less severe, and is practically free from risk when done by an expert, though it is not an operation to be attempted until considerable experience of the method has been gained.

Venous Angeioma of Cerebral Cortex.—A man, aged 31, in 1916 began to experience occasional attacks of "tingling" on the left side of the face. After four months each attack was followed by transient loss of consciousness; this in turn was succeeded by powerlessness in the left arm and leg. The attacks continued to occur at intervals of about four weeks, and finally led to his being admitted to a hospital. He improved and returned to duty for a few weeks, but relapsed and was invalided from the navy as a case of (?) disseminated sclerosis in March, 1917. The attacks continued to occur at irregular intervals to 1920, when the authors saw him. A diagnosis of "lesion (? nature) of the rolandic area of right cerebral cortex, with Jacksonian epilepsy" was made. Fifteen months later he was getting out of bed when a "shivering attack" occurred, and the left arm and leg became useless. When seen a few minutes later, he appeared semistuporous and exhibited a flaccid paresis of the left arm and leg; the pupils reacted to light, there was no squint, reaction occurred to pin pricks applied to the left arm and leg, and the left plantar reflex was extensor. Five minutes later consciousness was normal, but the patient said the left arm felt weak and numb and the tongue seemed swollen. As the lesion appeared to be progressing, although very slowly, it was decided to explore the right rolandic area. The dura was tense, dark and thin, and large veins were the apparent cause of the bulging of the membrane. The dura was opened and on being reflected the whole of the cortical area exposed by the removal of the piece of bone was found to be occupied by enormous veins, the arachnoid being stretched over them; some of these veins were of a size almost of the little finger. The walls of the veins appeared very thin and at several points were adherent to the dura mater. Owing to their large size and to the fact that all disappeared beneath the margins of the bone bounding the opening, no attempt could be made at separation for removal. A celluloid plate was cut to fit the opening in the bone and fixed in position with small tacks. Five months after operation, no definite seizures had occurred; on four occasions only he has experienced slight numbness of the left arm and hand, passing to the left side of the face. The physical signs remain practically as before, excepting that no left-sided facial weakness is demonstrable and the left arm and leg appear stronger. The features in the case worthy of note are: (1) sensory aura beginning in the face; (2) absence of any change in cutaneous sensibility; (3) absence of optic neuritis; (4) extremely large size of the veins forming the angeioma; (5) marked improvement following operation—presumably due to relief of local pressure.

New Culture Medium for Intestinal Flora.—In his studies of intestinal bacteria Watson uses a saccharose milk agar medium. The broth (using bullock's heart) is made as follows: meat extract, 1,000 c.c.; peptone, 10 gm.; sodium chlorid, 5 gm. This is evaporated down to one-fifth original bulk and made up to original bulk with whole milk. Two per cent. saccharose are added after the medium has been neutralized with tenth normal sodium hydroxid solution. By the use of this medium it was found that in contrast to all the mediums in common use for primary culture, the growth of gram-positive organisms, mainly of streptococcal form, increases from an average of 5 per cent. or less up to an average of 45 or 50 per cent. The use of this saccharose-milk-agar medium provides a film which compares favorably with the original smear.

Medical Journal of South Africa, Johannesburg

May, 1922, **17**, No. 10

*Typhus: Its Infectivity and Value of Weil-Felix Reaction in Diagnosis. J. H. H. Pirie.—p. 197.
Therapeutic Artificial Pneumothorax. D. P. Marais.—p. 200.
Toxemias of Pregnancy: Evolution as Etiologic Factor. S. E. Kark, Edinburgh, Eng.—p. 207.

Value of Weil-Felix Reaction in Typhus.—Pirie has found the Weil-Felix reaction of considerable value as an aid in the diagnosis of typhus. Only agglutinations in dilution of 1:50 and upward should be accepted as definitely diagnostic typhus. Agglutinations in lower dilutions may be suggestive if in keeping with the clinical features, and call for a further test in a few days' time. The test may be positive on the fifth day, but is usually not so until the second week. The strongest reactions may be expected about the twelfth or fourteenth day. A positive reaction may persist for a few weeks, or at most a few months, after recovery. Typical cases may never develop a positive reaction, so that no stress should be laid on a negative reaction if the clinical features justify the diagnosis.

Archives Médicales Belges, Liége

April, 1922, **75**, No. 4

Epidemic Encephalitis in Belgium. L. van Boeckel and Bessemans.—p. 273.
Research on Colon Bacillus in Water. A. Hennekinne.—p. 314.
Chronic Infections of Lower Genito-Urinary Passages in Man. M. Devroye.—p. 322.

May, 1922, **75**, No. 5

*Spirochaeta Pallida in Sperm. R. Lakaye.—p. 385.
Syphilis in Mental Disease. H. Hoven.—p. 393.
Disturbances Due to Changes in Organic Chemistry. E. Delcourt-Bernard.—p. 410.

Spirochaeta Pallida in Sperm.—In 1920 Lakaye began to study the possibility of the transmission of spirochetes by the sperm, and a little later Pinard and Hoch reported having found *Spirochaeta pallida* in 3 of 11 specimens of human sperm. His further research confirmed theirs. Besides his microscopic research, he inoculated the anterior chamber of the rabbit eye with human sperm, obtained by massaging the seminal vesicles after injecting 200 c.c. of physiologic saline into the bladder. *Spirochaeta pallida* was found in 5 of 22 specimens examined. In one case the spirochete was attached to the tip of the spermatozoon head by one end and to the middle piece by the other end. In another case, half the spirochete clung to the middle of the tail, the other half floating free. Of the 22 inoculation experiments, a positive result was obtained in 9 and negative results in 10. The spirochete was refound in only 2 instances. There was suppuration in 3 of the rabbit eyes. Carle states that the mother giving birth to a syphilitic child is always syphilitic, although seemingly in perfect health. It often happens, however, that these women reexamined in the course of several years will not present any signs of syphilis, and that the seroreaction will remain negative.

Bulletins de la Société Médicale des Hôpitaux, Paris

May 26, 1922, **46**, No. 18

Glanders in Man; Two Cases. Said Djémil.—p. 820.
*Vaccine and Serotherapy of Bronchopneumonia. D'Oelsnitz and Colle.—p. 822.
*Enrichment of Sputum by Incubation. S. I. de Jong and P. Hillemand.—p. 828.
Neuralgic Form of Osteitis. Hallé.—p. 832.
*Comparative Value of Condensed Milks. G. Variot.—p. 838.
*Bleeding Time with Liver Disease. P. E. Weil et al.—p. 844.
*Tongue Sign of Bulbar Lesion. A. Ricaldoni.—p. 850.

Vaccine-Serotherapy of Pneumonia.—The leukocyte reactions in the course of this treatment were recorded in thirty cases of bronchopneumonia, including 8 adults. The leukocyte curve enabled better oversight of the course than is possible from clinical examination alone, although no regular laws could be detected.

Enrichment of Sputum by Incubation.—Tuberculous sputum in a test tube set in the incubator for four days at 37 C. separates into two layers. The upper, fluid layer contains few bacteria, as they have all settled down in the lower layer. With this enrichment method tubercle bacilli may be found from ten to twenty times more numerous than in the same sputum examined without incubation. About 2 c.c. of the sediment is treated with 5 c.c. of 2 per cent. sodium hydroxid, and heated; then 10 c.c. of water is added and then 2 c.c. of alcohol. The whole is centrifuged for thirty minutes and then spread and stained. Comparative tests with other methods of enrichment showed that this technic enabled homogenization to be dispensed with as a rule. When homogenization was positive, the enrichment procedure gave positive findings. Only in two of the total 120 specimens examined was homogenization positive when the other tests had been negative.

Condensed Milk in Infant Feeding.—Variot here reports the results of eight years of critical study of different kinds of condensed milk and the effects in infant feeding. The unsweetened condensed milks are heated to such a high temperature that the accessory food factors are destroyed completely. This renders them unfit for infants, and scurvy is not the only ill effect of their use. Adults can make up the vitamins from their other food, but infants suffer from the lack of them. On the other hand, infants brought up on sweetened milk evaporated at 50 C. developed normally, other things being equal. His experience with 5,000 infants confirms that scurvy need not be feared with this class of sweetened condensed milk.

Bleeding Time in Liver Disease. — The bleeding time is recorded in this article in about 100 cases of different kinds of liver affections. With insufficiency of the liver, the composition of the blood differs from normal in certain respects, and this is revealed most readily by the change in the bleeding time. Instead of the normal three minutes, the bleeding continues longer and the bleeding time is variable, and arrhythmic both in time and space. Positive findings in this respect are accompanied by cholemia, urobilinuria, choluria and the digestive leukopenia of Widal's hemoclastic crisis. The abnormal bleeding time is a very early and sensitive test of liver derangement. It returns to normal as soon as the liver functioning becomes normal. The bleeding time may be abnormal without any hemorrhagic tendency; hence the condition of the blood is not the only factor in hemorrhages.

The Babinski-Nageotte Syndrome.—Ricaldoni describes a typical case in a man, and calls attention to the hook shape assumed by the tongue when it was extended, hemihypermetria of the tongue.

Journal de Chirurgie, Paris

July, 1922, **20**, No. 1

*Surgical Anatomy of the Palate. V. Veau and C. Ruppe.—p. 1.

Surgical Anatomy of the Palate.—This long article with its thirty-three illustrations is preliminary to a description of a method for operating for cleft palate, which is to follow later.

Paris Médical

April 15, 1922, **12**, No. 15

Crenotherapy and Climatotherapy in 1922. G. Linossier.—p. 309.
*Radioactivity of Mineral Waters. Loisel.—p. 310.
*Crenotherapy and Shock Phenomena. J. Galup.—p. 314.
Action of Natural Carbonated Baths. J. Heitz.—p. 319.
Physical Bases for Heliotherapy. A. Rosselet.—p. 325.

Radioactivity of Mineral Waters.—Loisel gives a table of the amount of radium emanation found in the mineral waters of the fifty more important mineral springs of France, as determined mostly by Curie, Laborde and himself. His own research at Bagnoles has demonstrated an additional radioactivity that differs from what is known hitherto, and must be due to some other radioactive element. He calls this hypothetic element emilium. The variations in radioactivity of a mineral spring throw light on its physiology, as it were.

Crenotherapy and Shock Phenomena.—Galup remarks that the old and tried treatment of disease by mineral waters was rather pushed into the background by the discoveries of Pasteur, as the whole of pathology seemed to revolve around infection. But crenotherapy is coming into its own again. The recent discoveries in anaphylaxis and colloidoclasis all emphasize the importance of the soil, the hereditary or acquired predispositions, the chronic conditions interrupted by acute episodes, idiosyncrasies, etc., which infection is unable to explain—all throw light on the action of mineral waters.

June 24, 1922, **12**, No. 25

Treatment of Psoriasis. L. Hudelo.—p. 525.
*Chronic Hallucinations from Thrombosis. G. Paisseau and P. Oury.—p. 531.
Radiologic Control of Intratracheal Injections. P. Claisse and J. Serrand.—p. 533.
Simplest Methods for Artificial Anus. V. Pauchet and G. Luquet.—p. 534.
*Radiopelvimetry. C. Guilbert.—p. 536.

Delirium from Chronic Thrombosis.—The man of 65 had long had swollen glands in the neck when chronic hallucination delirium developed. The mind became more and more impaired but no signs of cerebral lesion or hypertension could be discovered. Necropsy revealed that the internal carotid artery had been completely obliterated by a dense fibrous tissue over a stretch of 1 cm. The thrombus might possibly have been removed if its existence had been suspected.

Radiopelvimetry. — Guilbert compares what he calls the orthogonal with the stereographic method of investigation of the pelvis with the roentgen rays. The principle in both is the same, namely, the correction by geometrical projection of the errors from a conical projection. It is realized with the aid of a second plate.

July 1, 1922, **12**, No. 26

Cardiovascular Disease in 1922. P. Lereboullet and J. Heitz.—p. 1.
*Nonsyphilitic Arteritis of Jews. A. Gilbert and A. Coury.—p. 13.
Incomplete Rupture of Aorta. L. Gallavardin and L. Gravier.—p. 23.
*Pathology of the Blood in 1922. M. Leconte.—p. 27.

Obliterating Arteritis.—A similar but less comprehensive article on this nonsyphilitic thrombo-angeitis was reviewed recently, July 22, 1922, page 333.

Pathology of the Blood in 1922.—Leconte reviews under this heading the recent literature on anaphylaxis, colloidoclasis and other shock phenomena, hemophilia, hemogenia, leukemia, and hemorrhagic purpura from benzol poisoning. The greatest progress has been realized with emetin and with radiotherapy, the latter especially in Hodgkin's disease and erythremia.

Presse Médicale, Paris

June 24, 1922, **30**, No. 50

Surgical Treatment of Glaucoma. F. Lagrange.—p. 541.
*Transfusion of Blood for Quinin Intolerance. E. Keramopoulos.—p. 544.
*Spinal Drainage Without Lumbar Puncture. P. Pagniez.—p. 545.

Anaphylaxis to Quinin. — Keramopoulos reports from Smyrna a case in which the anaphylactic shocks that constantly followed treatment with quinin were finally arrested by transfusion of blood from the woman's daughter. All other known methods of desensitization had been tried and failed, but under intravenous injection of 20 c.c. of citrated whole blood, every two or three days for a month, the general health improved remarkably and quinin then could be given regularly.

Spinal Drainage Without Lumbar Puncture.—Pagniez summarizes the work of Americans in this line from Weed and McKibben in 1919 to Corbus and his co-workers in The Journal recently, and emphasizes its importance. Leriche's experiences with means to remedy the disturbances from hypotension in the cerebrospinal fluid were summarized in an abstract here, May 20, 1922, p. 1578. Lhermitte still more recently has called attention to the modification of polyuria and glycosuria in diabetics by lumbar puncture.

Revue Neurologique, Paris

January, 1922, **38**, No. 1

*Sensory Dissociations in Brain Disease. P. Marie and H. Bouttier.—p. 1. Conc'n, No. 2, p. 144.
Tumor in Splenium of the Callosum. G. Guillain.—p. 23.
Kyphoscoliosis as Early Manifestation of Syringomyelia; Two Cases. C. Foix and E. Fatou.—p. 28.
*Extrapyramidal Syndromes. III. Syphilitic Hemisyndromes. A. Wimmer.—p. 38.
*Psychiatric Import of a Cathedral Carving. P. Courbon.—p. 52.

Dissociation of Sensibility in Brain Disease.—Marie and Bouttier discuss the present status of opinion on the thalamus syndrome and cortical sensory syndrome, and the different ways in which, with a lesion in the cortex, sensibility may be dissociated. Nineteen cases are described to show the information as to the location of the lesion to be derived from the loss and persistence of different cutaneous and deep senses.

Extrapyramidal Syndromes.—In one of the cases described by Wimmer there was a striatal hemisyndrome, a syphilitic brain affection, and monoplegia left from poliomyelitis. In another case the striatal hemisyndrome was accompanied by paralytic dementia but the spinal fluid seemed to be normal.

The Zoopathic Hypochondriac in the Strasbourg Cathedral Frieze.—Courbon interprets the figure as representing a hypochondriac with hallucinations of animals. It dates from the thirteenth century.

February, 1922, **38**, No. 2

*Negative Kinesia Versus Inhibitions. L. Bard.—p. 121.
*Amyotrophic Lateral Sclerosis. G. Marinesco.—p. 161.
The Dentate Nucleus in Case of Catatonia. C. I. Urechia.—p. 171.
*Deformity of Head and Extremities. Usse, Grunberg and Degouy.—p. 175.

Mechanism of Arresting Actions.—Bard emphasizes the necessity for distinguishing between negative kinesia and inhibitions, and analyzes their nature.

Amyotrophic Lateral Sclerosis.—Marinesco seeks to throw light on the physical and chemical mechanism of the lesions of amyotrophic lateral sclerosis by his study of five cases.

Teratologic Asymmetry in Degenerate.—The woman of 54 was an imbecile, and hands, feet and head showed numerous malformations, remarkable by their asymmetry.

March, 1922, **38**, No. 3

*Oculoviscerocutaneous Motor Reflexes. D. Daniélopolu, A. Radovici, and A. Carniol.—p. 249.
Primary Tumor of Septum Lucidum. Souques, Alajouanine and J. Bertrand.—p. 270.
Familial Infantile Bulbar Paralysis. E. D. Paulian.—p. 275.
Minor Signs of Paresis of Interossei Muscles. C. Orzechowski.—p. 279.

The Visceral Reflexes.—This communication presents the results of research on the innervation of the viscera, and means to influence the latter by reflex action from the eyeballs, skin or elsewhere. These reflexes are most instructively studied in persons with a spinal cord tumor or other lesion shutting off the brain. One such paralyzed patient urinates four times a day and is continent. When he feels the necessity for voiding the bladder, he rubs the skin of the hypogastrium, and the urine flows at once. As the urine flows, the legs make involuntary movements. Spontaneous contraction of the legs is accompanied by a desire to urinate, as also compression of the eyeball. Six of these visceral motor reflexes could be elicited in this case. They could all be elicited faintly in normal subjects but were scarcely recognizable. A method for graphic recording of the findings is described for comparison.

Schweizerische medizinische Wochenschrift, Basel

April 6, 1922, **52**, No. 14

*Workmen's Homes. C. Flügge.—p. 337.
*Periodical Vomiting with Acetonemia. H. Iselin.—p. 340.
Treatment of Pulsion Diverticulum. A. Suter.—p. 342.
Exophthalmic Goiter at Mayo Clinic. M. E. Bircher.—p. 347.
Delirium from Lightning Stroke. L. Bischoff.—p. 349.

Workmen's Homes.—Flügge discusses the pros and cons of different kinds of workmen's homes, his verdict being in favor of a separate home with a garden to raise carrots, turnips, onions, tomatoes and berries—foods to supply variety and vitamins—but with no attempt to do actual farm work, raise potatoes, etc. Chickens and rabbits supply the necessary manure, with the human night urine. A garden 150 square meters in extent is ample under present conditions of labor. He refers to settlements planned in the vicinity of factories or mines, with a central playground and a fishpond. He advocates long leases rather than ownership of the home, as the size of the family varies so much from the crowded quarters when the children are young to the empty rooms when the brood take up homes of their own.

Periodic Vomiting of Children with Acetonemia.—Iselin reports another case in which the general anesthesia was probably responsible for the death of the child of 4½ who had been sent to the hospital on account of an attack of repeated vomiting with pain in the right flank, and the diagnosis of acute appendicitis, 13,300 leukocytosis, and acetonemia. The child died in cyanosis the day after the appendicectomy. This periodic vomiting with acetonemia is particularly hard to differentiate in mild cases like the one here described, but when there is the slightest doubt, no general anesthetic should be used. In this case the severe intestinal symptoms and the slight local findings might have warned of the true diagnosis. Hecker has noticed that these children are inclined to be intolerant of fat; there is lymphocytosis, and this becomes more intense during the attack. The child may vomit all it eats, eliminating acetone in breath and urine, growing rapidly weak, and rapidly recuperating. The attack may begin without known cause or may follow some error in diet, especially the eating of fat, or some emotion, or a tonsillotomy, a vermifuge, the eruption of teeth, etc. The tongue is not coated to the extent that would be anticipated from the other symptoms; it may become red and dry. The pulse is fast, the temperature usually subfebrile or subnormal. Treatment with alkalines improves and cures completely in a couple of days, as a rule. He has had four such cases in the last year, and now makes a practice of examining for acetone before operating for appendicitis. Necropsy findings in two cases have been published; in both there was severe fatty degeneration of the liver, which explains the harm from chloroform.

Pediatria, Naples

June 15, 1922, **30**, No. 12

*Intolerance for Breast Milk. S. Cannata.—p. 529.
Dispensary for Infants. F. de Angelis.—p. 537.
*Surgical Treatment of Infantile Paralysis. N. Caprioli.—p. 548.
*Diagnostic Import of Epitrochlear Adenitis. S. Fabbris.—p. 560.
Present Status of Purpura in Children. G. Genoese.—p. 564.

Intolerance for Mother's Milk.—Cannata protests against the assumption of anaphylaxis in explaining intolerance for breast milk, of which he describes two cases. Study of such cases usually reveals some overfeeding at first, or some congenital or acquired instability of the digestive tract. This entails chronic gastro-intestinal disturbance which yields only to a change to the milk of some other woman or artificial feeding.

Operative Treatment of Infantile Paralysis.—Caprioli remarks that the results are better the more intelligent the patient, as his cooperation is essential. No operation should be attempted as long as there is the least chance of improvement without it. Even in the gravest chronic forms, arthrodesis should not be resorted to until after failure of every possible intervention on the soft parts. Among the latter, tendon implants and transplants give the best results. He describes six cases to illustrate the different types of operations. The outcome was excellent in all six cases.

Diagnostic Import of Epitrochlear Adenitis.—Fabbris reported recently that inherited syphilis was manifest in 33 per cent. of the infants with epitrochlear adenitis that he had examined. He here reports that in over 1802 older children, epitrochlear adenitis was found in 71 per cent. of the 112 cases of active syphilis and in 63 per cent. of the 154 with latent syphilis; in 83 per cent. of the cases of syphilis plus tuberculosis, but only in 21 per cent. of the children with rachitis, in 26 per cent. of the 342 tuberculous children, and in 13.5 per cent. of the 909 with other affections.

Brazil-Medico, Rio de Janeiro

May 6, 1922, **1**, No. 18

*Experiences with Bacteriophagia. R. Kraus and P. Marrey.—p. 227.
Case of Schistosomiasis in Child of Two With Skin Manifestations. Martagão Gesteira.—p. 230.

Bacteriophagia.—Kraus and Marrey have found that the bacteriophagic action is evident in cultures of anthrax bacilli treated with filtrates of typhoid and dysentery stools. No action on blood corpuscles could be detected, but they found that a certain amount of fermentation, coagulation and color changes occurred in certain culture mediums when treated with the bacteriophagic stool extracts, which were not observed in the nonbacteriophagic. This suggests that the bacteriophagum has other properties hitherto unnoticed, in addition to its bacteriophagia. Their research confirmed in every respect the statements of Twort and d'Herelle.

Crónica Médica, Lima, Peru

March, 1922, **39**, No. 705

Surgical Treatment of Spastic Torticollis. C. Morales Macedo.—p. 86.
*"Puericulture" versus "Nipiotechnic." R. Eyzaguirre.—p. 90.
Malarial Splenomegaly in Children. Z. Cardenas Sinclair.—p. 94.

Puericulture.—Eyzaguirre remarks that Caron's term, "puericulture," for the systematized scientific care of young children has been adopted in all Latin countries. Cacace prefers terms from the Greek, "nipiology" and "pedology," to distinguish between infants and children up to 6 and beyond.

Revista Médica del Uruguay, Montevideo

May, 1922, **25**, No. 5

Multiple Gunshot Wound: Murder or Suicide? José May.—p. 378.
*Hydatid Cysts in the Brain. L. Morquio.—p. 385.
*Preparation of Patient for Operation. D. Prat.—p. 424.
*Fatal Hemorrhage After Adenoidectomy. A. Volpe.—p. 440.

Hydatid Cysts in the Brain.—Four cases in children are described in detail by Morquio, with the necropsy findings. The symptoms caused by the hydatid cyst were vague at first; months and even years passed in some cases without decisive manifestations. Paresis of one arm or leg was often the first symptom to attract attention. Headache and vomiting may be absent to the very end. One child presented merely unilateral chorea, with slight contracture, and died suddenly, necropsy revealing a cyst as large as an orange in the right rolandic region. In the four cases here described vision had not been impaired, and in two the mind was not affected. The clinical picture varied widely otherwise, but the good general health, the rural origin, and the protrusion and softening of the skull in the region suggested the nature of the brain tumor. Surgical measures may cure when the cyst is small and superficial.

Preparing the Patient for an Operation. — Prat devotes fifteen pages to the minute description of how to insure the best possible conditions for a major operation. His outline calls for a six day preparation, ample supply of fluids, a heart tonic, and anoci-association at the last.

Fatal Hemorrhage After Adenoidectomy. — Volpe found that the coagulation time was normal in the venous blood of the boy of 3 whose large adenoids had to be removed. The boy succumbed to hemophilic hemorrhage. It was known that an uncle had died from hemophilic hemorrhage but the normal coagulating time in the boy had been accepted as testifying that the taint did not affect him. Volpe queries whether the shock of the operation may not have been responsible for the flaring up of the hemophilia. The Bloch method of examination might have revealed the hemophilic taint and indicated prophylactic serotherapy or peptone (Wolf) treatment.

Archiv für Verdauungs-Krankheiten, Berlin

May, 1922, **30**, No. 1

*The Guaiac Test for Occult Blood. J. Vándorfy (Budapest).—p. 1.
*Salt in Gastric Anacidity. B. Molnár, Jr., and G. Hetényi.—p. 8.
Ultimate Condition in Chronic Dysentery. L. R. Grote.—p. 13.
*Technic for Test of Pancreas Function. E. Deloch.—p. 27.

The Guaiac Test.—Vándorfy has found that hemoglobin is more sensitive to guaiac than hematin, when the guaiac test is applied with the routine technic, but this difference is not apparent if a 70 per cent. alcoholic solution of chloral hydrate is used instead of alcohol alone. This modification renders the test much more sensitive. The optimum is with a 0.5 per cent. solution of the guaiac in the chloral-alcohol. He dissolves 2.5 cg. of the pulverized guaiac in 5 c.c. of the chloral hydrate-alcohol and then proceeds with the test as usual. Only a pronounced blue tint can be regarded as a positive response.

The Chlorin Content of the Blood with Secretory Disturbances in the Stomach.—Mólnar and Hetényi comment on the improvement in conditions in regard to gastric secretion in a number of cases of anacidity when salt was supplied in abundance. The patients took 2 gm. of sodium chlorid in half a glass of water after meals. Five of the twelve in this group had free hydrochloric acid when examined three or four weeks later, and in some it approximated normal. All of them declared that appetite had returned and they felt better in every way. Reduction of the salt intake has long been advised in treatment of hyperchlorhydria, and the reverse has now proved its efficacy in the opposite condition, anacidity. They ascribe the unusually large proportion of cases of anacidity encountered since the war to the predominantly vegetarian diet during the war. This entailed exceptional losses in sodium chlorid as it was eliminated with the excess of potassium from the vegetable diet.

Duodenal Test for Pancreas Functioning.—Deloch ascribes to the variability in the technic the conflicting findings from examination of the contents of the duodenum in estimating the external secretion of the pancreas. He has obviated this difficulty by following a certain routine technic for the entire procedure. He begins by pouring 30 c.c. of decinormal hydrochloric acid directly into the duodenum, and then records the amount of secretion that follows (35-65 c.c.), the duration of the secretion (45 to 60 minutes), the alkalinity and the ferments (from 200 to 600 units per c.c. of duodenal contents in normal subjects). There was excessive secretion in seven of the eighteen cases of gastric or duodenal ulcer tested, and hyperchylia was evident in two cases. With deficient gastric secretion there seemed to be a compensatory extra secretion in the pancreas. On the other hand, with catarrhal jaundice there was functional secretory insufficiency in the pancreas. Cholecystitis, pancreas cancer and diabetes mellitus were accompanied with organically conditioned secretory insufficiency. In almost all the cases of pancreas hypochylia, the negative findings with the tests applied to the stools confirmed the unreliability of this means for estimating pathologic conditions in the pancreas.

Deutsche Zeitschrift für Chirurgie, Leipzig

June, 1922, **171**, No. 1-2

*Splenectomy in Congenital Hemolytic Jaundice. K. Mayer.—p. 1.
*Osteochondritis Dissecans. M. Kappis.—p. 13.
*Diverticulum of Appendix. W. Löhr.—p. 30.
*Tuberculin Treatment During Heliotherapy. W. Graf.—p. 57.
Operation for Incarcerated Diaphragmatic Hernia. A. Sohn.—p. 82.
*Duodenal Ulcer After Burn. L. Kirchmayr.—p. 109.
*Metal Substitute for Tibia in Child. G. Golm.—p. 117.
*Epithelium Lining for Permanent Witzel Fistula. G. Hauck.—p. 125.
Isolated Dislocation of Ulna in Ankle. F. Mandl.—p. 130.
Factitious Abscess from Subcutaneous Injection of Saliva. Serdjukoff. —p. 134.

Splenectomy in Congenital Hemolytic Jaundice.—Mayer remarks that only about eighty cases of splenectomy for congenital, inherited, hemolytic icterus had been published up to 1920, half of them in Germany. He had occasion to operate on a young woman and two brothers of 19 and 29, all presenting a very severe form of the inherited jaundice. The father and a great uncle had always been jaundiced but were otherwise normal and strong. The father died from gastric cancer. These three children had always been frail and backward in both physical and mental development. Four other children in the family had died young. The hemolysis increased at times, causing weakness confining to bed for a few days, and these paroxysms had been increasing in frequency and severity. The spleens when removed weighed 1,000, 1,450 and 1,900 gm. The jaundice disappeared completely thereafter in two weeks in the girl of 20 and in four weeks in the two men. It began to disappear the fourth or sixth day, and urobilin to disappear from the urine. The girl has gained 30 pounds, the men, 18 and 20 pounds in weight since, and their faces filled out and lost the previous wrinkled, aged appearance. Full earning capacity was regained after the third month. An eleven year ulceration on the feet of one of the men and an ulcer on the foot of the girl healed completely in a few weeks, and the girl began to menstruate for the first time. The two oldest rejoice in the change from their former apathy and irritability to a normal attitude toward life. The younger man's goiter and infantile genitals indicate endocrine disturbance, and his mental condition has shown little benefit. The findings in the blood, etc., are tabulated from the three cases for nearly a year. The erythrocytes still display exceptionally low resisting powers, showing that the inherited taint still persists, but the splenectomy has clinically cured the three patients. The spleen seems to act like a multiplier for the morbid phenomena, and its removal is followed by the clinical cure.

Osteochondritis Dissecans.—Kappis reports three cases of this apparently spontaneous separation of the cartilage from the bone, and shows that in every case there was a more or less perfectly healed fracture, with nothing to indicate any pathologic feature in the fracture. He incriminates trauma and mechanical factors, and possibly a predisposition, like the constitution which predisposes to loose bodies in joints. He recently examined a man with loose bodies in both knees and both elbows. In another case he found twenty loose bodies in the knee and around the femur in a woman of 20 after a slight accident to that knee. A still larger number were found in the other knee and femur although this side had never caused any disturbance except for occasional luxation of the patella.

Diverticulum of the Appendix.—Löhr ascribes this formation to some inflammatory process, and discusses its consequences.

Tuberculin Treatment of Bone and Joint Tuberculosis.—Graf gave tuberculin systematically in 100 cases of so-called surgical tuberculosis under systematic heliotherapy in the last year and a quarter. These experiences show that tuberculin is contraindicated in all such cases except when the process is well localized, torpid, and obstinately refractory to the usual measures. Heliotherapy is liable to reduce the tolerance for tuberculin, and it has to be given with extreme care, if at all, and for very short periods, always bearing in mind that the tuberculin is not intended to cure but merely to swerve conditions into a more favorable course. Application of the tuberculin directly in the focus is safer and more effectual, as the reaction can be inspected and estimated.

Chronic Duodenal Ulcer After a Burn.—Kirchmayr reports a case in which there was evidently a causal connection between the chronic duodenal ulcer and a preceding extensive burn on the neck and back in 1907. The boy complained of severe pains in the stomach at once after discharge from the hospital where the burns had been treated, and the paroxysms of pains had returned at times during the twelve years since. They had gradually grown more severe and frequent, rebellious to all internal treatment, coming on two or three hours after meals. A complete cure followed pyloroplasty by Eiselsberg's method plus gastro-enterostomy. A large radiating scar was found in the horizontal portion of the duodenum, with extensive adhesions binding it to the liver, gallbladder, pancreas and transverse colon.

Disadvantages of a Metal Substitute for the Tibia.—In the case illustrated by Golm, the metal prosthesis had answered its purpose in the boy but, as his leg grew, the prosthesis was unable to grow with it, and the consequence was severe deformity of that leg. It was 9 cm. shorter than its mate, with talipes and osteoporosis. The metal rod had been implanted in 1908, and the disturbances became so severe that the leg was amputated in 1920. Golm remarks that the case warns against the use of foreign bodies as substitute for bones in the young.

Healing of a Witzel Fistula.—Hauck reports satisfactory results in two cases from the application of Thiersch flaps to line the fistula. The flap was cut on the thigh and was wrapped around a rubber tube, the raw surface outward, and the tube thus coated was sutured in place in the slanting fistula into the jejunum or stomach. The patient with a fistula into the jejunum died the fiftieth hour, and the flap was found solidly adherent to the intestinal serosa. The one with the fistula into the stomach lived for three months, and the fistula was found lined throughout with epithelium, the transplanted flap having grown to double its former size. In both cases the flap had grown firmly to the tissues, and the patient was relieved from the necessity of frequent change of dressings. The fistula seemed to the patient like one of the natural openings of the body, the "crater" being sutured to the skin around.

June, 1922, **171**, No. 3-6

*Research with Parabiosis. G. Schmidt.—p. 141.
*Innervation of the Diaphragm. W. Felix.—p. 283.
*Ascaridiasis of the Biliary Passages. Tsujimura.—p. 398.
Large Retromammary Angiofibroma. Wiedhopf.—p. 413.
Atypical Partial Appendicectomy. J. Richter.—p. 418.

Parabiosis Research.—Schmidt writes from the surgical clinic in charge of Sauerbruch to describe the present status and the aims of research on animals made to grow together, with reports of extensive experience in this line. Over 140 pages are devoted to the profusely illustrated account of twin and triplet parabiosis of rats. The effect of removal of organs in one of the animals, of burns, of radiotherapy, of ileus, of artificial immunization and infection, of transplanted tumors, etc., the parabiosis of a young and of a senile animal, are some of the problems studied. Each experience opens up new lines of research. One of the illustrations shows a white female rat living in harmonious parabiosis with a black male rat, the tissues uniting them having stretched to form a broad, bowel-filled sac, nearly as wide and long as the body of either animal.

Innervation of the Diaphragm.—Felix reports the results of research on the phrenic nerve and the innervation of the diaphragm, studied from the anatomic, experimental and clinical standpoints. A bibliography of 170 articles is added.

Ascaridiasis of the Biliary Passages.—Tsujimura reports two cases which bring to thirty-three the number of published cases in which ascarids were found in the biliary ducts at operations. In all but eight cases there were gallstones besides. The symptoms from the helminths alone closely resembled those from cholelithiasis.

Medizinische Klinik, Berlin

April 2, 1922, **18**, No. 14

Laceration of the Uterus. Kupferberg.—p. 425.
*Gonococci in Eruption in Gonorrhea. Paschen and Jentz.—p. 428.
*Duodenal Juice in Diagnosis of Intestinal Disease. K. Isaac-Krieger.—p. 431.
Treatment of Climacteric Congestions. J. Halban.—p. 434.
Cancer in Colon or Rectum. E. Wertheimer.—p. 435.
Amyotrophic Paralysis Early in Tabes. W. Schmitt.—p. 436.
*Clinical Early Diagnosis of Syphilis. H. Colman.—p. 437.
Pituitary Extract in Ileus and After Laparotomies. Fervers.—p. 438.
*Dye Colloids in the Service of Serology. H. Hecht.—p. 439.
*Widal's Hemoclastic Crisis Not Reliable. Charlotte Erdmann.—p. 440.
Rudiments of Obstetrics. E. Runge.—p. 441. Cont'n.
*Fatal Cerebral Disturbances from Arsphenamin. C. Hart.—p. 444. Conc'n.

Gonococci in Gonorrheal Eruption.—Paschen and Jentz report what they think is the first case of a petechial eruption in the course of gonorrhea, with gonococci in the blood, in which the gonococcus was found in the depths of the skin. The microscope differentiated it from the meningococcus.

Functional Insufficiency of the Pancreas.—Investigation of the duodenal contents in thirty cases of achlorhydria failed to reveal anything abnormal in the ferment content of the duodenal juice. This settles the question as to the hydrochloric acid being the indispensable stimulus for pancreas functioning. Even in cases of gastrogenous diarrhea, the ferment content of the duodenal juice seemed to be normal, although the stool findings were those hitherto regarded as indicating achylia pancreatica.

Early Clinical Diagnosis of Syphilis.—Colman reports a case of erosion on the lip of a society girl which he decided —but only by exclusion—must be of syphilitic origin. The Wassermann test became positive later. If he had trusted to laboratory tests he could not have eradicated the infection so promptly as he did. He warns against the practice in such dubious cases of giving a dose or two of arsenicals while waiting for developments. Either the lesion is syphilitic or it is not, and if it is, vigorous measures are indispensable from the start.

Dye Colloids in Serology.—Hecht has been trying to make the serologic tests more distinct by staining the fluid, and by increasing the proportion of colloids in the fluid. He did not succeed with the Wassermann test, but was more successful with the Hecht syphilis and Ficker typhus tests.

The Hemoclastic Crisis as Test of Liver Functioning.—Erdmann applied Widal's test ingestion of a glass of milk, fasting, to induce the hemoclastic crisis, but found the response conflicting in her thirty-one cases. In twenty with unmistakable liver disease there was no reaction in nine, and only three responded positively with the triad of drop in blood pressure, accelerated coagulation and leukopenia.

Fatalities from Arsphenamin Treatment.—Hart reviews fifty-four reports that have been published on fatalities under arsphenamin treatment of syphilis, especially cerebral complications. In Hanser's case, in 1921, there was status thymicolymphaticus, but the fatality was evidently due to an error in technic, the arsphenamin being in a very concentrated and very acid solution. The drug was perfectly dissolved in the fluid, but it precipitated out in the vein, with formation of thrombi in the vein in the arm, followed by embolism in the smaller arteries in the lungs, and this entailed embolism in some minute arteries of the brain. This sequence was evident at necropsy, and confirms the danger from highly acid solutions, the danger being greater, the more concentrated the solution. Death occurred five hours after the obstruction in the pulmonary artery had subsided.

Monatsschrift für Geb. und Gynäkologie, Berlin

May, 1922, **57**, No. 6

Forceps for After-Coming Head. L. Nürnberger.—p. 305.
*Bladder Hernia and Sponge in Bladder. N. Ellerbroek.—p. 341.
Synthetic Substitutes for Ergot. B. Zondek.—p. 347.

Bladder Hernia and Sponge in Bladder.—Ellerbroek's case teaches the necessity for thinking, whenever we are operating for hernia, of the possibility that the bladder may be involved. In this case the bladder involvement had been overlooked, and the resulting disturbances were complicated by a sponge that had been left behind and had worked its way into the bladder. It was removed by way of the vagina, as also in Maxwell's recent case.

Münchener medizinische Wochenschrift, Munich

June 2, 1922, **69**, No. 22

Induced Paralysis of the Diaphragm. F. Kroh.—p. 807.
*Prophylactic Arsphenamin Treatment of Syphilis. W. Schönfeld.—p. 811.
*Menthol-Eucalyptol in Tuberculosis. B. Fischer.—p. 814.
*Family Histories of Workmen. Weichardt and Steinbacher.—p. 816.
Incisions in Plastic Surgery. J. S. Esser.—p. 818.
Goiter in Infants. F. Hamburger.—p. 819.
So-Called Water-Wheel Sound (Bruit de Moulin). Hörnicke.—p. 819.
Laceration of Intestine Due to Self-Reduction of Inguinal Hernia. Hilgenreiner.—p. 820.
The Siemens Roentgen Dosimeter. R. Jaeger.—p. 821.
Incidence of Pulmonary Tuberculosis in Rural Communities. W. Sandrock.—p. 824.
Experiences with the Kielland Forceps. H. Saenger.—p. 824.

Prophylactic Arsphenamin Treatment of Syphilis.—Schönfeld takes the attitude that in all cases in which prophylactic treatment with arsphenamin might be at all considered, it is better not to institute such treatment but to wait until it is possible to establish a clear diagnosis. Suspected cases must be watched over carefully and no means of diagnosis neglected, in order that, in case syphilis becomes definitely established, prompt treatment may be begun.

Intravenous Injections of Menthol-Eucalyptol in Tuberculosis.—Fischer reports bad results from his intravenous injections of menthol-eucalyptol in twelve rabbits, eight of which were inoculated with highly virulent tubercle bacilli of the bovine type and four with human tuberculosis. The injections were not found to have any influence on the course of the disease.

Medical Inquiries into Family Histories of Skilled Workmen.—Weichardt and Steinbacher think there are indications, in some parts of Germany, of a degeneration of the people. They discuss family histories and ways and means by which those who realize the value of eugenics may work against such a tendency. Physicians can play a mighty rôle in the preventing of moral and physical degeneration, if they will only recognize and use their great power and influence in helping to shape the family life of the community in which they practice.

Wiener klinische Wochenschrift, Vienna

May 25, 1922, **35**, No. 21

Treatment of Cardiospasm and Cardiostenosis. Finsterer.—p. 471.
*Test of Functioning of Thyroid Gland. F. Starlinger.—p. 473.
*Echinococcus Anaphylaxis. J. H. Botteri.—p. 473.
Pseudocataract After Injury from Fragment of Copper. A. Hinger.—p. 474.
*Gallstones and Cancer of Gallbladder. L. von Aldor.—p. 475.
"Tuberculotoxic Meningitis." H. Herschmann.—p. 478.

Demonstration of Function and Test of Functioning of Thyroid Gland.—Starlinger considers the thyroid as an individual organ, and conceives that blood that has passed through the thyroid must have acquired specific qualities. The question is whether we possess sufficiently delicate methods to register such changes in the blood. Starting with the theory of Herzfeld and Klinger that fibrinogen represents the first stage in the decomposition of the albumin of an organ, he made refractometric determinations of the fibrinogen content of the arterial and of the venous blood of the thyroid. He tested further the varying sedimentation velocity of the red blood corpuscles, and the results of sodium chlorid flocculation, whereby at the same time a control of the several methods was secured. It is too early to draw any definite conclusions, since so far only fifteen cases have been studied, but he states that in nearly all cases he secured such findings as one would expect from the clinical observation of the cases. In only one case was there no difference to be distinguished between the arterial and the venous blood of the thyroid. He cites the experience of Herzfeld and Klinger with thyroid autolysates that contained no iodin, with which they caused rat goiters to retrogress. They consequently concluded that goitrous degeneration of the thyroid indicates an abnormal predominance of synthesis over catalysis, and that the decomposition of albumin plays an essential rôle in the functioning of the thyroid. In a hyperfunctioning thyroid, then, we would expect to find a diminution of fibrinogen in the venous blood, while in thyroid insufficiency we would expect just the opposite. With the one exception noted, all the findings thus far are in complete accord with this conception. For example, in one case the fibrinogen in the blood from the artery totaled 0.65 per cent. while it was 0.37 per cent. in the blood from the vein; the suspension stability of the erythrocytes averaged respectively 45 and 61, and precipitation was respectively four plus and two plus.

Echinococcus Anaphylaxis.—Botteri says that hydatid cyst fluid may be regarded as a true antigen, since it will produce active and passive anaphylaxis, and furthermore, by a characteristic shock, will desensitize a hypersusceptible organism.

Causal Connection of Gallstones with Cancer of the Gallbladder.—Aldor states that, notwithstanding the fact that the assumption of a causal connection between cholelithiasis and cancer of the gallbladder is common among pathologists, surgeons and internists, his investigations lead him to believe that the only basis for the assumption lies in the frequent coincidence of cancer and gallstone.

June 1, 1922, **35**, No. 22

Modern Therapy of Fractures and Luxations. Ewald.—p. 493. Cont'd.
The Nature and Causation of Leukocytosis. G. Holler.—p. 497.
Case of Latent Pleural Empyema with Acute Peritoneal Symptoms. W. Goldschmidt.—p. 499.
Case of Little's Disease Following Cesarean Section. R. Tauber.—p. 499.
*Phonetic Symptom in Affections of Lungs or Pleura. E. Fröschels and F. G. Stockert.— p.500.
*Action of Arsenicals, Adaptation of the Organism Thereto and Poisoning Therefrom. K. Ullmann.—p. 502. Begun in No. 20, p. 455.

Phonetic Symptom in Affections of the Lungs and Pleura.—Fröschels and Stockert report the peculiar auscultation finding that in many patients with pneumonia or pleuritis certain vowels take on a distorted value as heard through the stethoscope or better still with the examiner's ear directly against the patient's chest. In a case of pneumonia of the left inferior lobe, *a*, *e*, *o* and *u* (pronounced as in German) sounded all alike, as a distinct *i*. In a case of pleuritis with effusion, in certain regions, *o* sounded as *e*, *u* sounded like *i*. Ten similar cases are cited. The writers hold that the phenomenon may possibly be partially explainable by the physical quality of vowel tones as described by Helmholtz as consisting of a fundamental tone and a series of harmonious overtones. Perhaps we may then assume that the identity of a vowel is lost or obscured if certain overtones are wanting or are added where they do not belong. Stumpf's experiments also seem to substantiate the Helmholtz theory.

Action of Arsenic, Habituation Thereto and Poisoning Therefrom.—Ullmann devotes eleven pages to the discussion of the action and by-effects, the therapeutic effects and the injuries caused by the administration of arsenicals. Although, in recent years, much progress has been made in adjusting the dosage according to the age, sex, body weight and constitutional qualities of the patient, his clinical observations and animal experiments have convinced him that, in order to determine the dosage that will accomplish the best therapeutic results, more than mere posometric considerations must be taken into account, for the main factor in determining dosage is the estimation of the proportion of the therapeutic dose that passes through the circulation into the various organs of the body and how such portions are acted upon and utilized by the organs. He finds that there is too much of a tendency to regard various methods of administration: parenteral (parenchymatous), internal and intravenous, as having the same medicinal and toxic effect, whereas that is far from correct. It can no longer be held that the proportion of an arsenical that is eliminated in the urine and the stools is an exact indicator of the therapeutic effect attained. Such a conception is especially inapplicable to the present-day intravenous method. That arsenic introduced by the intravenous method exerts relatively the slightest effect, is due to the rapid elimination and the fact that the arsenical remains such a short time in the blood and the liver. While spirochetes that have been in contact with arsphenamin only a short time may retain, to a certain extent, their mobility, they lose at least their ability to multiply. When the arsenical comes in contact with the parasites of the organism, these are not necessarily killed at once; small doses may have even a stimulative effect so that the number of micro-organisms will increase for a time, while sterilization is brought about later. He cites among the affections that demand especial caution or constitute a contraindication for arsphenamin treatment: affections of the liver, kidney, and the digestive tract, and alcoholism. In pregnancy, a special test of kidney functioning is recommended. In doubtful cases a beginning small dose, to be gradually increased, is indicated. He warns that arsenic has an affinity for the liver and mercury for the kidneys.

Zentralblatt für Gynäkologie, Leipzig

April 22, 1922, **46**, No. 16

Recognition of Sterility in Women. W. Lahm.—p. 609.
Findings in the Capillaries in Eclampsia. Nevermann.—p. 617.
Genital Corpuscles in Clitoris and Labia Minora. Geller.—p. 623.
A Case of Vagitus Uterinus. H. Krause.—p. 625.
Proteotherapy and the Significance of the Protective Colloid in Silver Hydrosols. J. Voigt.—p. 628.
Case of Diphtheritic Infection in Newborn Twins. E. Weber.—p. 631.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

May 13, 1922, **1**, No. 19

*Own Urine Test for Tuberculosis. J. C. Schippers and S. B. de V. Robles.—p. 1868. Idem. W. F. Enklaar.—p. 1876.
*Hypertrophied Prostate. W. A. Mijsberg.—p. 1879.
Cancer Institute in Netherlands India. A. E. Sitsen.—p. 1890.

The Wildbolz Urine Test for Active Tuberculosis.—Schippers' verdict from extensive trials is unfavorable, as to its value as a sign of active tuberculosis. He warns further that the individual sensitivity of the skin varies so widely that extreme caution is necessary in estimating any reaction. Enklaar's experience, on the other hand, indicated that a very positive reaction testifies to an active tuberculous process, and a negative response—even with positive skin tuberculin reaction—seems to exclude an active process.

The Prostate and Its Hypertrophy.—Mijsberg's comparative research on apes and man throws light on hypertrophy of the human prostate. The middle lobe in apes is much more highly developed than in man. The loss of testicle functioning releases the prostate from an inhibiting influence. Causal treatment, therefore, calls for restoration of the testicle hormone before the hypertrophy is installed. He adds that it is inconceivable that the testicles of animals can secrete a hormone effectual in this line in man. In animals, nothing of the nature of true hypertrophy of the prostate has ever been observed. Human testicles or preparations of human testicles are the only ones to be considered in clinical cases.

May 20, 1922, **1**, No. 20

Dangers of Diphtheria. J. Munk.—p. 1952.
Diphtheria in Country Practice. J. H. Wieringa.—p. 1956.
Some Epidemiologic Questions on Diphtheria. O. J. Pool.—p. 1962.
*The Flea in Transmission of Plague. N. H. Swellengrebel.—p. 1968.
Gastric Ulcer and Gastric Cancer. J. Goedhuis.—p. 1973.
*Foreign Body in the Pleura. F. O. Bruijning.—p. 1976.
Scleroderma. G. A. M. van Balen.—p. 1978.

Transmission of the Plague.—Swellengrebel presents evidence that not only the rat flea but the human flea must be taken into serious consideration in the transmission of plague. In the tropics, the rat may play the preponderant rôle, but elsewhere, transmission from man to man by fleas or other vermin must be counted with.

Foreign Body in Pleural Cavity.—The woman of 22 had some ribs resected in treatment of empyema. She had a cough, and a year later, during a pregnancy, the sputum was ocasionally blood stained, and this continued for three years. During the last year she had complained of pain in the left side, and a slight apical tuberculous process was diagnosed. Roentgenoscopy yielded the surprising finding that a large drainage tube lay in the right pleural cavity. The shadow extended past at least six of the right ribs, although the pain had always been in the left side. The disturbances from this foreign body during the four years it had been in the pleura were comparatively insignificant.

May 27, 1922, **1**, No. 21

The Exposition at Amsterdam: "Man." P. Muntendam.—p. 2040.
*Acute Pancreatitis. J. G. Remijnse.—p. 2043.
*Laryngeal Tuberculosis in the Netherlands. C. M. Hartog et al.—p. 2054.
*Membranous Enteritis. J. van de Moer.—p. 2057.
Prolapse of Inverted Puerperal Uterus. T. B. Philips.—p. 2058.
*Uncontrollable Fatal Vomiting. J. de Hartogh, Jr.—p. 2060.
Present Status of Blood Transfusion. S. M. Kropveld.—p. 2063.
The Antimalaria Campaign in Northern Holland. Muntendam.—p. 2096.

Acute Pancreatitis.—Remijnse gives the history of 15 cases of acute pancreatitis with recovery of all but 5. He explains it as an acute necrosis from sudden irruption into the pancreas outlet of infected and chemically altered bile. It is not due as a rule to infection of the pancreas itself. Drainage of the biliary apparatus is the main thing in treatment. Any tendency to chronic pancreatitis calls for prolonged drainage of the bile ducts. In acute pancreatitis, the bleeding, suppuration, etc., are secondary to the acute necrosis. The sudden agonizing pain in the stomach region and back, spreading to right or left, with vomiting, cyanosis and signs of collapse, but no fever, may follow a heavy meal, the pancreas thus being called on for extra functioning. In 35 of 96 operative gallstone cases he found the head of the pancreas abnormally large and hard, and at every operation for acute pancreatitis he found the bile passages more or less pathologic, with gallstones in 50 per cent. Certain attacks of gallstone colic may represent merely attacks of acute necrosis of the pancreas, which recuperates spontaneously, and the involvement of the pancreas may escape detection.

Laryngeal Tuberculosis in the Netherlands.—Mentioned on page 226.

Membranous Enteritis.—Van de Moer has encountered two cases of membranous enteritis developing after the use of morphin by the mouth or hypodermically.

Fatal Uncontrollable Vomiting.—Hartogh relates that nothing could be found to explain the vomiting in the previously healthy woman of 40 with two children. There were absolutely no other symptoms; one specialist consultant after the other reported negative findings. Death occurred in the hospital the seventh day after the vomiting had begun; consent to necropsy could not be obtained.

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THE THERAPEUTIC USE OF OXYGEN *

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The use of oxygen in medical therapy occupies at present an uncertain rôle. Previous to the recent war, the current attitude was that of indifference to its use and skepticism concerning its value. This attitude appeared to be based not on inaccurate observation, but for the most part on the true appraisal of results obtained from ineffective methods. The lack of enthusiasm with which oxygen has been regarded in the past seems largely due to the absence of an ideal method of administering it. There is no commonly available method that can supply to the patient an effective concentration of oxygen without in some degree interfering with his comfort. The apparatus most widely used in this country and in England, the tube and funnel, adds less than 2 per cent. oxygen to the inspired air.[1] In short, oxygen was not given in sufficient dosage to get the therapeutic effect. During the war its effective administration in cases of gas poisoning produced such remarkably good results as to offer a stimulus for a renewed investigation of oxygen therapy in clinical disease, as a result of which it is now possible to show that oxygen can be effectively administered with slight or temporary discomfort and with the production of unmistakable improvement in the patient. The purposes of this paper are: (1) through the recent evidence to establish a rational basis for oxygen therapy, (2) to discuss the essential indications for its employment, and (3) to consider briefly the method of administration.

I shall first note the results obtained in the treatment of gas poisoning. When the Haldane apparatus could be used in the acute cases at the front, it was frequently life-saving.[2] In the treatment of the chronic cases by oxygen chambers in England, remarkable results were obtained by Barcroft[3] at Cambridge and by Shufflebotham and Sowry[4] at Stokes. The gassed soldiers were relieved of palpitation, disordered action of the heart, insomnia, cough, expectoration and mental depression. They showed in many cases a disappearance of polycythemia, and an improvement in their previously poor cardiac and respiratory responses to effort. These results constitute an instance in which effective treatment with oxygen accomplished definite improvement and cure. Shufflebotham and Sowry treated more than 100 patients in their oxygen chamber, including several patients with pneumonia and pernicious anemia. The pneumonia patients showed an improvement, but in the cases of pernicious anemia a downward progress occurred after they left the chamber.

BASIS FOR RATIONAL USE OF OXYGEN

In discussing the laboratory evidence that forms the basis for the rational use of oxygen, I shall first consider the degree to which anoxemia, or an abnormal lack of oxygen in the body, occurs in clinical disease. The introduction of the arterial puncture by Hürter,[5] the development of convenient methods of blood gas analysis by Van Slyke[6] and by Haldane,[7] and the clinical investigation of Stadie,[8] Harrop[9] and Meakins[10] resulted in the establishment of normal standards of oxygen saturation of the arterial blood and in the demonstration quantitatively of the anoxemia present in pneumonia, cardiac insufficiency and emphysema. Means and Newburgh,[11] and Lundsgaard[12] had already studied the oxygen of the venous blood. In normal persons the arterial oxygen saturation is about 95 per cent.; in cardiac insufficiency and its complications it may be between 95 and 75 per cent.; in pneumonia, between 95 and 60 per cent. The normal venous saturation is between 65 and 75 per cent.; when a diminished blood flow is present, as in cardiac insufficiency, it may fall between 65 and 30 per cent., depending on the severity of the disturbance.

Since these figures demonstrate that a severe oxygen deprivation may occur in disease, it becomes desirable to know what the effects of such anoxemia are. Fortunately, physiologists have accumulated abundant data on this point. Mountain sickness is a familiar example in which the symptoms are due to oxygen want.[13] Headache, nausea and vomiting, irrational states, and

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* Read before the Section on Pharmacology and Therapeutics at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Meltzer, S. J.: Therapeutic Value of Oral Rhythmic Insufflation of Oxygen, J. A. M. A. **69**: 1150 (Oct. 6) 1917.

[2] Douglas, C. G.: Discussion on Therapeutic Uses of Oxygen, Proc. Roy. Soc. Med. (Sec. Therap. & Pharmacol.) **13**: 59, 1920.

[3] Barcroft, J.; Hunt, G. H., and Dufton, D.: The Treatment of Chronic Cases of Gas Poisoning by Continuous Oxygen Administration in Chambers, Quart. J. Med. **13**: 179 (Jan.) 1920.

[4] Shufflebotham, F., and Sowry, G. H.: Discussion on Therapeutic Uses of Oxygen, Proc. Roy. Soc. Med. (Sec. Therap. & Pharmacol.) **13**: 59, 1920.

[5] Hürter: Deutsch. Arch. f. klin. Med. **108**: 1, 1912.

[6] Van Slyke, D. D.: Gasometric Determination of the Oxygen and Hemoglobin of Blood, J. Biol. Chem. **33**: 127 (Jan.) 1918.

[7] Haldane, J. S.: New Apparatus for Accurate Blood Gas Analysis, J. Path. & Bacteriol. **23**: 443 (Dec.) 1920.

[8] Stadie, W. C.: The Oxygen of the Arterial and Venous Blood in Pneumonia and Its Relation to Cyanosis, J. Exper. Med. **30**: 215 (Sept.) 1919.

[9] Harrop, G. A.: The Oxygen and Carbon Dioxide Content of Arterial and Venous Blood in Normal Individuals and in Patients with Anemia and Heart Disease, J. Exper. Med. **30**: 241 (Sept.) 1919.

[10] Meakins, J. C.: Observations on the Gases in Human Arterial Blood in Certain Pathological Pulmonary Conditions and Their Treatment with Oxygen, J. Path. & Bacteriol. **24**: 87, 1921.

[11] Means, J. H., and Newburgh, L. H.: Studies on the Blood Flow by the Method of Krogh and Lindbard, Tr. A. Am. Phys., 1915, p. 51.

[12] Lundsgaard, C.: Studies of Oxygen in the Venous Blood, J. Exper. Med. **27**: 179 (Feb.) 1918.

[13] Haldane, J. S.: Recent Developments in the Therapeutical Use of Oxygen, Contributions to Medical and Biological Research, Dedicated to Sir William Osler **1**: 550, 1919.

mental depression are common symptoms. In carbon monoxid poisoning in which there is often a more abrupt and severe want of oxygen, the patients are usually comatose and have a rapid, feeble pulse, and shallow, rapid respiration. In these patients the anoxemia may have been so severe as to leave permanent damage to the central nervous system. A patient so exposed may in a half hour of vigorous oxygen and carbon dioxid therapy become completely rid of carbon monoxid and have all the hemoglobin fully saturated with oxygen.[14] Nevertheless, he may die one or two days later because of the damage the previous anoxemia created in his central nervous system.[14] This explains why delay in the treatment of a marked anoxemia may result in irreparable injury. In experiments in which a lowered partial pressure of oxygen is breathed in chambers, the results are more easily controlled. Haldane,[15] when exposed to a low pressure of oxygen, became irrational and possessed of a fixed delusion. In summary, it might be said that the disturbance of the gastro-intestinal system is manifested by nausea, vomiting and diarrhea; the respiratory system by increased rate and depth of respiration or by periodic respiration, and later by rapid, shallow respiration; the circulatory system by a constant and progressive increase in pulse rate, and in the end by a fall in diastolic pressure[16] and cardiac failure; the central nervous system by headache, visual disturbances, irrational states and delirium, and finally, coma and death.

A crucial experiment of Barcroft[17] may be cited, since it links up the experimental with the clinical data. He lived for five days in a chamber in which the pressure of oxygen was lowered until his oxygen saturation at rest was 88 per cent. He then experienced the effects of mild anoxemia. His pulse rose from 56 to 86, he was nauseated, racked with headache, and suffered from visual disturbances and vertigo. He became faint on exertion. The arterial saturation of patients with pneumonia frequently falls much lower than that present in Barcroft, thus demonstrating that the ill effects of anoxemia must be an actual accompaniment of clinical disease.

These effects, then, are the result of lack of oxygen, and it is with their prevention or relief by appropriate oxygen treatment that we are now concerned. By application of the methods of gas analysis to blood, and particularly by the successful development of the arterial puncture by Stadie, it was possible to compare the amount of oxygen in the blood before and after treatment with the symptomatic effect. Meakins[18] used the Haldane apparatus in cases of pneumonia, emphysema and bronchitis, and showed that marked improvement in the clinical condition of the patient occurred as the arterial saturation was elevated to the normal. Stadie[19] placed pneumonia patients in a chamber containing between 40 and 60 per cent. of oxygen, and noted that with the removal or decrease in the arterial anoxemia, a decided improvement in the patient took place. Barach and Woodwell[20] used a mouthpiece rebreathing method in the treatment of patients with pneumonia and cardiac insufficiency, and made observations on the oxygen and carbon dioxid contents of both arterial and venous blood. In the cases of pneumonia, the arterial oxygen saturation was either elevated to the normal or much increased. In most of the severe cases, definite clinical improvement could be seen. When edema of the lungs occurred as a complication, the prolonged use of oxygen seemed to avert a fatal outcome.

In cardiac insufficiency, when an arterial anoxemia was present due to passive congestion or edema in the lungs, the inhalation of oxygen raised the arterial saturation to the normal. When acute bronchitis or acute pulmonary edema supervened, the resultant arterial anoxemia could either be entirely removed or much diminished. The improvement in the arterial blood could not always be determined by the degree of cyanosis, as at times progressive heart failure occurred and the stagnant anoxemia masked the improved oxygen saturation of the arterial blood. Obviously, the degree of cyanosis cannot always be used with safety to represent the arterial anoxemia. The venous saturation is needed to give the full picture. Clinical improvement could be seen in the treatment of the acute complications but not in the chronic cardiac condition itself.

The venous saturation in the cases both of pneumonia and of cardiac insufficiency showed an increase that was generally dependent on the increase of the arterial saturation, and merely raised the level at which the oxygen exchange took place. In a few cases there was a slight additional increase that may be explained on the basis of an improved blood flow or on the transfer of physically dissolved oxygen to the hemoglobin as the blood passes from artery to vein. When the patient is breathing a high concentration of oxygen, there may be an excess of oxygen in physical solution amounting to 1 or 2 per cent. by volume, the hemoglobin being fully saturated. As the hemoglobin passes through the capillaries it becomes unsaturated, and it is then possible for the excess oxygen physically dissolved to unite with the hemoglobin and gradually increase its saturation. When the circulation was progressively failing, the venous saturation could not be increased independently of the arterial saturation.

The venous saturation is thus unreliable as a criterion of oxygen therapy, since it varies with the blood flow. It is the oxygen saturation of the arterial blood that is especially significant because it represents the diffusion pressure at which oxygen is available to the tissues. Barcroft[21] has had calculated the relative amounts of oxygen which would leave the blood to enter the tissues under the three circumstances in which anoxemia exists: (1) the anoxic or arterial; (2) the stagnant or venous, and (3) the anemic. In each case it is assumed that the amount of oxygen going to the tissues in cubic centimeters for each 100 c.c. of blood is the same. In the accompanying table, quoted from Barcroft, it is seen that the arterial anoxemia furnished by far the least oxygen to the tissues, and is thus the most dangerous to the patient.

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[14] Henderson, Yandell: Personal communication to the author. Haggard. H. W., and Henderson, Yandell: The Treatment of Carbon Monoxid Poisoning, J. A. M. A. **77**: 1065 (Oct. 1) 1921.

[15] Haldane, J. S.; Kellas, D. M., and Kennaway, E. L.: Experiments on Acclimatization to Reduced Atmospheric Pressure, J. Physiol. **53**: 181 (Dec.) 1919.

[16] Lutz, B. R., and Schneider, E. C.: Circulatory Responses to Low Oxygen Tension, Am. J. Physiol. **50**: 327, 1921.

[17] Barcroft, J.; Cook, A.; Hartridge, H.; Parsons, T. R., and Parsons, W.: Flow of Oxygen Through the Pulmonary Epithelium, J. Physiol. **53**: 450 (May) 1920. Barcroft, J.: Anoxemia, Lancet **2**: 485 (Sept. 4) 1920.

[18] Meakins, J. C.: Therapeutic Value of Oxygen in Pulmonary Lesions, Brit. M. J. **1**: 324 (March 6) 1920; (Footnote 10).

[19] Stadie, W. C.: The Treatment of Anoxemia in Pneumonia in an Oxygen Chamber, J. Exper. Med. **35**: 337 (March) 1922.

[20] Barach, A. L., and Woodwell, M. N.: Studies in Oxygen Therapy, I, In Cardiac Insufficiency and Related Conditions, Arch. Int. Med. **28**: 367 (Oct.) 1921; II, In Pneumonia and Its Complications, ibid. **28**: 394 (Oct.) 1921.

[21] Barcroft, J.: Footnote 17, second reference.

In summary of the discussion up to this point, it might be stated that the consequences of anoxemia may be serious and harmful, that they exist in clinical disease, and that to a large extent they can be prevented or overcome by appropriate oxygen treatment. It is on this basis that I believe the use of oxygen has a justifiable rôle in medical therapy.

INDICATIONS FOR EMPLOYMENT OF OXYGEN

We come now to the question as to when oxygen should be used. The essential indication for its employment seems to be acute anoxemia. The onset of abrupt want of oxygen indicates prompt treatment to avert the grave effects of severe anoxemia outlined in the beginning of this paper. Chronic anoxemia may, indeed, have ill effects; but its occurrence over long periods of time in patients with congenital or acquired heart disease and in persons who have become acclimatized to high altitudes indicates that no very serious damage is produced.

In the recent Anglo-American expedition to the Andes, all of the party felt poorly when they arrived at the high altitudes, and half of their number were confined to bed with symptoms of acute anoxemia.[22] After a time they were able to do their investigative work, although more than half of them continued to have symptoms throughout their stay. The natives were also cyanotic, but none had the symptoms of mountain sickness, their condition being that of chronic anoxemia. However, when any one contracted pneumonia, white man or native, it meant practically certain death, unless he could be immediately rushed to the sea level. It is thus apparent that although a chronic anoxemia may be present without symptoms, an acute anoxemia causes definite and perhaps grave injury.

OXYGEN FURNISHED TO THE TISSUES NORMALLY AND IN ANOXEMIA

	Oxygen in Blood Going to Vessels of Tissue Per Cent.	Oxygen Leaving the Blood to Supply the Tissue Per Cent.
Normal*	100	100
Anoxemia:		
Anoxic	66	42
Anemic	66	66
Stagnant	66	75

* The figure 100 at the top of each column is merely a standard with which to compare the figures beneath it.

Acute oxygen want occurs in a variety of conditions, among which may be listed pneumonia, acute cardiac failure, severe hemorrhage, epidemic (lethargic) encephalitis, ascent to high altitudes, the complications of chronic cardiac insufficiency, pulmonary edema, acute bronchitis, carbon monoxid poisoning and nitrous oxid and other anesthesia. In acute carbon monoxid poisoning, Yandell Henderson [14] found that the symptoms made a swift disappearance when a mixture of oxygen and 5 per cent. carbon dioxid was inhaled. The hyperpnea caused by the carbon dioxid results in a quicker elimination of carbon monoxid and a quicker absorption of oxygen. As in this condition the acute anoxemia may be profoundly dangerous, anything which hastens the return to a normal oxygen content of the blood would appear to be eminently justified. Favorable results from carbon dioxid therapy after anesthesia and operation are also described by Henderson.[23] The beneficial effects seem to depend on the "augmentation of breathing which rapidly ventilates the anesthetic out of the blood." The circulation is stimulated, increasing the venous return to the heart and raising the arterial pressure. There is, in addition, a marked decrease of postoperative nausea, vomiting and thirst. Five per cent. carbon dioxid has apparently not been harmful when judiciously used. Caution must be exercised, however, in its administration, as larger concentrations may be dangerous. Severe hemorrhage is attended by acute anoxemia of such an extent as sometimes to be the cause of death. Oxygen therapy may in these cases tide the patient over until transfusions can be given.[24] In acute cardiac failure and in the acute complications of cardiac insufficiency, the use of oxygen may be of help.

The disease in which acute anoxemia occurs with the greatest frequency and with the greatest severity is pneumonia, and it is here, therefore, that oxygen therapy is most urgently indicated. The use of oxygen can be expected to remove or to diminish the ill effects of acute anoxemia, and in that way to improve the patient's chances of recovery and at times directly avert death. The clinical guide to its use is the presence of cyanosis. In pneumonia, cyanosis has been said to run parallel to the degree of arterial anoxemia.[19] It should be borne in mind, however, that this applies only to patients without anemia. Since the cyanotic color varies with the amount of reduced hemoglobin, a patient with a low hemoglobin may show little or no cyanosis even in the presence of marked arterial anoxemia. As intimated above, the parallelism between the arterial anoxemia and the degree of cyanosis rests on the assumption that stagnant anoxemia is absent. This is generally true as the blood flow in pneumonia, estimated by relative changes in blood gases, appears to be either normal or increased.[25] Occasionally a failing circulation does occur with the production of cyanosis of venous rather than arterial origin. It may be stated as a general principle that cyanosis in pneumonia indicates the use of oxygen therapy until it has been removed, or, if that is not possible, until it has been diminished.

The duration and frequency of administration are problems dependent on the individual patient and the resources at hand. It would seem theoretically desirable to keep the patient free from cyanosis as many hours of the twenty-four as possible. In the very severe cases it may be necessary to give oxygen continuously. In the less severe cases benefit may be derived from oxygen administered at frequently repeated intervals.[26] The signs which should be kept track of and which usually reflect improvement are: (1) the degree of cyanosis; (2) the pulse rate, and (3) the mental condition of the patient.

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[22] 22. Harrop, G. A.: Personal communication to the author.

[23] 23. Henderson, Yandell; Haggard, H. W., and Coburn, R. C.: The Therapeutic Use of Carbon Dioxid After Anesthesia and Operation, J. A. M. A. **74**: 783 (March 20) 1920.

[24] 24. Discussion on Therapeutic Uses of Oxygen, Proc. Roy. Soc. Med. (Sec. Therap. & Pharmacol.) **13**: 59, 1920. Henderson, Yandell, and Haggard, H. W., with the collaboration of Beatty, H. H.; Brooks, R. W.; Detwiler, S. R.; Ellerbeck, G. C.; Kohle, H.; Robb, H. B., and Taliaferro, W. H.: Hemorrhage as a Form of Asphyxia, J. A. M. A. **78**: 730 (March 11) 1922.

[25] 25. Stadie (Footnote 8). Barach and Woodwell (Footnote 20).

[26] 26. Haldane (Brit. M. J. **1**: 181 [Feb. 10] 1917) has observed: "It may be argued that such measures as the administration of oxygen are at the best only palliative and of no real use, since they do not remove the cause of the pathological condition. As a physiologist, I cannot for a moment agree with this reasoning. The living body is no machine, but an organism constantly tending to maintain or revert to the normal, and the respite offered by such measures as the temporary administration of oxygen is not wasted but utilized for recuperation."

The degree of cyanosis is, with the exceptions noted above, the most trustworthy clinical guide in the oxygen treatment of pneumonia. Its alteration under treatment may in addition furnish information of prognostic value. Severe arterial anoxemia has been shown to be an unfavorable sign.[8] If the administration of oxygen fails to remove the anoxemia, or alleviates it only very slightly, the prognosis, in our limited experience, is distinctly worse. Some benefit, however, may be derived from the increase in the oxygen physically dissolved. In cases in which a severe cyanosis is cleared by prompt oxygen therapy, the prognosis is bettered in that the ill effects of anoxemia may diminish or disappear and the patient be thus put in better condition to cope with the specific toxins of the disease.

A careful record of the pulse before, during and after oxygen therapy adds further data on which to judge the effect of treatment. There is usually a distinct slowing in rate. In the severe cases this may be a very striking sign of improvement. In normal persons the inhalation of oxygen causes perceptible slowing of the heart,[27] but in patients suffering from anoxemia the decreased rate is usually of much greater extent.[20] The reason for this presumably is that anoxemia is itself the cause of rapid heart action. In contrast to the action on the circulation, the respiratory rate is only occasionally slowed and usually is unaffected. What happens to the tidal air in pneumonia as a result of the inhalation of oxygen is still uncertain. In the few observations of Beddard and Pembrey,[28] when failure of the right heart occurred, pulmonary ventilation was decreased by oxygen without altering the respiratory rate. In pneumonia unaccompanied by right heart failure or cyanosis, oxygen inhalation for two minutes had little or no effect. It is obvious that more investigation is needed in this field.

An additional effect that may result from the removal of anoxemia is a more alert and a clearer mental condition of the patient. The irrational states and delirium in pneumonia which may in part be due to the anoxemia, as they are producible experimentally by withdrawal of oxygen, do not, however, promptly disappear but seem to follow the clinical course of the disease. It may be that we are dealing here with the effects of long continued oxygen want, which, as intimated above, may persist even after their original cause has been removed.

Subjective dyspnea does not seem to be due to oxygen want, nor is it usually relieved by the inhalation of oxygen. Respiratory distress cannot therefore be taken as a criterion of the therapeutic effect, since as a rule it diminishes only gradually as the general condition improves. Oxygen therapy should be undertaken with the idea that acute anoxemia produces serious and at times grave injury, and not with the idea that the patient will at once be relieved of his respiratory distress and brought to a state of comfort.

The failure to relieve cyanosis represents the infrequent type of response to oxygen therapy. It is presumably due to the existence of a partially intact blood supply through consolidated pulmonary tissue. The fact that the majority of patients are relieved of arterial anoxemia during the inhalation of oxygen indicates that for the most part pulmonary consolidation is not the precise cause of cyanosis. The presence of edema in or adjacent to the hepatized area or in other parts of the lung appears to be the more important factor. This is more logically related to the ease of removal of anoxemia, since it is highly probable that high pressures of oxygen can diffuse through edema in the bronchioles or through edematous alveoli, whereas, because of the shape of the oxygen dissociation curve, it is hardly conceivable that increased oxygen pressures could make up for an unrespired blood flow through hepatized lung. Pulmonary consolidation, especially lobar, may at times be fairly extensive without the presence of cyanosis, indicating that the blood supply, except for the nutrient bronchial vessels, may be diverted from the area no longer ventilated. Hoover[29] found the cyanosis proportionate to the extent of consolidation, and observed that it was relieved by oxygen only when moisture was present in the lungs. Meakins[30] found no relation between the degree of anoxemia and the extent of consolidation, and concluded that rapid, shallow breathing was the cause of the anoxemia of lobar pneumonia. We have witnessed extreme shallow respiration result in arterial anoxemia in cases of epidemic encephalitis,[31] but it has seemed to us only an infrequent factor in the cause of the cyanosis of pneumonia. Pathologic evidence bearing on the question indicates that a certain amount of blood passes through the lung in red hepatization, but none in gray hepatization.[32] Cyanosis in pneumonia is thus dependent on the character and stage of the lesion rather than on the actual extent of lung involvement. The major cause appears to be the presence of edema, local or widespread, manifested in the parenchyma of the lung or in the bronchial tree, and susceptible of relief by increased pressures of oxygen. The minor cause is that of an unrespired blood flow through consolidated pulmonary tissue, and is insusceptible of relief by oxygen. Both conditions are more likely to be present in bronchopneumonia, and for that reason cyanosis is here more common and more severe than in lobar pneumonia. An occasional factor that may cause or augment the cyanosis is extreme shallowness of respiration.

We have been concerned with the general effect of the use of oxygen. The injection of oxygen into the peritoneal and pleural cavities or into draining wounds constitutes local individual problems beyond the scope of this paper.

METHOD OF ADMINISTRATION

The method of administration still remains a great problem in oxygen therapy. First of all, it is necessary to provide an effective concentration of oxygen in order to obtain good results. A mixture of air which contains between 40 and 60 per cent. of oxygen seems desirable. Less than 40 per cent. may not be effective, and more than 70 per cent. may be harmful.[33] The exact concentration theoretically required would be that amount precisely needed to remove the anoxemia. Practically, however, there seems to be little need for precision at the present state of our knowledge. The second desirable feature of a good method is that it should produce no discomfort to the patient, or, if that is impossible, slight or temporary discomfort. Thirdly, when prolonged oxygen therapy is planned, the economy of the method has to be considered.

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[27] Smith, H. A.: The Effect of Oxygen Inhalation on the Pulse, Med. Rec. **1**: 481, 1871. Benedict, F. G., and Higgins, H. L.: Effects on Men at Rest of Breathing Oxygen-Rich Gas Mixtures, Am. J. Physiol. **28**: 1, 1916.

[28] Beddard, G. P., and Pembrey, M. S.: Observations on Pulmonary Ventilation in Disease, Brit. M. J. **2**: 580, 1908.

[29] Hoover, C. F.: Oxygen Therapy, J. A. M. A. **71**: 880 (Sept. 14) 1918.

[30] Meakins, J. C.: Harmful Effects of Shallow Breathing, with Especial Reference to Pneumonia, Arch. Int. Med. **25**: 1 (Jan.) 1920.

[31] Barach, A. L., and Woodwell, M. N.: Studies in Oxygen Therapy, III, In an Extreme Type of Shallow Breathing Occurring in Lethargic Encephalitis, Arch. Int. Med. **28**: 421 (Oct.) 1921.

[32] Gross, L.: Reconstruction of the Circulation of the Liver, Placenta and Lung in Health and Disease, Canadian M. J. **9**: 632 (July) 1919.

[33] Karsner, H. T.: The Pathological Effects of Atmospheres Rich in Oxygen, J. Exper. Med. **23**: 149 (Feb.) 1916. Flack, M., and Hill, L.: Textbook of Physiology, 1919, p. 303.

It may be said at the outset that the inhalation of oxygen is the most logical avenue of administration, since it utilizes the vast absorbing surface of the lungs. Other methods, such as the intravenous [34] or subcutaneous [35] or rectal administration, appear impracticable for prolonged therapy. Exceptions should be made in the case of infants, in whom the subcutaneous use of oxygen has apparently been successfully employed.[35]

The oxygen chamber is the ideal way to treat anoxemia from the standpoint of effectiveness and comfort, but it is obviously impracticable for widespread use. Modern methods of administration known to us that yield effective oxygen mixtures and that are available for common use are: the Haldane [36] apparatus involving the application of the face mask; the Meltzer [1] oral insufflation apparatus, in which a metal tongue depressor is held in the mouth to conduct oxygen; the oxygen tent of Hill,[37] which encloses the upper part of the patient in bed; a recent apparatus of Yandell Henderson,[38] a description of which has not as yet been published, which also utilizes a face mask, and the mouthpiece rebreathing apparatus which we have used.[39] These methods, we believe, all yield an effective concentration of oxygen, but vary in their ability to secure comfort for the patient, and in the economy of operation. It should be added that in infants the nasal catheter may become an effective method because of their small oxygen consumption. The oxygen that enters the lungs through the small catheter contributes in this case a considerable increase of oxygen, whereas in adults it adds relatively so little as to relieve only the rather mild cases of anoxemia. Henderson has added the rubber mouthpiece to his apparatus for patients who will not tolerate the mask. In this method provision is made for the inspiration of a mixture of air and oxygen in the following manner: An amount of oxygen less than the tidal air is run into the collecting bag. During inhalation the oxygen in the bag is exhausted, whereupon an inspiratory valve connected with the outside opens and admits air until the inspired volume is made up. The exhaled air and oxygen are passed out through an expiratory valve. This method would, on the whole, appear to be very satisfactory, although we have not as yet had the opportunity of testing it.

In our apparatus, rebreathing of oxygen was instituted to prevent wastage of the exhaled oxygen, an economy that is to a certain extent offset by the use of soda-lime. The interposition of the rubber tube between mouthpiece and soda-lime necessitates a little rebreathing of carbon dioxid. If the tube and metal connection are 47 cm. long, with a diameter of 1.2 c.c., the interposed volume is 53 c.c. The tidal air in normal persons is about 500 c.c., and in pneumonia it is rarely below 250 c.c.[19] Rebreathing of carbon dioxid thus occurs to a slight extent and might tend to deepen respirations. It is possible that this action is beneficial in that it decreases the work of the pulmonary bellows by providing a more efficient ventilation. On the other hand, there is some evidence that difficulty in getting rid of carbon dioxid is frequently present in pneumonia.[40] The dead space would have no action as far as oxygen is concerned, as the entire circuit, including the alveolar air, would be filled with a high concentration of oxygen. The carbon dioxid would not be likely to accumulate to any serious extent since the nose is left open, allowing free diffusion with the outside air. However, it seems on the whole preferable to interpose no additional dead space, and for that reason the apparatus has been modified by the insertion of an inspiratory and expiratory valve and another piece of tubing. The oxygen is thus passed through the soda-lime in a continuous circuit with no rebreathing of carbon dioxid, an idea adapted from the Roth modification of the Benedict portable metabolism apparatus. It is obvious that an expiratory valve could be used in place of the soda-lime, the apparatus then consisting of mouthpiece, expiratory valve, rubber tube and collecting bag. The wastage of the exhaled oxygen would make it a more expensive method, but it would be very simple in operation. It would still possess the advantage of not unduly disturbing the patient, for in our experience the soft rubber mouthpiece caused only slight discomfort, whereas the face mask could rarely be borne because of the marked sense of suffocation it produced.[41]

The Meltzer insufflation apparatus requires the constant presence of an attendant to turn the expiratory valve at each expiration and inspiration, and at the same time hold in place the metal tongue depressor that conducts the oxygen. We have had no personal experience with the method, but it does not suggest comfort for the patient, and it would appear a tedious task to operate it over long periods. The oxygen bed-tent represents a more complicated attempt to deal with the problem. In order for it to be successful,

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34. Tunnicliff, F. W., and Stebbing, G. F.: Intravenous Injection of Oxygen, Lancet **2**: 321 (Aug. 19) 1916. J. J. A. McMillan: U. S. Nav. M. Bull. **13**: 88 (Jan.) 1919; **11**: 191 (April) 1917.

35. Stuertz, E. Z.: Diatet. in Physik. Therap. **7**: 67, 159, 1903, Naessens, W. M.: Subcutaneous Injection of Oxygen, Nederl. Tijdschr. v. Geneesk. **1**: 410 (Jan. 22) 1921. Bayeux, R.: Subcutaneous Injection of Oxygen in Influenza, Bull. de l'Acad. de méd., 1922, p. 176. Howitt, H. O.: Subcutaneous Injection of Oxygen, Canadian M. A. J. **4**: 983, 1914.

36. Haldane, J. S.: Therapeutic Administration of Oxygen, Brit. M. J. **1**: 181 (Feb. 10) 1917.

37. Hill, L.: A Sample Oxygen Bed Tent and Its Use in a Case of Edema and Chronic Ulcer of the Leg, J. Physiol. **50**, May 24, 1921; Proc. Physiol. Soc., p. 20.

38. Henderson, Yandell: Personal communication to the author.

39. Barach, A. L.: A Simple Apparatus for Administering Oxygen, J. A. M. A. **78**: 334 (Feb. 4) 1922.

40. Means, J. H., and Barach, A. L.: The Symptomatic Treatment of Pneumonia, J. A. M. A. **77**: 1217 (Oct. 15) 1921. Barach, A. L.; Means, J. H., and Woodwell, M. N.: The Hydrogen Ion Concentration and Bicarbonate Level of the Blood in Pneumonia, J. Biol. Chem. **50**: 413 (Feb.) 1922.

41. Since this apparatus has been used by others, several points have come up that are worth mentioning. The rubber mouthpiece as supplied is identical with that used in the Benedict metabolism apparatus. It has a wide margin which fits between the teeth and lips, and prevents leaks in respiration experiments. For oxygen administration, however, the margins should be cut down considerably, as the comfort of administration is greatly increased. One-fourth inch margin opposite the upper and lower lips and one-half inch at the corners is usually satisfactory. At times patients hold the mouth piece more comfortably when the margins are placed behind the teeth rather than between lips and teeth. A water bottle interposed between tank and collecting bag tends to prevent drying of the back of the throat. It is good policy to let the oxygen bubble through the water bottle into the bag continuously rather than to let the bag empty before refilling. This prevents the possibility of nitrogen in the exhaled air unduly accumulating, and insures the breathing of a high concentration of oxygen. The collecting bag does not contain pure oxygen, since the exhaled nitrogen dilutes it slightly. The exact concentration of the mixture, if desired, can be obtained by withdrawing a sample from the attached stopcock and analyzing it in a Haldane or other gas analyzer. It might also be added that coughing does not in any way contraindicate the use of the mouthpiece. It is only the occasional pneumonia patient who coughs frequently during the administration. Under these circumstances he may allow the mouthpiece to slip out by opening his lips and turning his head aside. The metal frame holds the mouthpiece in place so that he may easily close his lips over it when the coughing is over. I have recently added glass mouthpieces with small margins to interchange with the rubber variety when the latter causes salivation. By use of one or the other mouthpiece, a fairly comfortable administration can usually be secured.

provision must be made to keep it from becoming warm and stuffy, and careful regulation of the contained oxygen and carbon dioxid must be carried out, as in an oxygen chamber, to render it safe. The bed-tent seems to offer great promise for a comfortable and effective method of administering oxygen, although at present it is hardly available for common use.

SUMMARY

The lack of enthusiasm with which oxygen therapy has been regarded seems largely due to the absence of an ideal method of administering it. The successful treatment of gas poisoning by oxygen inhalation during the war offered unmistakable evidence of the favorable results that may follow effective oxygen therapy. This led to a renewed inquiry into the subject of the therapeutic use of oxygen in clinical conditions.

Recent investigation has shown that the effects of acute anoxemia may be harmful, that they exist in clinical disease, and that to a certain extent they can be prevented or overcome by appropriate oxygen treatment. It is on the basis of this evidence that I believe the use of oxygen is a rational and important therapeutic measure.

The essential indication of its employment is acute anoxemia.

Since the abrupt onset of oxygen insufficiency occurs most frequently and most severely in pneumonia, it is in this disease that oxygen therapy is most needed.

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ABSTRACT OF DISCUSSION

Dr. Walter M. Boothby, Rochester, Minn.: It was one of my duties in France to investigate the effect of oxygen treatment in gassed soldiers. I can concur in the advantages obtained from an efficient administration of oxygen as recommended by Haldane in cases of phosgen and chlorin poisoning with edema of the lungs. A thorough clinical trial should be made of oxygen properly administered in an extensive series of pneumonia cases. The apparatus devised by Barach will give oxygen efficiently, and this, or some other apparatus of this type such as that devised by Haldane for use in the army, should be used. Oxygen is not a therapeutic agent in any sense of the word. Its administration merely aids in getting into the body under adverse conditions oxygen in sufficient concentration so that the circulation rate may be decreased. The load on the heart is relieved by increasing the amount of oxygen in the blood through the inhalation of an oxygen percentage from two to three times that contained in ordinary air. Any procedure that will relieve the strain on the heart promises to be of material value in pneumonia.

Dr. C. W. Greene, Columbia, Mo.: I have been much interested in the development of the clinical methods as reported by Dr. Barach and the Rockefeller Institute. In the Air Service the problem is strictly one of oxygen supply. The tests for aviators by the Medical Research Laboratory rest on the reactions a man gives if we gradually shut off the oxygen supply, as in going to the higher altitudes. There are various critical aspects to this question. The answers can be had from experiments with animals and normal men. Such tests determine in no small measure what we may expect from diseased conditions. There are a number of organs and physiologic mechanisms, which Dr. Barach has mentioned, in which lack of oxygen produces a drive to increased work. That undoubtedly involves the respiratory center and the circulation. If the oxygen is progressively reduced, it is surprising how far down the scale one can go without risk. In many persons the reduction of the oxygen in the air breathed can be carried down to 10 per cent. before one can detect any change readily charged to oxygen want. In the human being, "inefficiency" begins somewhere about 8, 7 or 6 per cent. The last thing that is observed is a much higher respiratory and heart rate. With the higher heart rate, an apparently greater per minute volume of blood is going through the body; hence a faster flow by the absorbing pulmonary tissues and by the peripheral tissues. The point I want to make is that under ordinary conditions, when the oxygen of the air is reduced to 8 per cent. or more, the compensations in the respiratory and circulatory mechanisms take to the tissues all the oxygen they ordinarily use and need. Dr. Carl Greene and I have analyzed venous and arterial blood simultaneously, when the oxygen in the air is reduced to a point at which the animal stops breathing. We have found that the tissues take practically a uniform amount of oxygen until the oxygen of the arterial blood is actually reduced to the level represented by the volume lost in the peripheral tissues. In other words, the tissues get their quota of oxygen if the arterial blood contains about 30 per cent. of the normal amount of oxygen. That means that the percentage of oxygen by volume distributed to the tissues is more adequate in extreme conditions than we have supposed. Now, if the oxygen reduction is below that critical level, then the animal rapidly goes into the condition of extreme decompensation and coma; respiration will stop very soon, though the heart and circulation go on, in an animal, for five or more minutes longer. Experimenters lay less emphasis on the strain of oxygen want on the circulatory apparatus. I think that more stress should be laid on the response of the nervous apparatus. If we put the question another way, it means that if anything occurs to reduce the carrying power of the blood for oxygen, such as the reduction of hemoglobin, there is a far greater physiologic strain than if we reduce the percentage of alveolar oxygen below the normal. It is in the final analysis a question of the volume carrying power of the blood. The increased volume of oxygen inhaled does something in helping to bring matters up to a more nearly normal level, but not so much as many suppose. The percentage of advantage bears no direct ratio to the increased oxygen percentage in the enriched air breathed. The gain to the body, especially the nervous system, by even the fraction of a per cent. of available oxygen working over a long period of time, will sometimes save the day in a losing moment.

Dr. R. R. Shippey, Wichita, Kan.: In pneumonia, one of the most vital things is lack of oxygen. The amount of oxygen actually needed may be comparatively small. It seems to me that we have escaped from the old time proposition in treating pneumonia. A few years ago George Douglas Head gave histories of about 1,500 cases treated with free ventilation and cold air, and his death rate was 15 or 20 per cent. Acting on the idea that it was absolutely necessary to make some change because the death rate was so high, he changed his plan almost entirely, and, as far as possible, followed out the plans that our grandmothers used. And his death rate dropped below 3 per cent at once. Years ago, when Willie Jones had "lung fever" and Grandma came in to take care of him he got well. What did she do? Put him in between feather beds, placed a wool sock around his neck, and put goose grease on him. They will recover today if you follow that plan. They will get their oxygen. The congestion in the lungs can be relieved by keeping the surface of the body warm and moist, and they will all recover. In a case of pneumonia, I insist, first, that these patients shall be between blankets. I insist also that they wear some heavy underclothes that cover the shoulders, chest and arms thoroughly. On top of that I want a heavy gown and sweater. How often do we see pneumonia patients in hospitals with head up to the window and only a pink ribbon over the shoulders of the women? They died in a few days.

Dr. A. J. Carlson, Chicago: Has the speaker any statistics proving the value of oxygen in the saving of life or decreasing the symptom in pneumonia? Will the speaker explain how the administration of oxygen in marked lung consolidation can increase the oxygen of the blood? It is very difficult to know what we have done for the pneumonia patient, without very extensive statistics. I am not familiar with any statistics showing that we have actually done anything for a pneumonia patient by letting him breathe 40 or 50 per cent. of oxygen. The mere fact that we are putting 50 per cent. of oxygen into the lungs does not mean that we are increasing the oxygen and decreasing the carbon dioxoid in the blood.

Dr. Harold E. B. Pardee, New York: Any one who has seen oxygen given to a pneumonia patient would not demand a statistical study of the effect on mortality. It is quite evident that, when a patient who has been cyanotic, dyspneic and with a very rapid pulse shows less cyanosis, less dyspnea and a slowing of the pulse rate after the administration of a certain treatment, this treatment has led to an improvement of his condition, even though it may be a temporary one. This is the sort of change which is produced by proper oxygen administration. The drawback to oxygen administration, as suggested by Dr. Barach, is that it calls for a special device. It is another bit of apparatus for the physician to buy, and because of this it will not be used as much by the physician as the value of proper oxygen therapy warrants. I should like to empahsize that a very good oxygen effect can be obtained by using a tube directly from the oxygen tank, the gas having first bubbled through water so that we can observe its rate of flow, and placing the end of the tube about an inch or an inch and a half from the patient's nostril or mouth, depending on which of these the patient is using for breathing. A stream of oxygen is thus mixed with the inspired air, and I know that this will sometimes produce a beneficial effect, though it probably will not do so as often as a proper rebreathing apparatus. My point is that this is much better than no oxygen at all because of lack of apparatus, and also better than the commonly used funnel method of giving oxygen. Perhaps, after seeing the benefit in a few cases, the physician will feel more ready to own the apparatus. The method is also, of course, wasteful of oxygen.

Dr. M. A. Mortensen, Battle Creek, Mich.: Four years ago I had the influenza, with a double pneumonia. I remember that as long as I was conscious one of the things I felt I needed was oxygen. Consequently, I offer these suggestions with a great deal of assurance. I was given oxygen by stimulating my heart. Since that experience and reading in the journals of the methods of giving oxygen, and its value, I have used oxygen in a number of cases. And in any case of pneumonia, an extreme case of cardiac inefficiency, especially cases that have developed very suddenly, the administration of oxygen has certainly produced a very apparent change in the patient's condition. There has been a relaxation and better breathing, and a better color is manifested immediately. In a few cases we have obtained definite evidence of the increase of the oxygen content of the blood. Our experience has been that the application has been most agreeable to the patient. The method of application that has been most agreeable has been by putting a tent over the upper part of the bed, a rather small one, and then letting an abundant supply of oxygen from the oxygen tank enter that space. Marked improvement has been evidenced in those cases.

Dr. Alvan L. Barach, New York: Dr. Greene's work is very interesting. However, his statement that a decrease in the content of oxygen in the arterial blood is of more importance than a decrease in the arterial oxygen saturation is in opposition to the belief expressed by Barcroft, namely, that the arterial or anoxic anoxemia furnishes less oxygen and is more dangerous to the patient than either the anemic or the stagnant type. The fact that an animal may live for a short period of time with an arterial saturation of 30 per cent. hardly justifies one in assuming that serious injury is not taking place. In the chamber and in high altitude experiments quoted in the paper, it is shown that an abrupt lowering of the arterial saturation to 70 or 80 per cent. produces delirious states and other rather well marked symptoms. The factor of the length of time that oxygen want is sustained must be considered. In pneumonia the anoxemia may persist for days and is consequently more serious than a similar deprivation lasting an hour or so. It is interesting that the difference between the arterial and the venous oxygen content remains constant down to an arterial saturation of 30 per cent.; but since we do not know the blood flow, we cannot conclude that the needs of the organism for oxygen are fully satisfied, and certainly we do not know that they are satisfied in a way most advantageous to the organism. In reference to the question of Dr. Carlson as to whether there was any statistical evidence of a reduction in mortality brought about by oxygen therapy: The total number of reported cases of pneumonia treated effectively with oxygen is as yet too small to present any conclusions purely on the basis of statistics. The clinical improvement in individual cases, with the simultanteous increase in the amount of oxygen in the arterial blood, has been the criterion of its value. The question as to the cause of the cyanosis in pneumonia and the reason that effective oxygen therapy may not invariably relieve it is discussed in the paper. The nasal tube is of help in infants whose oxygen consumption is small. In the mild cases of anoxemia in adults it may also be of help. The bed tent offers great promise, but must be perfected before it can be commonly used.

THE NEW SHORT WAVE LENGTH ROENTGEN-RAY THERAPY *

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Especially within the last three years the interest of the profession in this country has been aroused by claims advanced for the value of the "new deep roentgenotherapy," a method of radiation involving the use of rays of much shorter wave length than have heretofore been available for purposes of treatment. For a decade such physicists as Duane, Dessauer and Coolidge have been seeking means for producing roentgen rays of wave length nearly approximating the shorter gamma rays of radium. Refinements have been reached in the construction of roentgen-ray apparatus, permitting the maintenance of constant very high voltages (from 200,000 to 280,000) delivered at the roentgen-ray tube terminals. Dr. Coolidge has continued the development of his tube until we now have a type of roentgen-ray tube, capable of withstanding more than 200,000 volts at 8 milliamperes in continuous use. The physical and biologic investigations carried on simultaneously in Europe and America constitute, collectively, one of the most valuable and well-directed pieces of research in the history of medicine, and, for the first time, afford data upon which really precise measurements of dosage in radiation therapy may be based.

It is incumbent on us as surgeons to recognize a certain degree of obligation demanding that we know the essential facts and factors relating to the new method, in order to decide whether or not we are willing to refer our cancer patients to specialists in this penetrating roentgenotherapy. What is the difference between the so-called "new" roentgenotherapy and the type of deep treatment with which we have been more or less acquainted during the last ten or twelve years? Are there dangers inherent in the new method—dangers of damage to skin or deep structures, especially the blood and the blood-forming organs—which suggest reserve? Is it likely, as has been openly charged by some, that the danger of metastasis from malignant lesions is increased? Are the results obtained by the new method notably better than those possible with the equipment and technic already in daily and extensive use? Are there economic considerations which should not be overlooked?

FEATURES OF NEW SHORT WAVE LENGTH ROENTGEN-RAY THERAPY

The following factors are accepted as integral features of the new deep roentgenotherapy:

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* From the Surgical Section, Battle Creek Sanitarium.

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. *The Production of Roentgen Radiation of Much Higher Penetrating Quality Than Hitherto Known.*—The usual standard roentgen-ray equipment to be found throughout the country utilizes, for diagnostic purposes, voltages of from 40,000 to 70,000, and for therapeutic applications voltages varying from 90,000 to 125,000, corresponding to a back-up spark gap of 9½ or 10 inches (24 or 25.4 cm.). The new equipment employs voltages up to 280,000, the average being about 210,000, or nearly double that heretofore in use. This high voltage produces roentgen rays of relatively shorter wave length and correspondingly increased penetrating power, more and more closely approaching that of the gamma rays of radium as the voltage is raised. Comparison of the biologic effects of the new harder rays and of the gamma rays of radium, on the skin, for instance, at once makes it evident that marked progress has been achieved in producing more penetrating roentgen rays, and that we may look on the radiation provided by the new 20 inch (50.8 cm.) spark apparatus as closely approximating in physical characteristics the gamma rays of radium.

2. *The Employment of a Greater Distance Between the Tube-Target and the Skin.*—A few years ago we believed it important to bring the tube as near the part as possible, assuming that the nearer the tube, to the part, the more efficient the irradiation. Special tube holders were constructed to permit a reduction of the tube focus-skin distance to as short a distance as 12 cm. But the special physical investigations above referred to have revealed the fact, at first glance astonishing, that the greater the distance between the tube-focus and the skin overlying the part under treatment, the larger the proportion of the roentgen rays incident upon the skin to reach a given depth, say 10 cm. The only limit on the remoteness of the tube-target is that placed on it by time considerations, for with other factors constant, the time required for a single seance increases in proportion to the square of the distance.

3. *The Utilization of Larger Skin Areas for Each Field of Application (Port of Entry).*—This is another point at which there is great variance with our previous conceptions. Formerly, in order to introduce a sufficient sum total of radiation into the depth of a part, it was thought advisable to employ a great many small ports of entry, and this is doubtless, to a certain extent, still true if one is obliged to continue the use of the 10-inch (25.4 cm.) gap apparatus. But it is now evident that within certain broad limits the larger the field of irradiation, the greater the proportion of the incident radiation which will reach a given depth, say 10 cm. The explanation of this fact is clear in the light of our new knowledge of secondary radiations.

Barkla and his pupils showed that there are three kinds of secondary radiations: (*a*) The secondary characteristic, or fluorescent ray, which is solely and singly peculiar for the substance in which it is excited. (b) The secondary beta radiation, which is a corpuscular radiation easily absorbed in a few millimeters of tissue. It is probable that the biologic effect of both radium and roentgen rays must finally be attributed to such corpuscular secondary beta radiation. (*c*) The most important of the secondary rays from the standpoint of deep dosage, termed the *scattered radiation,* which possesses the same wave length and other physical properties as the primary exciting ray. Since it is analogous to the scattering of light rays in a relatively opaque medium, it is evident that the larger the field of incidence, the greater the effect of the scattered radiation.

4. *The Use of Filters of Greater Density.*—We have from a tube in action a beam of roentgen rays made up of various wave lengths. The rays of each wave length vary considerably in quality as well as in intensity. The direct absorption by any given tissue is proportional to the cube of the wave length, although the scattering is the same for all wave lengths. It is, therefore, apparent that the longer wave lengths are not useful in the treatment of deep-seated lesions, being almost entirely absorbed by the tissues near the surface. In the effort to force through the superficial tissues a sufficient intensity of roentgen rays to affect the deep-lying lesion, so great an amount of radiation might be absorbed in the surface layers as to produce serious damage. To guard against such an effect, filters are interposed between the source of the radiation and the skin overlying the part. These filters of copper, zinc or aluminum are used of such thickness as will remove one after another the various components of the complex bundle of rays given off at the tube, leaving only rays of such wave length as will pass through succeeding layers of tissue, maintaining a constant proportion of radiation intensity absorbed by each layer. When thus properly filtered, the radiation is said to be nearly or practically homogeneous.

VALUE OF SHORT WAVE LENGTH RAYS

The value of these practically homogeneous rays will be immediately appreciated. Such radiation permits the bathing of the part with rays of similar biologic and physical value in quantities nearly, if not quite, equal for each cubic centimeter of the tissue under fire, and at the same time almost entirely removes the danger of skin damage. Contrast this possibility with the conditions obtaining under radium irradiation, except in those few institutions possessing very large amounts of this precious element. With radium locally placed, even though applied in large quantities and with all ingenuity as regards kind and thickness of filter, it is impossible to secure anything approaching homogeneous radiation on account of the working of the inexorable law of radiant forces whereby the intensity of the radiation diminishes inversely as the square of the distance from the radiant source. To obtain a sufficient dose to destroy cancerous tissue several centimeters from the radium container, severe tissue damage, often severe necrosis, must be produced in the contiguous tissues. This problem is only partly solved by the distribution of buried emanation or by the introduction of removable radium needles into the depth of the tissues, on account of insuperable anatomic difficulties encountered in almost every deep situation to be attacked. For instance, in uterine carcinoma, it is generally conceded that with radium therapy glandular involvement spells defeat, it being practically impossible to deliver a lethal dose to the cells of the related glandular areas already involved or along which experience teaches us the disease is likely to spread, without producing irreparable damage to the vesical and intestinal walls next to the cancer. The only hope of averting defeat in such cases is through the even distribution from the exterior of a lethal dose of homogeneous radiation along the glandular paths. This may be accomplished by cross-fire, either with long application of radium packs placed at a considerable distance from the skin, employing such enormous doses as from twenty to forty gram urs; or by the use of the new high voltage, short ave length roentgen therapy. The new roentgen-ray ethod permits the accomplishment of what has been own, by physical tests, to be effects practically equiva- nt to those of the radium pack. This is a considera- n of no small importance, first, because of a large ving in the financial investment for equipment, and cond, because of the very considerable saving in time d inconvenience to both the surgeon and the patient. Accurate comparisons of the relative merits of the stantly placed packs of radium versus the crossfire ep roentgen irradiation have not yet been published; t my own clinical observations, covering eighteen onths, confirm the statements of European roent- nologists that the biologic effects of the radiations om these two sources are essentially identical and at we may, therefore, expect the same clinical results. veral hundred cases of malignant disease of the male pelvic organs treated only with irradiation sually combining with the external, crossfire, inten- e homogeneous roentgenization the local applica- n of radium) have now been observed for a period three years, and not a few have survived the five ar period without recurrence of the disease. The nsient superficial skin reactions resulting from even considerable overpassing of the erythema dose with new roentgen method are similar to those produced the highly filtered radium rays, in distinct contrast the reactions seen from overdosages of the skin der the older technic. These skin reactions give rise no anxiety, for they quickly disappear, as do those radium.

RESPONSE OF VARIOUS TISSUES TO THE RAYS

The different tissues of the body respond in varying hion to intensive irradiation. Even the skin of dif- ent portions of the body varies in its radiosensitivity. e face, the back, the thigh, the abdomen and the skin the neck show diminished resistance in the order ned. Basing their work on the skin erythema dose, t is, that amount of roentgen rays which will, within m eight to fourteen days, be followed by a slight ldening of the skin, and in four weeks by a definite wn discoloration, Seitz and Wintz have carried out ensive experimental studies to determine the sensi- ity of various tissues to short-wave roentgen rays. e results obtained by them are: "skin erythema e, 100 per cent.; ovary castration dose, 34 per cent.; coma dose, from 60 to 70 per cent.; carcinoma dose, m 100 to 110 per cent.; rectosigmoid dose, 135 per t., and muscle dose, 180 per cent." These authors ert that the skin sensitivity in different individuals ies not more than from 10 to 15 per cent.

one of us can, for a moment, admit the possibility establishing a definite dosage of radiation which will lethal for all types of malignant disease, not only ause of the inconstancy of the skin erythema as a ndard but also because of the long recognized rked differences in radiosensitivity of the various es of sarcoma and carcinoma. Nevertheless, these eriments furnish what is for the present our best rking basis, and the undeniably promising good ults from radiation therapy founded on these tenta- deductions should stimulate comprehensive and -reaching experimental studies concerning a biologic ndard dose.

DANGERS ENCOUNTERED

ow, as to the dangers attending the use of the new hod. The possibility of serious skin damage is much less than with the older 10-inch (25.4 cm.) machine technic. This is not only what we would expect from the physical investigations above referred to, but it is also an observed fact in the actual experience of those who have made extended use of this new method. With the "super" roentgen rays there is much less danger of damage to the skin than of giving an insufficient dose; underdosage may lead to failure in cases in which success would have attended more thorough-going treatment. As has been pointed out by numerous observers, malignant tissues rapidly acquire a tolerance to radiation. An insufficient dosage may thus lead to defeat through missing the first and, therefore, the best opportunity for possible success. There is also much reason for believing that the underdose may by stimulation of the growth of malignant tissues encourage the very process we combat.

I have seen no obstinate skin reaction in any case subject to the high voltage roentgenization either in my own clinic or in any of the many foreign clinics I have visited. Some may be reported later, but none have yet reported to me serious skin damage following our treatment. A few, astonishingly few, at that, late severe reactions have been recorded; but, in the future, we shall be able to avoid them, especially if we insist upon the single massive dose idea, the entire treatment being administered within from two to eight days, according to the physical condition of the patient. When one prolongs or repeats the massive doses under the new technic, a characteristic form of induration of the skin, a chronic indurated edema, may develop, which under continued treatment may give rise to late ulcerations. This rare accident should not occur if the treatment is discontinued at once on the appearance of these characteristic edematous areas. To repeat, the harder the ray and the more intensive the treatment, the less the danger of skin damage.

As for the deeper structures, damage to muscle has not been observed except as an indurated edematous process similar to that observed in the skin and subcutaneous tissues. It has not occurred in any of my cases. Occasionally, in breast or mediastinal lesions one sees a pleural reaction to radiation expressed as a painless thickening of the interlobar or parietal tissues, with sometimes an underlying pneumonic change in areas subjected to very intense crossfire. Superficially placed glandular areas often exhibit an astonishing, and at first alarming, immediate reaction, characterized by swelling, redness, decrease of secretions and fever. When treating the cervical regions, the immediate result is intense dryness of the mouth and throat, edematous swelling of the uvula, irritation of the pharnyx, esophagus and larynx, sometimes with a tendency to temporary aphonia, all of which disappear within a few weeks, though sometimes succeeded by a curious submental subcutaneous swelling, occurring irregularly at the most dependent portion of the chin. In treating the pelvis, vesical and rectal tenesmus are frequently noted, and looseness of the bowels may supervene, reaching its climax in ten or fifteen daily evacuations at about the ninth day. Vaginitis and proctitis may occur even when no radium or intravaginal or perineal roentgen treatment has been administered. In occasional, rare cases, rectal ulcerations have been noted. Three such cases have recently been reported in one European clinic where thousands of patients have been irradiated by the new method—certainly a relatively rare accident.

In fact, the occurrence of these temporary, severe reactions in the deeply seated organs should give encouragement as demonstrating that the dose has actually been delivered to the deep-lying tissues. Not infrequently, in connection with treatment about the neck and cheek, we are chagrined to find the hair falling out of the back of the head although the hair-bearing areas have been carefully covered with protective material. It is evident that the dose applied has gone clear through the head with the delivery of a sufficient proportion of the rays on the opposite side to depilate the scalp without overdosing the skin of the neck or face through which the rays have entered. We have learned to diminish this danger by altering the angle of incidence of the rays, and by changing the wave length and the thickness of filter to suit the depth of the lesion under fire.

Severe blood alterations have been widely heralded as an objection to the new method. Reports have been made of deaths attributed to the treatment, and of blood transfusions being used as a more or less routine procedure in some of the European clinics to repair the damage done to the blood by the deep treatment. While visiting the leading surgical clinics of France and Germany last fall I made careful inquiry with reference to the untoward effects of the deep irradiation, and satisfied myself that there is no real foundation for the reports which have been circulated in this country. In our own work we have carefully and repeatedly examined the blood of our patients subjected to the heaviest irradiation, but no serious changes in the blood have been noted. The hemoglobin and the red cell count have dropped slightly, not more than 5 per cent. on the average, to return to normal within a few days. Only rarely have we seen a drop of more than half a million in the red cells, never as high as two million or more, as has been reported by some American roentgenologists. The leukocytes have shown a very transient increase followed promptly by a leukopenia with a gradual return to normal within from three to five weeks. There has been no case in my own work in which I have thought the reaction from the radiation demanded a blood transfusion. I have selected a few cases for preradiation transfusion on exactly the same indications as would lead me to transfuse a patient preliminary to a surgical operation. Very cachectic patients are not suitable for radiation therapy; and the administration of a heavy dose of penetrating radiation may actually shorten the life of one who is already near death. It would be, indeed, surprising if there were not noted certain biologic effects upon the blood after the prolonged irradiation of a considerable mass of tissue; but it has been demonstrated beyond controversy that these blood changes are neither alarming nor permanent.

Are we likely to encourage metastases by deep roentgenization? Surely no more than by local radium treatment, if indeed so much. It is our custom to combine the roentgen and the radium treatment whenever possible; and in these cases of combined radiation therapy we employ the external roentgen treatment first in the hope of at least attenuating the malignant cells, if not, indeed, of destroying them, thus lessening the chance of transplantation of cancerous tissue by the instrumentation attending the introduction of the radium. A few statistical reports are at hand, notably that of Wertheimer of the Frankfurt Frauenklinik, concerning the frequency of metastasis in carcinoma of the uterus, comparing unrayed cases with a similar series of patients subjected to radiation of the type we are discussing. These figures make apparent that proper administration of deep roentgenotherapy does not increase the development of metastases. In fact, when it is considered that only the more unfavorable cases were submitted to the radiation, it is probable that the treatment has retarded considerably the formation of metastases.

The roentgen sickness, observed also after intensive radium applications, is an inconvenience rather than a danger. It is inconstant in its occurrence, and only rarely lasts more than from twenty-four to forty-eight hours after the cessation of the treatment. Many patients escape it altogether. It is not in any way a serious reason for withholding the treatment in any case of malignant disease.

SUCCESSES

As to the apparent successes, no one is yet willing to speak too loudly nor too hopefully; sufficient time has not yet elapsed. The purpose of this paper is not to give out statistics which may prove premature nor to claim permanent success hitherto unattained, but rather to call attention to the sound physical basis underlying the new method and to remove the apprehension of danger from the method which has been raised, by unfounded reports concerning untoward results. The work done in this country with deep roentgen-ray therapy has thus far been so limited in amount and so sporadic in character that it is as yet impossible to present a correlated statement of results. The immediate effects obtained from these penetrating radiations are in many cases so remarkable and so superior to what has been accomplished before by other methods of treatment that employment of the method seems to be well worth while, even though the permanency of the beneficial results obtained should ultimately be less than there seems now to be good ground to anticipate. Among these immediate results may be mentioned the complete disappearance of ulcerating carcinoma of the cervix with extension onto the vaginal wall, this good result continuing more than a year after cessation of the treatment; unhoped for palliation in carcinoma of the pancreas and chronic pancreatitis; marked relief from pain in hopeless cases which had resisted other analgesic means; temporary subsidence of symptoms from bone metastases, etc. It is well understood by all of us that similar palliative results have been from time to time achieved by the older roentgen method; but there is no doubt in my mind that in any consecutive series of patients applying at our clinic with malignant disease, we are able, with the new method, to achieve greater palliation, of a more lasting character, in a larger percentage of cases than heretofore. With the encouragement given by the European statistics now covering three, and in some instances, five years, we are justified in an outlook which may be described as mildly optimistic.

INDICATIONS FOR EMPLOYMENT OF NEW METHOD

Combined with the internal employment of radium, the new deep roentgenotherapy should be employed as an adjuvant to surgery in all cases of deepseated malignant disease. Preoperative irradiation carefully planned will not interfere with the surgical procedure and it gives every promise of being helpful by diminishing the prospect of recurrence of the disease. Postoperative irradiation is also undoubtedly a help. Ir

y own surgical work I use the combined roentgen
d radium radiation both preoperatively and post-
eratively, when the diagnosis is established before
e surgical procedure; at least postoperatively when
e operation discloses the malignant nature of the
sease. Our tendency is to become more and more
nservative in the selection of cases for radical
moval of malignant uterine disease, believing that
en in the early and distinctly operable cases it is
stifiable to rest on the combined radium and roent-
n application, although in practice we still operate
such cases. In breast cancer, we still recommend
e radical operation for all malignant lesions in an
erable stage, but we do not neglect the associated
radiation.

In closing, it may be repeated that the new deep
diation therapy, combining the roentgen with the
dium treatment whenever possible, is especially
omising by reason of the practically homogeneous
diation of deep-lying structures permitted, without
rious damage to normal parts. The greatest good
sults and apparent cures have been obtained by cross-
ing uterine carcinoma. The breast, the cervical
gions, the mediastinum, and the esophagus follow in
e order named with little help of a permanent nature
us far in neoplasms of the esophagus. In the stom-
h, pancreas and liver, we entertain no hope of per-
anent cure, although our most striking immediate
sults have been in cases of pancreatic tumor. Sar-
ma of certain types responds most encouragingly.
nusual palliation has been secured in rectal and vesi-
l cancer, as well as in malignant disease of the uterine
nexa. There are no untoward effects from properly
oportioned treatment which should lead us to fear
use. If the good results thus far seen do not prove
be permanent, they will at least be much superior to
y previous accomplishment. The attack must be
refully planned in each case, taking advantage of all
ms of the service, the scalpel, the cautery, roentgen
ys, radium and careful preliminary preparation of
e patient, as well as thorough postirradiation care.
ery case should be regarded as of the same gravity
any major surgical operation. Every effort should
made to accomplish the destruction of the strong-
ld of disease in one grand offensive, for no subse-
ent attack can possibly offer an equally good prospect
success.

ABSTRACT OF DISCUSSION

R. **George E. Pfahler**, Philadelphia: With reference to
urrent and metastatic carcinoma following operations on
breast, most of these patients will die no matter what we
At best we must think of prolonging life. I have never
n one case of recurrent, or metastatic carcinoma, in which
lid not feel that life was not prolonged by irradiation.
bably most, if not all, of these patients will die of the
cinoma, especially the recurrent and metastatic cases, but
ave had cases of definite and rather extensive recurrences,
l the patients are still alive and free from symptoms at
end of ten years. Most of them will probably not give such
ults, but these results have been obtained with the slowly
eloping, rather inefficient technic which was developed
ing fifteen or twenty years. Several patients have shown
y decided benefit in extensive metastatic carcinoma of the
e. One patient was operated on by Dr. Deaver for car-
oma of the breast; within six months she had spinal
ptoms. After being in bed for fifteen weeks, and sent to
hospital against my advice, a roentgen-ray examination
made and we found total destruction of the second lum-
vertebra and nearly complete destruction of the eighth dorsal. I got the patient on her feet in six months, doing her house work, and she continued to do it for nearly four years. Then she developed enlargement of the liver and died, probably of metastatic carcinoma of the liver. There was no postmortem examination. That patient showed complete recalcification of these vertebrae. I am mentioning this only to show that even in days gone by we did deliver the rays into the deeper tissues and did produce results. The surface recurrences are dealt with more easily. I have seen so-called metastasis within the chest disappear. We should deliver as much as the tissues can stand. The tumor should have three or four times as much irradiation as the surrounding tissues. Every patient should have anteoperative as well as postoperative treatment. The newer technic is simply a development from first 5, 6, 9, 10 inches, and now we are up to 16. At present, there is no roentgen-ray tube that will stand more than a 16 inch spark value. We first had the sole leather filters, then aluminum up to 6 mm., then 0.5 mm. of copper, and then 1 mm. of copper. If we can increase our results 25 or 30 per cent. we should feel that we have made great progress.

Dr. **Thomas A. Groover**, Washington, D. C.: A large percentage of patients with cancer of the breast are operated on when, as a matter of fact, they are inoperable. There is a wide difference of opinion as to the relative places of radiotherapy and surgery in the treatment of malignant disease, and there is also some difference of opinion as to the most effective manner of combining the two measures. If we assume, however, that radiotherapy has a place in its management, I think we will all agree that it should be used before postoperative recurrence has taken place, and I am of the opinion that it should precede operation in breast cases. Many thousand recurrent carcinomas of the breast have been treated more or less efficiently by roentgen ray and radium. The percentage of bona fide cures from such treatment must be very small, indeed. However, something can be accomplished in these cases, and with improvements in technic still better results will be obtained in the future. I am inclined to think that the time is not far distant when a readjustment will have to be made with respect to the relative places of radiotherapy and surgery in the treatment of mammary cancer. In the final readjustment I am not so sure but that the places will change and that surgery will finally come to be looked on as an adjunct of radiotherapy rather than the present attitude of radiotherapy being the adjunct of surgery. This has already occurred to a very considerable extent with respect to cancer of the cervix uteri, and with improvement in technic will doubtless be extended to other fields.

Dr. **Joseph C. Bloodgood**, Baltimore: I have very slowly taken up the roentgen-ray treatment, either preoperative or after operation, of cancer of the breast, but in the last few years I have written to every patient living, who was operated on for cancer of the breast, in which the glands were involved, and advised treatment with roentgen ray or radium. My patients whose cases are evidently malignant, with retracted nipple and adherent skin, are given preoperative treatment. Every patient with involved glands is given postoperative treatment. I think we should give these men who are working along this line every encouragement to develop the technic of treating all these cases; but in taking up a new treatment let us not forget some certain fundamental things that have been established. First, local recurrence in the chest wall is a sign either of late treatment or of bad surgery. There is no necessity in this country for bad surgery of carcinoma of the breast. Its principles have been established, and in the small towns the surgery is just as good as in any other part of the country. The thing that promises most to increase the number of permanent cures, to decrease the number of deaths from cancer of the breast, is not surgery, it is not roentgen ray, or radium—it is immediate intervention. The surgeons and the radiologists in their localities throughout this country must call the attention of the women of their locality to the importance of immediate intervention.

Dr. Carl Beck, Chicago: About two years ago we recommended in recurrences a large excision of the skin in order to irradiate the patients better. This brought to our knowledge a large number of secondary carcinomas, and we also made the same observation, that the recurrences are due to incomplete, especially external operations. We have learned to disregard the teachings and principles of most of the textbooks to make typical prescribed incisions in order to make a nice looking scar of the chest, and to remove extensively far beyond the cancer area: remove not only a little more, but go beyond what seems reasonable and wait for secondary union and give these deep structures a better chance for the rays to be applied. Then I believe the number of primary cures will be much larger than the percentage heretofore.

Dr. John J. Gilbride, Philadelphia: In recurrent carcinoma of the breast and its prevention, the radiologist is doing all he can and surgeons should avail themselves of his skill. I thoroughly agree with those who advocate both preoperative and postoperative irradiation. It is difficult sometimes to say whether a case is inoperable or not. Occasionally, one sees cases which may appear to be inoperable, but operation is followed by fairly good results. As to how to prevent recurrence in the breast: A short time ago Handley stated that large skin area removal and small fascia area removal was really wrong, and that we should do the reverse. In other words, he said removal of an area of skin with a diameter of about 4 inches, the growth occupying the center, is sufficient, and that one should remove an area of deep fascia of at least 10 or 12 inches in diameter. According to his views, recurrence takes place in the deep fascia by permeation. I do not believe that many of us will agree with Handley in regard to the removal of a small area of skin. I believe that by improving our technic we should be able at least to lessen recurrences locally and prolong the life of these patients with cancer of the breast.

Dr. W. D. Haggard, Nashville, Tenn.: I have recently completed a study of 255 breast lesions observed during the last eleven years, of which 111 traced were malignant cases. After operation all of the cases practically in the last five years were followed by deep roentgen-ray therapy. Sufficient time has not elapsed to compare them with those of the previous five year periods. The number living and free of recurrence from five to ten years after radical operation was 45.7 per cent. The average duration of these lesions was two years and three months. They were not early cases. One in six were deemed inoperable. Eleven years ago every breast lesion observed in my clinic, of which we have records, was malignant. Fifty per cent. of the cases in the last year were benign. We are neglecting an important duty if we do not disseminate this knowledge throughout the country.

Dr. J. H. Schroeder, Cincinnati: Since the introduction of deep roentgen therapy, the universal interest in its possibilities in the treatment of cancer has led to an almost hysterical attitude toward this new method of therapy, so that we are in danger of overlooking the fact that we are dealing with a clinical problem rather than with magic machines. Quantitative or dosimetric deep roentgen therapy is the only method that will ultimately lead to any result. I have seen the work in Erlangen, Freiburg and Berlin, and during the last six months I have had an opportunity to apply deep irradiation by means of the new deep therapy apparatus, so I can speak from experience. Dr. Case spoke of the carcinoma dose and the sarcoma dose of the Germans. They do not claim that any single dose must lead to a cure of cancer, but they maintain that a cancer cell will not die unless the minimal roentgen irradiation dose has been absorbed, and this dose may have to be repeated. I heard no one in Germany speak of a cancer cure, but they speak of deep therapy. Above all we must remember that the newer technic in roentgen therapy requires laborious application; it can never become an incident in the radiographer's busy day.

Dr. James T. Case, Battle Creek, Mich.: I hesitated to talk technic before this body, but I felt we were saddled with the responsibility of deciding whether we were going to use this new method with our patients. We have tried to view the problem from the standpoint of the surgeon rathe than from the radiologist's standpoint alone. We have t destroy cancer cells. By preoperative irradiation we certainly diminish the chance of traumatic spread of the diseas during operation. The carcinoma dose basis which I referre to briefly and decried somewhat is nevertheless the best basi we have at present. It is the one I use in my work, recognizing its fault. It seemed to me that our knowledge o homogeneous irradiation is the biggest new contribution t the armamentarium against cancer, the biggest new hel offered. There is no one who appreciates Dr. Bloodgood' remarks about the necessity of early diagnosis and avoidanc of failure in operative technic more than do the radiologist themselves, nor do I believe that there is any group wh suffer more heartache in taking care of the wrecks of hopeless terminal phases than the radiologists. Once more would emphasize that in planning the attack against cance we need the help of every one who has had to do with th case. We need the help of the surgeon, the radiologist, th knife, the cautery, radium, the roentgen rays, all combine laying emphasis on what is likely to be a help. In that wa only, by massing our forces in one grand attack, can we hop to have success.

THE TREATMENT OF CYSTOCELE *

J. CRAIG NEEL, M.D.

SAN FRANCISCO

I would feel some hesitancy in bringing before yo a subject so generally discussed were it not for th great difference of opinion that exists regarding th treatment of this condition. A review of the literatur shows almost innumerable methods, ranging from th fumigations and hot applications of the ancients, to th more elaborate plastic operations of the present. Th object in presenting this paper to you is to emphasiz the importance of the pelvic fascia as a supportin structure of the pelvic viscera, and in the reconstruction of the vaginal outlet.

Although textbooks of anatomy give us elaborat descriptions of the pelvic fascia, we have been ver slow in recognizing its true function. In all form of uterine displacements, our attention has bee directed to the various uterine ligaments to which w have attributed the function of suspension, and hav overlooked the endopelvic fascia which is the true supporting structure. A concise idea may be formed i we consider this fascia as a direct continuation of th abdominal fascia firmly attached in the region of th "white line," the symphysis and pubic rami, thus bridging that portion of the outlet not firmly supported b the pelvic bones. This fascia is normally perforate by the urethra, cervix and rectum. The urethral an rectal perforations are located near the bony structure where the attachments are more secure, while th cervical penetration is located about the center of th most dependent portion, and is, therefore, at th weakest point.

The importance of this fascia was recognized b Emmet and, later, emphasized by Stone and Marti For many years, it has been utilized by bringin together the cut edges after a rather extensive denudation of the anterior vaginal wall. In April, 1917, described a method for overlapping this fascia.[1] more elaborate description was published in 1919 awls[3] and Bissell[4] described a similar method in)18.

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* Read before the Section on Obstetrics, Gynecology and Abdomin Surgery at the Seventy-Third Annual Session of the American Medic Association, St. Louis, May, 1922.

[1] Neel, J. C.: Etiology and Treatment of Cystocele, read befo the California State Medical Society; abstr. California State M. J April, 1917.

[2] Neel, J. C.: Surg., Gynec. & Obst. **29**: 320 (Sept.) 1919.

If we concede that the endopelvic fascia is the true ıpporting structure, cystocele and prolapse must result ·om a disturbed function of that fascia. The extent ſ the prolapse will be in direct ratio to the extent of ıe disturbed function; thus results a prolapse along e following planes: (*a*) urethral, clinically recogzed as prolapsed urethra; (*b*) bladder, clinically a ·stocele; (*c*) cervical, clinically uterine prolapse; (*d*) ›stcervical, clinically an endocele; (*e*) rectovaginal, inically a rectocele.

Therefore, to effect a cure of such conditions, that ınction must be restored.

Unfortunately, there still remains a widely accepted ew that in the formation of cystocele the fascia is rn, and through this opening the bladder protrudes, ıshing ahead the vaginal mucosa only. Since we ıve, invariably, demonstrated an intact fascia sheath every dissection of the anterior vaginal wall during e last six years, I unhesitatingly state that that is an roneous conclusion. If complete tears in this fascia sult during the process of delivery, the continuity is established by a fibrous union before the repair takes ace. We are forced to conclude that cystocele is milar to a hernia, or a diastasis, if you like. During ·egnancy, there is a marked increase in the vascularity all pelvic structures, including the fascia. Postırtum displacements and relaxations are undoubtedly ıe in a large percentage of cases to a subinvolution these structures.

In the operative treatment of these conditions, the ;e of the patient and the extent of the planes involved e the important points for consideration. An early pair of the fascia in any one plane involved will ıdoubtedly contribute in the prevention of prolapse of her planes.

The term "prolapse of the uterus" has been so osely used that it has become misleading. Too much tention has thereby been directed to one plane, withıt any consideration of the others, which are usually e most important. Many operations have been vised for anchoring the uterus from above, while ›thing is done to support the bladder from below. have seen almost complete prolapse of the vaginal ılls recur within ten months following the usual terior and posterior colporrhaphy and fixation of the erus to the abdominal wall. The oval resection of e anterior vaginal wall could scarcely be considered rational procedure. Panhysterectomy will remove e prolapsed uterus but not necessarily cure the tient. Transposition of the uterus as described by atkins has given good results in well selected cases. ıese various operations, however, do not take the scia into account; hence, recurrences are not infreent.

In general, I believe that we are justified in stating ıt the positions of the urethra, bladder, uterus and :tum are maintained independently by the pelvic scia. The prolapse of one without any disturbance the other is of common occurrence; while general ›lapse results when there is an extensive disturbance the function of the fascia. During the child-bearing riod, even though there is considerable prolapse, the lical cystocele operation, with posterior repair and lominal suspension of the uterus, has proved most satisfactory; and it does not interfere with subsequent pregnancies.

Following the child-bearing period, the uterus becomes a liability, rather than an asset. As has been stated, the position of the bladder does not depend on the position of the uterus; hence, in complete prolapse, we must consider the support of the bladder and the support of the uterus. The conservation of a part or the whole of the uterus for menstruation only is rarely, if ever, justified. The theory that the life of the ovary depends on menstrual function is far from being established, and from my personal experience does not deserve serious consideration. Therefore, granted that the uterus has served its function, its removal reduces the condition to a more simple problem, the support of the bladder.

The following technic has been employed for the removal of the uterus through the vagina. The usual dissection of the anterior vaginal wall is made, the fascia and vaginal mucosa being separated from the bladder wall in one layer; the bladder is displaced upward, care being taken to free its attachments until it disappears behind the symphysis. The peritoneum is incised at the vesico-uterine reflection and the fundus delivered; the broad ligaments, including the round and the utero-ovarian ligaments, are clamped and incised, exposing the uterine vessels, which are ligated and cut. This procedure is repeated on the opposite side; the uterosacral ligaments are clamped, and the entire uterus is removed by sharp dissection. The broad ligaments are ligated and sutured together with the uterosacral ligaments, in such a way as to evert the ligated vessels and to leave a smooth peritoneal covering on the inside. This procedure supports the vaginal wall and tends to lengthen the vagina. The uterus having been disposed of, the operation is completed by separating the fascia from the vaginal flaps of mucosa and overlapping it, as in the simple cystocele.

Of my series of sixty-two private cases in which operation was performed for various prolapsed conditions, in twenty-seven the entire uterus was removed; in four, a vaginal panhysterectomy had previously been performed for the cure of prolapse; in thirty-one, the uterus was left, in two of which the patients had an associated urethrodiverticulum, and in one, a vesicovaginal fistula. There has been no primary mortality. Of this series, all patients have been traced except five, and there has not been a single recurrence of the cystocele.

Urinary incontinence, especially on exertion, has been a fairly constant symptom. This has been overcome by distending the dissection sufficiently to expose the urethra and the neck of the bladder, and by overlapping the fascia so as to constrict the internal urethral orifice.

Since prolapsed conditions become more troublesome about the time of the menopause, the majority of the patients will not become pregnant subsequently. However, one patient in my series has gone through two subsequent deliveries without any difficulty, and without a return of the cystocele.

In patients in whom there is a tendency for the fundus to assume the position of retrodisplacement, the lateral mucosa with the underlying fascia should be advanced to the median line of the cervix, and sutured. This step in the operation causes marked traction backward on the cervix and tends to hold the fundus in anterior position.

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[3] Rawls, R. M.: Am J. Obst. **77**: 359 (March) 1918; ibid. **78**: (Sept.) 1918.

[4] Bissell, D.: Am. J. Obst. **78**: 1 (July) 1918.

The importance of fascia in the cure of hernia in other portions of the body is universally recognized. A similar fascia is present in all prolapsed conditions and, if properly utilized, is of equal importance. It is not a question as to whether or not the fascia is present; but rather a question of proper technic to secure the full benefit of the structure. Bissell has described a similar technic for the treatment of rectocele, and I believe his work will mark a distinct advance in the cure of this troublesome condition.

CONCLUSIONS

1. The pelvic viscera are normally supported by strong layers of fascia.
2. A disturbed function of the fascia supporting any of the pelvic planes may result in the prolapse of that particular portion.
3. The position of the bladder does not depend on the position of the uterus.
4. In the treatment of prolapse, the uterus becomes a liability rather than an asset, and the disposition must depend on the age of the patient, the desire to bear children, etc.
5. Ovarian function does not depend on menstruation.
6. Complete removal of the uterus in prolapse allows the best reconstruction of the vaginal vault.
7. Overlapping of the fascia offers the maximum hope in the operative treatment of cystocele.

516 Sutter Street.

THE CAUSE AND CURE OF HIGH RECTOCELE *

ALFRED BAKER SPALDING, M.D.
SAN FRANCISCO

Blaisdell,[1] in his studies of the parametrium, has demonstrated that, in man and the higher primates, considerable muscle tissue exists under the peritoneal folds of the pouch of Douglas, which gives a strong support to the pelvic organs. These muscle bundles, with the meshwork of elastic and fibrous tissue around the blood vessels of the parametrium and the pelvic fascia, give the true support to the pelvic organs. The pelvic floor below, the weaker accessory ligaments above, and the intra-abdominal pressure act only in an accessory way to relieve the strain on the parametrium and the pelvic fascia.

The cardinal part of the pelvic fascia is a strong band of fibrous tissue called the arcus tendineus, which runs from the posterior surface of the symphysis upward and backward along the lines of the anterior fornices of the vagina, to a point in the neighborhood of the spine of the ischium.

Along this true white line, the pelvic fascia divides to form the fascia endopelvina, which gives support to the bladder in front, the cervix mesially, and the rectum posteriorly. The endopelvina lies partly between the bladder and the anterior vaginal wall, and partly between the posterior vaginal wall and the rectum, to terminate in the triangular ligament of the perineum.[2]

From a point on the uterus near the internal os of the cervix, certain fibrous and elastic elements surround the uterine artery. These have been described by Mackenrodt as the cardinal ligament of the uterus From the anterior surface of the uterus, similar bundles run forward to the bladder and attach to the symphysis mesially at the origin of the arcus tendineus. These are the pillars of the bladder. Posteriorly, less well marked bands of tissue extend in a fan shape from the cervix around the rectum, to attach, usually, in the fascia of the sacrum. These are called the sacro uterine ligaments.

Blaisdell, in his dissections, was able to demonstrate lines of fascia which curve downward from the sacro uterine ligaments along the sides of the culdesac o Douglas, to end in the fascia of the vaginal vault. He has called them the ligamenta plicovaginalia. It i his belief that they have not been heretofore described These ligaments are most important because they sup port the vaginal vault and the rectum. In patients in whom these ligaments are congenitally lacking, or have been injured in childbirth, deep culdesac formation high rectocele, prolapse of the rectum, retroversion and retroflexion of the uterus, etc., are common. Consti pation, with continued straining at stool, may accoun for some of the conditions of rectocele with prolapse of the uterus which are sometimes seen in the nullipara Continued vomiting, with increased intra-abdomina pressure, particularly during early pregnancy, also pre disposes to these conditions.

During the last few weeks of pregnancy, settling o the presenting part occurs. With strong sacro-uterin ligaments, the cervix remains high posteriorly, th anterior part of the uterine wall and the anterior wal of the vagina forming the sac which supports the pre senting part. This predisposes to cystocele, but no to rectocele. With multiparous patients, howeve early settling, especially with occiput posterior posi tions, and large presenting parts due to overtime preg nancies, places strain on the sacro-uterine ligament and tends to increase the size of small rectocele resulting from previous labors.

The mechanism of the first stage of labor tends t strain the sacro-uterine ligaments and injure the liga menta plicovaginalia. This strain is more marke in patients who bear down with their first-stage pains Also, obstetric operations undertaken before th cervix is fully dilated may completely destroy the pos terior support of the vaginal vaults, resulting in marke degrees of rectocele without presenting any visibl lacerations postpartum.

Primiparous patients, with strong, well-develope levator ani muscles and fascia, at times obstruct th advance of the presenting part during the second stag of labor, even against strong propulsive pains. Th action, even though eventually spontaneous labor take place, frequently results in damage to the sacro-uterin ligaments.

During the puerperal period, subinvolution of th uterus with retroversion, especially if patients remai too much in the dorsal position while in bed, preven the proper involution of the pelvic fascia, which predi poses to the condition of rectocele. Finally, har work, such as lifting and straining throughout th lactation period, and chronic constipation, particular if associated with atrophy of the pelvic facia, comple the picture presented for a better understanding as the causes of high rectocele. The same factors, whe

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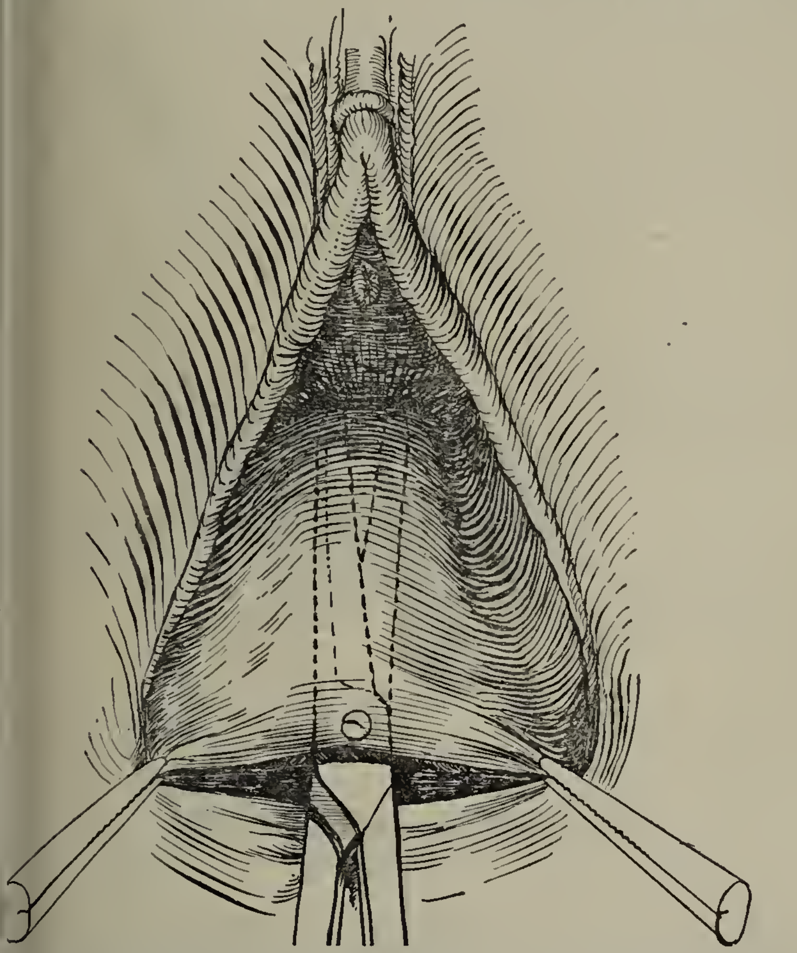
* From the Division of Obstetrics and Gynecology, Standard University School of Medicine.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Blaisdell, F. E.: Anat. Record **12**, No. 1, Feb., 1917.
2. Spalding, A. B.: Surg., Gynec. & Obst. **29**: 529 (Dec.) 1919.

ociated with complete laceration of the perineum,
y result in complete prolapse of the rectum.

he cure of high rectocele is essentially surgical.
vertheless, it is important to correct, when possible,
common condition of constipation in young girls.



g. 1.—Transverse incision at fourchette: scissors passed under
ia of vaginal wall to point near cervix.

eatment for tight sphincter, fissure in ano, inten-
ial irregularity and undue prolonged straining at
ol should be instituted in childhood. Dysmenorrhea,
ociated with undeveloped and retroverted uteri,
uld be treated with the idea of correcting, when
sent, an abnormally deep culdesac of Douglas.
is cannot be done without combining with uterine
pension some operative procedure on the sacro-
rine ligaments or on the peritoneum forming the
ich between the vagina and the rectum.

ood obstetrics from the earliest months of preg-
icy to the end of the puerperal period is necessary
limit the damage to the sacro-uterine ligaments,
ised by such complications as excessive vomiting
pecially when associated with retroversion), pro-
ged settling, overtime labor with large babies,
iput posterior positions, prolonged first and second
ge labors, puerperal retroversions, and repeated
gnancies at intervals too short for involution to take
ce. At one time, I believed the insertion of a
vix bag in long first-stage labors would help to
vent rectocele, but more extensive experience has
me to change some of my ideas in this regard.

o induce labor at term in the multipara, particularly
h occiput posterior positions, the Voorhees bag is
en of distinct value. But the pull of the bag on a
d cervix for an unduly long time will tend to injure
ligamenta plicovaginalia and produce rectocele,
her than prevent it. Early correction of posterior
itions, version, the Scanzoni maneuver, resort to
dian episiotomy in delayed second-stage labor, as
l as the complete repair of lacerations of the cervix
l upper vagina after labor, are of great value in the
phylaxis of rectocele.

But the most perfect postpartum perineorrhaphy will not cure high rectocele. Moreover, the usual procedures advocated for the cure of high rectocele are totally inadequate to meet the situation, and are frequently followed by a recurrence.

Operations for cystocele have a far better prognosis as regards the frequency of recurrence than have operations for the cure of rectocele; while operations for the cure of prolapse of the uterus give the best results and, so far as the uterus is concerned, are followed by the least number of recurrences. For example, in a recent report of a series of sixty-three operations for prolapse of the uterus, associated with rectocele and cystocele, we found, in the women's clinic at Stanford University School of Medicine, nineteen recurrences of the rectocele, nine recurrences of cystocele, and three recurrences of uterine prolapse.[3]

Following the usual types of perineorrhaphy, rectocele will occur in more than 20 per cent. of cases. If rectocele is associated with prolapse of the uterus or develops after vaginal hysterectomy, perineorrhaphy for the cure of the rectocele, even if fairly high, will be followed by a recurrence of the rectocele in 40 per cent. of the cases.

Because of these facts, I have gradually modified and perfected a technic for the cure of rectocele that might be called proctopexy, although, to differentiate it from the older abdominal proctopexy, it would probably better be called colpoproctopexy.

This operation is somewhat similar to that described by Bissell,[4] who overlaps the fascia between the rectum and the vagina, as well as those described by Goldspohn[5] and by Frank,[6] who close the levators high between the rectum and the vagina, but it differs in that the rectum is raised on its transverse axis and sutured

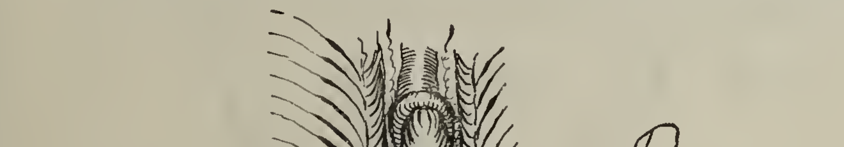


Fig. 2.—Posterior vaginal wall incised from fourchette to cervix, exposing rectum.

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3. Spalding, A. B.: California State J. Med. **20**: 2-3 (Jan.) 1922.
4. Bissell, D.: Am. J. Obst. **78**: 1 (July) 1918.
5. Goldspohn, A.: Surg., Gynec. & Obst. **32**: 443 (May) 1921.
6. Frank, R. T.: Surg., Gynec. & Obst. **24**: 42 (Jan.) 1917.

to the pelvic fascia in the neighborhood of the exposed sacro-uterine ligaments; the sacro-uterine ligaments as well as the levator ani muscles then being interposed between the rectum and the vagina. The technic of the operation in brief is as follows:

A cross incision through the vaginal fascia is made at the mucocutaneous junction of the vagina and perineum as in a Tait flap splitting perineorrhaphy. As this flap is held taut by two assistants, blunt pointed scissors are passed between the vaginal fascia and the rectum for a distance of about 6 cm., to a point near the cervix (Fig. 1). By opening the scissors, the vaginal fascia is separated from the rectum and the vaginal wall is then incised in the midline from the fourchette to the pouch of Douglas (Fig. 2). By lifting the upper angle of the incision, the sacro-uterine ligaments are put on tension and, unless the uterus has been removed, can be easily made out. A chromic gut suture is passed through the vaginal wall a short distance from the upper end of the incision, carried free, and passed through the fascial covering of the left side of the rectum at a point that will just take up the slack in the prolapsed bowel. This suture is now passed through the fascia near the left sacro-uterine ligament, crossed over and passed through the fascia near the right sacro-uterine ligament, then carried free to a point on the right side of the rectum opposite the first rectal stitch and up through the vaginal wall opposite the starting point (Fig. 3). If this stitch is carefully drawn taut and tied, the rectum will be raised to the sacro-uterine ligaments, and these ligaments will be sutured together and the upper angle of the vaginal incision closed (Fig. 4). A second similar stitch will cause the herniated rectum to disappear entirely. Sutures now passed through the levator ani muscles and fascia high in the vaginal incision will close the wound to a point usually seen in the ordinary perineorrhaphy. By the excision of the excess vaginal flaps the suturing of the deep layer of the triangular ligament and approximation of the superficial muscles, fascia and skin of the pelvic floor, the operation is completed. The vagina is packed with sterile gauze to prevent deep oozing.

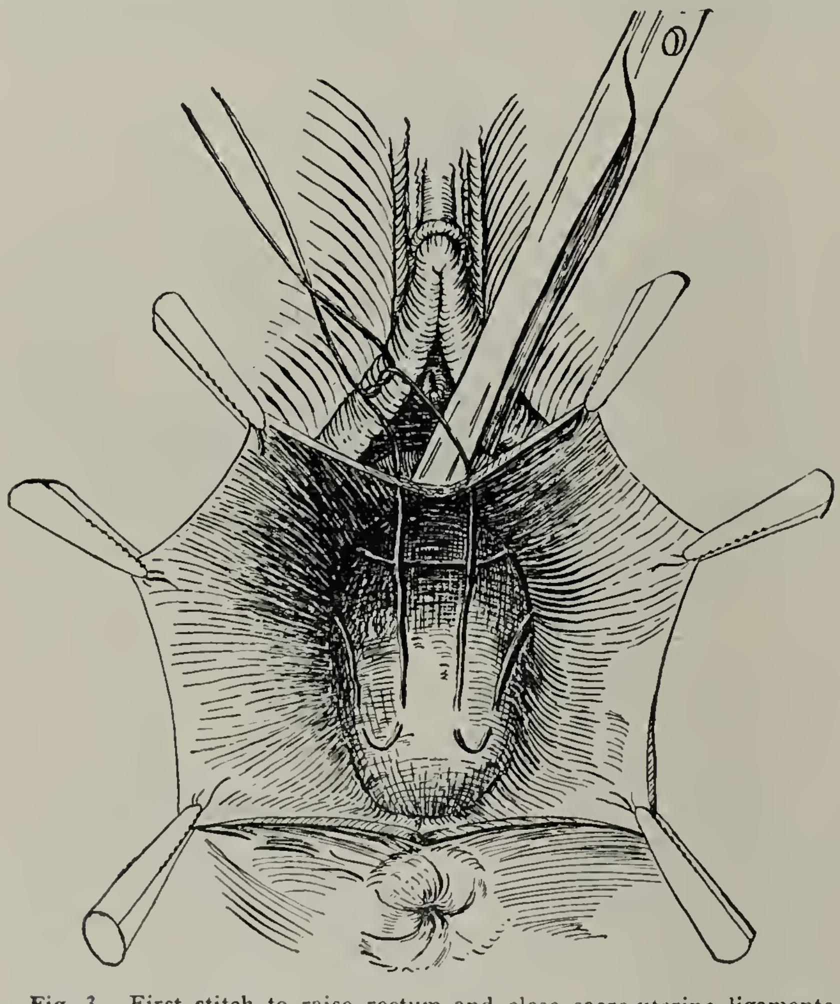
Fig. 3.—First stitch to raise rectum and close sacro-uterine ligaments.

For a study of late results following operations for the cure of rectocele, the histories of 175 patients have been reviewed. One hundred and thirty-one of the patients have been seen and examined in the clinic f periods varying from three months to six and one-ha years after operation. The remaining forty-fo patients have made at least one visit to the clinic aft leaving the hospital, at periods varying from six wee to three months after operation. With 145 patien in this series, an attempt was made to cure the rectoce by various types of low and high perineorrhaphy. this group of patients, 131 had cystocele in additi to the rectocele, and fifty-five suffered with comple prolapse of the uterus with rectocele. In the 1 patients having rectocele and cystocele, there we thirty-one recurrences of the rectocele, or 24 per cen In the fifty-five patients having complete prolapse the uterus with rectocele, there were twenty-two recu rences of the rectocele, with three recurrences of th prolapse, which gives a 40 per cent. recurrence of th rectocele after perineorrhaphy.

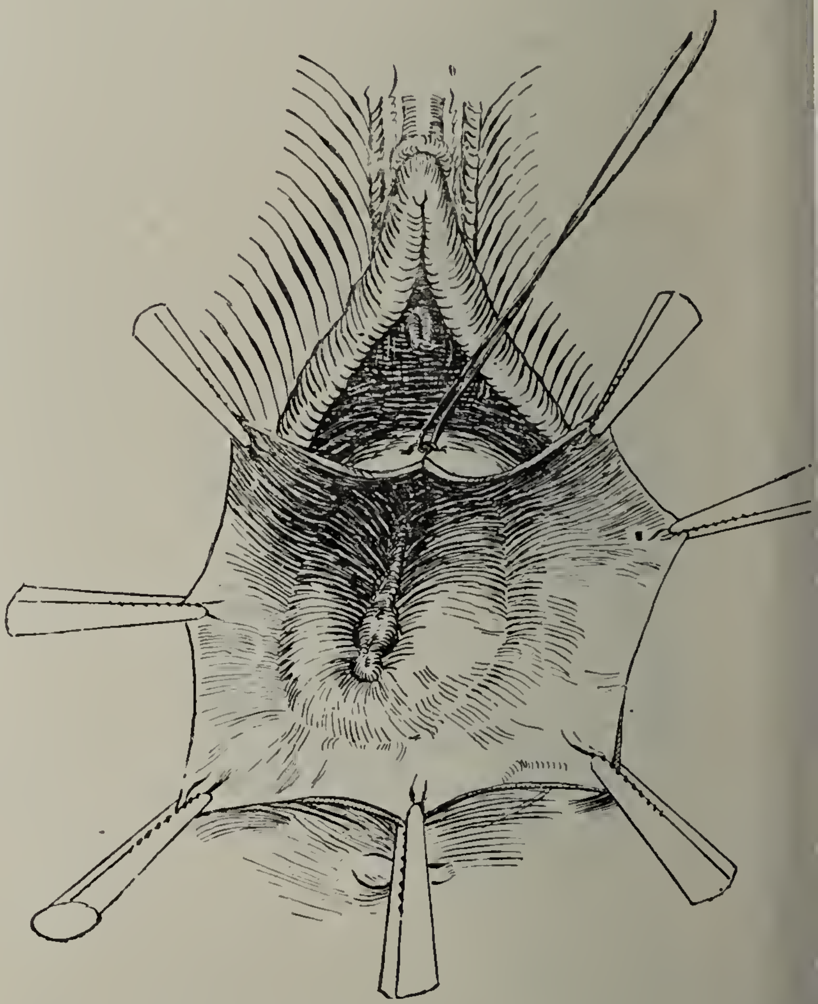
Fig. 4.—Result after tying stitch shown in Figure 3: rectum rai on transverse axis.

During the last three years, thirty-two patients ha returned to the clinic a sufficiently long time aft proctopexy to give a fair estimate of the relative val of the operation. In this group, twenty-six also ha cystocele and ten had complete prolapse of the uteru In the patients having rectocele and cystocele, the were three recurrences of the rectocele, or 11.5 p cent. In the cases of prolapse of the uterus, the was one recurrence of the rectocele, or 10 per cen with no recurrence of the prolapse of the uterus.

The 175 patients having perineorrhaphy were ope ated on by various operators, including the intern sta A great variety of technics was employed. In th clinic, after operation, the patients were examined by different group of the staff, and all recurrences rectocele with the patient straining down were car fully recorded. This method gives an impression to the value of a particular operation far differe from that usually received when the operator is anxious to overvalue the technic of any particular operation. This method may possibly even exaggerate somewhat the number of recurrences by including some cases of only minimum failure. However, from a comparison of the percentage values obtained in the two series of patients examined by the same methods, it is seen that, in cases of rectocele associated with cystocele, 52 per cent. better results have been obtained with proctopexy than with perineorrhaphy; while, with rectocele associated with prolapse of the uterus, 75 per cent. improvement has been obtained with proctopexy over that obtained with the usual perineorrhaphy.

Stanford University Hospital.

TECHNIC OF REPAIR OF ENTEROCELE (POSTERIOR VAGINAL HERNIA) AND RECTOCELE

AS AN ENTITY, AND WHEN ASSOCIATED WITH PROLAPSE OF THE UTERUS *

GEORGE GRAY WARD, M.D.
NEW YORK

The subject of this paper is limited to hernias involving the posterior vaginal wall, which we frequently encounter and recognize under the designation of rectocele, and to the much rarer hernia which is made up of the culdesac of Douglas, with its intestinal contents dissecting its way downward between the posterior vaginal wall and the rectum, known as vaginal enterocele or posterior vaginal hernia.

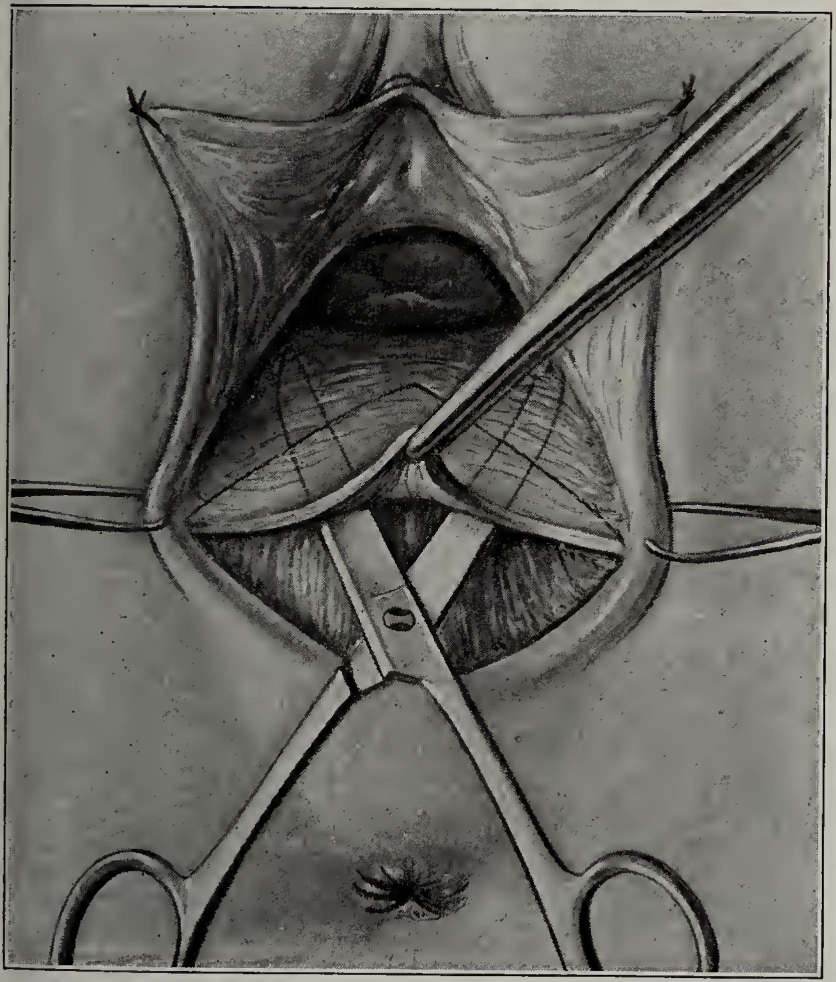

Fig. 1.—Technic of rectopexy for rectocele: The vagina is separated from the rectum with scissors; the dissection extends well above the line marked for the excision of the vaginal wall.

The common condition of rectocele is the result of impairment of the function of the pelvic floor (the inability to properly close the vaginal mouth), due to injury in childbirth, thus allowing the vaginal wall to roll downward and outward with the attached rectum.

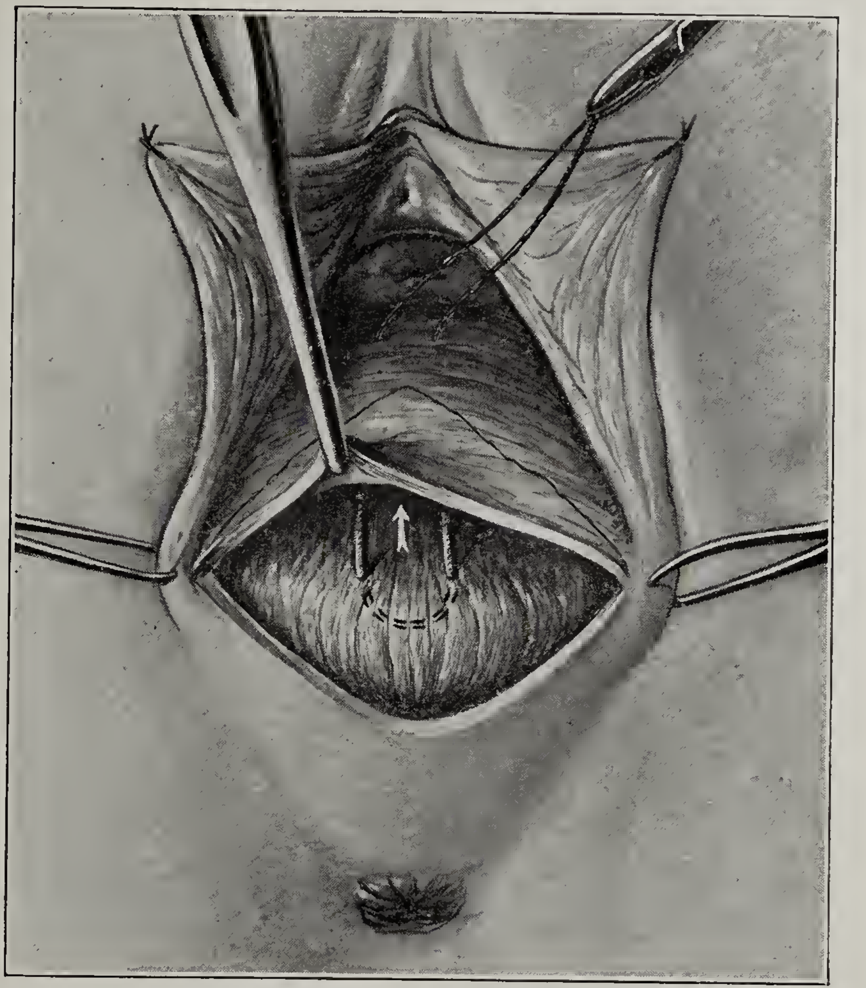

Fig. 2.—Technic of rectopexy for rectocele: The rectopexy suture that is to draw up the rectal pouch to the upper undamaged part of the vagina is in place.

This anatomic change in the relation of the parts alters the normal mechanism of defecation, the direction of the fecal current being changed so that the anterior rectal wall and the posterior vaginal wall receive the brunt of the strain and, consequently, protrude more and more until a distinct rectal pouch is formed, which renders complete emptying of the rectum difficult. In cases in which the fascial support of the vaginal wall has been torn or is attenuated, the rectocele may develop to a large size, with resulting aggravation of symptoms.

The usual methods in vogue for curing this hernia are based on the principle of either denudation of the posterior vaginal tissue and approximation of the cut edges or resection of the excess vaginal wall with plication of the bowel. The result, so far as the bowel is concerned, is to throw it into folds, which must tend to be smoothed out by the daily passage of fecal masses, especially if constipation exists. In all these operations, a perineorrhaphy is relied on to close the vaginal orifice and thus prevent further descensus of the vaginal walls. In the majority of cases with a small or moderate sized rectocele, these methods are satisfactory in their results, the so-called "interposition" or levator muscle operation being superior to the typical Emmet, in my opinion, so far as the rectocele is concerned.

In large rectoceles, however, the usual operative procedures do not give as perfect a permanent result as is desired. For the last twelve years, I have been employing the principle in curing rectocele that is so successful in cystocele when the bladder is separated

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

from its vaginal and uterine attachments and carried to a higher position, as in the technic of Goffe. I published a report of the operation in 1913.[1]

The operation consists, first, in completely separating the rectum from the posterior vaginal wall as far up as the culdesac of Douglas, and then sliding the loosened rectal pouch high up along the vaginal wall by means of a suture. Thus, the denuded rectum is carried up and placed so as to adhere strongly to the upper undamaged third of the posterior vagina, which is above the former site of the rectocele. The pouched part of the vaginal wall which entered into the formation of the rectocele is then cut away, and the operation completed by a perineorrhaphy, in which the pubococcygeal portion of the levators are exposed and approximated in front of the rectum, thus making a strong barrier to further descent. An extensive experience with this technic in many hundreds of cases in my hands has proved the soundness of the principle employed and has been uniformly successful in permanently relieving these patients of their symptoms.

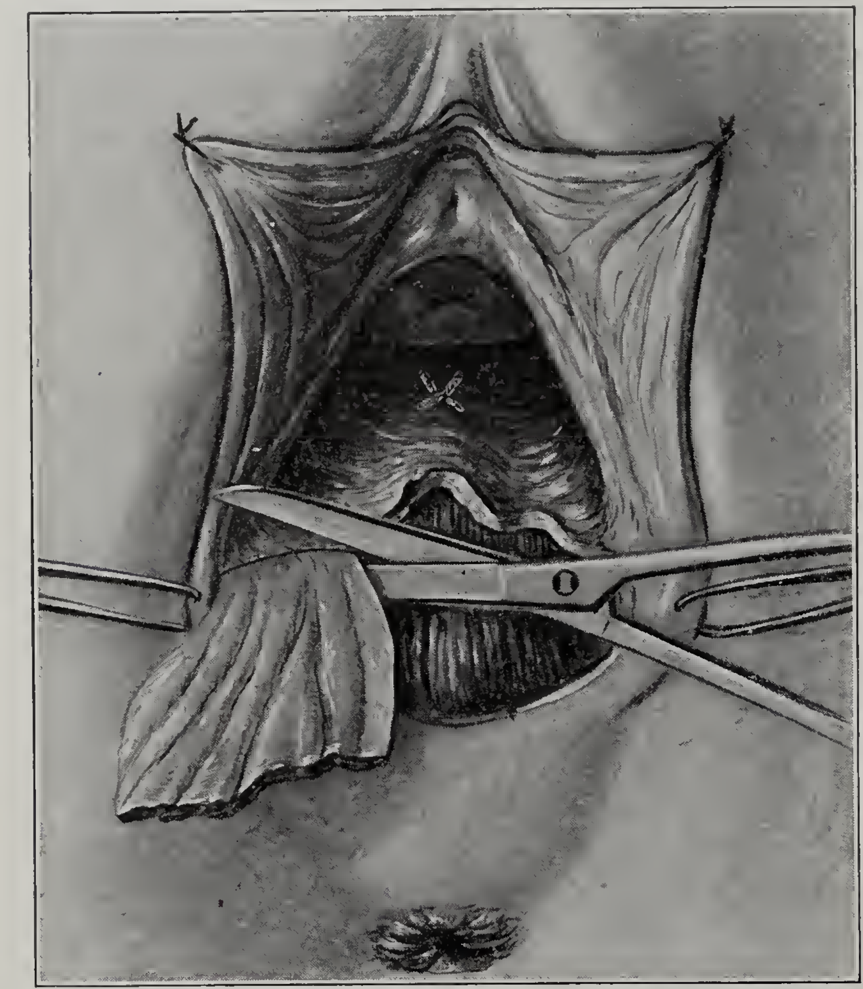

Fig. 3.—Technic of rectopexy for rectocele: The excess vaginal wall is cut away along the line previously outlined, the edges are united by interrupted sutures, and the perineorrhaphy is completed with an approximation of the levators and a subcuticular skin suture.

Bissell has applied the principle of fascia lapping in the cure of this condition. My objection to this technic is that the normal balloon shape of the vagina is liable to be changed by it, the upper vagina being considerably reduced in size, and that it is too complicated and time consuming, although the results Bissell has obtained are excellent.[2]

Posterior vaginal hernia, or "enterocele," has been considered a very rare condition, and the textbooks either ignore it entirely or give but a few lines calling attention to its infrequency. Likewise, a search of the literature shows that very few cases are recorded. Sir Astley Cooper, in his classic work on hernia, in 1804, published an illustration of an undoubted case. Fordyce Barker and T. Gaillard Thomas have reported cases, and, in 1916, Hartman[3] of Paris published a typical case, with the technic he employed for its cure from below. The most recent report I have been able to find was made by Sweetser,[4] in 1919, illustrative of the extreme type in a nulliparous woman.

The rarity of this condition is undoubtedly due to the obliquity of the pelvic cavity in the erect posture, the intra-abdominal pressure thus being deflected forward, and to the very strong pelvic and rectovesical fasciae whose fibers are intimately interwoven with the walls of the canals passing through the pelvic floor. Moschcowitz[5] calls attention to the fact that this fascia has a funnel shape attachment to the rectum and that a defect here will allow the intestine to push through along the rectal wall to the levators, pushing the peritoneal lining of the culdesac ahead of it. Such a congenital defect in the fascial attachments would, therefore, account for such condition in a virgin. Pregnancy and labor causing stretching or separation of the fibers of the fascia would account for the acquired form.

My interest in this subject has been aroused during the last four years as a result of encountering partially satisfactory results in several cases of prolapse of the uterus in which I had employed the Mayo technic of vaginal hysterectomy and the interposing of the united broad ligaments under the bladder. While the cure of the prolapsed bladder and anterior vaginal wall was all that could be desired, a well marked enterocele protruded from the vulva orifice in these cases, necessi-

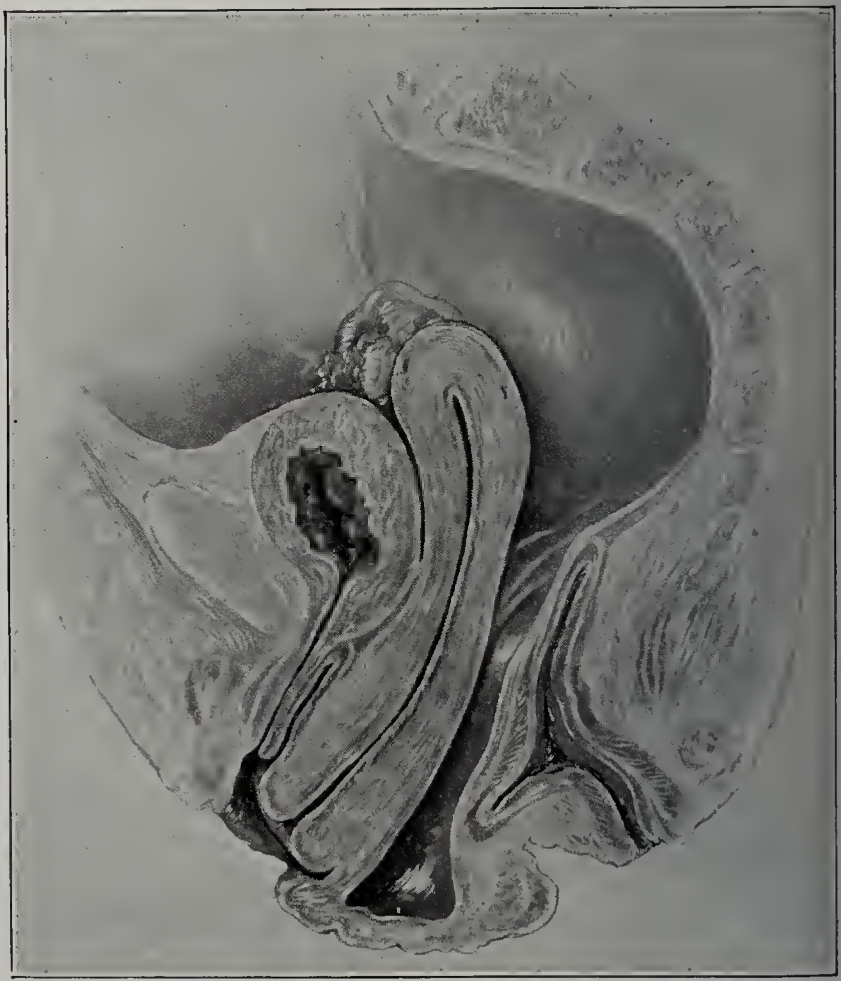

Fig. 4.—Enterocele: Frozen section from Halban and Tandler, demonstrating the relation of a deep culdesac of Douglas to prolapsus. The pouch filled with intestine exerts traction on the cervix.

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1. Ward, G. G., Jr.: Surg., Gynec. & Obst., September, 1913, p. 361.
2. Bissell, Dougal: Tr. Am. Gynec. Soc. **43**: 157, 1918.
3. Hartman, H.: Ann. de gynéc. et d'obst. **12**: 351 (Nov.-Dec.) 1916.
4. Sweetser, H. B.: Ann. Surg. **69**: 609 (June) 1919.
5. Moschcowitz, A. V.: Surg., Gynec. & Obst., July, 1912.

tating a second operation to establish a cure. A careful study of the culdesac of Douglas in all cases of prolapse of the uterus during this period has convinced me that an enterocele, either beginning or well developed, is present in a far larger proportion of these cases than we have realized, and that it is necessary to recognize and meet this condition with an appropriate technic at the time of the operation for the cure of the prolapse of the uterus, in order to prevent a certain proportion of partially satisfactory results. I am also convinced that enterocele (of the lesser types) without prolapse of the uterus is more frequent than we formerly believed, and that it is frequently overlooked and classed as a rectocele, both conditions being frequently present. The differential diagnosis with the finger in the rectum is easily made but not often employed. In the past four years at the Woman's Hospital, I have had occasion to operate on fourteen patients having abnormally deep culdesacs, with and without an associated uterine prolapse. Of these fourteen patients, three required a second operation because of my failure to appreciate the importance of investigating the depth of the culdesac at the time of the original operation. Zuckerkandl, Freund and others have shown that the culdesac of Douglas normally extends to the levators in the fetus and that its depth gradually decreases from this time until puberty, when it reaches the level of the second or third sacral vertebra. Daniel Jones[6] of Boston has pointed out that a deep culdesac is an important factor in favoring or producing prolapse of the uterus, and he states that downward pressure made in the culdesac against the posterior vaginal wall will demonstrate a strong pull on the uterus. He advocates the closure of the culdesac on this account. Jones believes that this accounts for uterine prolapse in virgins, as these patients always have a deep posterior culdesac of congenital type.

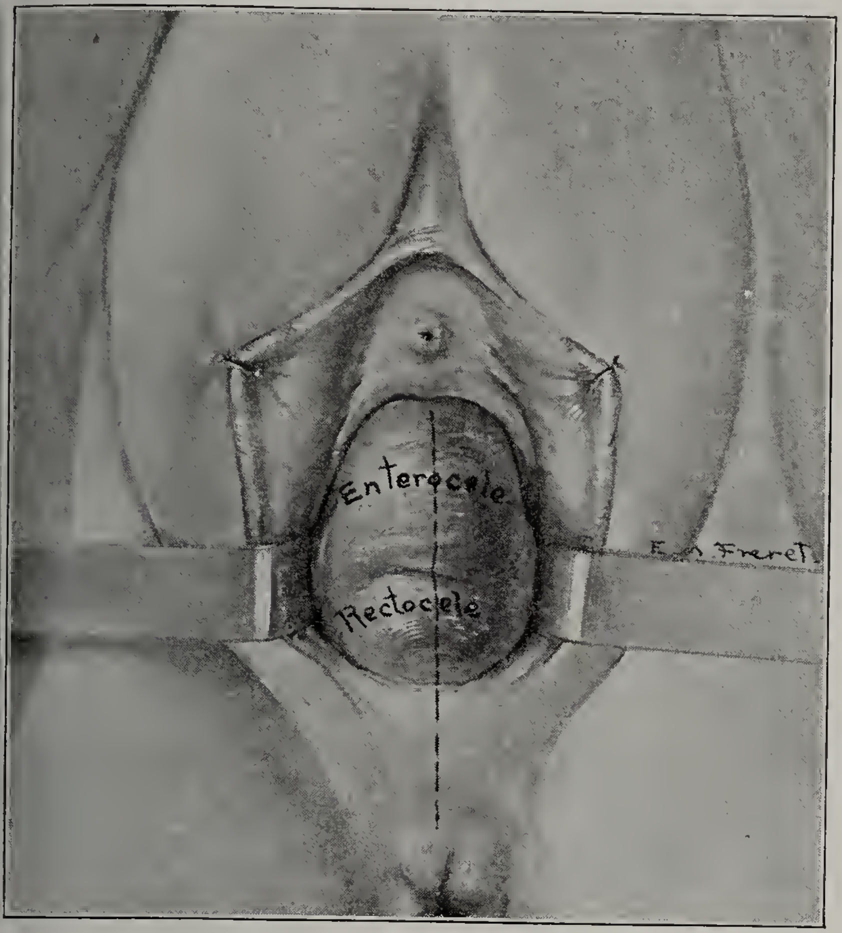

Fig. 5.—Enterocele: line of incision.

The value of the technic of Moschcowitz for the cure of prolapse of the rectum lies in the fact that the closure of the Douglas pouch throws the weight of the intestines forward onto the bladder, symphysis and anterior abdominal wall, with the patient in the erect posture; while a deep culdesac allows the weight of the intestines and the pressure to come on the anterior rectal and posterior vaginal wall.

In view of my experience and in the light of the foregoing statements, it is now my custom to obliterate the pouch of Douglas by the vaginal or abdominal route, as part of the technic in all cases of operation for prolapse of the uterus. In cases of enterocele without uterine prolapse, the posterior vaginal wall is opened in the midline for its entire length, and the peritoneal sac of Douglas is dissected free up to the uterosacral ligaments. A sponge stick in the rectum serves as a useful guide. The sac is ligated and cut off, and the uterosacral ligaments are united with interrupted Pagenstecher linen sutures as close to the rectum as possible. The denuded space is obliterated with continuous buried catgut sutures, and the vagina is closed in the usual manner. In cases associated with prolapse of the uterus, in which the Mayo technic is employed, the obliteration of the culdesac is easily accomplished after the uterus has been cut away from the broad ligaments. A finger in the pouch demonstrates its exact location and a median vaginal incision exposes the sac so that it can easily be dissected out, up to the region of the uterosacral ligaments, where it is closed by a suture and cut off. The uterosacral ligaments are then united with linen sutures and the denuded space closed with continuous buried catgut sutures. After the culdesac is obliterated in this manner, the broad ligaments are sutured together and interposed beneath the bladder in the usual way, and a perineorrhaphy completes the

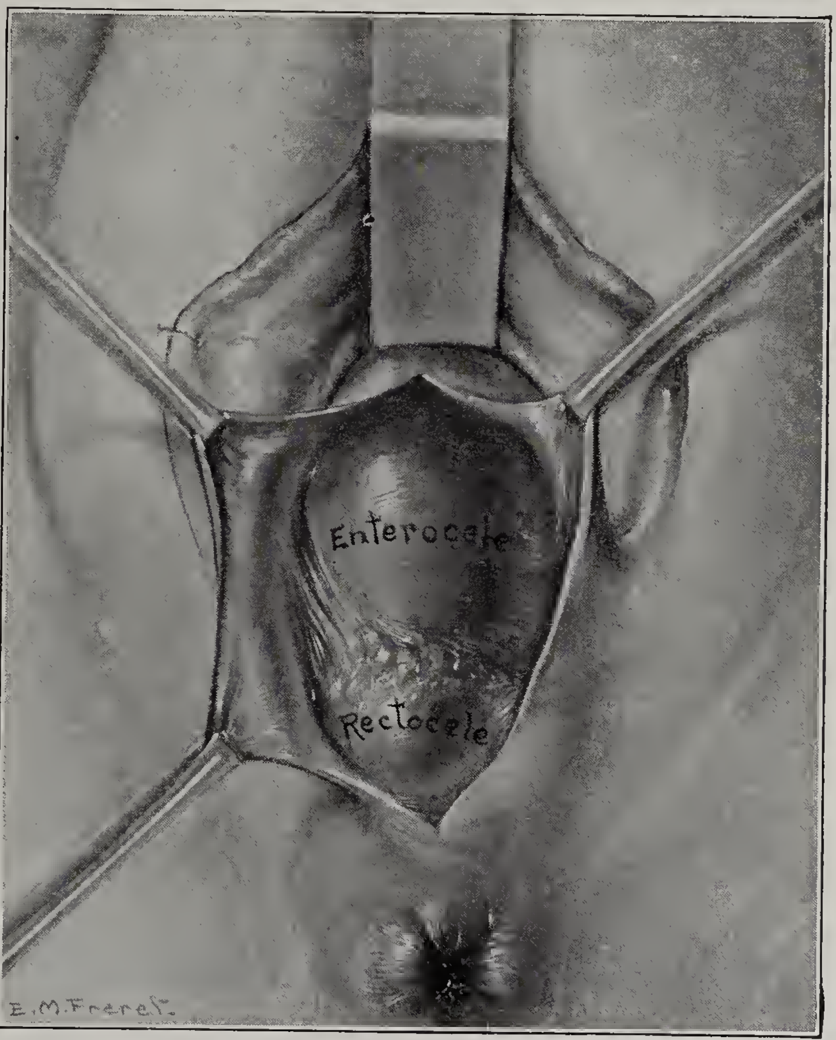

Fig. 6.—Enterocele: the enterocele exposed and its relation to the rectocele.

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[6] Jones, D. F.: Boston M. & S. J. **175**: 623 (Nov. 2) 1916.

operation. The obliteration of the culdesac can be accomplished in a similar manner from above if an abdominal operation is indicated.

CONCLUSIONS

1. In large rectoceles, the usual operative technic of Emmet or Hegar does not give a permanent satisfactory result.

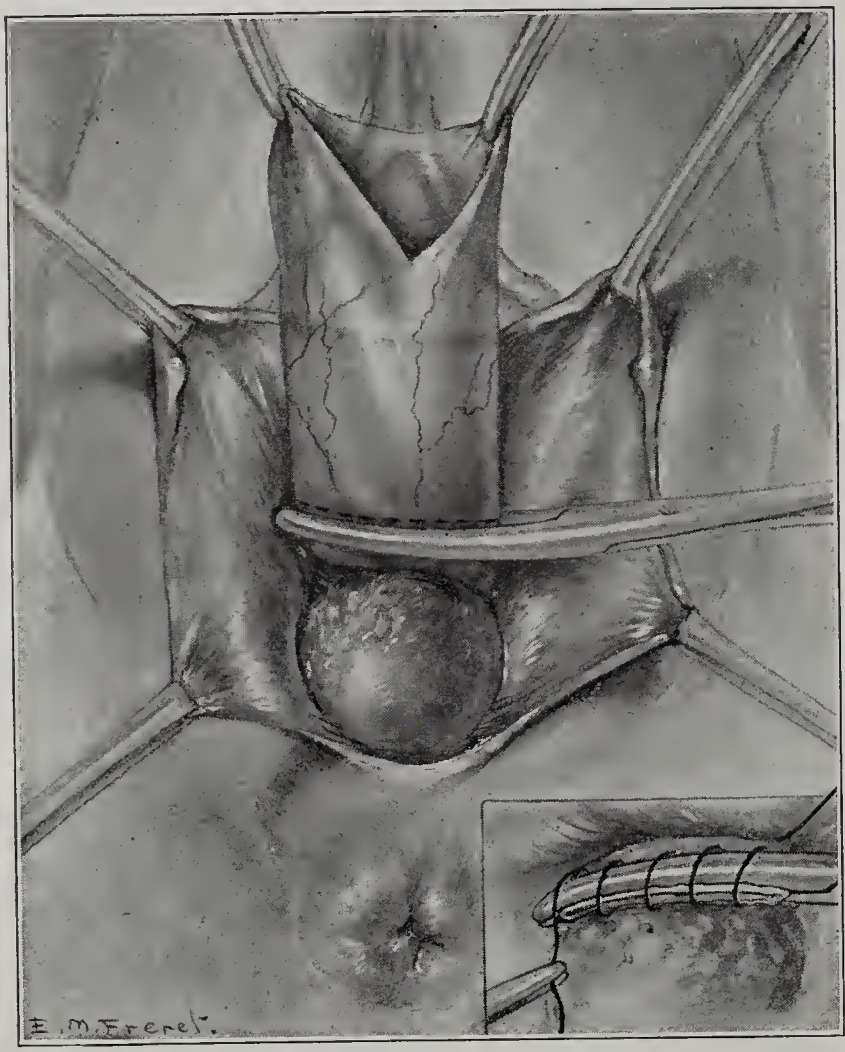

Fig. 7.—Enterocele: The peritoneal pouch of Douglas is dissected out, opened, clamped and ligated.

2. In these cases, a technic may be employed which insures a cure by treating the rectocele as a hernia and anchoring the rectal pouch in a higher position on the undamaged portion of the vaginal wall, where the fascial supports of the canal are intact.
3. Posterior vaginal hernias, or "enterocele," while rare in the extreme types, are far more frequent in the lesser degrees than is usually realized.
4. A deep culdesac of Douglas may be congenital or acquired, and is an important factor in the cause of uterine prolapse.
5. It is frequently not recognized in many cases of prolapse of the uterus, and the failure to correct it is a common cause of unsatisfactory operative results.
6. The technic of the obliteration of the pouch of Douglas by the vaginal or abdominal route is not difficult, and it should be a part of the procedure in operations for uterine prolapse.

48 East Fifty-Second Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. NEEL, SPALDING AND WARD

Dr. T. J. Watkins, Chicago: Dr. Spalding and Dr. Ward have given us some new and important ideas relative to treatment of high rectoceles. These have been difficult to remedy, and it is to be hoped that better results may be obtained from utilizing their operative suggestions. Dr. Neel's illustrations do not show sufficient elevation of the bladder to obtain desirable results. In conversation with him I have learned that he also believes in more bladder elevation than his illustrations show. Cystocele is a sliding hernia. After separation of the vaginal wall from the underlying fascia, and after separation of the bladder from the cervix, the sliding hernia can be as distinctly demonstrated as any case of a sliding inguinal hernia. The principle of repair is also the same. The hernia canal can be closed by suture of the fascia to the cervix or lower uterine segment as is needed in the individual case, or the opening may be closed by transposing the body of the uterus. In the closure, it is extremely important to suture the fascia so that the urethra will be retracted and fixed in its normal location, which is one of relative fixation; otherwise the incontinence will not be entirely relieved. In the fixation of the fascia, it is also important to obtain proper bladder elevation; otherwise the urethra may be retracted away from the pubes and would fail to relieve the incontinence.

Dr. C. H. McGee, Burlington, Iowa: In regard to some of the slides we saw on the screen, while they may be made to instruct, at the same time they may be made so as to lead us into error. I would advise Dr. Neal to do a thorough dissection of the pelvic fascia before he comes before an audience again, and I would advise him then to destroy one of those pictures which showed the pelvic fascia so beautifully. One of his remarks was that the abdominal fascia was continuous with the pelvic fascia. That is not so. The fascia lining the abdominal cavity in front is called the transversalis fascia, and that does not connect with the pelvic fascia at all. The fascia covering the iliacus muscle is called the iliac fascia. It may or may not connect with the posterior fascia for about half an inch. Cunningham says that once in a while it does. In regard to those figures, all we need is a nimble hand and a lively imagination, and we can put things up in great shape. In regard to his overlapping this fascia, it is not like muscle structure, constant. The superficial layer of the deep fascia of the neck, where it comes forward from the trapezius, splits to enclose the sternocleidomastoid. Sometimes one will find a dense anterior layer, and sometimes it is almost absent. It is the same way with the pelvic fascia. It is not a constant structure. I have dissected nulliparous women and could scarcely find the dif-

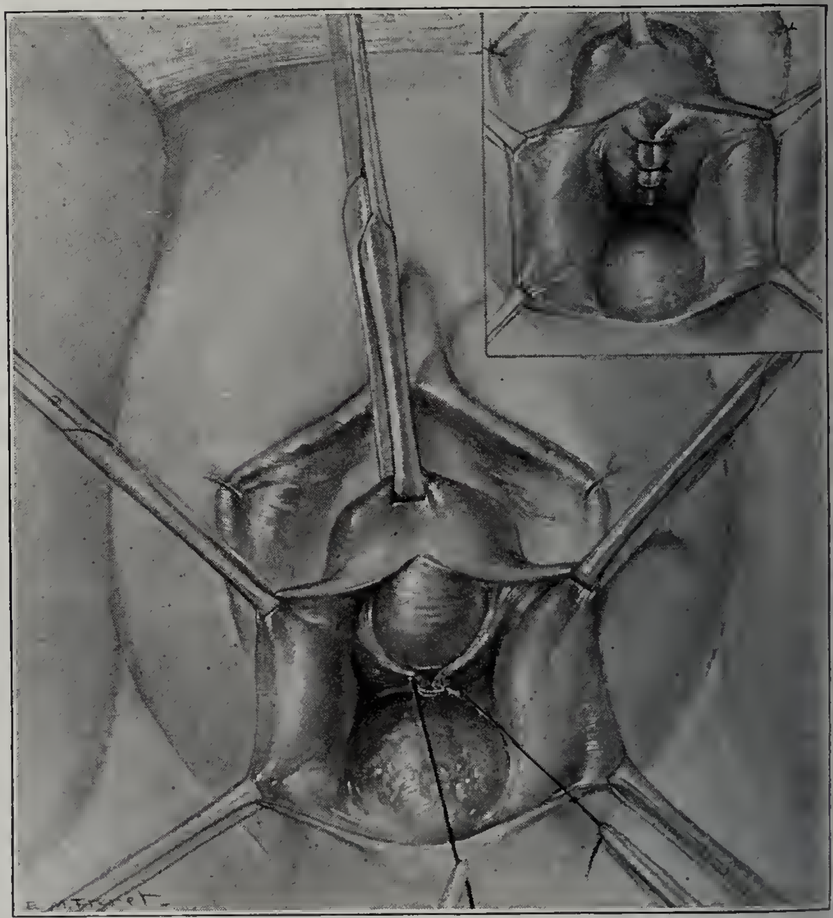

Fig. 8.—Enterocele with uterus retained: The uterosacral ligaments are united with interrupted linen sutures, closing the entrance to the culdesac, and continuous catgut sutures obliterate the space.

ferent layers of fascia of the pelvis. If a careful dissector cannot find it in a nulliparous woman, how can one find it so readily when dilatation (or tearing) has taken place and the fascia has been attenuated for eight, ten or twelve years?

DR. ALBERT GOLDSPOHN, Chicago: The statement of the last speaker I wish to deny; and I endorse the position taken by Dr. Neal, that the fascia referred to exists. It extends downward from the pelvic walls and covers the levator ani muscle on the visceral side. Gray calls it the rectovesical fascia. It is often injured by childbirth, as Dr. Spalding sets forth, and e labors correctly to restore it. An extension of it reenforces the anterior vaginal wall, from which Dr. Neal separates it in his restorative operation. In this I differ from him n not making such a separation, and then using the two weakened structures separately in the restorative technic. I elieve that unitedly they serve a better purpose; by simply removing the vaginal mucous membrane from one side and sliding it into the wound of the opposite side, a firmer result s obtained more quickly and with less loss of blood. I am leased with the anatomically correct procedures advocated y Dr. Spalding and Dr. Ward. For the more severe forms f injuries of the pelvic floor, of which they speak, they probably do not extend their operative wound and raise the pos-erior vaginal wall much farther inward than I have been accustomed to do even for less severe injuries of those parts, n the operation of which I have performed for many years and have been trying to induce the profession to adopt. To he wound that I ordinarily make, I can readily add the ectum-elevating suture which Dr. Ward advises, in those ases in which it is needed.

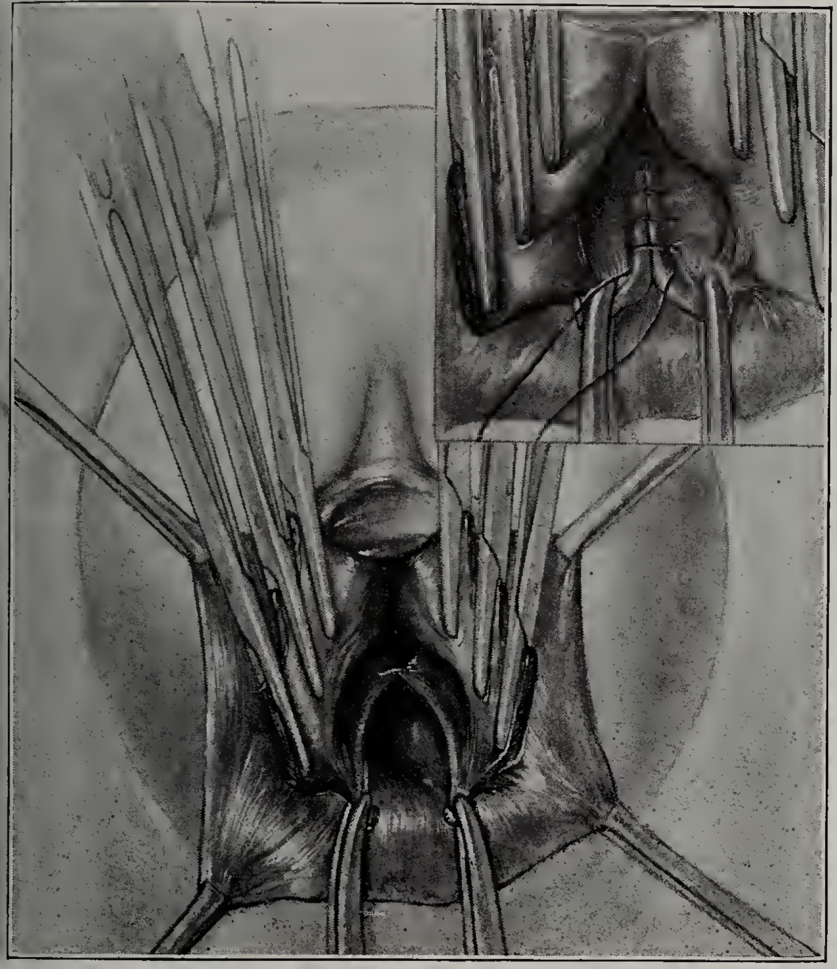

Fig. 9.—Enterocele with uterus removed: The clamps are on the broad ligaments, and interrupted linen sutures unite the uterosacral igaments after the removal of the peritoneal pouch of Douglas.

DR. JOHN F. HERRICK, Ottumwa, Iowa: During the summer f 1916 I prepared a paper on this particular subject. Before he paper was read, a paper appeared by Gibbon Fitzgibbon f Dublin, Ireland, describing very minutely the fascia men-ioned today, and the operation for cystocele. I had been doing the operation for some time, with this difference: I had plit the vaginal wall, separated the fascia, left it in contact with the mucous membrane, and drawn the fascia and mucous membrane together across and united them; and I must say, as the author has said, that of all operations that have done or seen done for the condition described, there is nothing that compares with the results obtained in the operation described here. As to the presence of that fascia, Dr. McGee and I have differed for some time. I knew what he would say. However, if one remembers, in looking down into the pelvis, in the normal condition, one will see in the female the bladder lying in front, the uterus fixed on a point, or pivot. The cervix moves below, the body above. That is the point of contact of this fascia. Now, there are really two planes of fascia: one on the floor of the pelvis covering the levator ani that holds the rectum, and this one above that acts as a sling attached to the fifth sacral vertebra, and around the white line to the pubis in front, perforated by the urethra in front, by the cervix part way back, and by the rectum near the posterior wall. If there is a separation of the fibers of that fascia, one can easily see how one or all of those can sink down and pass out through the pelvic opening. What must be done is to get hold of the fascia and lift the organs up; the bladder should be elevated, as was illustrated, and the fascia brought together tightly; this will cure acute procidentia, rececele, cystocele and incontinence of urine.

DR. J. CRAIG NEEL, San Francisco: It is very gratifying to know that there is but one "doubting Thomas" among those present. I have neither the time nor the inclination to enter on any argument regarding the presence of this fascia, but would refer the speaker to any standard work on anatomy. Dr. Watkins brought out a very important point regarding the reduction of the displaced bladder. The best results will be attained if the bladder is carried well up to the pelvic bones. The one-sided dissection of which Dr. Goldspohn spoke is simply another method of arriving at the same end. I am glad to know this method has given such excellent results. The point which I wish to emphasize is, first, the presence of this fascia, and, secondly, the importance of utilizing it in the treatment of cystocele.

DR. ALFRED BAKER SPALDING, San Francisco: I should like to have Dr. McGee visit us in San Francisco. I have all these things on platters in my laboratory, and I think if he should see them there he would see that we are not trying to call anything either false or foolish.

CARBON DIOXID GAS INFLATION

AS A MEANS OF DETERMINING THE CAUSES OF STERILITY IN WOMEN *

ROLAND S. CRON, M.D.
ANN ARBOR, MICH.

Credit should be given Rubin [1] for the idea that the patency or nonpatency of the fallopian tubes may be safely determined by the passage of gas under pressure through the tubes. Soon after the publication of Rubin's paper in 1920, Dr. Peterson [2] began the extensive use of Rubin's test, combined with stereoscopic roentgenography of the pelvic organs, in the department of obstetrics and gynecology at the University of Michigan. I have been a member of Dr. Peterson's staff throughout the time that transuterine and trans-

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* From the Department of Obstetrics and Gynecology, University of Michigan Medical School.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Rubin, I. C.: A Manometer and Flow-Volumeter for Transuterine Peritoneal Inflation to Determine the Patency of the Fallopian Tubes in Cases of Sterility, Am. J. Roentgenol. **8**: 459 (Aug.) 1921; Nonoperative Determination of the Patency of the Fallopian Tubes by Means of Intra-Uterine Inflation with Oxygen and the Production of Artificial Pneumoperitoneum, J. A. M. A. **75**: 661 (Sept. 4) 1920; Nonoperative Determination of the Patency of the Fallopian Tubes in Sterility with Intra-Uterine Inflation with Oxygen and the Production of an Artificial Pneumoperitoneum, ibid. **74**: 1017 (April 10) 1920.

2. Peterson, Reuben: Pneumoperitoneum and Roentgenology as Aids to More Accurate Obstetric and Gynecologic Diagnosis, Am. J. Obst. & Gynec. **2**: 349 (Oct.) 1921; The Value of Pneumoperitoneal Roentgenography in Obstetrics and Gynecology, J. A. M. A. **78**: 397-400 (Feb. 11) 1922. Van Zwaluwenburg, J. G., and Peterson, Reuben: Pneumoperitoneum of the Pelvis, Am. J. Roentgenol. **8**: 12-19 (Jan.) 1921.

abdominal gas inflation has been tried and the methods have been improved. I have seen pelvic gas inflation, at first attempted with extreme caution for fear of resulting peritonitis, developed until it has become a part of the routine of the clinic and used with every confidence that no injury will result to the patient. I am indebted to Dr. Peterson for the opportunity to summarize the results obtained in the clinic from the use of this method. Although in its infancy, the procedure bids fair to play an important part in determining certain anatomic causes of sterility, thus placing attempts at the cure of the condition on a more scientific basis.

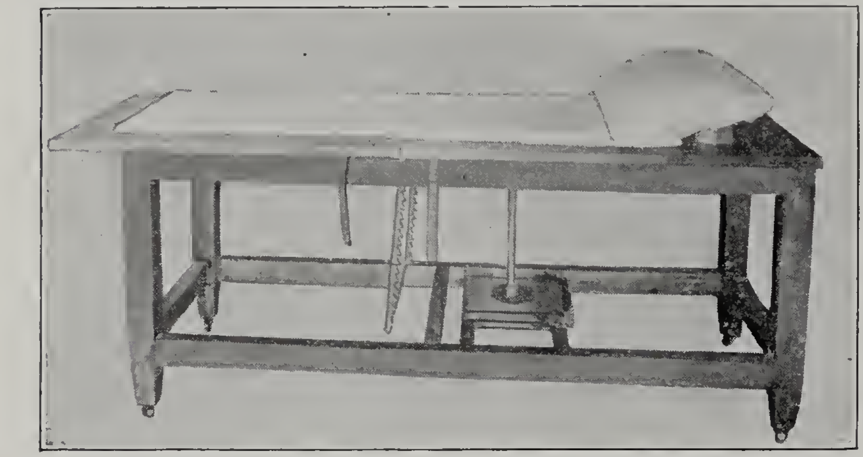

Fig. 1.—Table used for gas inflation and roentgenography.

It was early recognized that this method of diagnosis, to be universally adopted, should be free from danger and accompanied by a minimum amount of distress to the patient. Furthermore, it was realized that the technic had to be simple. The first prerequisite, freedom from danger, has been definitely settled by the fact that in more than 400 inflations in the university clinic there have been no casualties. The second prerequisite, the reduction of discomfort to a minimum, has been accomplished by the substitution of carbon dioxid for oxygen gas. The former is more rapidly absorbed, and its safety has been established beyond question, experimentally by Alvarez [3] and by Ribadeau-Duma and Mallet,[4] and clinically by the results in several hundred cases in this clinic. The third prerequisite, simplicity, will be dwelt on at length when the method of procedure is detailed.

From the 400 cases in which inflation was performed with carbon dioxid in the clinic it has been possible to collect seventy-five cases of sterility. Sixty women, or 80 per cent., were primarily sterile, while fifteen, or 20 per cent., had been pregnant some time during their early married life but at the time of seeking treatment were unable to conceive. The latter group has been classified as secondarily sterile. The average age of the entire group of women was 30 years, and the majority of the women had not been pregnant for at least seven years.

The method of procedure in arriving at a diagnosis in these cases has been that of taking a detailed history, stressing particularly the menstrual, puerperal and venereal history. When possible, the husband's fertility has also been determined. This is then followed by a general physical and a careful and detailed bimanual and rectovaginal examination, combined with a speculum examination of the cervix and a testing of the vaginal secretions. After this, a transuterine and if necessary a transabdominal inflation is done.

Peterson has recently described the apparatus for both transuterine and transabdominal inflation used in the clinic. Briefly, it consists of a tank of carbon dioxid with a pressure reducing and needle valve to control the outflow of gas, an inverted 25 c.c. siphon flow meter to measure the amount of gas passing into the peritoneal cavity, a mercury or spring manometer to gage the pressure at which the gas is entering the uterus, a Keyes-Ultzman metal uterine cannula with rubber stopper to introduce the gas into the uterus and prevent its regurgitation into the vagina, and a lumbar puncture needle for transabdominal inflation. Sterile rubber gloves, sterile towels and iodin or picric acid are used as in any surgical procedure.

The transuterine inflation is obviously the one in routine use for the determination of the patency of the tubes. The Sims has been found preferable to the lithotomy position, because of the ready accessibility of the cervix and the greater convenience of placing the patient in the dorsal or the modified knee-chest position. The cervix is exposed by the introduction of a Sims speculum and grasped with double tenaculum forceps after it and adjacent parts of the vagina have been sterilized with iodin or picric acid. The latter antiseptic is now being used because of its bland and nonirritating effect on the vaginal mucous membrane. The direction of the uterine canal is determined, and the intra-uterine cannula with rubber stopper introduced. Instead of the hard rubber urethral stopper, it has been found that a softer and more pliable one will prevent the regurgitation of the gas more effectively. Traction must be made on the tenaculum so that a snug fit is made with the cervix and rubber stopper. Permeability of the cannula must have been established before proceeding with the inflation.

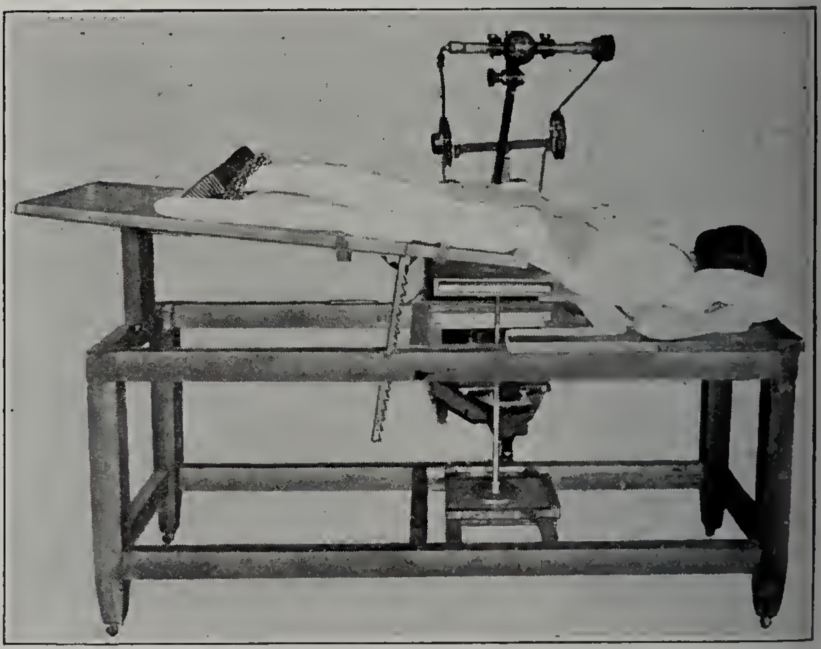

Fig. 2.—Patient in correct (modified knee-chest) position for the taking of roentgenograms.

For the transuterine inflation, the pressure reducing valve must be set in order that the escaping gas from the tank exerts a pressure of at least 15 pounds. This is sufficient to raise the column of mercury to 200 mm. when the outflow of gas is obstructed. The flow through the siphon meter should not exceed six pulsations a minute with the outflow of gas unobstructed. If the rate is more rapid than this, the manometer will occasionally register 200 mm. of mercury (the safety point) even though gas is entering the pelvis through the tubes. There are cases of partially obstructed tubes or tube in which it is necessary to reduce the flow to from two to four pulsations a minute before the manometer indicates the patency of the tubes. The highest pressure permissible we have found by clinical experience is 200 mm. of mercury. Anything higher than that may rupture an obstructed tube and lead to serious complications.

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[3] Alvarez, W. C.: The Use of Carbon Dioxid in Pneumoperitoneum, Am. J. Roentgenol. **8**: 71 (Feb.) 1921.

[4] Ribadeau-Duma and Mallet: Carbon Dioxid for Pneumoperitoneum, Bull. et mém. Soc. méd. d. hôp. de Paris **45**: 235 (Feb. 18) 1921.

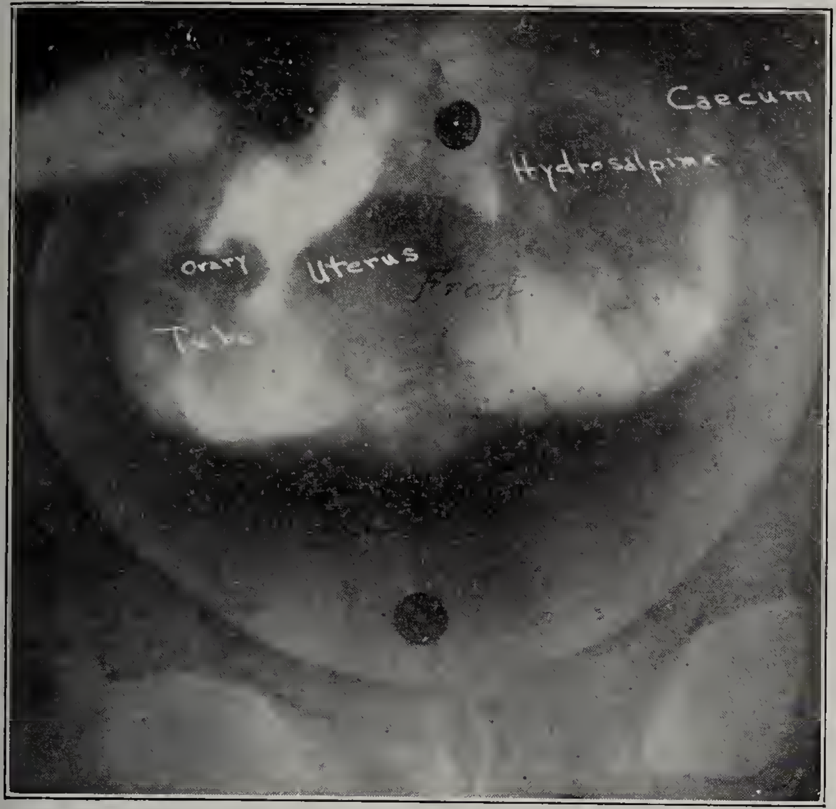

Fig. 3.—Chronic bilateral salpingitis; right hydrosalpinx; patent left tube.

As many as twelve consecutive attempts at a pressure of 200 mm. of mercury in a single case have been made to force the gas through the tubes. In the majority of cases, however, it enters during the first attempt; but it has occasionally passed only after seven or eight trials. The average number of attempts made to pass the gas has been six before the transabdominal method was resorted to. Once, however, the gas has established a pathway, the mercury column drops from 20 to 100 mm. The usual pressure at which the gas enters is between 40 and 80 mm. of mercury. It is not necessary to use the fluoroscope for the determination of the establishment of a pneumoperitoneum. The criteria on which this diagnosis is based are: (1) a manometer reading below 200 mm. of mercury when there is no regurgitation of gas as evidenced by lack of sizzling or gurgling in the vagina; (2) pain or distress in both lower quadrants and later in one or both shoulders, especially when the patient is placed in the sitting posture; (3) peritoneal irritation, as elicited by nausea or vomiting; (4) increase in abdominal tympany, and (5) auscultation of the lower abdomen with the stethoscope. The average amount of gas necessary for the determination of these criteria has been 300 c.c., or twelve pulsations of the siphon meter. Because of the rapid absorption of carbon dioxid, all of these patients leave the clinic ten or fifteen minutes after the test.

If there is any obstruction to the inflow as demonstrated by the gas entering only after repeated attempts or at a pressure over 150 mm. of mercury; if it does not enter at all, or if there is any question as to the condition of the pelvic organs, from 800 to 900 c.c. of gas is introduced by the transuterine or transabdominal route, and stereoscopic roentgenograms are taken. The technic of transabdominal inflation and the roentgenographic work have been most carefully detailed by Dr. Peterson. Further simplification of this end of the work has been accomplished by the employment of a table used both for the inflation and pelycography.

Just as in any other surgical or diagnostic procedure, there are certain contraindications to the injection of gas through the uterus and tubes. Naturally, in the presence of a profuse purulent or bloody uterine or vaginal discharge, this method of inflation should be abandoned and the transabdominal substituted. Acute pelvic inflammatory processes should not be subjected to irritation and separation of the plastic exudate by forceful introduction of gas. Persons with serious organic cardiac disease, hypertension, or large abdominal tumors should not be subjected to large quantities of gas because of the possibility of upsetting the vasomotor system. Pyrexia is usually a contraindication. In women with a very unstable nervous system and rigid perineum who object strenuously to intrapelvic manipulations, inflation can be effected under the influence of nitrous oxid anesthesia. Judgment must be used in the selection of these cases, just as in any other surgical procedure.

The seventy-five cases of sterility were divided into two groups: Group 1, in which the tubes were patent, and Group 2, in which they were nonpatent. In Group 1 there were thirty-four cases, or 45 per cent. of the entire number. The gas in these cases passed through the tubes either freely or under a high pressure. In Group 2 there were forty-one cases, or 55 per cent. of the entire number. The gas in these cases could not be forced through the tubes even under a high pressure. For the sake of simplicity and because of the fact that the percentage of patent and nonpatent tubes in cases of primary and secondary sterility is approximately the same, the seventy-five cases will not be further considered according to that classification.

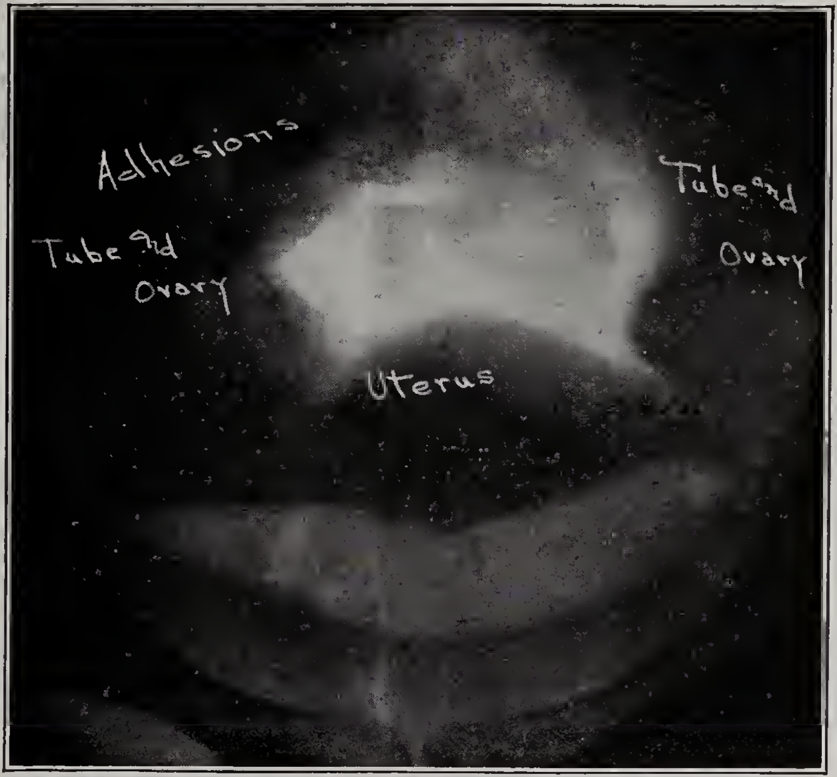

Fig. 4.—Bilateral salpingitis; adhesions on left; patent tubes. Gas introduced on fifth attempt under pressure of 180 mm. of mercury. Bimanual examination revealed only slight left salpingitis.

An analysis of the thirty-four cases of Group 1 reveals the fact that bimanual examination does not give satisfactory evidence of the true condition of the lumina of the tubes. In twenty cases, or 60 per cent., the tubes, ovaries and fundus of the uterus were correctly diagnosed as normal. The remaining fourteen patients, although having patent tubes, showed a definite pathologic condition within the pelvis. Seven of these patients had mild bilateral inflammation of the tubes and ovaries. In addition, two of these cases were further complicated by retroversion and a third by an acute anteflexion. The other seven cases were diagnosed as (1) unilateral salpingo-oophoritis with appendicitis, (2) right salpingo-oophorectomy with left salpingo-oophoritis, (3) infantile uterus, (4) complete retroversion, (5) maldeveloped ovaries, (6) adenomyoma and (7) bilateral prolapsed, adherent ovaries. Judging from these findings, it is quite evident that, even in the presence of considerable palpable disease of the pelvic organs, the tubes may still be open.

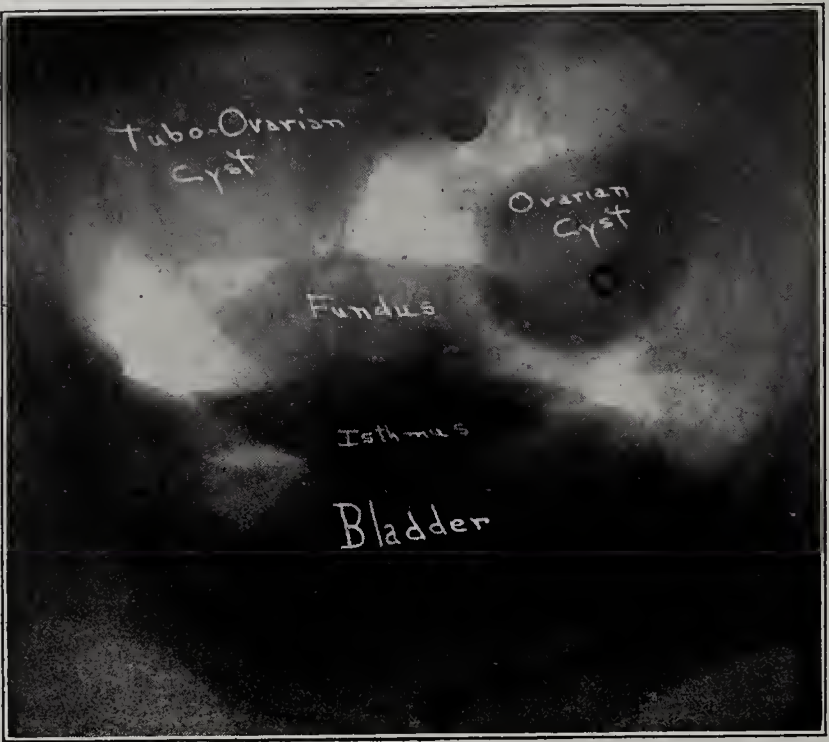

Fig. 5.—Bilateral tubo-ovarian disease with closed tubes, correctly diagnosed by bimanual examination missed during posterior colpotomy.

With the exception of seven of the thirty-four patients with patent tubes, a suggestive cause for the sterility was found. Chronic salpingitis or oophoritis, either unilateral or bilateral, was the important factor in twelve cases. Profuse acid leukorrhea, with or without endometritis, endocervicitis and occasionally cervical polypi made up the second largest group. The remaining seven cases were complicated by three retroversions and one each of general fibrosis uteri, infantile uterus, maldeveloped ovaries and adenomyoma. It was impossible in the seven cases excepted to examine after coitus the husband's secretions deposited in the vagina. He may have been responsible for the suspected sterility.

A comparison of the accuracy of bimanual and roentgen-ray examination of the cases belonging to Group 1 immediately impresses one with the great value of this new method of diagnosis. Sufficient gas was passed through the tubes in twenty-three cases to permit the taking of stereoscopic plates of the pelvic organs. The bimanual and roentgen-ray examination agreed in eight instances, while in nine the diagnosis without roentgenography was partially correct, and in five it was incorrect. A much higher percentage of correct diagnoses was obtained, however, by roentgenography, for all of those included under partially correct and incorrect by bimanual examination were accurately diagnosed by the latter method. Roentgenography in only one case was incorrect, and in another sufficient gas was not introduced to demonstrate the pelvic organs. Only four of these patients were operated on, but in all four the operative findings confirmed the roentgen-ray report.

The gas in fourteen cases of Group 1 was forced through the tubes at a pressure of between 150 and 200 mm. of mercury. In all but three, a definite pathologic condition within the pelvis was discovered by bimanual and roentgen-ray examination. It was necessary in these eleven cases to make from three to six attempts to pass the gas before any entered the pelvis. The most common lesion acting as an obstruction was that of a mild unilateral or bilateral salpingitis. Submucous fibroids and complete retroversion with prolapse of the appendages were similar offenders. In comparison with the cases diagnosed as normal pelves by bimanual and roentgenographic examination, the gas in all but one entered at a pressure below 150 mm. of mercury. In the one exception, the gas passed during the first attempt at a pressure of 170 mm. of mercury. The rate of flow, however, exceeded six pulsations a minute, and accordingly accounts for the high pressure. It is our opinion that when the gas passes through the tubes at a high pressure and then only after frequent attempts, there is some pathologic condition obstructing its inflow.

The analysis of the forty-one cases belonging to Group 2 revealed that a definite pathologic condition of the pelvic organs was much more common than in Group 1. In thirty-one cases, or 76 per cent., bimanual examination demonstrated some disease of the pelvic organs, while in the remaining ten cases, or 24 per cent., nothing abnormal was felt. In the majority of cases the condition diagnosed was that of an inflammation of the tubes and ovaries.

In all but three of these forty-one cases, four, and occasionally as many as twelve, attempts were made to force the gas through the tubes at a pressure of at least 200 mm. of mercury. It was impossible in one case to introduce the cannula because of a multinodular submucous fibroid. Two others were unsuccessful because of rigid and spastic internal os, one of these being further complicated by a maldeveloped uterus. In two cases, at the time of operation the gas was forced through by breaking down adhesions of the fimbriae of a tube, one at a pressure of 210 and the other at a pressure of 300 mm. of mercury.

The value of roentgenography is even more striking in the cases with closed tubes. Of the forty-one cases in this group, thirty-four, or 85 per cent., showed by roentgenograms a pathologic condition of the pelvic organs. This is 7 per cent. higher than was demonstrated by bimanual examination. In ten cases, in which the pelvis was diagnosed as normal by bimanual examination, roentgenography revealed a pathologic condition in five. Therefore, diagnosis in questionable cases with the aid of the roentgen ray, so far as this series is concerned, is twice as accurate as it is without this valuable adjunct. Two plates were technically unsatisfactory, and in one case inflation could not be performed. Ten of the thirty-eight cases with satisfactory films showed adhesions, thickening or enlargement of the appendages which could not be felt by the examining finger. In eleven other cases, more extensive involvement was diagnosed by roentgenography than had been found by bimanual examination. Sixteen times the bimanual and roentgen-ray examination agreed. Once the roentgenograms were incorrectly interpreted. There were diagnosed by roentgenography nineteen cases of bilateral salpingo-oophoritis, six of unilateral salpingitis or salpingo-oophoritis, four uterine fibroids, two retroversions with unilateral salpingitis, and two of unilateral salpingitis with the opposite tube and ovary removed. The fifteen patients of this group operated on confirmed absolutely the roentgen-ray findings.

Again and again roentgenography has been called on to establish the extent of involvement in a given pelvis. Those women with thick and resistant abdominal walls with a minimal amount of abnormality in the pelvis can usually undergo inflation and be roentgenographed, and a satisfactory opinion expressed as to the condition of the intrapelvic organs. Formerly this type of case was either not correctly diagnosed, or the patient was subjected to an ether examination or commonly to an exploratory laparotomy.

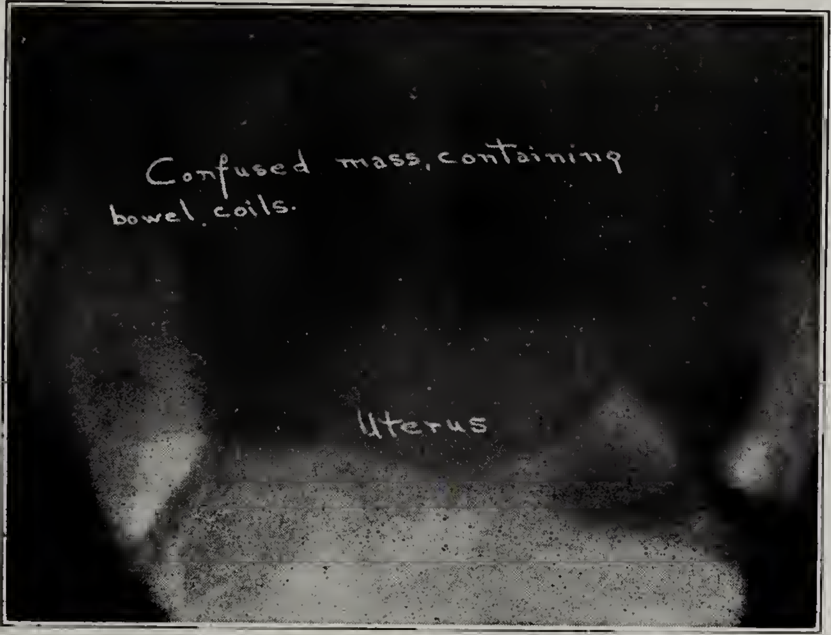

Fig. 6.—Bilateral tuberculous salpingitis with closed tubes. No pathologic condition was detected on bimanual examination. Roentgenography revealed extensive pelvic peritonitis.

The possibility of a therapeutic use to which transuterine inflation may be put is well illustrated by the report of this unusual case:

> A robust, healthy, American woman, aged 29, who had been married three and one-half years, sought advice because of an inability to become pregnant. Her entire history was negative, as was also the general and pelvic examination. Examination of the vaginal and cervical secretions one hour after coitus revealed active spermatozoa. October 24, a transuterine inflation was performed. During the first four attempts to introduce the gas, the pressure rose to 200 mm. of mercury without any gas passing through the tubes. On the fifth attempt, gas entered at a pressure of 180 mm. of mercury. In November there was one normal menstrual period, but there have been none since. She is at present about five months pregnant.

This seems to be an excellent example of what the future may hold for women with tubes closed or constricted by mild thickening or light adhesions when subjected to transuterine inflation. It is quite plausible to suppose that the gas separated the fimbriae of a tube or tubes, or at least opened the lumen sufficiently to permit the passage of an ovum down the tube. Certainly, in the case reported it brought about conception in an otherwise sterile woman. It occurs to me that this method of introduction of gas might be used in conjunction and following salpingostomy, implantation of a tube or release of adhesions in an attempt to maintain a pathway between the ovary and the uterine canal.

CONCLUSIONS

1. Transuterine and transabdominal carbon dioxid gas inflation for diagnostic purposes can be safely used.

2. Transuterine inflation will reveal the patency or nonpatency of the fallopian tubes.

3. Bimanual examination is not sufficiently accurate to diagnose correctly the true condition of the lumina of the tubes.

4. Manometer readings of more than 150 mm. of mercury during transuterine inflations usually signify obstruction to the inflow of gas through the tubes, most commonly due to a salpingitis. This interpretation should be especially so considered if the gas enters only after repeated attempts.

5. More than 50 per cent. of the sterile patients had closed tubes, a higher percentage than is usually credited to this factor.

6. Stereoscopic roentgenography of the pelvic organs is more accurate than bimanual examination. Especially is this true in those cases in which palpation is unsatisfactory.

7. Fallopian tubes with constricted or obstructed lumina at either the proximal or the distal end may be dilated sufficiently by the gas to permit the passage of an ovum.

ABSTRACT OF DISCUSSION

DR. GEORGE GRAY WARD, JR., New York: In the Woman's Hospital in New York we have used the method in about 300 cases, and no bad results have been noted; that is, no results caused by infection, that in any way would mitigate against it. But the indications for its use, of course, must be borne in mind. We have eliminated the use of the fluoroscope to locate the bubble of gas because we consider that the shoulder pain is positive evidence that the gas has gone through the tubes. The absence of permeability, however, is not 100 per cent. evidence that the tubes are closed. We have endeavored to check up by operation, wherever we had the opportunity, as to the condition of the tubes when they were apparently obstructed, and found in several cases that the tubes were apparently perfectly normal, and yet after repeated attempts at getting the gas through with a 200 mm. pressure, we felt that they were closed, and made such a diagnosis. It is to be borne in mind, however, that those tubes, while they were apparently normal to our view and touch at the operation, may possibly have had an obstruction in the horn of the uterus, which, of course, is impossible for us to be certain about, without opening the uterus. Also, there may be certain cases that do not allow the passage of the gas in which there are numerous convolutions in the tube which are present in the infantile type of tube and which have not been eliminated during the development at puberty. The value of the method may be shown in a case of absolute obstruction in a young woman very desirous of having children. I found both tubes occluded at the uterine end. The remainder of the tubes was normal. The method of Dr. Rubin enabled us to make a positive statement to the patient that her tubes were occluded, although we could not palpate the obstruction. The method is primarily a diagnostic aid, but it may have therapeutic value. We have had in our experience two cases of pregnancy following shortly after insufflation of the tubes. We feel that it is a valuable diagnostic method and that we are not justified in operating on a woman for sterility without first subjecting her to this test, just as we consider it necessary to examine the husband for active spermatozoa.

Dr. Roland S. Cron, Ann Arbor, Mich.: I was greatly interested in what Dr. Ward had to say about the case in which he made a diagnosis of obstruction. I happened to be in New York at the time he operated on that patient. I have been very much interested to know whether she had patent tubes, and whether the gas passed through or not.

Dr. Ward: We tested that case out, very soon after the operation, and the gas would not go through.

Dr. Cron: We have had a case or two in the hospital in which a salpingotomy was done. The mucosa of the tube was brought in contact with the peritoneum, and in one of those cases at present the tubes, which were previously closed, were opened by the injection of gas under high pressure.

POSTOPERATIVE MASSIVE COLLAPSE OF THE LUNG

REPORT OF CASE *

HERMAN ELWYN, M.D.
AND
JOSEPH GIRSDANSKY, M.D.
Assistant Visiting Physician and Assistant Adjunct Visiting Surgeon, Respectively, Gouverneur Hospital
NEW YORK

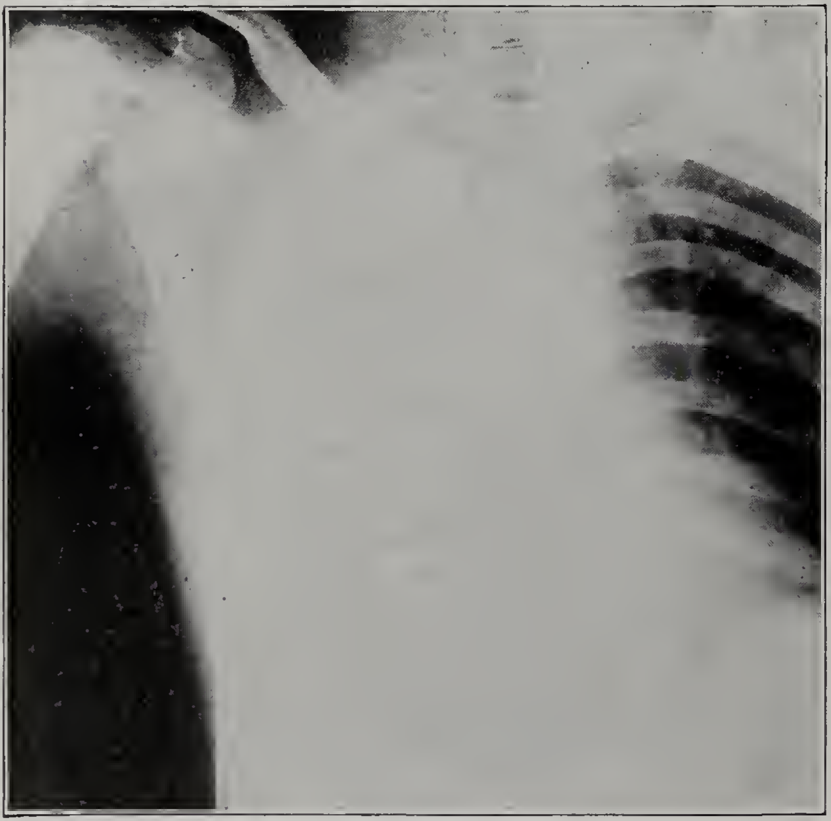

Fig. 1.—Appearance of chest, April 11.

The term massive collapse of the lung was first used by Pasteur [1] in 1890. He had been studying cases of postdiphtheritic paralysis of the diaphragm, and in five such cases that came to necropsy he found the lower lobes of the lungs atelectatic and airless, and that when thrown into water they sank to the bottom. He called this condition massive collapse of the lung. In 1908 he [2] reported cases of collapse of the lung following operations, and again in 1914 he [3] reported sixteen cases of collapse of the lung among the postoperative pulmonary complications following 2,000 operations. The sixteen cases were divided among the following operations: ninety-seven operations on the stomach, one case; fifty-six operations on the liver and gallbladder, one case; 692 operations on the appendix, seven cases; 373 operations on the pelvic organs, seven cases.

About the same time, Elliott and Dingley [4] reported eleven cases. Crymble [5] reported cases of massive collapse of the lung following gunshot wounds.

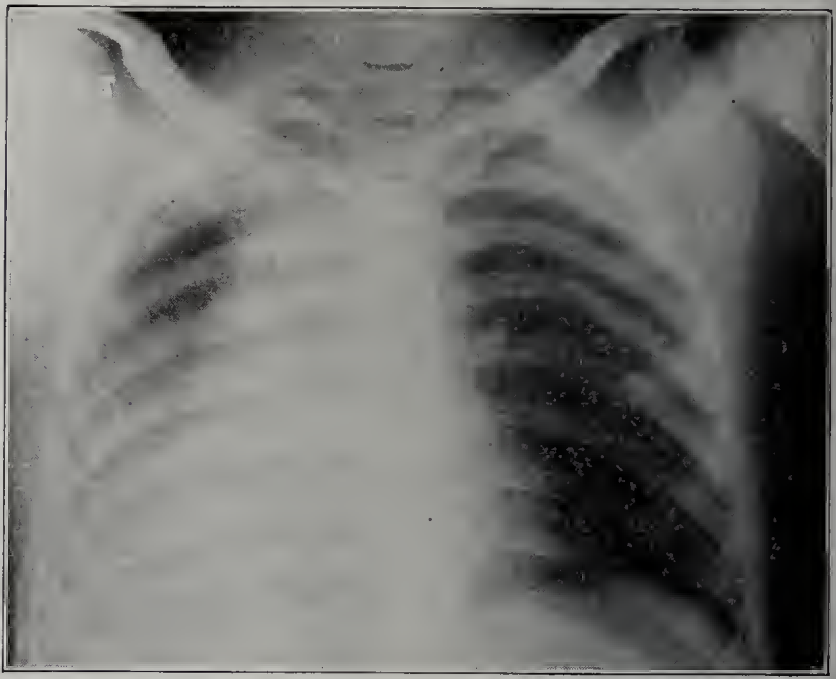

Fig. 2.—Condition, April 19.

During the war, the subject was especially studied by Sir John Rose Bradford [6] in the British military hospitals, and his two publications cover the subject completely. Further studies on the subject are by Scholtz,[7] Scrimger [8] and Briscoe.[9] In this country, mention of massive collapse of the lung is made by Pepper,[10] and recently Dr. St. John has reported to the New York Surgical Society two cases of massive collapse of the lung following abdominal operations.

Bradford defines massive collapse of the lung as "an unusual condition in which the lung, without the presence of any gross lesion such as bronchial obstruction, pleural effusion, etc., interfering with the free entry of air, becomes airless to a greater or less degree and therefore useless for respiratory purposes." It occurs after abdominal operations as well as after injuries to the chest and trunk, after fracture of the pelvis and after gunshot wounds of the chest. In cases following operations there are many factors which must be taken into consideration, such as anesthesia, posture, secretion in the bronchi, and injury to the diaphragm and its nerves. The ideal cases for the study of this condition are those following nonpenetrating gunshot wounds of the chest, and collapse of the contralateral lung occurring when no anesthetic has been administered, and when there has been no operative interference. Bradford mentions such cases. The wound, however, seems to be one of the essential conditions.

The collapse may involve a whole lung, one lobe or a portion of a lobe, or both lungs. It occurs from one to four days after the operation or injury, but usually within the first twenty-four hours. It may last from a few days to several weeks. It may be complicated by areas of pneumonia in the collapsed lung, and any considerable increase in temperature is usually due to the presence of some inflammation, either in the collapsed lung or in the bronchial tree.

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* From the surgical service of the Gouverneur Hospital.

[1] Pasteur: Am. J. M. Sc., 1890, p. 242.

[2] Pasteur: Lancet **2**: 1351, 1908.

[3] Pasteur: Brit. J. Surg. **1**: 1305, 1914.

[4] Elliott and Dingley: Lancet **1**: 1305, 1914.

[5] Crymble, P. T.: Brit. J. Surg. **1**: 363 (Jan.) 1918.

[6] Bradford, J. R.: Oxford Loose-Leaf Medicine **1**: 127; Quart. J. Med. **12**: 127 (Oct.) 1919.

[7] Scholtz, C. J.: M. J. S. Africa **16**: 202 (June) 1921.

[8] Scrimger, F. A. C.: Surg., Gynec. & Obst. **32**: 486 (June) 1921.

[9] Briscoe, J. C.: Quart. J. Med. **13**: 293 (April) 1920.

[10] Pepper, O. H. P.: M. Clin. N. America **5**: 737 (Nov.) 1921.

The onset is sudden, with marked dyspnea, but this varies greatly in its severity. Cough and expectoration depend on the presence of bronchitis or pneumonia.

The physical signs are as follows: There is considerable cyanosis of the skin and of the mucous membranes. The affected side is immobile or moves very little with respiration. The heart and mediastinum are drawn over to the affected side. This is the most characteristic sign. The apex beat may be found in the axilla when the collapse is on the left side, or behind the sternum when the collapse is on the right side. Over the collapsed lung the percussion note is dull to flat. The breath sounds are diminished or absent, or there may be bronchial breathing, depending on the patency of the bronchi. Vocal fremitus may be diminished, absent or increased. The presence and number of râles are variable and depend on the amount of secretion in the bronchi. They become very numerous when the lung begins to expand again.

Roentgen-ray examination is of diagnostic importance. A diffuse, dense shadow is seen over the side of the collapsed lung. The heart and mediastinum are seen to be displaced toward the collapsed side, and with the fluoroscope the diaphragm on the affected side is seen to be high and immobile. By following the case from day to day with roentgen-ray examinations the heart may finally be seen to have returned over night to its normal position.

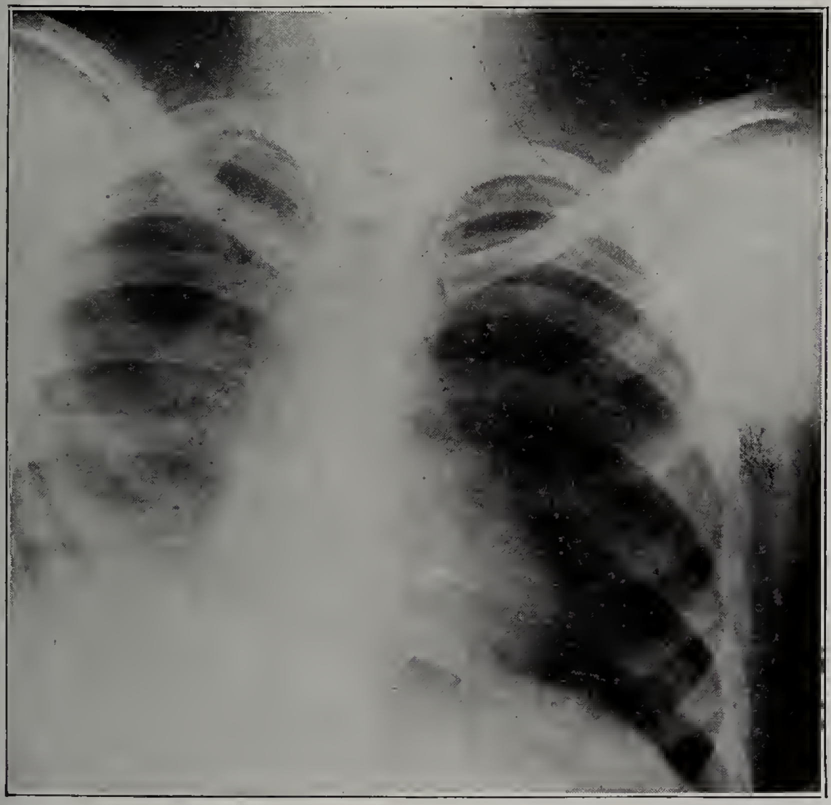

Fig. 3.—Appearance, April 26.

As the condition is as yet not generally known, or often goes unrecognized, we report a case which occurred in the service of Dr. Sellenings.

REPORT OF CASE

H. W., a schoolboy, aged 14 years, was admitted, April 9, 22, suffering from a stab wound in the abdomen. He had been stabbed with a pen-knife by another schoolboy.

On admission, the patient presented a picture of intra-abdominal injury. There were marked rigidity, pain and tenderness in the upper epigastrium, anxious expression, and a rapid pulse. In the epigastrium, just to the left of the median line, was a stab wound about half an inch long. The heart was negative. The lungs showed no impairment of breathing or of resonance. No râles were heard.

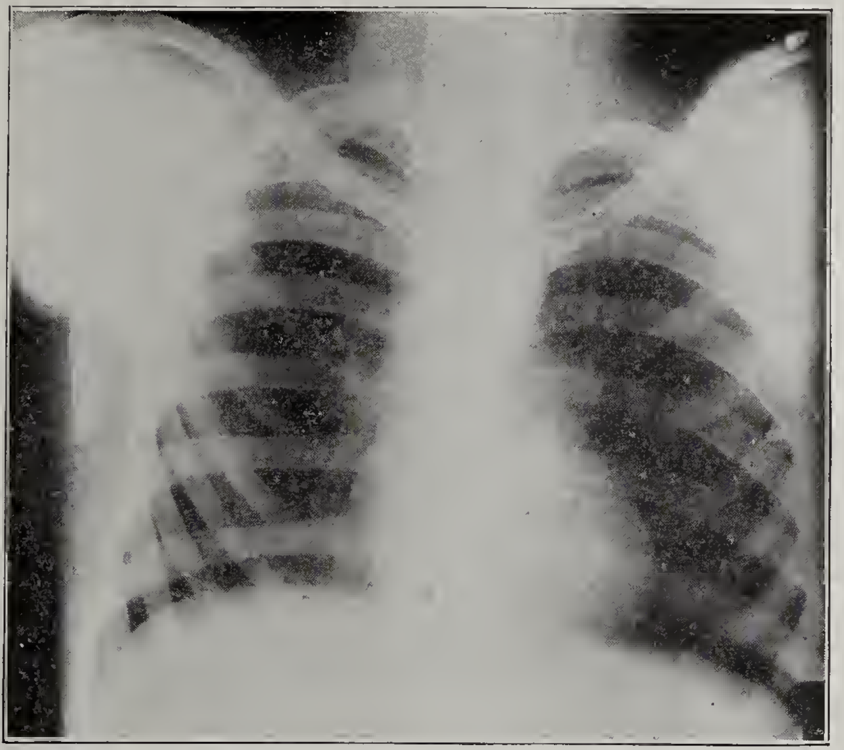

Fig. 4.—Normal appearance, May 10.

An exploratory laparotomy was performed; the stab wound penetrated the peritoneal cavity. The presence of free blood in the abdomen necessitated a thorough examination. All the abdominal organs were found intact, the bleeding being the result of a lacerated omental artery. This was tied, the tract of the stab wound excised, and the wound closed without drainage. The next day the patient's temperature rose to 101 F., and later to 103. A diagnosis of pneumonia was made, and consultation with the medical service requested.

Examination revealed the patient dyspneic, with a flush on his cheeks and cyanosis of the mucous membranes. The right side of the chest was flattened, and did not move with respiration. Percussion gave dulness over the upper part of the right side anteriorly, and flatness below. Posteriorly on the same side there was also dulness above and flatness below. Over the areas of dulness there was bronchial breathing, with a few râles. Over the flat areas, breath sounds and vocal fremitus were absent. The left side of the chest was hyperresonant, and the area of hyperresonance extended to the left border of the sternum. The apex beat could not be felt. We noted on the chart that the interpretation of these signs was difficult; that there was a possibility of consolidation with effusion at the right base; that there was also a possibility of massive collapse of the right lung, and that roentgen-ray examination would be necessary.

The roentgen-ray examination made, April 11, disclosed a dense shadow occupying the whole right side of the chest, and the heart and mediastinum drawn over to the right side (Fig. 1). On physical examination there was complete absence of breath sounds anteriorly and posteriorly on the right side, with the exception of the upper part of the right interscapular space, where bronchial breathing was heard. The apex beat could not be felt, and on the left side lung resonance extended to the left sternal border. Roentgen-ray examinations were repeated, April 15 and 17, with the same result as shown in Figure 1. The patient's temperature continued to be irregular. Only once did it rise to 103; usually it was below 102. He had a slight cough with, at times, a small amount of mucopurulent sputum.

April 19, his temperature was normal. The roentgenogram taken on this date showed that the upper part of the right lung had become aerated. The lower part still showed a dense shadow, and the heart and mediastinum were still over on the right side. The right border of the heart could be made out more distinctly, and the trachea could be seen to be over on the right side (Fig. 2). Physical examination revealed tympany on percussion over the upper two right interspaces, with mixed bronchial and vesicular breathing, and many râles. For the next two days the physical signs remained the same. The dyspnea was much less, and there was no abnormal temperature. April 22, the picture had changed entirely. The apex beat was felt distinctly in the fifth interspace just inside the nipple line, and the right border of the heart could be made out on percussion, just outside the right border of the sternum. The breath sounds were heard distinctly over the whole right lung anteriorly, and posteriorly with numerous râles. The collapsed lung had again become inflated, and the heart and mediastinum were back in their normal position. The roentgenogram taken on the 24th showed the heart and mediastinum in their normal position. The lower part of the right lung was still not quite aerated. The roentgenogram taken on the 26th showed the same picture (Fig. 3). There were still some râles heard at the right base. A roentgenogram taken, May 10, revealed the heart and mediastinum in normal position and both lungs entirely clear (Fig. 4). Physical examination on the same date was negative.

COMMENT

This case undoubtedly represents one of massive collapse of the right lung following a stab wound in the abdomen. What part the wound itself and what part the anesthesia played in the production of the collapse cannot be determined. As we become more familiar with this syndrome, we shall probably find that many cases of postoperative pneumonia will prove to be massive collapse of the lung.

How the collapse is produced, we do not know. Pasteur assumes that the collapse of the lung following operation is due to a reflex inhibition of the movements of the diaphragm. He showed that paralysis of the diaphragm and chest wall, if persistent for two days, results in collapse of the lung. Elliott and Dingley have assumed the condition to be due to obstruction of the bronchial tubes by secretion. At necropsy no such obstruction is found. Briscoe assumes that, as a result of inflammation of the diaphragm and of the pleural membrane covering it, the diaphragm and its synergic and antagonistic muscles are out of action, and that this results in massive collapse of the lung—an opinion not much different from that of Pasteur. Perhaps experimental studies will eventually solve this problem.

141 West One Hundred and Tenth Street—204 West One Hundred and Tenth Street.

Cancer a Local Disease.—As cancer is a local disease, there is always a stage when complete removal and cure is possible. Successful surgical treatment then is a matter of early removal.—Wolbach, *New Growths and Cancer*, Harvard University Press, 1922.

FIBROSIS OF THE LUNG FOLLOWING ROENTGEN-RAY TREATMENTS FOR TUMOR

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CHICAGO

There is little known about the effect of the roentgen ray on lung tissue as applied in the treatment of pulmonary neoplasms. Holmes,[1] in summarizing the present status of roentgen-ray therapy, emphasizes that investigation is necessary to determine the amount and quality of irradiation that should be used in different diseases, the effect of irradiation on both normal and pathologic tissues, and the effect of treatment on the patient as a whole. The present report of the lesions in two cases of secondary lung tumors which were treated with roentgen rays may throw some light on the effect of irradiation on the normal lung and on tumors of the lungs.

REPORT OF CASES

Case 1.—*History.*—In 1919, a painful swelling of the left arm developed in a man, aged 46. In February, 1920, because of the great swelling, he consulted a surgeon, who removed a tumor of the left arm. The growth recurred, the pain persisted, and about eight months after the operation a cough developed. In July, 1921, he was seen in the dispensary of St. Joseph's Hospital complaining of cough, expectoration of a gray, tenacious sputum, and pain in the left arm. He was then fairly well nourished, with a fever of 100, a pulse of 96, and respiration of 22. A tender swelling of the left humerus adherent to an old scar was present. There was limited excursion of the right side of the chest, and dulness over the right lower lobe. The roentgenologist reported that the right costophrenic angle was obliterated; the right diaphragm could not be outlined; in the left lung near the vertebra, at the level of the sixth rib posteriorly, there was a circumscribed nodule, and there were many large nodules in the right lower lobe.

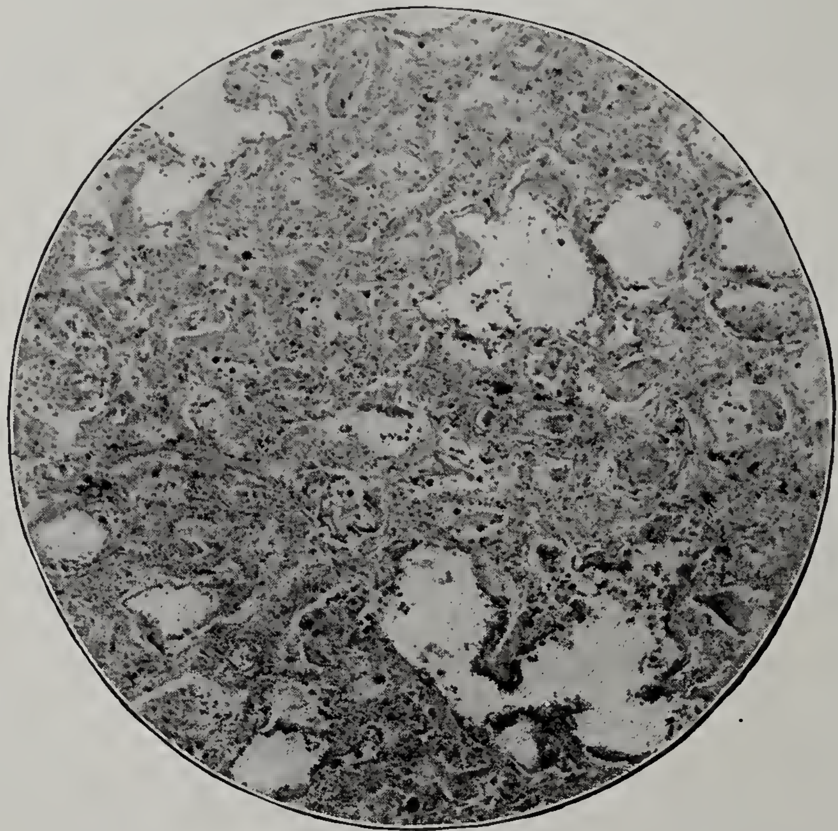

Fig. 1.—Low power of section of lung from Case 1, showing extent of fibrosis.

Treatment and Course.—Three series of roentgen-ray treatments were given under the direction of Dr. Jenkinson: Oct. 5, 1921, Series 1, 140,000 Peak volts at 20 inches target distance from the skin, with a filter of 1 mm. of copper and 1 mm. of aluminum; 2,610 milliampere minutes were given over all parts of the chest; November 17, Series 2, 125,000 Peak volts at 12 inches target distance from the skin, with a filter of 10 mm. of aluminum; 2,400 milliampere minutes over the entire chest; Feb. 2, 1922, Series 3, 140,000 Peak volts at 20 inches target distance from the skin with a filter of 1 mm. of aluminum and 1 mm. of copper; 1,500 milliampere minutes over the front of the chest and 900 over the back of the chest were given. No further treatments were given because the patient's condition became worse.

After the first series, improvement was almost immediate, the cough improved, and he gained in weight and strength. The third series was interrupted because the cough became worse and dyspnea developed. March 3, the respiratory distress was so pronounced that he was admitted to Dr. Frederickson's service in St. Joseph's Hospital. He was mildly cyanotic, and complained of air hunger. Chest expansion was equal on the two sides and not limited. A general decrease in lung resonance and moderate dulness over the right lower lobe was present. There was no enlargement of the heart, nor were any heart murmurs audible. The systolic blood pressure was 120, and the diastolic 70. Repeated bacteriologic examinations of the sputum revealed pneumococci and streptococci, but no tubercle bacilli. Sometimes the sputum was mucopurulent, at other times of tenacious, mucoid consistency. The hemoglobin estimation was 74 per cent. by the Sahli scale; there were 4,000,000 erythrocytes and 5,600 leukocytes per cubic millimeter. The urine and feces showed nothing abnormal. The patient had a fairly constant fever varying from 100 to 101. The breathing was shallow and at a rate of from 30 to 50 a minute. The pulse was of good quality, not more than 100 a minute. He frequently complained of an inability to get sufficient air. The breathing became more and more difficult, the cyanosis deepened, and on March 13 he died.

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[1] Holmes, G. W.: Am. J. Roentgenol. 8: 522 (Sept.) 1921.

Necropsy.—At the postmortem examination, about six hours after death, the body was that of a well developed man, 170 cm. long, weighing about 170 pounds (77 kg.). The nourishment was good. The skin and the mucous membranes were moderately cyanotic. The left elbow joint was ankylosed by a bony union. Two old scars extended vertically along the lateral surface of the left arm. There was a palpable thickening of the middle third of the left humerus, adherent to the scars. The humerus was removed and a fusiform enlargement of the middle, 4 cm. in diameter at the thickest portion, was composed of a soft, gray, friable growth that originated from the periosteum.

The anterior and superior mediastinal areolar tissue was thick and tough.

In each pleural cavity there was not more than 50 c.c. of clear, straw-colored fluid. Dense fibrous adhesions extended between the lower lobe of the right lung and the posterior wall and diaphragm. There were no adhesions in the left pleural cavity. The left lung weighed about 1,000 gm.; the surface was smooth; crepitation was absent in all portions; the substance was tough on section, and the cut surface had a dry, liver-like appearance. Multiple sections through all parts of both lobes revealed a lung substance of uniform dark brown appearance with but little air-containing tissue. No pus could be expressed from the bronchi, and no fibrin plugs were visible in the small amount of blood-stained fluid that was scraped from the cut surface. The right lung weighed about 1,100 gm. Except for a single nodule, 5 cm. in diameter, the upper lobe of the right lung was similar in all respects to the left lung. The lower and middle lobes of the right lung were densely adherent to each other by fibrous adhesions. Tumor tissue had replaced more than half of these lobes. There were several round gray-white, shining, circumscribed nodules averaging 2 cm. in diameter, closely set together and separated by a small amount of lung tissue similar in appearance to the parenchyma of the left lung. There was slight edema of the peritracheal and peribronchial lymph nodes. The lymph nodes in the superior mediastinum were enlarged, tough and surrounded by a thick fibrous capsule.

Except for slight fibrous thickening of the leaflets of the mitral valve, there was no change in the heart. The spleen was about twice its normal size, the capsule thickened and fibrous markings prominent.

Microscopic examination of sections from different parts of the tumor about the left humerus and from the nodules in the lung revealed a sarcoma with a predominance of large spindle cells of uniform size and appearance, arranged in twisted bundles. At the site of the tumor in the arm, the tissue was more cellular, with only a small amount of fibrillar intercellular substance, while in the lung tumor the intercellular substance was more prominent and contained abundant young and old connective tissue cells. The large spindle cells predominating in the sarcoma had a narrow rim of homogeneous protoplasm with large nuclei. Mitotic figures were infrequent.

Sections made from various parts of both lungs showed a decrease in the size of the alveoli and total obliteration of many of them, a striking feature, due to an increase in the alveolar walls by proliferation of fibroblasts, some of which extended into the lumen. There was a small amount of round-cell infiltration. In some of the alveoli, coagulum (edema) was present; in others, desquamatetd alveolar epithelium. The obliterated alveoli were filled with almost solid connective tissue. There was also some hyperplasia of the perivascular and peribronchial connective tissue, and a proliferation of connective tissue in the mediastinal lymph glands. The fibrous tissue in the spleen was increased.

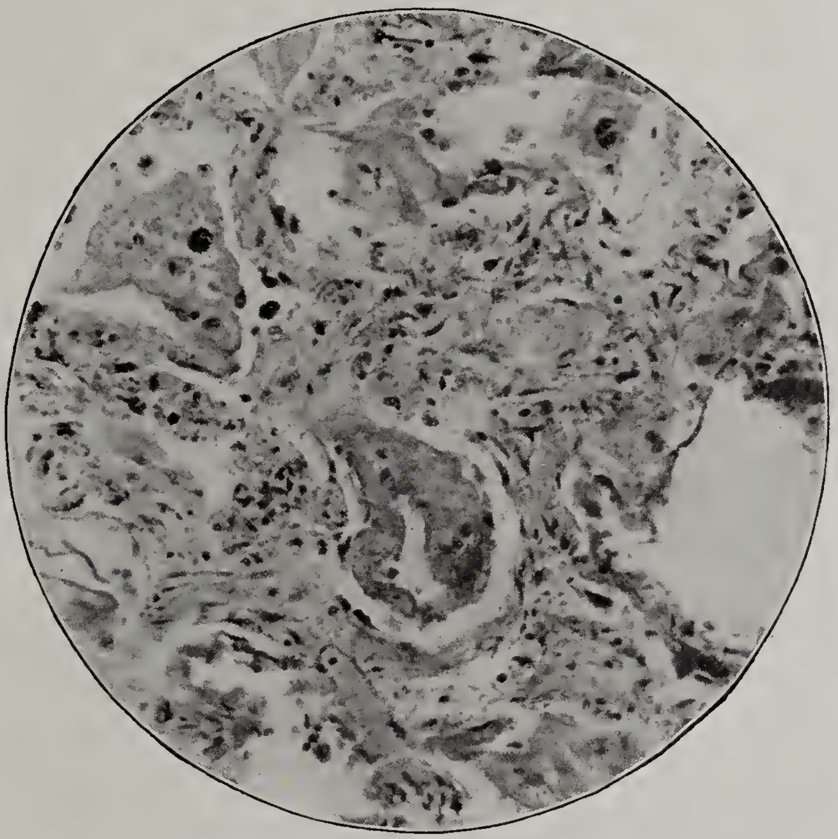

Fig. 2.—High power of section of lung from Case 1, showing proliferation of fibroblasts in the alveolar walls.

Case 2.—*History.*—A white woman, aged 53, was admitted to St. Joseph's Hospital, April 20, 1922, complaining of severe dyspnea, orthopnea and cyanosis. She lived only eight hours. In 1913, the right breast had been amputated because of a tumor. In July, 1921, enlarged right axillary glands were removed, and microscopic examination revealed the presence of closely packed columns and strands of carcinoma.

Following the operation, under the direction of Dr. H. E. Potter, she was given four series of roentgen-ray treatments, in which three areas were exposed each time. A voltage of 85,000 was used, and not more than 200 milliampere minutes were given over each area. In December, 1921, she was also exposed to 500 mg. hours of radium over the right supraclavicular region, 600 mg. hours in the right axilla and two needles of radium in the right axilla for three hours. In the first part of February, 1922, dyspnea developed and gradually increased in severity. The attending physician diagnosed left pleural effusion, and aspirated 1,000 c.c. of serosanguineous fluid, cultures of which were sterile. The dyspnea, which was only partially relieved by the aspiration, became more severe until her admission to St. Joseph's Hospital. The report of the roentgenogram taken a few hours before her death was: "The left lung is collapsed and fluid is present in the left base. There are circumscribed nodules in the left lung which might be interpreted as being carcinomatous nodules. The right lung is practically solid."

Necropsy.—At the postmortem, twelve hours after death, the body was 167 cm. long, weighing about 130 pounds (59 kg.). Nourishment was good, and there was an abundance of subcutaneous fat. The right breast was absent, and an old scar extended from the right anterior chest wall to and around the axillary fold. There were no nodules in the scar or adjacent tissue. The subcutaneous tissue in the region of the scar was tightly bound to the chest wall by fibrous adhesions. No tumor tissue was found in the axilla or regional lymph nodes. There was about 1 liter of blood-stained fluid in the left pleural cavity. Many strands of easily torn vascular adhesions extended from the left lung to the posterior parietal pleura. There was about 1 liter of clear straw-colored fluid in the right pleural cavity, but no adhesions. Both right and left parietal pleurae were increased in thickness to 5 mm., owing to fibrous and hyaline changes. On the pleural surface of both lungs were irregularly shaped gray nodules averaging 10 mm. in diameter. Dense fibrous adhesions bound the left lung to the diaphragm, and obliterated the left interlobar fissure. The pleura over the posterior and diaphragmatic surfaces of the left lung was thick, grayish white, and of a tough consistency. Both lungs were decreased in size, the right one weighing 650 gm., and the left one, 725 gm. Three gray nodules averaging 15 mm. in diameter were found in the right lung. No nodules were found in the left lung. Both lungs were of a leathery consistency and noncrepitant. The lung substance had a uniform fleshy appearance, and dark, bloody fluid exuded from the cut surface. There was no pus in the bronchi or bronchioles, nor were any fibrin plugs found after squeezing the lung.

In the liver there was one nodule of tumor tissue 2 cm. in diameter. The myocardium was pale, and a few yellow plaques were seen about the mouths of the coronary arteries and in the ascending aorta. No notable changes were observed in the other viscera.

Microscopic examination of the tumor nodules in the lung revealed closely packed columns and strands of carcinoma cells with a fine stroma. The cells were of varying ovoid shapes, the nuclei large and granular, and with frequent mitotic figures. Degenerated areas were frequent. In the liver was an area in which the liver cells were almost completely replaced by carcinoma. The parietal pleura was a dense, fibrous tissue with hyaline deposits. The friable adhesions in the left pleural cavity were composed of hemorrhagic fibrinous material.

Islands of carcinoma had invaded all parts of both lungs, the islands being sharply demarcated from the surrounding tissue by a dense fibrous capsule. The alveolar walls were slightly thickened and compressed with resultant diminution of air space, the thickening due chiefly to edema, hyperemia, and small round-cell infiltrations, but there were some connective tissue cells present.

COMMENT

In Case 1, a spindle-cell sarcoma with lung metastasis, roentgen-ray treatment was given according to the newer method of higher voltage, greater filtration and longer target distance. At first there was improvement in the patient's condition; but, during the last series of treatments, symptoms of respiratory distress developed, and several days later death occurred. All parts of both lungs, postmortem, were consolidated from proliferation of connective tissue in the alveolar wall, with resultant great decrease in air space, which accounts for the dyspnea and cyanosis, and might be considered as the immediate cause of death. In Case 2, carcinoma of the breast with pleural and lung metastasis, only a limited amount of roentgen-ray treatment was given, and no large amount at any one time. As in Case 1, cyanosis and dyspnea were prominent symptoms, and the gross appearance of the lungs was similar in the two cases; but microscopic examination disclosed that the consolidation was due to a diffuse infiltration of the lung tissue with islands of carcinoma. Therefore, the dyspnea and cyanosis and the cause of death may be attributed to the extensive growth of tumor in the lungs. However, the hyperplasia of connective tissue about the islands of carcinoma in the lung may have been the result, at least in part, of irradiation.

Numerous reports of the beneficial effects on deep seated tumors from roentgen-ray treatment give the impression that irradiation may inhibit the growth or destroy it without harmful effect on neighboring normal tissue. Thus, Soiland,[2] though he admits that it is logical to assume that rays passing through normal and pathologic cells should exert a like effect on each, states that there is little clinical evidence that normal tissues are injured by deep roentgen-ray therapy. In Case 1, in which heavy doses were used, it is difficult to explain the condition found except as the result of the irradiation.

SUMMARY

The condition of the lungs in a case of secondary sarcoma indicates that normal lung tissue may become the seat of a pathologic fibrosis as the result of intensive roentgenization.

In a case of secondary carcinoma of the lungs, treated less intensively, extensive infiltrations were encapsulated by fibrous tissue.

St. Joseph's Hospital.

CONDENSED AND ACCURATE CHARTING OF THE DIAGNOSIS OF THE EAR, NOSE, THROAT AND TEETH *

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GREENSBORO, N. C.

Records are of value in proportion to their etiologic accuracy, their accessibility and their legibility. The lower half of the head contains, in a comparatively small area, the upper respiratory tract, the beginning of the digestive tract and four of the special senses. Anatomically and physiologically, each two seem to be codependent. The eye needs the lacrimal duct for drainage into the nose; the ear the eustachian tube for ventilation. The olfactory bulbs function best in a well-ventilated nose. The gustatory sense is aided by the olfactory sense. This territory has been divided into sections or states of ophthalmology, otology, rhinology, laryngology and dentistry. The fifth nerve and its ganglions seem to be in high command and often bind them together in pain. An outbreak of the pathologic conditions or focal infection in one section appears to have a selected affinity, by continuity or contiguity of tissue, for its sister state.

The oculist may find an abscessed tooth the cause of choroiditis or iritis, or a sinusitis the cause of an optic neuritis or a labyrinthitis the cause of a nystagmus. The otologist is kept on the defensive to prevent the invasion of the enemy through the eustachian tube. In dentistry, we have thirty-two teeth which may harbor infection at some time in life. In rhinology, we have a good example of reciprocity. The nose and its accessory sinuses may be involved by the continuity and contiguity of tissue of the eye, ear, throat or teeth, and they seem willing at any time to reciprocate its pathologic condition and infection with the eye, ear and throat. The laryngologist may find local trouble resulting primarily or secondarily from reflexes or irritation from pathologic conditions of the upper respiratory tract. And this is not all: we have what might be termed referred pathologic conditions in other parts of the body, such as asthma, goiter, bronchitis, chorea, neuritis, nephritis, heart lesions, lumbago, rheumatism or cholecystitis which may come from these focal infections.

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[2] Soiland, A.: Am. J. Roentgenol. 8: 276 (May) 1921.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

To chart the locations and area of the examination of the abnormal, anatomic and pathologic tissue and the focal infection of the head, it is essential to know the normal anatomy, the physiologic function of the upper respiratory tract and its accessory sinuses, and the special senses; and to interpret the signals of distress of the special senses and the fifth nerve and its ganglions, of pressure either plus or minus, injury or insanitary conditions. By inspection, the visible abnormal anatomic and pathologic conditions are charted. By transillumination, a relative value of the invisible anatomic and pathologic conditions of the sinuses is found and charted. By a stereoscopic study of the roentgenogram, the inspection and transillumination is verified and may reveal a dark sinus to be a small one or absent.

I believe all will agree that one can become more efficient in operative technic and treatment by confining himself to ophthalmology, otology and rhinolaryngology. On the other hand, one who groups his examination may simplify the operative procedure and treatment so that the apparently less efficient may become the more efficient in the final analysis. Delicate opinions are not so essential as concrete facts.

A well-balanced group would be ophthalmology, otology, rhinolaryngology and dentistry, the rhinologist and the dentist doing the roentgen-ray work.

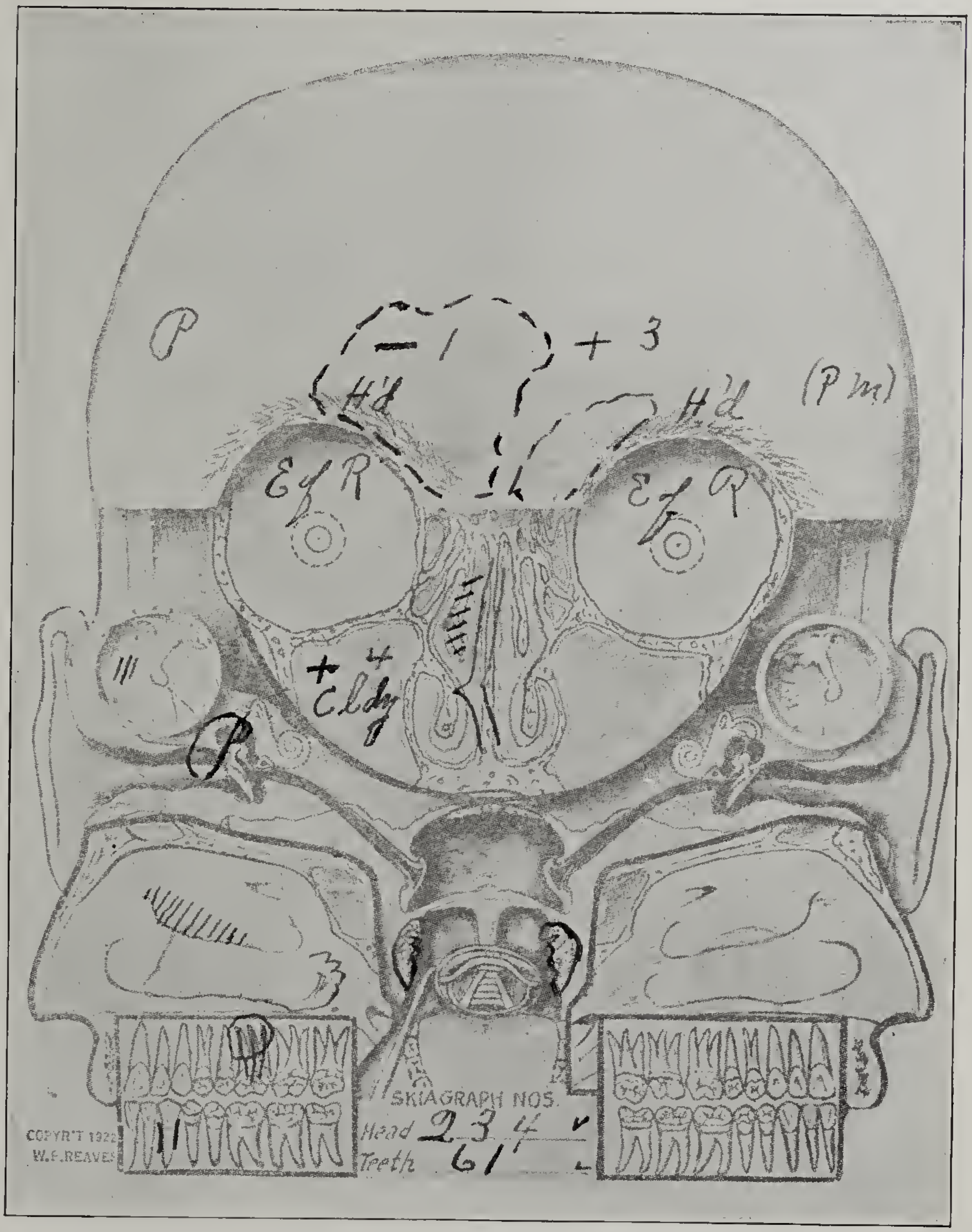
It is not a hardship for the rhinologist to read the roentgen-ray plate; but it is an aid n making the diagnosis, and the easiest way o review the anatomy and pathology before operation. The subjective, functional and aboratory examinations have been purposely omitted.

Accessibility of records depends on their compactness, so that they can be filed in the minimum space and kept in easy reach.

Legibility of records depends on the accuracy of history and examination, and he charting of the inspection, transillumination, roentgenogram, operation, after-treatment and results, which enable one to nterpret and visualize the patients' former conditions.

ABSTRACT OF DISCUSSION

DR. GEORGE F. KEIPER, Lafayette, Ind.: I am much interested in this chart, because I keep harts and records myself. When I first began his line of practice I followed the usual method hen in vogue of writing information obtained in book. But the first thing I knew I was forgeting to write down a lot of things I should have observed and ailed to observe. In order that I might not miss anything, I egan to search for means whereby I would have this information on a printed chart. Politzer gave me an idea which I mplified by printing on the back of his original record a number of diagrams so I could fill in what I wished. I have everything printed with record sheet that I ought to observe, and a space for making observations as to what the condition is. The advantage of having everything printed so that one can fill in is that it eliminates a great deal of mental effort. I see some possibilities in this diagram. Of course, we must amplify our charts to keep up with the progress that has been made in the different lines of work, and I believe that the best records will be made by having a printed form to go by in order that we may not forget anything. Of course, with any printed form it will be impossible at times to record everything that ought to be recorded on the form; but it is easy to attach a piece of paper on which one supplements what one has already recorded on the printed form. I like the idea of large filing cases in which to put the printed forms, adding to them from time to time as is necessary, keeping them in a large envelop or folder, and pasting on



Card employed. Suggestions: *H'd*, headache; *P*, pain, shading, absent—previous operation; outlined area, area involved; outlined shaded area, area involved and subsequent operation; area with broken outline, outline of area; —*1* or —*2* and +*1, 2, 3, 4*, degree of transillumination; roentgenogram reading—clear, hazy, cloudy and size; *E. of R.*, error of refraction; abbreviations can be used to show diagnosis and area (O. M. C. C.); condition of teeth: line through root, pulpless, circle at apex, abscessed, lines at gum, pyorrhea. Part of history can be charted: a. m. or p. m., time of occurrence; arrow, direction in which pain radiates. Inspection: (1) E. of R. should be refracted for glasses; (2) middle turbinate has been removed; (3) septum to right with ridge; (4) hypertrophy of right posterior tip of inferior turbinate; (5) hypertrophied tonsils; (6) right tympanic membrane perforation; (7) pyorrhea of lower right cuspid. Transillumination: right frontal —*1*: very clear, suggests large frontal; left frontal +*3*: suggests sinusitis or small frontal; right maxillary +*4*: suggests sinusitis or old sinusitis with hypertrophy of tissue (referred to the roentgenologist). Roentgenogram: right frontal—clear and large; left frontal—clear and small; right maxillary, cloudy; right upper molar abscessed (history, inspection, transillumination and roentgenogram are grouped and referred to the surgeon's clinical experience for diagnosis). Group examination: (1) error of refraction; (2) deviated septum to right with ridge; (3) right maxillary sinusitis; (4) hypertrophy of right post tip of inferior turbinate; (5) hypertrophied tonsils; (6) teeth — referred to dentist; (7) referred to the surgeon's clinical experience for the diagnosis, overlapping pathologic conditions, obstruction, pain and reflexes. Halftones can be made in any size to fit any individual record card. Halftone in red gives good contrast in charting.

subsequent records, that we may have an accurate record of the patient. We cannot trust our memory for everything.

Dr. Joseph D. Heitger, Louisville, Ky.: Dr. Reaves has given us a unique chart, and its application, of course, depends largely on the individual. I doubt very much whether any of us are satisfied with our case records. As evidence of that we have only to go back through our case records of several years past and compare them with those of the present and note the variation. Whether the variation is constant depends on the progress of our work. The average case record should contain a number of very fundamental things. The way in which this information is placed would again depend on the individual. But in an accurate history the most important thing is to get the chief complaint of the patient. A great deal of time can be saved in that way, particularly with a talkative patient who wants to give his whole life history. Following that we should get a chronological history and pick out the major from the minor points. Next in line would probably be the family history and then the personal history that is relevant to the case in hand. Following that would be physical examination and findings, and subsequent to that would come the summary. Then from this we could arrive at a tentative diagnosis. With the interpretation of the findings so far produced in terms of anatomy, physiology, pathology and biochemistry, and the case approached from this standpoint, there might be a change in the tentative diagnosis, which would lead to a final diagnosis. Then the definite, final diagnosis is usually put off until the completion of the case. This will necessitate study and repeated examination of certain phases of the findings. Then can be noted what was done, and last of all, the follow-up.

Dr. W. Perry Reaves, Greensboro, N. C.: As to printed suggestions, it has been my observation that they lead one into inaccuracies—putting what they suggest rather than one's own observations. The object was to do away with everything and make the man writing the record put down a record of that particular patient and nothing superfluous. We find that the trouble with the intern has been that he can write a beautiful history; but let him put down concrete facts, and then later if his observations are different he has another chance at it. Let him get away from the symptoms and give the etiology. Of course, this works out gradually.

WASSERMANN VARIATIONS

A STUDY OF THE SERUMS OF SEVENTY-FIVE PATIENTS BY EIGHT LABORATORIES *

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SEATTLE

Every clinician learns by experience that there is a certain very small percentage of unavoidable error in even the most expertly conducted complement fixation test for syphilis. The present percentage of error is greater than this unavoidable error, resulting in further false positive and false negative reactions. Therefore, we find variation in the reaction on the same specimen of serum in different laboratories, and even on the same specimen in the same laboratory. This condition is at once evident to any one who has been sufficiently interested to investigate it. Uhle and MacKinney,[1] Phelps[2] and Wolbarst[3] all report such variations.

Our experience was repeatedly such, and in 1921 seven Seattle laboratories agreed to cooperate in examining the serums of seventy-five patients. Each serum throughout this series was drawn at one sitting and divided equally among the laboratories. Each patient was studied carefully clinically and classified as to positive, questionable or negative reaction. All cases were selected, except for ten known negative cases, because of variation between laboratories in previous Wassermann tests, or because of Wassermann reactions being at variance with clinical evidence. No frank primary or secondary syphilids were included in the study. Most of the syphilitic cases were latent or parasyphilitic.

The first twenty-five serums were examined only by the usual routine employed in each laboratory. The results of this series are seen in the tabulation of Series 1. Series 2, consisting of fifty cases, was conducted on the following plan: Seven laboratories cooperated: three technics were employed, Technic A, the usual routine employed in each laboratory; Technic B, the same as Technic A, except that all serologists employed the same antigen, and Technic C, a common technic, employing the same reagents throughout in each laboratory. In addition to this, the Dermatological Research Institute of Philadelphia examined each serum, using its usual routine and the new quantitative technic of Dr. John A. Kolmer. Our laboratory tested each serum, using Dr. Kolmer's new technic. Although the chart shows only twenty-six reports on each case, some idea of the amount of work done by the laboratories is evident from the fact that fifty setups were made on each serum in the second series, or a total of over 2,500 Wassermann tests.

Analysis of the results reveals: The percentage of variation between laboratories is so nearly equal with the A and B technics that employing a common antigen has not seemed to result in any improvement. Even the common Technic C does not show much less variation than the other two. In the untreated positive cases, all four technics, averaging all laboratories, agreed with the clinical evidence in more than 90 per cent., the percentage of agreement for any given laboratory ranging from 78 to 100 per cent. In the cases classified as negative, averaging all laboratories, the percentage of agreement varied from 88 per cent. for the C technic to 97 per cent. for the Kolmer. The large number of false positive reactions with the C technic, reported from two laboratories, is probably due to the fact that this common technic differed more widely from their usual Wassermann test than it did from the usual technic in the other laboratories, thus emphasizing the importance of the serologist's familiarity with the technic he is using. Except for the C technic, the percentage of agreement for any given laboratory ranged from 75 to 100 per cent. The Kolmer technic run in two laboratories averaged 95 per cent. agreement in the untreated cases giving a positive reaction and 97 per cent. agreement in the negative cases.

The cases classified as questionable are remarkably interesting. It was impossible to classify these cases as positive or negative because of doubtful clinical evidence, because of variation in previous Wassermann reactions, or because of variation in the reports of the eight collaborating laboratories.

In the first series, both questionable cases are believed to be nonsyphilitic, and hence the strong

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* From the Virginia Mason Hospital.

* Read before the Section on Practice of Medicine at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

* Owing to lack of space, this article is abbreviated in The Journal by the omission of a table. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Uhle, A. A., and MacKinney, W. H.: Comparative Results of the Wassermann Reaction, J. A. M. A. **65**: 863-866 (Sept. 4) 1915.

2. Phelps, O. D.: A Preliminary Report of the Result of Wassermann Tests as Reported from Different Laboratories, Calling Attention to a Little Nob on the Frenum of the Upper Lip, Which May or May Not Be Characteristic of Syphilis, Boston M. & S. J. **173**: 391-392, 1915.

3. Wolbarst, A. L.: Contradictory Findings in Wassermann Test, New York M. J. **98**: 378, 1913.

positive reactions are considered by us to be false positives. In the second series, no strong positive was obtained under Technics A or B.

Granting that little is known of the chemistry of the complement fixation reaction for syphilis; that the chemistry of the reagents employed is poorly understood; that many internal conditions of the patient may cause variation in results, is it not surprising to note so great a disagreement between serologists employing serum drawn at the same time, using the same technic, and exactly the same reagents from the same sources and with the same degree of freshness? The only difference which should appear under these conditions is that arising from the interpretation of the degree of hemolysis. Also, probably greater technical care was exercised in running this series, because of the spirit of friendly competition, than would be employed in the average case.

The results with the new Kolmer technic [4] are to be discussed in a separate paper, but some conclusions to date may be mentioned here briefly. The advantages in our hands have been: greater sensitivity and greater specificity than with our own quantitative technic. To date, we have received no false positives and but one false negative result. The reactions are sharp, clear-cut and easy to read. Fewer serums are anticomplementary to this technic, and it is economical. It requires more time, but as Kolmer emphasizes, "accuracy should never be sacrificed for speed or labor saving." It requires a somewhat greater technical ability, although, again to quote the author of the new technic, "the simplest technic is a complicated problem for the unexperienced and insufficiently trained worker; whereas a more complicated technic is perfectly simple to the experienced serologist." The chance of technical error is less because of the smaller amounts of reagent employed in greater dilution.

It is firmly believed that the great variety of technics now employed throughout the country as complement fixation methods for syphilis undoubtedly accounts for much of the variation in reactions and consequent growing lack of confidence in a test of undoubted virtue. It is believed that a great deal of this variation would be corrected by a standardized technic. Any additional expense of time or money, if such be necessary, would be justified by some improvement in the present conditions in regard to a test dealing with so important a matter as syphilis. This standardized technic should be sufficiently sensitive to detect the latent cases, with small amounts of reagin in the blood, and yet not so sensitive as to interfere with specificity and permit of false positive reactions. The greatest sensitivity permissible with safety should be used. False positive reactions are almost unforgivable—but it is believed that false negatives are equally so. We should not so fear an occasional false positive reaction, and, therefore, employ so insensitive a technic that many false negatives are obtained. The ideal would be an elimination of both.

A second and possibly greater factor in the variation of results is the technician. Certainly no test should be made with a greater feeling of responsibility or with more implicit attention to exactitude for every detail than the complement fixation test for syphilis. And yet in some laboratories technicians are employed to conduct the test who have had little or no training along biochemical lines, feel little responsibility for their work and are purely mechanical in what they do; and they often have little supervision. Probably few of us realize that, since inactivated serums have come to be generally used, a slight technical error, such as omitting one reagent, always produces a strong positive or a negative Wassermann reaction in the tube, which is missed in adding the reagent. Such a condition of affairs is a serious reflection on a profession which is content with such work. The technician should report what the test tube shows, and the interpretation of the result rests entirely with the clinician. The requirements for technicians before they are permitted to perform complement fixation tests for syphilis should be very high, and the right to perform such tests should be regulated by proper authority.

A third and possibly the greatest factor in the difficulties attending Wassermann tests today is the lack of knowledge of the profession at large concerning the interpretation of the laboratory report. Many patients with no history or clinical evidence of syphilis are being given antisyphilitic treatment on the evidence of a single weak positive Wassermann reaction. The laboratory cannot diagnose syphilis except by demonstration of *Spirochaeta pallida*. A single positive Wassermann reaction, even though it is a strong positive, does not finally prove that a patient has syphilis, although it is unquestionably correct in the large percentage of such reports; nor does a single negative reaction decide that a patient is nonsyphilitic. At present, a positive or a negative Wassermann reaction should never be considered final when it conflicts with the clinical evidence, unless repeatedly checked through more than one laboratory. A weak positive reaction without clinical evidence should never be considered diagnostic of syphilis. However, it is not to be overlooked that a spinal puncture may supply conclusive support for a repeatedly weak blood Wassermann reaction.

Each member of the profession should have a full understanding of the principles and general technical requirements of the Wassermann test, its limitations and shortcomings, and its diagnostic value, both in the presence and in the absence of clinical evidence. The serologist should never be asked to give a Wassermann report in less than twenty-four hours, and should be given a longer time if he considers it necessary. He should be allowed a fee which will compensate him for the time, ability and care required for the highest quality of work. The clinician should not demand that the serologist make either a positive or a negative report on a given serum. He should know something of the type of test made by the serologist from whom he obtains his reports and of his point of view, as emphasized by Kaplan.[5] Attention to these matters by serologists and clinicians with certain standardized technical improvements should make the Wassermann the most valuable laboratory test for syphilis which we have today.

Even a rapid analysis of the table reveals at once a much greater agreement in results in the second series than is found in the first. Also, it should be noted that the agreement between laboratories and the agreement with clinical evidence is higher than in any previously reported comparative series. As low as 20 per cent. and never more than 70 per cent. of agreement, when three or more laboratories have collaborated, has been reported. Those of us who in the past have insisted that the laboratory diagnose syphilis with the Wassermann test will do well to note that no laboratory in this study agreed with the clinical evidence in 100 per cent. of cases, in spite of the excellent showing made by all laboratories participating. As Solomon [6] has very pointedly stated, "No matter how small the percentage of error may be, if it affects any given individual, it is a 100 per cent. error for the individual, and therefore it is the duty of the clinician to protect him as far as possible."

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[4] Kolmer, J. A.: Studies in the Standardization of the Wassermann Reaction, XXX, A New Complement Fixation Test for Syphilis, Based upon the Results of Studies in the Standardization of Technique, Am. J. Syph. 6: 82 (Jan.) 1922.

[5] Kaplan, D. M.: Serology of Nervous and Mental Diseases, Philadelphia, W. B. Saunders Company, 1914.

CONCLUSIONS

1. A safe and efficient standardized technic should be adopted and required of all laboratories.
2. A higher degree of efficiency should be demanded of technicians.
3. Laboratories performing the Wassermann test should be authorized and supervised by medical state or federal authority.
4. The profession at large should have a better understanding of the technical difficulties of the Wassermann test and of its value as a diagnostic procedure.

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SUDDEN DEATH IN TWO PATIENTS FOLLOWING INTRAVENOUS INJECTIONS OF ACACIA *

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The intravenous administration of acacia in shock, hemorrhage and allied conditions came into vogue especially during the World War. The objective evidences which would justify its use in patients and indicate its limitations are rather limited. Opinions of surgeons who have used it vary greatly as to its beneficial value, and there are those who regard it as actually harmful.[1]

Investigators are by no means agreed as to the true physiologic basis for the use of acacia. Bayliss [2] asserts that it is chemically inert, and attributes the rise in blood pressure it produces in animals to its physical properties, i. e., to its behavior as a colloid. Erlanger [3] and his associates, and Hurwitz [4] also incline to this view. On the other hand, Zondek [5] and Erich Meyer [6] regard the calcium in the acacia responsible for any improvement in the circulation, and they report equally good results by the use of Ringer's solution containing an excess (0.8 gm. per liter of the dried salt) of calcium chlorid. Bernheim [7] found acacia solution to be no better than ordinary salt solution (0.9 per cent. sodium chlorid) for maintenance of the blood pressure in shock, and he preferred the transfusion of citrated blood. Stewart [8] regards acacia as distinctly unphysiologic. Foster and Whipple [9] have shown that acacia in dogs delays the restoration of fibrin to normal, and at times delays the coagulation time of blood for many hours. Richet, Brodin and Saint Girons [10] concluded that the use of acacia offers no advantages over salt, sugar and serum in dogs subjected to repeated hemorrhages, and in large doses exerts a toxic action. Recently, Haggard and Henderson [11] have shown that acacia is deleterious when injected intravenously into dogs suffering from severe hemorrhage. Henderson and Haggard believe that acacia cannot take the place of the essential element of the blood for supplying oxygen to the tissues, namely, the red blood corpuscles. The recovery of animals receiving other salt solutions was better than in those receiving acacia. Other evidences [12] in the literature indicate that the oxygen deficiency in the tissues may be a more useful criterion for judging the usefulness of therapeutic measures in shock than the blood pressure level. If this is true, transfusions of blood would be superior to intravenous injection of acacia as a therapeutic measure. However this may be, the physiologic aspects of the problem of shock are by no means settled and, therefore, it does not seem that the use of acacia and similar therapeutic measures is justified solely on the basis of certain physical properties which may or may not be of prime importance in the treatment of the condition.

As far as is known, acacia is nontoxic when administered by mouth or injected subcutaneously. When it is injected intravenously, however, the same dangers and the same limitations that apply to intravenous medication in general are involved. The intravenous injection of acacia into guinea-pigs has been shown by Hanzlik and Karsner [13] to be distinctly injurious, causing symptoms which resemble anaphylaxis, but differing from true anaphylaxis in several particulars, including the formation of emboli and thrombi, with the presence of pulmonary hemorrhages and conglutinated corpuscles in the pulmonary capillaries. Similar symptoms were reported by American surgeons during the World War [14] and by others. Bayliss showed that acacia agglutinated cat's corpuscles in vitro, and this was shown to be true for several other species, including the red blood corpuscles of man, by Kruse [15] and by Karsner and Hanzlik. In connection with their study of the movements of intestinal villi in dogs, King, Arnold and Church [16] report that intravenous injections of the acacia which they used were toxic, causing a rapid onset of shock, with diminution in activity of intestinal villi and lymph flow. Recently, Olivecrona [17] reported the death of a woman following the injection of a 6 per cent. solution of acacia, and he warns against its indiscriminate use.

The experience of Olivecrona prompts me to report two cases in which death occurred rather suddenly following the intravenous injection of acacia solution.

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[6] Solomon, H. C.: Agreement in Results of the Wassermann Reaction, J. A. M. A. **74**: 788 (March 20) 1920.

* From the Department of Pharmacology and Therapeutics, Stanford University Medical School, and San Francisco Hospital.

[1] On the Intravenous Use of Acacia, editorial, J. A. M. A. **78**: 1897 (June 17) 1922.

[2] Bayliss, W. M.: Intravenous Injection in Wound Shock, Brit. M. J. **2**: 553 (May 18) 1918.

[3] Erlanger, J., and Others: Am. J. Physiol. **50**: 31, 104, 119, 149 (Oct.) 1919.

[4] Hurwitz, S. H.: Intravenous Injections of Colloidal Solutions of Acacia in Hemorrhage, J. A. M. A. **68**: 699 (March 3) 1917.

[5] Zondek: Biochem. Ztschr. **116**: 246, 1921.

[6] Meyer, Erich: Klin. Wchnschr. **1**: 1 (Jan. 1) 1922.

[7] Bernheim, B. M.: Hemorrhage and Blood Transfusion in War, J. A. M. A. **73**: 172 (July 19) 1919.

[8] Stewart, G. N.: Am. J. Physiol. **49**: 233 (July) 1919.

[9] Foster, D. P., and Whipple, G. H.: Am. J. Physiol. **58**: 393 (Jan.) 1922.

[10] Richet, C.; Brodin, P., and Saint-Girons, F.: Presse méd. **26**: 581 (Nov. 14) 1918.

[11] Henderson, Yandell, and Haggard, H. W.: Hemorrhage as a Form of Asphyxia, J. A. M. A. **78**: 697 (March 11) 1922.

[12] Newer Conceptions Concerning Shock, editorial, J. Lab. & Clin. Med. **7**: 498 (May) 1922.

[13] Hanzlik, P. J., and Karsner, H. T.: J. Pharmacol. & Exper. Therap. **14**: 379, 425 (Jan.), 449, 479 (Feb.) 1920.

[14] Robertson, O. H.: Central Med. Dept. Lab., Div. Surg. Research, A. P. O., France, Oct. 27, 1918, p. 721.

[15] Kruse: Am. J. Physiol. (Proc.) **49**: 137, 1919.

[16] King, C. E.; Arnold, L., and Church, J. G.: Am. J. Physiol. **61**: 80 (June) 1922.

[17] Olivecrona, H.: Acta chir. Scand. **54**: 1, 1921.

Both patients presented symptoms, which, according to the advocates of acacia, constitute indications for the use of the drug. No beneficial effects whatsoever were observed, and in both patients death occurred sooner than it was expected.

The acacia was used as a 6 per cent. solution of gum arabic No. 1 (best quality obtainable) in 0.9 per cent. sodium chlorid solution. The solution was filtered by suction; then the filtrate was neutralized with sodium hydroxid, and the second filtrate was filtered again, sterilized in an autoclave and then used for the injections.

The essential data pertaining to these patients are presented in the following brief protocols.

REPORT OF CASES

Case 1.—R. N., a man, aged 78, entered Lane Hospital of Stanford University, Dec. 24, 1920. He was large and well built, but emaciated, and, on entry, in no discomfort. Physical examination revealed a large, hard, nodular mass in the right upper quadrant presumably attached to the liver, and a right inguinal hernia. Aside from these lesions there were no abnormalities. There was no history of circulatory disorders. Systolic blood pressure was 125 mm., diastolic 78 mm.; hemoglobin was 80 per cent. (Tallqvist scale); erythrocytes, 4,110,000 and leukocytes, 20,100 per cubic millimeter. Blood was absent in the gastric contents. A tentative diagnosis of carcinoma of the stomach was made.

On the morning following his admission to the hospital, the patient complained of some weakness, faintness and suffocation. These subjective symptoms increased in severity until about 10 a. m., when the patient appeared to be in a state of shock. Marked dyspnea and orthopnea were present; the skin was pale and cold; the pulse rate increased from 78 (the day before) to 140; the blood pressure was 120 mm., and respiration, 40 a minute. The nature of this collapse was not clear at the time, but in view of the suspected carcinoma it was thought likely that it was due to an internal hemorrhage. Tyramin, 0.06 gm., was injected subcutaneously, and in fifteen minutes the blood pressure had risen to 145 mm. The pulse and respiratory rates were unchanged, but he patient appeared to be improved. The tyramin was epeated one hour later. Following the second injection of tyramin, the patient was given 500 c.c. of the acacia soluion intravenously. His condition was immediately worse. He became unconscious; the pulse was imperceptible at the wrist; marked cyanosis was present, and death occurred bout five hours later. The following resuscitative measures were administered immediately after the injection of the cacia: 1 c.c. of camphorated oil intramuscularly; 0.7 c.c. of pinephrin (1:1,000), subcutaneously, and 8 c.c. of tincture f digitalis by mouth. When the heart sounds were no longer udible, 0.7 c.c. of epinephrin (1:1,000) was injected into he right ventricle. No beneficial effects were observed from ny of these measures. Necropsy was not permitted.

Briefly summarized, this patient, who was originally in airly good condition, suddenly developed symptoms of shock. he circulation was depressed, but responded in the usual ay to tyramin. However, when acacia solution was admintered intravenously, the patient's condition became worse mmediately, and death occurred within a comparatively hort time. No beneficial effects from the acacia could be ecognized. The impression was gained that the patient's ecline was accelerated by the acacia injection.

For the description of the next patient, I am indebted o Dr. D. E. Shepardson, house officer in the Department of Medicine, Lane Hospital of Stanford Uniersity, who administered the acacia and made the ubsequent observations. The acacia solution used as the same as that administered to the first patient.

Case 2.—W. S., a man, entered the hospital in May, 1919, th a diagnosis of pulmonary tuberculosis. Jan. 18, 1921, pulmonary hemorrhage occurred, the patient losing about 500 c.c. of blood. Three days later a second hemorrhage took place, with a loss of about 750 c.c. of blood. After the second hemorrhage the patient was weak and anemic, but his general condition was fairly good. On the day following the second hemorrhage the patient was given 150 c.c. of 6 per cent. acacia solution intravenously. Just before the injection of the acacia, the systolic blood pressure was 85 mm. Immediately following the injection the patient's condition became worse, although the systolic blood pressure had risen to 145. He became dyspneic and complained of a feeling of oppression in the chest, and expressed great apprehension of approaching death. Fifteen minutes after the injection of the acacia, the blood pressure had fallen to 75 mm., and shortly after this to 60 mm. systolic. At this time 1 c.c. of 1:1,000 epinephrin was injected subcutaneously. The blood pressure rose to 80 mm., but without improvement in the general condition. Two and one-third hours after the injection of the acacia, the blood pressure was 50 mm. Soon after this there was another small hemorrhage (less than 100 c.c. of blood). Death occurred two hours and twenty-five minutes after the injection of the acacia. Necropsy was not obtained.

Briefly, therefore, the condition of this patient, which was fairly good despite several pulmonary hemorrhages, was immediately and permanently impaired by the intravenous injection of acacia, and death occurred rather promptly.

COMMENT

Taken as a whole, the results obtained following the injection of acacia in these two patients give the impression that this agent is not entirely harmless. Both of the patients presented symptoms which are claimed to be indications for its use. However, no beneficial results were obtained. In Case 1, the symptoms of collapse were not alleviated, but on the contrary, were aggravated after the injection. In Case 2, there was an abrupt change for the worse after the acacia was administered, and a rapid decline set in which resulted in death much sooner than it was expected. In this patient there was only a transitory rise in blood pressure following the acacia. The rise in blood pressure which occurred appeared to be out of proportion to the effects of the volume (150 c.c.) of solution that was injected. However, despite this rise in blood pressure the patient suffered an immediate, sudden and alarming change in his general condition which, prior to the injection, was judged to be fairly good. Neither patient was moribund, and there was no reason to believe that both patients could not have survived the time period during which death occurred had not acacia been injected.

As far as the method of preparation of the acacia solution and quality of the product and dosage are concerned, it is not believed that these in any way contributed to the cause of death in these patients. The acacia was of the usual variety; the solution was freshly prepared, neutralized and filtered according to the directions of Bayliss. This is the smallest disadvantage to the use of acacia. The main difficulties arise when the acacia is introduced into the blood stream. Whether emboli, or thrombi, and conglutinated corpuscles occurred in these patients is not known. It would be useless to speculate further, but the dangers of intravenous medication are emphasized again, and these are not confined to acacia, whose rôle as a beneficial therapeutic agent in shock, hemorrhage and allied conditions may, indeed, be questioned.

SUMMARY AND CONCLUSIONS

1. Two patients died rather suddenly after the intravenous injection of acacia solution.

2. No beneficial effects were observed from its use in these patients.
3. Definite and immediate deleterious effects were observed in at least one, and death was accelerated in both of the patients as a result of the injection of the acacia.
4. This is in accord with the deleterious effects of acacia in animals and man reported by others.
5. It is doubtful whether acacia is an absolutely harmless agent when used in shock, hemorrhage and allied conditions.

PRESENT STATUS OF THE TREATMENT OF TUBERCULOSIS *

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One of the most potent factors in retarding progress in the treatment of tuberculosis is the pessimistic psychology which has surrounded this disease from time immemorial, and which, in spite of the great progress recently made, still holds sway in the minds of both medical men and laymen. Regardless of our lack of a specific remedy for its treatment, if the measures which have been gradually evolved during the last half century are applied during the early clinical stage, and continued for a sufficiently long time, with the hearty cooperation of the patient, nearly all patients with tuberculosis can be restored to health.

This optimistic statement presumes that:

1. Present measures used in treatment are sufficient to cause tuberculosis to heal.
2. These measures must be applied early.
3. The treatment must be carried on for a sufficient time.
4. The patient must give a whole-hearted cooperation.

This paper will consist of a discussion and elaboration of these four points.

In this statement of the present status of therapy I believe that a discussion of fundamental factors is of more importance than a discussion of each particular remedy. Such a discussion should outline what we are attempting to do by therapy; and, when this is made plain, the measures will naturally fall into the classes to which they belong.

HOW TUBERCULOSIS HEALS

Nature heals tuberculosis by keeping the anatomic elements of the host, that is, the body cells, in a condition of high physiologic activity. An individual overcomes an infection when once established by destroying what bacilli he can by his own natural defensive elements supplemented by a specific reaction with which his body cells have been endowed as a result of the infection, and by sealing up and burying in a wall of fibrous tissue those bacilli which he is not able to destroy.

It is self-evident that the nearer the body can come to maintaining a physiologic equilibrium, the more able it will be to overcome an infection. It is also self-evident that the intensity of the process, or the amount of physiologic disturbance, is of greater weight in prognosis than the extent or the amount of anatomic disturbance, except in widespread fibrosis, when the amount of lung destroyed becomes the really serious factor. It is further self-evident that the less the anatomic and the physiologic disturbance, the better the chances of healing, because under these conditions fewer bacilli and toxic bodies are gaining access to the circulating fluids.

There are two methods of approach to the cure of an infectious disease; one by specific remedies which combat the organisms or their toxins directly, such as antitoxin in diphtheria and quinin in malaria, and the other by aiding the natural defensive forces of the patient so that he cures himself. So far, tuberculosis has baffled search for a truly specific remedy; and while the search for such a measure still goes on and the hope of some such boon to the race being discovered is deeply embedded in the minds of investigators, yet many of those who are most interested in the solution of the tuberculosis problem have greater hope that some method of vaccination may be discovered which will protect the individual against massive infection, during the early years of life.

AIM OF THERAPEUTIC MEASURES

The measures which have secured general recognition in the treatment of tuberculosis have one common aim, that of keeping the patient's physiologic equilibrium so balanced that his body cells function to the best advantage. These measures include open air; a sufficient supply of adequate food; sun, air and water baths; rest when the disease is active; exercise when the disease is quiescent, provided there are no other contraindications; medicinal tonics; measures which are directed against harmful symptoms and complications; psychotherapy, and artificial pneumothorax. One and all, these improve in one way or another, either in a large measure or in a small one, the physiologic working of the organism. The value of measures in treatment will differ according to how great a service each can render to the patient.

The physiologic action of the important viscera is not only influenced but also controlled by the vegetative nerves and chemical substances which are termed internal secretions. This nerve and chemical control of the body is influenced by physical and psychic stimuli. Stimuli of both varieties may be salutary or harmful. Symptoms of disease represent the effects of the latter. Is it not possible that there is a marked stimulation of normal physiologic activities caused by the disease? May we not judge this from the fact that the sympathetic system is stimulated by toxins, and that the suprarenals and thyroid also respond? While in fatal disease we see the breaking down of the entire physiologic response, yet in the great majority of infections it proves sufficient to withstand the attack and to bring the patient safely through.

There is a generally accepted treatment of tuberculosis today which consists of hygienic living in the open air with rest and a sufficient supply of adequate food. This is the nucleus around which all recognized regimens are established. To this, one man may add climate; another, water or sun baths, and still another, psychotherapy, tuberculin, pulmonary compression or some other favorite measure; but the basis is always the same.

This treatment is so generally accepted that it always comes to mind when the disease tuberculosis is mentioned. It is so well established that it is instituted as

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a matter of routine; but, since things which are so instituted are not always employed with the greatest intelligence and discriminating judgment, it is well to pause and analyze the effects exerted by such measures on the disease.

The outstanding fact in such a therapy is that it is a natural one. It is a method of making the well, no less than the sick, stronger. In early clinical tuberculosis, before serious harm has been done to the organism, the main purpose of therapeutic effort is to keep the physiologic processes of the body running in the most natural manner possible until the disease can heal. This is relatively easy of accomplishment, because there are no great hindrances working in opposition beyond those peculiar to the individual in question. Later, the physiologic processes of the individual are disturbed not only by whatever peculiar deficiencies he may possess when in usual health, but also by harmful influences incident to the disease, such as toxins, reflex impulses, and anatomic and psychic changes.

That patients differ greatly in the manner in which they react toward disease is well known. That this may be due to differences in physiologic activity which are fundamental to the individual does not seem to be realized so fully; yet every one must recognize when the facts are presented that such fundamental factors as those which control growth, development and visceral activity exert a determining influence on the manner in which such a patient will react when affected by such a disease as tuberculosis. When patients with early clinical tuberculosis, either with or without fundamental physiologic handicaps, are put upon a hygienic dietetic regimen, the really outstanding measures for improving this physiologic activity have been instituted. They may be supplemented in one case by one measure, in another by others; but the purpose of all such measures is to fortify the patient and call out resistance to oppose the progress of the disease.

INDIVIDUAL THERAPEUTIC MEASURES

There are certain measures which are of value throughout the disease, from the time it is first recognized as a clinical entity until the process heals or destroys the patient. Then there are others which are particularly directed to certain conditions.

Rest is always advisable when the disease is active and when exertion produces any of those symptoms which we have learned to assign to the action of toxins. Exercise, while just as valuable in building up the patient's physical strength as rest is in favoring a quiescence of the disease, is applicable only when the clinical process is so quiescent that exertion fails to cause toxic symptoms, and when the patient is able to provide the extra energy required without interferng with his ability to supply the demands made by the normal physiologic processes.

There are hydrotherapeutic measures which may be added to the requirements of the patient in all stages and conditions met in the disease; but some of those which are applicable in early and quiescent conditions are not at all suitable in active toxic cases.

The value of light and air baths is not sufficiently understood. In all nontoxic conditions, exposure to he direct rays of the sun is of great value. This proedure may not have any specific effect, but it is probably one of the best measures that we have for mproving the physiologic reactions of the patient. Through the action of air and light on the skin, the ensory nerve endings are stimulated and the entire physiologic mechanism of the body is favorably influenced. The value of open air is rendered many times greater by accustoming the patient to little clothing so that the air can circulate freely about the skin, and by exposing the naked skin to the air and light. Full sunlight for a portion of each day can be given with great benefit to all nonfebrile patients and even to some who have slight elevation of temperature, and air and light baths can be used very generally.

HOW TUBERCULOSIS DISTURBS THE PATIENT'S PHYSIOLOGIC BALANCE

Tuberculosis affects the patient's physiologic balance in two ways; through the toxins which produce a general disturbance, and reflexly, which is more specific in that the effect is directed more specifically to certain tissues and organs. It is toward the toxins, however, that we must direct much of our therapeutic effort. Patients do not die because of the extent of the pulmonary disease alone, or because of the reflex disturbances in other organs, although at times cough of reflex origin calls for a tremendous expenditure of energy and proves to be very harmful, and the reflex gastro-intestinal symptoms may become very troublesome; but the chief factor which exerts the harmful influences in tuberculosis is the toxemia. Toxins acting on the nervous and endocrine systems are responsible for disturbances in physiologic control of the body and ultimate injury to the body cells which may defy all efforts at repair and eventually lead to death. In this I am omitting from consideration all serious complications.

MEASURES WHICH COMBAT EFFECTS OF TOXINS

There are accepted measures for treating tuberculosis which aid the body in preventing the disease from becoming severely toxic, and further help it to combat the effects of the toxins when present. There are three outstanding measures in the treatment of tuberculosis when the toxic stage has been reached: rest, artificial pneumothorax, and alkalis with large quantities of water.

If only we knew how toxins acted, we might be able to defend the body against them. One of the most common misconceptions is that fever and toxemia are synonymous terms. The effects of toxemia are usually wrongly attributed to the fever. An elevation of temperature, however, is only one of many symptoms which result from the action of toxins. Malaise, lack of strength and endurance, nerve instability, loss of appetite, decrease in motility and secretory activity throughout the enteral system, and rapid heart action are just as much due to toxemia as elevation of temperature; so is necrosis favored by it.

Another effect of toxemia, and possibly its chief effect, is interference with oxidation and the causing of retention of acids in the tissues. This disturbs the acid-alkali balance of the body cells, and produces an increase in their water-binding power. Balcar, Sansum and Woodyatt[1] believe that temperature elevation is due to the lack of free water in the body caused by an increase in the water-binding power of the body colloids. It certainly seems as though all toxic symptoms were associated with a retention of acid in the body cells which necessarily results in an increase in the water-binding power and a diminution of the free

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1. Balcar, J. O.; Sansum, W. D., and Woodyatt, R. T.: Fever and the Water Reserve of the Body, Arch. Int. Med. **24**: 116-128 (July) 1919.

water in the body. Whether it is the retention of acids or the lack of free water, or both, or neither, which causes the symptoms is not quite clear. Recent study of the normal activity of the intestine by Hammett[2] indicates that hydrogen-ion concentration stimulates the sympathetics predominantly. Toxemia is accompanied by hydrogen-ion concentration, and this observation might be used as a basis for surmising that hydrogen-ion concentration is an important factor in the predominant sympathetic activity observed during toxic states.

Rest.—One of the important functions of rest as a therapeutic agent in this disease is undoubtedly based on its influence on the acid-alkali balance of the tissues. Exercise calls for an amount of oxidation over and above that which is present during rest, and, even in health, results in a temporary storing of acids in the tissues. When the patient is suffering from toxins, this disturbance in the normal acid-alkali balance is still further disturbed both from the exercise itself and because of an increase in the amount of toxins thrown into the tissues. The fatigue which results from exercise in the normal is exaggerated and marked by those symptoms which are recognized as toxic in the tuberculous. Therefore, rest proves to be a potent measure for good during all stages of tuberculosis when the physiologic mechanism is being disturbed by toxins. When intelligently applied, it is unquestionably the most effectual remedy that we possess in the treatment of tuberculosis. Not only fever but all toxic symptoms as well as other conditions must be considered in determining when rest shall be instituted and how long it shall be continued.

Artificial Pneumothorax.—For the last decade, pulmonary compression has been gradually coming into use and has shown itself to be particularly beneficial in the treatment of cases of rapidly spreading caseation. At times this method is very effective and relieves the toxemia, and restores the physiologic balance. In other instances, however, when satisfactory compression cannot be had, or when other active foci in the other lung exist, the procedure, of necessity, fails. In some cases necrotic areas and cavities are compressed and eventually brought to a stage of quiescence. One serious objection to this procedure is that it is available in only a limited number of cases, those in which the activity is almost completely one-sided and the pleura is either free from adhesions or the adhesions, if present, will readily separate. The other lung must be fairly free from disease, and should preferably be entirely free from activity. The importance of the condition of the other lung is not sufficiently recognized. If collapsing a diseased area is to be successful, the probability is that the entire lung will be compressed for an indefinite number of months because the normal collapses along with the infiltrated tissue. In some instances it is permanently put out of use by fluid in the pleura followed by the laying down of dense scar. No lung should be compressed, then, unless the other will be fully competent to carry on the requirements of respiration.

Compression is not a cure for tuberculosis. Any patient is better off if he can secure a healing without rather than with it; but in a small number of cases a cavity, particularly a recent one, may be compressed which would otherwise continue to secrete; and in acute softening, toxemia which otherwise might prove fatal may be cut short. It requires considerable judgment to know when to compress and when not to do so. When once the technic is learned, one is often impelled to compress when a result more favorable to the patient could have been obtained without it.

Alkalis and Water.—Four or five years ago, a patient with advanced tuberculosis under my care in the sanatorium had a prolonged siege of toxemia accompanied by the usual symptoms, including rise of temperature. She became so ill that death seemed imminent. I assumed that there must be a relative increase in the acid balance of her tissues under the conditions which were present, and ordered a rectal drip, using 3 per cent. sodium bicarbonate instead of sodium chlorid. The patient was given the soda solution for about four hours a day. To our great gratification, after two or three days she showed signs of improvement, and made a gradual recovery from her serious condition. She later attained a better state of health than she had enjoyed for a long time.

The interesting thing was that all of those symptoms which we recognize as being of toxic origin improved. She became less nervous, lost her malaise and slept better. The appetite improved and was accompanied by better digestion. I attributed this to a restoring of the acid-alkali balance of the tissues. We then adopted the use of soda drips for other patients who were severely toxic, and later extended it even to those who were only mildly toxic. Coincident with the gradual extension of this line of therapy, we found that the digestive disturbances of many of our patients were improved by a mixture of sodium bicarbonate, magnesium oxid and bismuth subcarbonate. Finally, we were led to believe that the alkalization of the tissues was a factor in the improvement of these patients too.

Our observations were in this state of evolution when the experiments of Balcar, Sansum and Woodyatt,[1] and Schmidt and Sansum,[3] dealing with the importance of free water in the body, came to my notice. While these papers were dealing primarily with the relationship of fever to the free water in the body, they caused me nevertheless to take this water factor into consideration in accounting for the good results that we had obtained.

There does not seem to be any doubt about toxins decreasing the alkali balance in the tissues. There is also no doubt that this shifting of the acid-alkali balance causes the body colloids to bind more water.[4] Furthermore, there is no doubt that a reduction of the alkali balance of the body cells interferes with their normal action, and that the lack of free water, if sufficiently great, causes a rise of temperature.[5]

Alkalis, when administered, will combine with the acid radicals of the tissues and set water free, thus relieving the cells and increasing the free water reserve of the body. The administration of water alone will keep up the free water supply and thus provide conditions more favorable for the functioning of the cells. Sansum has been able to carry pneumonia patients through their illness with little rise of temperature by the administration of water.

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[2] Hammett, F. S.: The Rôle of the Change in Hydrogen-Ion Concentration in the Motor Activities of the Small Intestine, Am. J. Physiol. **60**: 52 (March) 1922.

[3] Schmidt, E. C., and Sansum, W. D.: Further Studies in the Nature of Fever, California State J. Med. **19**: 371 (Sept.) 1921.

[4] Fischer, M. H.: Oedema and Nephritis, Ed. 3, New York, John Wiley and Son, 1921, p. 238.

[5] Balcar, Sansum and Woodyatt (Footnote 1). Schmidt and Sansum (Footnote 3).

We have tried some tuberculous patients with fever on large quantities of water (from 10 to 15 glasses a day) by the mouth, and have felt that it was of value; but it is our impression that from 4 to 6 gm. of sodium bicarbonate daily, taken with the free use of water, gives better results. We find it difficult for many patients to drink large quantities of water; particularly is this true in those advanced cases in which the patients suffer from an atonic condition of the gastro-intestinal tract. It seems to me that alkalis plus water are better than either one alone in the clinical treatment of these conditions.

The effect in the more toxic cases has led us to employ this method in less toxic ones. I wish to insist again that rise of temperature and toxemia are not synonymous terms. We have been gradually coming to the conclusion that many patients suffer from a toxemia of sufficient gravity to undermine their ability to oppose the tuberculous infection with little or no elevation of temperature. With this conception, we have gradually extended our application of these measures to some patients who are practically fever free. The result has been gratifying.

It is difficult to judge of the value of remedial measures applied in a disease such as tuberculosis, because it has so many variations in its course, each of which is expressed in the patient's general feelings, that one's opinions can often be little more than impressions. We are decidedly of the impression, however, that the alkalization of toxic tuberculous patients, accompanied by the free use of water, preserves a better physiologic equilibrium and relieves them of many toxic symptoms, which if continued would ultimately break down the mechanism with which the patient resists the disease.

Since the disease is chronic and the toxic state often lasts for weeks or months, it is necessary that these measures be applied in ways that are acceptable to the patient. We have used the rectal bicarbonate drip for a period of four hours daily for a month or six weeks in some cases without interruption. As a rule, however, we use it for about two or three weeks, then interrupt for a few days, and resume again. We added glucose in some instances, but it proved too irritating for continuous employment. Needless to say, local disease of the rectum, such as hemorrhoids, may prove to be a contraindication to the rectal method.

The bicarbonate by mouth may also be continued for several weeks at a time without interruption. Patients sometimes get tired of the taste of soda. In such instances it can be administered in tablets of 10 grains each. A purified product should always be used. From 60 to 90 grains of soda a day by the mouth keeps the reaction of the urine neutral or slightly alkaline in most of these cases.

It is now evident that, even without a specific remedy for tuberculosis, we have measures which, if understood and applied rightly at the right time, will help the human organism to overcome early active tuberculosis in nearly all instances. Open air, suitable food, water and sun or air baths, rest and exercise suited to the condition at the time, psychotherapy, and other tonic measures are applicable to all cases for their effect in producing as strong a physiologic equilibrium as possible. In those cases which are beyond the early stage, aside from these measures which produce a general action, pulmonary compression in a few suitable cases and rest and alkalis with the free use of water may be utilized to combat the effect of the toxins.

TUBERCULIN

While there is no remedy extant that may be considered as a specific in tuberculosis in the sense of antitoxin and quinin, there are certain remedies which exert a specific action on tuberculous tissue, and call for discussion because of this fact.

All preparations made from the bacillus and the medium on which it has grown will cause a specific reaction in and about the tubercle, which, when slight, is accompanied by a hyperemia and, when severe, may be accompanied by more marked inflammatory change. If one understands these remedies, and has the patience to administer them carefully, the reactions may be kept under control and a hyperemia may be produced at intervals which brings about conditions favorable to the separation of the tuberculous from the nontuberculous tissue and to the laying down of fibrous tissue which is essential to healing.

Tuberculin preparations are imperfect remedies, but they imitate as nearly as we have been able to do the products which nature provides for curing the disease. It is probable that no patient could overcome a clinical tuberculosis if he were deprived of the specific reactivity with which the tubercle bacillus and its products endow his body cells. He would die of acute disseminated tuberculosis the same as the small child when infected with massive doses of bacilli. Every tuberculous patient treats himself with his own tuberculin, and as a result builds up a specific resistance, which becomes so high that millions of bacilli can pass over the bronchial mucous membrane without infection occurring, while before such resistance had been established a few bacilli would have caused infection.

Immunization is essential to the preservation of the life of the infected patient. The defense against the disease consists not only of an increased resistance to the living bacilli which are found in the body, but also of a protection against the specific reaction which takes place between the patient's bacilli and their products, on the one hand, and his body cells, on the other. We can conceive of the latter being produced by some antibody which is developed by the body cells. That it exists is evidenced by the fact that, while bacilli are going into solution and setting free bacillary products in the tissues and blood stream more or less constantly, particularly in the bodies of patients with advanced tuberculosis, yet the tuberculous tissue is not the seat of continuous focal reaction.

This protection, however, does not seem to extend to the products of other bacilli grown on mediums other than the patient's own tissues; for, on injecting into the tissues a very small quantity of a heterogeneous tubercle protein, a focal reaction may be produced at will. This property by which tuberculin is able to cause a reaction in tuberculous tissue is, in my estimation, the foundation for the healing properties of tuberculin when administered in therapeutic doses.

It is not absolutely necessary that tuberculous patients be treated with artificial tuberculins; but it is my opinion, which has been strengthened by many years of experience, that by using tuberculin we can hasten the formation and increase the amount of fibrous tissue about the tubercle, and produce a firmer and more lasting scar in which to encapsulate or bury the tubercle bacilli. This further can be done without subjecting the patient to any risk. All suggestion of reactivating quiescent foci and causing a spread of the disease presumes upon the wrong use of the remedy.

Where one patient has been harmed by tuberculin, hundreds, yes thousands, have been harmed by overexertion; yet a degree of exertion incompatible with the state of the tuberculous disease is permitted and even prescribed by men who are honestly afraid of tuberculin. Unfortunately, while tuberculin, like exercise, may become a valuable aid to healing when properly administered in the right dose at the right time, few men will study the application of either of these remedies so as to be safe guides for patients. When one does not know the technic of administration, it is better to omit tuberculin in the one case, and stick to rest in the other.

TUBERCULOSIS SHOULD BE TREATED EARLY

That tuberculosis should be treated early should be self-evident, for the earlier any disease is treated the better; but in a disease like this, in which extensions occur and necrosis, with its accompanying symptoms, is favored by time, it is especially desirable that the disease be treated early.

The time between early clinical tuberculosis and the advanced disease may be only a few weeks. On the other hand, it may be months or even years; but the relationship between the percentage of healing and the percentage of failures is reversed when the advanced stage has been reached. Early cases will yield from 80 to 90 per cent. of apparent healings, with from 10 to 20 per cent. of failures; far advanced cases from 10 to 20 per cent. of apparent healings, with from 80 to 90 per cent. of less favorable results. No further argument should be necessary to establish the necessity of early treatment.

NECESSITY OF SUFFICIENTLY LONG TREATMENT

Not only should treatment be instituted early, but it also should be carried out long enough to determine whether the patient can or cannot get well. Most patients suffering from clinical tuberculosis are treated for an insufficient time. The statistics of tuberculosis do the disease, the patient and medical science an injustice, because they are compiled from sanatoriums and are based on an average of the results obtained in all patients who remain in the institutions for three months or more. Thus, we are judging the ability of scientific medicine to cope with this disease by a length of treatment which is wholly inadequate. Therefore, our statistics misrepresent its curability and retard the general acceptance of medicine's ability to restore tuberculous patients to health. It would be no more ridiculous to stop operating on appendixes, gallbladders or gastric ulcers after ten and fifteen minutes, and average the results with those when the operations were complete, in making up the statistics of the curability of these affections, than it is to compute the results of all cases of tuberculosis which are treated over three months in making up the statistics of tuberculosis. Ten minutes of operation for appendicitis is no more ridiculous than three months' treatment of tuberculosis.

Excellent institutions show by this method of computation no more than 30 per cent. of arrestments in early cases. My own statistics of early cases during the last ten years do not show a single failure among the patients who remained in the sanatorium for a period of six months or more. Some of these, however, required nearly two years of treatment to secure a favorable result. In this group, two relapsed but are again well and working. This shows the difference between results based on a given time and those based on a sufficient treatment, regardless of how long it may be.

NECESSITY OF COOPERATION BY PATIENT

The proper treatment may be instituted during the early period of active clinical disease when the process should yield, and it may be carried out sufficiently long to permit a healing to occur, and yet failure may result unless the patient is in earnest and cooperates with his physician. Many patients are by nature passive and so do not make good fighters; others are naturally unwilling to follow a regimen, and, as a result, lessen their chances. An intelligent appreciation of the disease and the conditions to be met in its cure and a willingness and active, aggressive desire to cooperate are among the greatest aids to healing.

ABSTRACT OF DISCUSSION

Dr. William C. Voorsanger, San Francisco: There is hardly anything to discuss in this paper. All I can do is to concur. We should have Dr. Pottenger's optimism. We need optimism in treating tuberculosis. We are not narrow tuberculosis men. If we treat tuberculosis properly, we are clinicians. Every man who treats tuberculosis properly today was an internist before he took up tuberculosis. We do not care what method is used and where it is used, but we do deplore the fact that the patients we get nowadays have advanced cases, and the general practitioner wants to get rid of them before they die to ease his conscience with himself and the world and the family. We do not care if one treats tuberculosis. One can treat tuberculosis as much as one likes; but it should be diagnosed early and treated properly. One should not wait until the man is about to die and ask somebody to come and cure that man and then when that man cannot be cured, say that tuberculosis cannot be cured, and that everybody dies of tuberculosis. Dr. Pottenger stated that every one of his patients with a beginning case recovered. I am not quite willing to admit that. We can divide tuberculosis today, for therapeutic purposes, into two classes—patients who get well and those who will not get well. I believe that for those who will not get well, we can do very little. These are the advanced cases and the patients that improve in the beginning state but with practically no natural resistance. Those patients will not get well. Then there are the patients who, if they give one enough time to build up their lowered resistance, must get well. After all, methods do not count for much. Some of us believe in tuberculin and some do not. It is like treating any other disease. We have our personal beliefs and our personal unbeliefs. What we must realize, though, is that we have no option but to keep on fighting. There are fundamental principles of treatment for tuberculosis. Very early cases will yield to some extent. There are cases that are early but break down in spite of absolute rest and in spite of everything one can do. But those are the patients that will not get well no matter what one does for them. Dr. Pottenger has simply outlined the methods of treatment on which all men who treat tuberculosis must absolutely concur.

Dr. J. J. Singer, St. Louis: For years and years people have been interested in tuberculosis. Some societies have made it their business to bring out tuberculosis papers to be sure of an attendance. We all have one purpose in view, and that is to find out what is new in the line of treating tuberculosis. The old may or may not have been satisfactory, and we want something new. Dr. Pottenger did not give us anything new, but gave us the old, old story. It is our experience that the old, old story is the only true story. The old story of rest, in whatever form, has been the only cure for tuberculosis that has ever been discovered and that has ever served its purpose. Dr. Pottenger was very kind in bringing out the fact that tuberculosis must be treated according to the recognized methods, but that the methods are not used properly. I think he emphasized it sufficiently to have brought home the lesson that if we treat the patients, if we use known remedies, we are going to get results; but we cannot get 100 per cent. results. Dr. Pottenger expressed my view when he said that certain patients are going to die no matter what one does. That is another problem. There are two classes of physicians treating the disease, the physicians who treat tuberculosis and the physicians who treat general diseases. Whether all in the tuberculosis game are optimists or not I am not prepared to state; but I do say that men who learn tuberculosis, learn the patients with tuberculosis, become optimists. They do see these people get well and get better. So I feel that if a man is pessimistic he at once condemns himself as an improper man to take care of tuberculosis patients. We see patients in almost any condition of tuberculosis, we see them downhearted and see the family depressed; and almost like a miracle, in two or three days, or a week, when they have been established in that communion of spirit between the optimist physician, the patient soon swings over and his pessimism becomes optimism. In regard to pneumothorax, I should like to ask Dr. Pottenger to discuss the reason for the relief of cough. It is my impression that by a steady mechanical pressure cough usually is lessened and the products are easily absorbed and the vicious circle of cough and congestion is overcome.

Dr. Edward F. Wells, Chicago: I am an optimist naturally and particularly in regard to tuberculosis. A long time ago, when presiding as chairman of a committee to the health commissioner of Chicago, I brought together a considerable amount of statistics, and at that time I learned with a good deal of astonishment that the prevalence of tuberculosis began to decline as early as 1851, and has been declining ever since. One of the most important features we can bring to the attention of the tuberculous patient is that his malady should be recognized promptly, not ultimately but promptly. If one asks, "How many people in your circle of friends have tuberculosis now?" very few can answer in the affirmative. They know of none. Not more than a generation ago every person in the community knew somebody rather intimately who had tuberculosis. With an early diagnosis and proper management, one of the most important features of which, in my opinion, is that of easy circumstances in which the patient can be surrounded by every means that experience has shown to be useful in the management of that case, there are comparatively few patients under those circumstances that will not recover from tuberculosis.

Dr. F. M. Pottenger, Monrovia, Calif.: Climate is very much misunderstood. Tuberculous patients can recover in any climate. This does not signify that they cannot recover more easily in certain climates, where they can be outdoors all the time, with comfort. Sunshine and altitude have their advantages, but the principal thing in the treatment of tuberculosis is the physician who understands the case, and the patient who cooperates. Tuberculin is a valuable aid in the treatment of tuberculosis. It has a specific stimulating effect on tuberculous tissue, and helps to lay down scar tissue. The reason it is not used more extensively is that it is not studied enough. It takes time and trouble to use it. Some are prejudiced against it. Dr. Voorsanger spoke of treatment by the general practitioner. If we are ever going to make headway, the general practitioner must know he can diagnose tuberculosis. By taking a history and carefully analyzing it, he can come within 80 per cent., at least, of making a proper diagnosis. But he does not have confidence in his ability, and pays more attention to his physical findings and less to the symptomatology. I do not say that in every early case the patient can recover. I said that in every early case in my institution within the last ten years in which the patient stayed over six months, the disease was arrested. What percentage of early cases do you think I am dealing with? One year I did not have a single early case. I average from 5 to 15 per cent. of early cases. I admit that there are certain cases of early tuberculosis that cannot be cured. The age period enters as a factor. A massive infection in children cannot be cured. The question of optimism versus pessimism involves the psychic side of the patient, which can no more be ignored than the physical side. Pneumothorax does throw off and relieve the cough in some cases. The main point I want to make is that there is no ground for the pessimism that surrounds this disease, if it is treated at the right time, sufficiently long, and under right conditions.

INTRAVESICAL MANAGEMENT OF OBSTRUCTIONS IN THE URETER

WITH SPECIAL REFERENCE TO STONE AND STRICTURE *

H. W. E. WALTHER, M.D.
NEW ORLEANS

It is only recently that the clinician has been devoting serious attention to the ureter. We are now coming to appreciate the fact that not a few cases of intra-abdominal pain are directly traceable to abnormalities in this structure. Scarcely a decade ago ureteral calculus was considered an ailment which demanded surgical intervention. The possibility of there being a definite pathologic entity which might be termed ureteral stricture was but yesterday seriously questioned. Even today hardly a textbook on urology contains within its covers the term ureteritis. Thanks to the courage of such workers as Kelly, Buerger, Bransford Lewis, Hunner, Crowell and many others too numerous to mention, our methods of diagnosis and treatment of ureteral obstructions have reached a plane of scientific exactness which are a source of great satisfaction and pride to all American urologists.

The fact that, by dilation and medicinal treatment to the ureter through the cystoscope, cases of early hydronephrosis, hydro-ureter and pyelonephritis have responded to such a degree as to preclude the necessity of surgical intervention; that many patients with abdominal pain have been completely relieved of symptoms, and that the majority of ureteral stones are today being extracted in this way should furnish sufficient argument for reiterating briefly the most pertinent phases of the subject.

Obstructions in the ureter are either congenital or acquired; are partial or complete; are of intrinsic or extrinsic origin. Aside from calculus and stricture, the ureter may be obstructed because of ureteritis (chiefly of tuberculous origin), a kink over an aberrant renal vessel or because of a ptosed kidney, or external pressure from a tumor, pregnant uterus, enlarged calcareous glands, postoperative adhesions, etc.

For obvious reasons it is most essential to know exactly the nature of the obstructing factor when, in the course of ureteral catheterization, an impediment is encountered. Ureteral spasm, an exaggerated fold or valve in the mucous membrane, a temporary kink or twist, a stiffness or too great a flexibility of the catheter, transient pressure from without—these are among the agents that must be considered as causing obstruction not of pathologic import.

In arriving at a definite diagnosis, the case history, a careful abdominal, vaginal and rectal palpation, the urinalysis (of only catheterized specimens in females), a roentgen-ray study (including pyelo-ureterography), and a cystoscopy with ureteral sounding (by means of wax bulb or acorn-tipped bougie) are collectively employed.

URETERAL STONE

It is commonly observed that stones leaving the kidney become arrested at one of three points of narrowing in the ureter, namely, (*a*) at the ureteropelvic juncture; (*b*) where the ureter crosses the iliac

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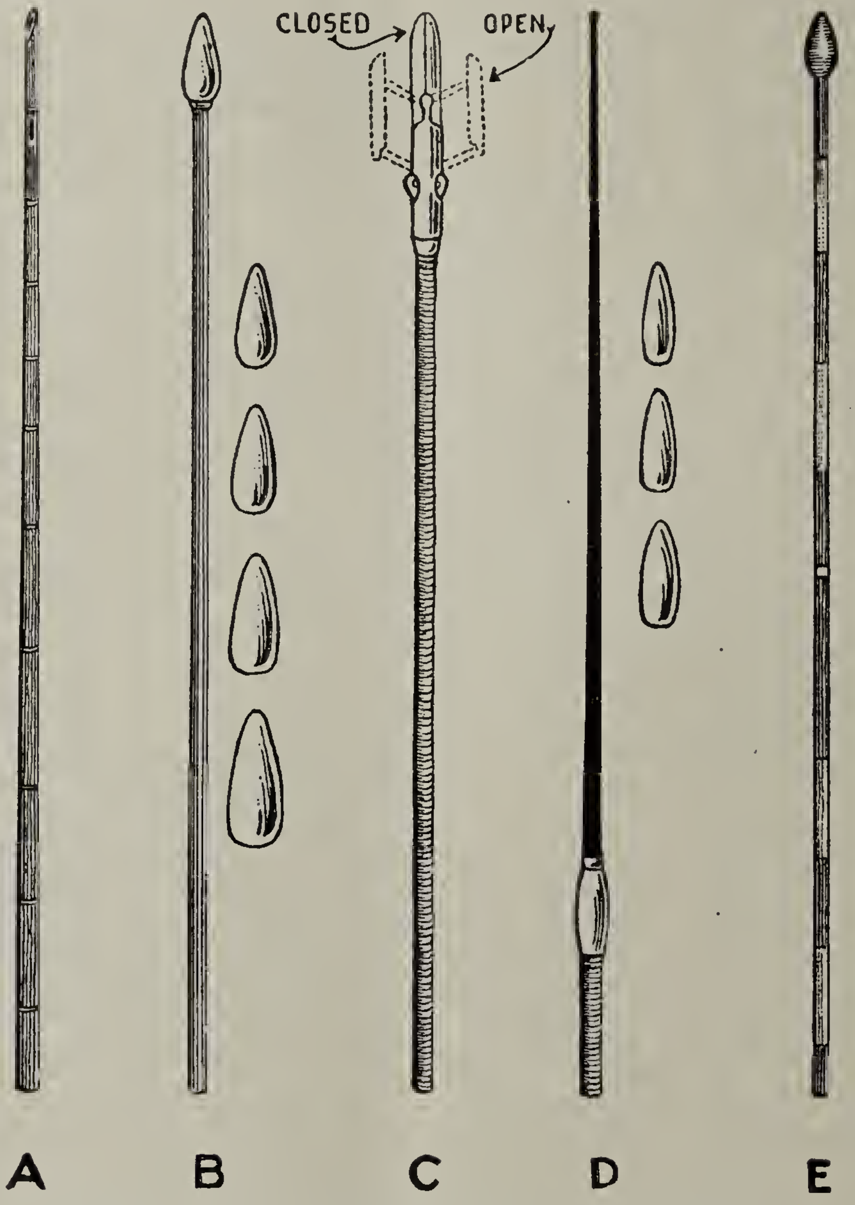
* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

vessels at the brim of the bony pelvis, and, (*c*) at the ureterovesical juncture. It is at the last named locality (ureterovesical) that the vast majority of calculi will find lodgment, and Young has classified such ureteral stones as being (*a*) just above the bladder wall (juxtavesical); (*b*) within the course of the ureter in the bladder wall (intramural), and (*c*) at the orifice of the ureter, where it may project into the bladder cavity (intravesical).

There are but few contraindications to the use of the cystoscope in attempting to remove these stones. Whereas the location of the calculus may influence the degree of ease or difficulty with which extraction will be effected, this should by no means deter one from making every effort to deliver it by some nonoperative procedure. The size of the calculus must be taken into consideration. Although larger stones have passed down the ureter, the largest I have removed measured 13 mm. across its transverse axis. Shadows on roentgen-ray films, if measured, will compare very closely with actual size of stone (allowance being made for slight shadow-magnification).



Instruments used in ureteral dilation: *A*, Garceau catheter; *B*, Buerger olives; *C*, Bransford Lewis dilator; *D*, Walther flexible sound with filiform guide and olives; *E*, acorn-tipped bougie.

Treatment.—Ureteral calculi are best removed by either mechanical dilation or the injection of an anesthetic or an oil. Dilation is attempted in several ways. Merely passing sized 6 F. olivary-tipped catheters up the affected side frequently suffices. This method is particularly effective if, as Buerger describes, the stone can be "sandwiched" between two catheters. With catheters so placed, Buerger had the happy experience of bringing down the calculus through the ureter, bladder and urethra—all at one sitting. Shifting the axis of a stone, with reestablishment of ureteral drainage, will give patient almost instant relief of pain. The Garceau catheter size 11 F., when it can be introduced past the stone, is the most valuable agent for dilation we have at our disposal. The dilating olives of Buerger and the Bransford Lewis dilator frequently aid materially in hastening the downward excursion of a stone. Livermore has devised an ingenious stone extractor but, as yet, I have had no personal experience in its use.

Some years ago I[1] described a flexible metallic ureteral sound with a filiform guide to aid in surmounting so-called impassable obstructions in the ureter. Constructed of a spiral wire shaft, the same as employed in Buerger's operative instruments, the length of a ureteral catheter, it has a semiolivary tip sized 11 F., the extremity being a screw-thread which joins on to a special ureteral filiform 8 cm. in length. With the filiform and olive well lubricated with a thin film of sterile petrolatum, and advanced up the ureter with a rotary motion, one will often succeed in getting past calculi when other instruments fail. No superlative virtues are claimed for this instrument. It is offered as an adjunct to be employed when the ordinary bougie or catheter fails. Recently I have had constructed some metal olives sized 9, 11 and 13 F. which can be interchanged with the filiform. I propose having screw-threads placed at both ends of olives, making all of them adaptable to the filiform guide. The shaft of this instrument, being flexible, has all the resilience of any catheter, with the added advantage of possessing infinitely more rigidity than a silk instrument.

Mechanical dilation with any or all of the instruments named above has proved more satisfactory to me than either the injection of an anesthetic (as procain and papaverin) or the instillation of an oil (as sterile olive oil and liquid petrolatum). Catheters can be left in situ for from twelve to twenty-four hours; some leave them in for days. The catheter serves a twofold purpose in that it acts as a drainage tube for the kidney and at the same time produces marked relaxation of the ureteral wall. The secret of getting instruments past stones is to have them well lubricated. Nothing for this purpose has proved so efficient in my hands as sterile petrolatum.

When an instrument encounters an unusual amount of resistance in the lower ureter, if a finger is introduced into the vagina or the rectum so as to serve as a guide, one will frequently be able to get by the obstruction with ease. Stones impacted at the ureteral orifices are best liberated by cutting through the ostium with the high frequency spark, as advocated by Furniss.

The intervals at which ureteral dilations can be given vary considerably. The degree of obstruction, the reaction to instrumentation and the stamina of the patient usually govern. Five-day to fortnightly intervals are those most commonly practiced.

In a series of 118 cases of definite ureteral calculus observed in my practice, 105, or 88.9 per cent., were removed by transurethral instrumental methods. Of the remaining thirteen cases in the series, it was necessary to perform ureterotomy in eight because of the large size of the stones present; five other patients either refused cystoscopic or operative treatment, or they were lost sight of before it could be definitely ascertained whether or not the treatment given was of benefit. The number of ureteral dilations required for expulsion of stone varied from one to fourteen. Between the instituting of treatment and the final liberating of the calculus, the time elapsing was from twenty-four hours to eight months. There was no mortality.

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[1] Walther, H. W. E.: J. Urol. 2: 253 (June) 1918.

URETERAL STRICTURE

Stricture of the ureter, as a definite clinical and pathologic entity, cannot longer be questioned. The condition, as a common cause of abdominal pain in women, is daily becoming more evident. That some of these cases have erroneously been grouped with the bladder neuroses, because of intractable bladder symptoms, recent clinical investigations seem to prove.

The three main etiologic factors of intrinsic narrowing in the ureter are pyogenic infection, calculus and tuberculosis. Whereas the first and last named conditions are well conceded, I wish particularly to stress the point that ureteral calculus is a potent factor in the production of subsequent stricture formation. This matter should be given more attention in taking the history of patients in whom ureteral stricture is suspected. Some of the most severe types of ureteral stricture that I have observed have been in patients who gave a history of having previously passed a ureteral stone. The inflammation produced by a stone remaining lodged for a period in a narrow portion of the ureter, as well as the trauma such concretions produce in merely transcending that structure, is sufficient cause for the development of ureteral stricture.

Pyogenic organisms, in their rôle of establishing foci of infection either in the teeth, tonsils, paranasal sinuses, alimentary tract, prostate, seminal vesicles or kidney, are frequently the cause of ureteral stricture. Whereas focal infection is well recognized as a disturbing factor in many cases of obscure abdominal pain, the ureter as a source of trouble is only too frequently overlooked.

Ureteral stricture cannot be diagnosed with a 6 F. ureteral catheter. The cystoscopist who feels that he can eliminate stricture, simply because the ordinary sized ureteral catheter easily transcends the ureter to the kidney, will frequently fall into error. Kolischer pointed out years ago that the only means of establishng with certainty the presence of ureteral stricture was by the passage of an acorn-tipped bougie up to and through the strictured area. On the withdrawal of such an instrument, a definite "grasp" or "hang" is noted when the acorn encounters the constriction. Repeated soundings in this fashion, noting the same obstruction, in the same location, will establish the diagnosis. Ureterograms, although of value at times, may mislead one. Braasch has called attention to the fact that spasmodic contracture, occurring at the instant the roentgenogram is made, may show "strictures" which in reality do not exist.

Treatment.—Dilation here, as with ureteral calculus, s paramount. The modes of applying it differ but little among cystoscopists. Many doing gynecologic urology favor the straight endoscope of the Kelly type. With such an instrument the wax bulbs in varying sizes are popular for dilating strictures. In the male, in whom the prism cystoscope is generally used, acorn-tipped bougies of silk have proved most satisfactory. All of the instruments advocated under treatment of ureteral stone apply equally well here. The intervals between dilations of strictures are usually about two weeks.

For the few who still doubt that ureteral strictures exist and are accountable for various obscure abdominal symptoms, I will say that one experience in dilation with total subsidence of symptoms (after all other procedures have failed) should convince even the most skeptical.

I have observed sixteen cases of stricture of the ureter. Thirteen occurred in women and three in men. Observers generally have noted a preponderance of these strictures in females. Nine of the thirteen women had undergone laparotomy (in five of the nine cases, patients had been operated on twice) without relief of symptoms. Seven women and two men had previously passed ureteral stones. Symptoms had persisted, in this small series, for from four months to eleven years. Ureteral dilation gave complete relief in all of my cases. The maximal number of dilations given in any one case was eleven. Just how often, and for what length of time, dilations will have to be persisted in remains for the future to unfold. Hunner has patients remaining free of symptoms who received dilations just before his initial report in 1911. After relief of symptoms and after the ureter had been dilated to its maximum, yearly dilations over a period of five years should be a sound dictum to follow.

CONCLUSIONS

1. Many cases of obscure intra-abdominal pain are due to obstructions in the ureter. Cystoscopy and ureteral sounding should be employed in all cases in which the symptoms of abdominal distress cannot be traced to some definite surgical condition distinct from the urinary tract.

2. Stone and stricture are the two principal factors in the causation of ureteral obstruction.

3. Approximately 90 per cent. of ureteral stones can be removed by nonoperative means. Transurethral instrumental ureteral dilation is rational, is safe in the hands of the experienced, and is efficient in its results.

4. Ureteral stricture is a definite clinical entity and merits more careful consideration, especially in dealing with abdominal pain in women. Thorough dilation produces definite and apparently lasting benefit.

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ABSTRACT OF DISCUSSION

Dr. L. R. Wharton, Baltimore: This is a new subject, and in all new subjects there is great need for conservative, scientific and constructive work. We should all be careful in handling ureteral work lest we let our enthusiasm control our judgment. This needs more investigation than any other subject interesting urologists at present. In the first place, every patient with symptoms suggestive of ureteral stricture or stone should be subjected to a general examination. There may be some relationship between general conditions and the local lesion, the importance of which we do not yet realize. It has been pointed out that focal infections have had a definite influence on the course of the disease. Whether we accept this as a definite source of disease or not, this phase should be investigated in patients with ureteral stones and stricture. Secondly, it is important not to overlook any lesions that may be situated in the pelvis along the urinary tract. It has been pointed out that infections may travel along the lymph nodes to the ureter, and the ureter at times becomes infected in this way. The lymph nodes must be infected from some focus, and this primary lesion may be in the pelvis or lower abdomen, the fallopian tube, appendix, cervix or broad ligaments. Furthermore, abnormalities in these structures may give rise to symptoms that cannot be differentiated from genuine ureteral pain, for pelvic pain is not specific. Unless we get to the bottom of the situation by the examination and proper treatment of lesions in the associated viscera, we shall incriminate many ureters that are not in themselves diseased. One will frequently find that if one treats the ureter and neglects the associated lesions the results will be temporary and the disorder will recur, whereas if one eliminates focal infections, cures associated lesions and then, if necessary, treats the ureter itself, the results will be more permanent. In the third place, every patient in whom one suspects the presence of stone or infection in the urinary tract must be subjected to a complete urologic examination. Finally, as to the treatment of the ureter itself, if one wishes to dilate it, I would suggest the use of well lubricated bougies. Using the Kelly cystoscope in women, it is my custom to pass a bougie, measuring not more than 3 mm., leave it in the ureter for a minute or two, withdraw it, and immediately introduce a larger one. I repeat this treatment in ten days or two weeks, and it is surprising to find that the patients do not have the severe pain that follows dilations with the wax bulb. The reason is, the dilation by a bulb made of wax or silk is effective only while the short bulb is traversing the affected area, the dilation is much more rapid, and it involves severe trauma. With the bougie, however, the dilation is slower, is more prolonged and causes less trauma. I have been surprised to find that many patients going to bed with hot water bottles ready and hypodermics prepared for them after such treatments have not had to use either, and have been relieved just as satisfactorily as with the wax bulb method.

Dr. James A. Gardner, Buffalo: I think that Dr. Walther is very modest about the instrument he has shown, which is practically a filiform bougie attached to a cable. I have used it with great satisfaction. With such a filiform that can be shaped into a bayonet end, one can push by the stone. If a small bougie or catheter is passed and left for twenty-four hours, a larger size can easily be passed with ease. I think that this filiform can be passed more easily than a catheter. In my opinion, Dr. Walther's instrument is one of the best aids in the removal of ureteral stones.

Dr. Robert H. Herbst, Chicago: A fair proportion of strictures of the ureter in the male occur at the lower end of the tube, and many of these are caused by extension of infection from the seminal vesicles. The term occlusion rather than stricture describes the changes that occur in the ureteral wall. Pathologically, there are three types of obstruction: (1) Congestion in which there is a swelling of the ureteral wall often accompanied by edema. These usually subside spontaneously. (2) Inflammatory type in which there is an infiltration of the wall of the ureter. These may disappear following treatment directed to the infected seminal vesicle. (3) Fibrous strictures which require radical dilation with bougies. Those which do not dilate readily may be cut by the introduction of a hook shaped knife into the lumen of the ureter, incising the involved area by withdrawal of the knife. This instrument may be used through an operating cystoscope. In order to avoid cutting beyond the mural portion of the ureter, the incision should be limited to the last 2 cm. of the ureter.

Dr. Arthur L. Chute, Boston: I have enjoyed Dr. Walther's paper very much, but it seems to me that certain words of caution should be given. I do not think that Dr. Walther gave us any definite rule as to which cases to dilate and which not. He says that 90 per cent. of the stones will be passed after dilation of the ureter, but I am in doubt as to whether it is wise to use this method in 90 per cent. of ureteral stone cases. I believe that if there is great pain, and continued temperature elevation, with a moderate amount of pus in the urine, we should not wait to dilate a ureter but should remove the ureteral stone surgically, no matter what part of the ureter it occupies. I recently removed a ureteral stone that was opposite the transverse process of the third lumbar vertebra. This patient's symptoms had been going on for some time, and the ureter was so thickened that it looked almost tuberculous. There was a history of attacks of fever occurring over several years, and I believe that if this patient still retains a useful kidney, there is a very considerable probability that he may develop a stricture of the ureter because of the long time the stone was allowed to remain. It seems to me that in the presence of fever and pus in the urine one should not wait. Then there are the little, irregular stones, seen often low in the ureter; they have little prongs that extend into the ureteral wall and hold them fixed. I doubt whether they are favorable ones for dilation. While Dr. Walther's method has great possibilities, I doubt that it should be applied to every stone in the ureter.

Dr. Benjamin A. Thomas, Philadelphia: Like Dr. Chute, I do not wish to throw cold water on the many valuable and indispensable intra-ureteral manipulations. I have seen many of these cases and wish to throw out a word of caution, because we can go too far not only by waiting unduly long and repeating too often the ureteral manipulations, as Dr. Chute says, but by too vigorous intra-ureteral instrumentation, which may lead to serious and even fatal results. One of my colleagues two or three years ago had a very unfortunate result from the use of the Bolucci catheter—that one with a short, whalebone filiform tip. This is certainly a very dangerous instrument, and in this instance caused perforation of the ureter, peritonitis, and death of the patient. So I feel that we should not postpone too long real surgical intervention in many of these cases, and it is up to us to decide very often which is the safer and better procedure, radical surgery or intra-ureteral instrumentation.

Dr. Benjamin S. Barringer, New York: I have not seen any bad results from the removal of ureteral stone by dilation. I have seen two cases of paracystitis following operation for ureteral stone caused by a temporary closure of the opposite ureter. I have seen the kidney from which a ureteral stone came sacrificed and the patient very nearly sacrificed. I do not see why one cannot cause the fever and pyemia to get better with treatment—water, hexamethylenamin, etc.—and then try nonoperative removal of the stone. Just a point about the treatment of the strictures at the internal ureteral orifice, sometimes causing a ureterocele. I think that the mere cutting of the narrow ureteral orifice is not enough. I have done that with the Buerger instrument, but I think that we have to treat this orifice either with fulguration or bite out a piece with cutting forceps. I have done several of these, and for a long time the ureter has remained open.

Dr. Henry G. Bugbee, New York: Not infrequently, when we first see an impacted stone in the ureter we shall find a large stone in the intramural portion. It is interesting to see how large a stone will be passed following slight manipulation. I saw such a case recently with fever, pus, and a large stone in the intramural portion. The history dated six years, and yet by simply passing a catheter the stone was loosened, the ureteral lumen was enlarged by cutting the wall at its orifice and the stone dropped out. I agree with Dr. Barringer that we cannot have definite rules in these cases, but think that they are all worthy of at least one or two trials.

Dr. Bransford Lewis, St. Louis: If we compare the results of a number of cases of stones removed by the intravesical and cystoscopic method with stones removed by radical operations, the comparison is much in favor of the cystoscope. Many of these cases are subjected to the open operation. That held good in former years more than now, however, when surgeons gave no chance to the possible passage of the stone. A ureteral calculus would occur, the patient would consult the surgeon, and he would shoot him up to the hospital without any intervention at all, when a few days might have seen the entrance of that stone into the bladder. Cases have been shown in which even slight manipulation will release the stones and let them drop into the bladder. Since 1904 I have tried to develop a more positive plan of attack than these. I then submitted the ureteral dilator, ureteral forceps and scissors and later the ureteral knife for prosecuting such work. I have had some interesting specimens showing that the pathologic condition emanated from a stricture at the ureteral orifice. I had a physician from Illinois who died in coma within two days after coming in; nothing could be done for him, and yet the whole trouble (a large pyonephrotic kidney) resulted from constriction at the orifice. I have another case in which the man had been an invalid for ten years. He had an enormous pyonephrosis, and the whole trouble was a stricture at the orifice of the ureter. The main thing is the diagnosis. In many cases I cannot tell whether it is stone or a stricture until I have studied it thoroughly.

Dr. Victor D. Lespinasse, Chicago: I think that we are all agreed that the intra-ureteral manipulation is a good method to remove ureteral stone, and that we should bear in mind that we must not let mere mechanical ingenuities run away with us and try to use them in removing every stone. The type of cases in which we should use the manipulation are the small stones, under 1 cm., when there is no infection, or very slight infection, and we must consider the reaction of the infection to the stone in the ureter. If there is infection with a stone in the lower end of the ureter, probably the best way to remove it is to dilate; and then the obstruction is drained, the fever is less and the patient recovers; whereas, if there is the same clinical picture with a relatively large stone high up in the ureter, we know that stone cannot be teased down without a good deal of pain and colic, and all this time the infection is active and progressive. These points should all be given careful consideration when we are considering future treatment, and should be weighed carefully before we decide to continue ureteral treatments or perform an open operation.

Dr. Herman L. Kretschmer, Chicago: I wish to agree with the points brought out by Dr. Chute and Dr. Lespinasse, and to call attention to the fact that one should not treat these patients in a routine manner and without consideration. Occasionally one encounters a patient who does not tolerate instrumentation, so that each treatment is followed by chills, fever, bleeding, local pain, etc. In these cases I think that operation is preferable to subjecting the patient to instrumental manipulation and to having the patient severely upset by the treatment.

Dr. H. W. E. Walther, New Orleans: It is true that we cannot have any definite, fixed rules in regard to the number of dilations to give a ureter before operating on it for calculus. I do not think that anybody would be prepared to give us such a rule, much as we should like to have it. I agree with Dr. Chute and Dr. Barringer to the extent that we must not let these patients suffer indefinitely. I brought out in the paper the point that usually the passing of the catheter past the stone and leaving it in place will relieve the patient of fever and pain. But if we do not get by the stone and there is prolonged fever and pain, I agree with Dr. Chute that operation should be done and that we should not continue indefinitely with cystoscopic methods. In regard to Dr. Wharton's very important point relative to focal infection and its bearing on stricture, I had to leave that point out of the paper because of lack of time. Many of us do not recognize these infections as the cause of the stricture, and that is where we do not complete our job. Dr. Lewis and other members brought out certain facts about intravesical surgery which will be borne out by experience if urologists will attempt, by safe means, to get up the ureter. There are many little tricks we all learn by experience, and the kind words that Dr. Gardner said about my little instrument were said because it has helped him to some extent.

Thymus Juice.—The thick, milky juice that often runs out when a voluminous thymus gland, normal or pathologic, is cut through in fresh condition has not infrequently, not only in older works but even of late, been called a thymus secretion. Microscopic examination of the liquid shows, however, that it consists chiefly of lymphocytes in large numbers, a fact which has been known for a long time. If corresponding places in the fixed organ are investigated in sections, one finds that the lymphocytes are collected in certain, generally rather circumscribed, regions of the medulla, as a rule corresponding to the central parenchymatous cord. It will be seen that in doing this they have dispersed and broken asunder the ordinary medullary elements. The significance of the local surpluses of lymphocytes in the medulla and what has produced them is an unsolved problem. One thing, however, is certain: they cannot be considered as products of any real secretory process in the organ.—Hammar, *Endocrinology*, November, 1921.

A SUGGESTED CLASSIFICATION FOR ANORECTAL PROLAPSE *

COLLIER F. MARTIN, M.D.
PHILADELPHIA

The terms prolapsus and procidentia, while identical in meaning, by common usage have come to represent two different types of protrusion of the lower bowel. The term incomplete prolapse has been given to a condition in which there is a downward displacement of the skin lining the anal canal or the rectal mucosa. In contradistinction to this, the term procidentia has been used to describe a downward displacement of all the coats of the bowel.

As the term procidentia has for many years been used to describe the complete form of prolapse, it would seem perfectly feasible to use the word prolapse to signify those displacements of lesser extent in which the tissue involved is comprised of only the skin or mucosa. This would obviate the necessity of using the word "incomplete." In this paper, then, the term prolapse will always be used in the sense of incomplete prolapse, while the word procidentia will be used when all of the coats of the bowel are involved.

It is impossible to go into the question of etiology of prolapse in the limited time allotted; the subject is too complicated. Essentially, a prolapse is caused by an increased mobility of the skin or mucosa on the underlying tissue, while in procidentia the main defect seems to be one of stretching out, or tearing off, or the absence of, the normal fascial, muscular or peritoneal supports of the bowel. Whether we classify a rectal procidentia as a form of hernia, or a pelvic procidentia as a form of intussusception, is of little consequence for classification, as the two conditions may be present at the same time.

Under the heading of procidentia, Tuttle has recognized three types, which unfortunately are called first, second and third degree procidentias. In teaching, it is found very difficult to make clear the conditions present in these types, unless there is a more distinctive method of description.

It is my contention that the terms first, second and third degrees of procidentia should not be employed, but that the condition should be described according to the anatomic tissue displaced. If the student is made to understand that the displacement is either of the anal skin or of rectal mucosa, or of all of the bowel walls of the rectum or colon, or of all combined, he certainly has a clearer conception than would be obtained by any other classification. To illustrate:

We frequently have a displacement of the skin lining the anus so that the anorectal line is dislocated downward, producing a large fold of skin about the aperture. This is an anal prolapse. Of course, we understand that when the anorectal line is displaced some of the rectal mucosa must be dragged down with it, so this portion would logically be a rectal prolapse. As the mucosa does not appear on the outer surface, we disregard it and simply classify it as above. However, should the rectal mucosa be displaced so that it appears outside the anal margin, along with the skin which formerly lined the anal canal, we would then have an anorectal prolapse. In a fair percentage of cases, the anal canal remains intact, the skin lining occupying its normal position. The mucosa protruding through the aperture would then represent a true rectal prolapse.

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* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

The two types could be differentiated by the fact that in the first case the anorectal line, with the semilunar valves of Morgagni, are seen at the margin of the anus, while in the other a deep sulcus (its depth being limited by the length of the anal canal) would be found surrounding the protrusion of mucosa. These two types are frequently found associated with hemorrhoids, of either the external or internal type, or both.

In all cases of prolapse there is a marked tendency for the protruding masses to take the form of small lobulations, the separation between the lobules forming lines radiating from the center of the anal canal. The so-called hemorrhoidal prolapse is probably the most common example of this condition. In procidentia the mucosa will be found puckered up on the underlying muscular wall; hence the peculiar form of concentric striations seen in this form of tumor.

In procidentia a very different condition exists as contrasted with a prolapse. Here we have a deficiency or absence in both the active and passive supports of the rectum and pelvic colon, the active supports being represented by the muscular fibers of the intestine itself, the external sphincter muscle, the levator ani muscles, and the rectococcygeus muscles. According to Tuttle, the passive supports are represented by the connective tissue fibers which bind the rectum to the surrounding organs or tissues to the elastic tissue bundles formed by the peritoneal folds and to the blood vessels which supply the organ. A very fair percentage of these cases are of congenital origin. In other words, while the procidentia may not appear until late in life, there may never have been present a normal architecture of the supporting tissues. The traumatism of a straining defecation, the trauma of labor, the presence of foreign bodies, such as tumors, or stricture, may increase this deficiency, or, in themselves, by mechanical action may so stretch or tear the normal supports as to produce procidentia.

According to Tuttle, the first degree of procidentia "begins at the margin of the anus, and its external surface is continuous with the skin surrounding this aperture." He says that the outer surface of this tumor is covered by skin. Actually, there is a prolapse or displacement of the skin lining the anal canal, which forms the outer surface of the tumor and a procidentia of the rectum itself. There could not be a procidentia of the anal canal because the external sphincter could not be displaced.

A statement has been made that the term prolapse of the anus should not be used, since the anus is simply an aperture, and cannot be displaced. The same thing would hold true of the rectum or pelvic colon; they also are apertures. The aperture cannot be displaced, but certainly the tissues surrounding them can be moved upward or downward for a considerable extent. In other words, the aperture is not displaced but the lining is.

Tuttle further says that the second degree procidentia "begins at a point more or less above the anus, and, descending through that portion of the gut which remains in position, protrudes through the anal orifice." He lays stress on the point that mucosa forms the outer surface of the tumor mass, and between it and the anal margin is a deep sulcus, the deepest portion of it representing the anorectal line. In this type we have no displacement of the lining of the anal canal, but simply have the procidentia of the rectal wall through the anal aperture. This we classify as a rectal procidentia.

Further, the same writer classifies a procidentia of the third degree as one which "begins high up in the rectum or sigmoid flexure and extends down into the ampulla of the rectum, but does not protrude through the anal orifice." He says, further, that, "speaking from a mechanical point of view, this degree is only the first step of the second degree of procidentia, only it is higher up, and in the large majority of cases never proceeds to actual protrusion through the anus."

To the average student, this is an extremely complicated description. After all, the condition is very similar to an intussusception. It is simply a sliding downward of the pelvic colon, which may or may not protrude through the anal canal.

Instead of the term third degree procidentia, I suggest the term pelvic procidentia, as the pelvic colon is certainly the portion of the bowel displaced. Should this pelvic procidentia increase to such a size that it appears externally, and with it drags the rectum itself, then the term pelvirectal procidentia, or rectopelvic procidentia would be logical.

To my mind, the only difficulty to this entire classification is the distinction between the words prolapse and procidentia. Until some new term is coined to take the place of the word prolapse, it is felt that this word may be used to refer only to the incomplete variety, while the term procidentia should be used only for those cases in which all of the bowel walls are involved.

We then have two varieties of each, the anal and rectal prolapse, or a combination, and rectal or pelvic procidentia and the combination of the two, or we might have a rectopelvic procidentia associated with an anal prolapse.

ABSTRACT OF DISCUSSION

DR. WILLIAM H. STAUFFER, St. Louis: I think that we have all appreciated a better designation of the disease condition involved in these cases. First of all, the nomenclature has improperly designated the anatomy of the bowel, and, secondly, it has inadequately described the pathologic changes involved. Dr. Martin has done well in simplifying the confusing terms we have been using for so many years. His modesty probably prevents him from going a step farther and simplifying things just a little more. I see no occasion for retaining the word procidentia. We could use the words complete and incomplete, with each designation specifying the pathologic changes and the anatomy involved.

DR. GRANVILLE S. HANES, Louisville, Ky.: When we go back to the earlier textbooks which deal with the anatomy of the large bowel, we find that it is not possible to determine where the sigmoid has its beginning, or where it terminates. More recently, however, Treves and others have suggested definite points at which this portion of the large intestine begins and terminates, which have been quite universally accepted. Martin is to be commended for attempting to adopt terms that may more accurately describe various types of rectal prolapse. There is so much confusion in the use of terms employed to indicate the anatomic parts and their relations to one another and also the pathologic states of the tissues in the region of the rectal outlet that it becomes at once a difficult task to standardize the numerous terms that may be accepted at the exclusion of all others. The fact is that the anatomic structures, their exact physiologic functions and the many disease conditions of these parts are most difficult to study in the living subject. This undoubtedly, in a measure, accounts for the lack of uniformity in the use of terms. The levator ani, which plays such an important rôle in certain types of rectal prolapse, as well as many other fections of these parts, is difficult to understand, both from s mechanical arrangements and from its physiologic func-ons. With reference to anal prolapse, we know that in a erfectly normal state of the tissues the rectal mucosa everts hen the bowels act, but that if these structures are in a state f chronic inflammation the anal muscles are hypertrophied nd tightly contracted, with the result that the mucosa does ot protrude at the time of defecation. My conception of pro-psus of the rectum is that of a protrusion of the rectal ucosa or that of the mucosa with varying degrees of pro-usion of the rectal walls. In hemorrhoids there is a pro-usion of the rectal mucosa, but the dilated blood vessels rm the chief point of interest, and when they are properly red for the prolapsing mucosa gives no concern. I hope at Dr. Martin will continue his efforts, for they are in the ght direction and I am sure that he will succeed in reliev-g us of numerous difficulties.

Dr. C. F. Martin, Philadelphia: Classification is simply a atter of geography. That is all I was talking about. We ust represent a thing geographically in order to know what art of the body we are talking about. I have no objection Dr. Stauffer's amendment. I do not care whether we use e terms prolapse complete and prolapse incomplete, or ocidentia. It makes no difference, provided we all under-and what we are talking about.

Clinical Notes, Suggestions, and New Instruments

MODIFIED KEIDEL TUBE FOR COLLECTING BLOOD SPECIMENS

C. C. Young, Lansing, Mich.

Director of Laboratories, Michigan Department of Health

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2. It is very difficult to gain access to its contents without sk of contamination.
3. There is constant danger of accidental cuts from jagged agments of glass.

Modified Keidel tube for collecting blood specimens.

The design of tube shown in the accompanying illustration constricted and scored so that the top of the tube can be moved under aseptic conditions without danger to the erator. It holds approximately 8 c.c. to the first shoulder, d fits both the long and short types of brass centrifuge be sleeves furnished for the International Equipment mpany centrifuge.

Until this type of vacuum tube is in general use, we are clined to discourage the use of vacuum tubes by physicians, though we realize how much easier it is to collect the ecimen of blood in this manner than by the use of a sterile podermic syringe.

Evidence for Cancer Origin.—There is strong evidence that differentiation of epithelial cells does take place in con-quence of long continued demands upon one of their func-ns, that of repair, involving proliferation, and that proc-ses creating this demand may be directly responsible for origin of malignant new growths.—Wolbach, *New owths and Cancer,* Harvard University Press, 1922.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.
W. A. Puckner, Secretary.

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THEOPHYLLIN.—See the U. S. Pharmacopeia under Theophyllina.

Theocin.—A brand of theophyllin-U. S. P. prepared synthetically.

Manufactured by The Bayer Company, Inc., Rensselaer, N. Y. (Winthrop Chemical Co., New York, distributor). U. S. patent 716,994 (issued Dec. 30, 1902; expired). U. S. trademark 39,135.

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SATURDAY, AUGUST 26, 1922

SAFETY IN FLYING

It is well known that accidents during flight are not always the result of faults in the machine or in the atmospheric conditions. Statements from all countries are to the effect that of the total number of fliers incapacitated for flying service during the war, about 8 per cent. were rendered unserviceable because of mechanical shortcomings of plane or engine; adding to this 2 per cent. incapacitated by the enemy, the remaining 90 per cent. represent trouble in the flier himself.

With the armistice, the urgent need for aviators ceased, and economy demanded that experimental work in problems of flying be cut to a minimum. But the concentrated work of the few years of warfare had borne fruit. It had interested many men of no physiologic training in problems of equilibrium. It had concentrated the attention of not a few able physiologists on the basic problems of balancing. The choosing of fliers was no longer haphazard, but guided by well selected tests. Yet those best acquainted with the application of these tests are not fully satisfied. Many problems remain unsolved. France and England have awakened to the need of further investigation. France proposes to establish aero stations along the great international roads, each with a complete medical unit. That country has also established a laboratory for the study of physiologic problems connected with flying. In Europe, governments have vied with commercial houses in devoting money to further by scientific observations what will be an important means of rapid communication in the near future. It is a sad commentary on our commercial progressiveness that this country, the birthplace of the aeroplane, is far behind the leading European countries. It is notorious that, in America, with an expanse offering a commercial area well fitted for aviation, enterprise has been laggard. All the important towns of central and eastern Europe are linked together by regular aeroplane service with flights at least two or three times a week, and in some cases twice a day.

Aviation is in its infancy, but its development is a certainty. This development will come with the assurance of safety. Aviation can be made safer by perfecting the machine and choosing the efficient pilot. Experience has taught that the latter is the greater essential. "The pilot of the aeroplane is the heart and brain of the whole flying apparatus. The engine may fail through lack of care, but the pilot brings the machine safely back to the aerodrome. A carelessly inspected wire may snap in the air and nothing serious results. When the pilot breaks, even momentarily, nothing is left to direct the flight; and the plane and engine, no matter how well they have been cared for, crash and are lost."[1]

The fit pilot can be selected only by examination based on a scientific knowledge of the demands made for a safe flight. These demands and how they can best be met are not wholly known and are awaiting investigation. The United States flying corps officers are doing well with the equipment placed by the federal government at their disposal. In nongovernment circles, many devoted scientific investigators are striving under financial difficulties and even personal sacrifices to see that this country is not behind in aviation. The National Research Council has a committee working on the problems involved, the solution of which promises important information primarily regarding safety during flight. Medical science will benefit by the light thrown on obscure physiologic problems. These investigations must be carefully carried on by competent observers. While safety is involved, so also is commercial development. The latter cannot be expected to succeed if left to the federal government. Success can come only from cooperation of state departments and individuals of influence and authority. We have aero clubs; are they interested? Are our large commercial corporations participating in the development of safe and speedy transportation?

One lesson of the war was that fliers, even the best of them, will at times grow stale. It ought to be imperative that pilots submit themselves periodically to medical examination as a protection to themselves and to others.

THE FAT REQUIREMENT OF CHILDREN

A study of the scientific literature of nutrition during the last quarter century or longer will reveal a large amount of attention paid to the standards of requirement. The question as to how much is desirable or how little is essential recurs again and again, whether in reference to calories, protein, inorganic nutrients, vitamins or to some other factor related to the diet. To many persons, and particularly to physicians of the "old school," it has doubtless often seemed as though the measurement of minimal or optimal nutritive needs has been unduly emphasized. We are reminded that, thanks to dependence on his instincts, tempered with a little common sense, man has survived through the ages without recourse to the balance or the calorimeter;

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[1] Air Service Medical, War Department, Division of Military Aeronautics, Washington, D. C., 1919, p. 12.

hence the futility, if not actual danger, of turning to new guides to adequate nutrition. There is undoubtedly a vein of truth pervading this argument; but most of us moderns are prone to forget the enormous social, national and economic changes that are tending in numerous often unsuspected ways to alter our choices, to restrict our preferences, or even completely to thwart our instinctive demands. The food supplies of millions have become modified in artificial ways within comparatively brief periods. Refrigeration, rapid transportation, sterilization, desiccation, milling—these are a few of the words that will suggest some of the almost revolutionary changes in the food customs and dietary possibilities of recent years.

That instincts, habits and fortuitous circumstances by no means always lead to the most ideal results is shown in many fields of interest where nature has been "improved upon" by the scientifically warranted procedures of human selection. Hence there need be no incongruity in seeking newer or better standards in the midst of a novel and artificial environment. In the science of nutrition, the standards for the energy requirement have been the subject of helpful debate in recent years. With respect to calories and protein, it is possible today to make statements that are likely to command approval the world over. The problem of fat and carbohydrate and the optimal quantitative conditions for their participation in nutrition is by no means equally clear. On the one hand, we are reminded that shortage of fat in the diet may lead to disturbances of metabolism, while investigations on animals bring the conclusion that "if true fats are essential for nutrition during growth, the minimum necessary must be very small."[1] The issue is further complicated by the fact that some of the common dietary fats are carriers of vitamin A, and thus play a part only indirectly related to their rôle as sources of energy.

In the absence of more convincing evidence, Holt and Fales[2] have followed the statistical path to ascertain what healthy children are accustomed to consume. They found that the older children studied by them took on the average more than 3 gm. of fat per kilogram daily when under 6 years of age, and about 3 gm. during the remainder of the growth period. They regard it as rational to follow this lead and, furthermore, to supply as much as 4 gm. of fat per kilogram daily to children at 1 year of age. Admitting frankly hat many of the functions of fat still are the subject of debate, these pediatricians caution against such reducions in fat intake as Pirquet[3] has sanctioned on the ground that carbohydrate may replace it without harm. Holt and Fales are convinced that fat has an important nfluence on mineral metabolism in children, and that it helps to maintain normal physical, bacteriologic and chemical conditions in the intestine. They believe, further, that a great reduction of fat in the diet increases the susceptibility to infection, especially to tuberculosis. Such contentions, as well as the somewhat gratuitous assumption that fat is probably necessary for proper digestion and utilization of protein, may justly be debated. Perhaps, too, some heed should be given to the widespread clinical impression that fat is often responsible for some of the common digestive disturbances of infants. Nevertheless, the tentative conclusions of Holt and Fales demand respectful hearing. While it may not yet be established, they say, that a large amount of fat is essential in the diet during growth, there are so many reasons for a liberal allowance of fat, and there is so little evidence that this is harmful to children with normal digestion, that it does not seem wise with our present knowledge to reduce the fat much below the amount which healthy children usually take; while to exclude it entirely from the diet seems unjustifiable and hazardous.

ECONOMY AND EXTRAVAGANCE IN METABOLISM

The failure of many persons to gain in weight readily, despite an apparently liberal or even overgenerous intake of food, has long been a puzzle to those who have been taught to accept the conventional "laws" of nutrition in a rigorous formulation. For such the body is pictured as an energy-converting machine with demands determined within narrow limits of variation by the factors of size and activity. With the latter accurately ascertained, any excess of food fuel is assumed to be stored and thus lead to increment in body weight; any deficit, on the other hand, must be supplied by the tissues themselves and lead to decline. How, on this hypothesis, are we to explain the experience of those perhaps exceptional but by no means unheralded persons, who "eat and remain thin"?

Students of the energy transformations in the organism have long recognized conditions under which the metabolism is increased beyond what may be estimated as the actual requirement of the body. Even before the modern introduction of the calorimeter, physiologists had come to believe that protein food somehow "stimulates" metabolism; indeed, the increase of the protein factor in the diet was for this reason at one time made the basis of certain forms of the treatment of obesity. Later, the fact that food per se can increase the resting metabolism, the effect being particularly noticeable for protein foods, became demonstrated beyond conjecture. Rubner designated this phenomenon the "specific dynamic action" of foodstuffs—an expression that is far from self-explanatory. The possible work of the digestive glands or the excretory organs will not account for the increased heat output after a meal which more than covers the calorific needs estimated as the basal metabolism. Somehow the chemical reactions of the body speed up when the products of digestion begin to circulate.

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[1] Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. **45**: 145 (Dec.) 920.

[2] Holt, L. E., and Fales, Helen L.: The Food Requirement of Chilren, III, Fat Requirement, Am. J. Dis. Child. **23**: 471 (June) 1922.

[3] Pirquet, C.: System der Ernährung, Berlin, 1917.

In recent years, evidence has not been wanting that, instead of being fixed, the plane of metabolism may be altered by undernutrition. Benedict and his co-workers in this country found it lowered when, during the war, a group of volunteers reduced their food intake and, in consequence, also their body weight. The pulse rate was notably lowered in many of these persons. In experiments on themselves the German physiologists Zuntz and Loewy[1] ascertained that their metabolism following restricted diet imposed by food rationing decreased below what their altered body weights might have led them to expect. This apparent protective factor leading to great economy in the use of energy was attributed by Zuntz and Loewy to a great decrease in their active protoplasm. Other instances of an advantageous adjustment of metabolism to food shortage might be cited, notably in the case of chronic invalids who experience prolonged illness under conditions of underfeeding enforced by pathologic circumstances.

The reverse condition—the "speeding up" of metabolism in order to dispose of excess of available nutriment—has had few experimental demonstrations, although it has often been conjectured and spoken of as "luxus consumption." Recently we referred to investigations of Gulick[2] which scarcely permit of any other interpretation. Careful calorimetric observations by Eckstein and Grafe[3] of Heidelberg, with which we have just become conversant, demonstrated on dogs that in cases of prolonged overfeeding the body works more and more uneconomically so that a not inconsiderable part of a superfluous diet may be wastefully burned up at a rate far beyond that which would be encountered in the normal or basal metabolism of the same individual. In other words, only a part of the unrequired surplus of food energy is stored; the rest is wastefully destroyed, relieving the body of the necessity of being encumbered by it. If the conditions in man are analogous, it is conceivable that persons of certain "metabolic temperaments" fail to grow fat because the overfed organism, in them, wastes rather than stores the surplus of intake. Eckstein and Grafe have found that such extravagance of metabolism after chronic overfeeding can no longer be noted in animals that have been deprived of their thyroid glands. Perhaps, therefore, in ultimate analysis, the latter act as regulators of primary importance in determining the possibilities of crediting surplus food intake to tissue storage on the one hand or metabolic waste on the other.

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[1] Zuntz, N., and Loewy, A.: Berliner klin. Wchnschr., 1916, No. 30; Biochem. Ztsch. **90**: 244, 1918.

[2] Underweight and Overnutrition, editorial, J. A. M. A. **78**: 1541 (May 20) 1922.

[3] Eckstein, E., and Grafe, E.: Weitere Beobachtungen über Luxuskonsumption und ihre Entstehung, Ztschr. f. physiol. Chem. **107**: 73, 1919.

Current Comment

THE CENTENNIAL ANNIVERSARY OF A FAMOUS ACCIDENT

American medicine is still too young to be expected to claim many triumphs of scientific discovery for itself; nevertheless, in the earlier history of the progress of our profession in this country the novel researches on digestion in man, of the "backwoods physiologist" and army surgeon at Mackinac, Dr. William Beaumont, stand supreme. It was one hundred years ago this summer that the great opportunity came to this modest practitioner, whom Sir William Osler designated the pioneer physiologist of the United States and the first to make a contribution of enduring value. In 1822, just ten years after he was granted a license to practice "physic and surgery," destiny let fall, in the words of Beaumont's biographer, "the opportunity which he recognized, grasped and improved with a zeal and an unselfishness not excelled in the annals of medical science." Through the outcome of the accident to the Canadian lad Alexis St. Martin whereby he was left with a permanent fistulous opening in his stomach, it became possible for Dr. Beaumont, his physician and friend, to start a series of direct observations on the nature and functions of the gastric juice and the phenomena of gastric digestion. Of these investigations Vaughan has remarked that Beaumont made such an exact study of the physical and chemical natures of the gastric juice that, with the exception of the discovery of pepsin, the closest research of modern times has added little to the work done by him. And Myer has pointed out in his admirable biographic study of Beaumont that a comparison of the latter's deductions with those of the most recent workers on the physiology of digestion shows that he anticipated some of their best results, notably the researches of Pawlow on the work of the digestive glands, Cannon on the mechanics of digestion, and others. Thus the accident of a century ago remains as an illustration of how research of the foremost type can be conducted under the most discouraging conditions. The prime requisite for success, when the opportunity comes, is a "prepared mind."

ROENTGEN-RAY NEOPLASMS

Knowledge of the frequency with which carcinoma of the skin has followed chronic roentgen-ray dermatitis has played an important part in adding to our understanding of the pathogenesis of tumors. It is less generally appreciated that more deeply seated neoplasms may be produced by the same agency, although apparently not so frequently. Several years ago, von Jagic[1] pointed out that persons exposed to roentgen rays commonly show a greater or less degree of lymphocytosis, as do experimental animals exposed to the same influence or to radium, and that at least a few cases of lymphatic leukemia have been observed in workers exposed to these lymphocyte stimulators. The occurrence of the lymphatic leukemia is presumably to e explained on the same basis as the roentgen-ray ancer, long continued stimulation of the lymphoid ells leading sometimes to the exaggerated autonomous roliferation of malignancy. So, too, sufficiently protracted stimulation of the connective tissues may cause hem to acquire the property of malignant growth; but oentgen-ray or radium sarcomas seem to be rare. resumably, this is because the connective tissues are ess sensitive to radiant stimulation than are the ymphoid cells, and less exposed than the surface pithelium. Nevertheless, roentgen-ray sarcomas have een observed, both in experimental animals and in nen. Beck[2] has recently reported three cases in which uberculous lesions in bones healed under the influence f rest and repeated roentgenization, but after some ime a sarcoma developed in the area that had been xposed to the rays. These cases would seem to arallel the not infrequent cases of carcinoma arising the lesions of lupus that have been treated with oentgen rays, and possibly depend on the combined roliferative stimulus of the tuberculosis and the rays. he facts cited above are of clinical importance not nly in suggesting a danger to be avoided, but also s furnishing useful evidence on the subject of tumor ausation. They illustrate the fundamental law that gencies which, when concentrated, kill cells usually timulate their growth when in sufficient attenuation, nd that any agency whatever that causes cells to roliferate may in course of time induce a malignant pe of proliferation in these cells.

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[1] Von Jagic, Schwarz and Siebenrock: Berl. klin. Wchnschr. **48**: 1220, 1911.

THE MARVELS OF ABRAMS AND YERGIN

A few months ago THE JOURNAL published some ticles[3] regarding the marvels of Albert Abrams of an Francisco. Dr. Abrams, it will be remembered, as evolved a system of abdominal percussion pracced in connection with his electrical apparatus, the Oscilloclast," and from which he derives the "Elec-onic Reactions of Abrams." A piece of paper on hich has been placed a drop of blood from an individal Abrams may never have seen, and who may be on e other side of the world, is connected with the Oscilloclast"; at the same time, a healthy individual he "subject") is also connected with the "Oscilloast" and his abdomen is percussed. Dr. Abrams aims to be able, by means of various areas of sonance and dulness he finds in the "subject" when dergoing this test, to determine whether the dividual whose drop of blood is being "tested" suffering from syphilis, carcinoma or tubercusis and, if so suffering, where the diseased area is cated. Nor is this all. So skilful has Dr. Abrams come in the percussion business that he can substitute r the drop of blood, the *autograph* of an individual, ing or dead, and subject it to his tests and declare ether or not the individual is or was a sufferer from philis, etc. He has, for instance, subjected the tograph of Samuel Pepys to his "electronic reactions" d found that this famous diarist suffered from congenital syphilis; he has found the same for Henry Wadsworth Longfellow and also for Edgar Allan Poe and, for the latter, adds that he also gets the "reaction of dipsomania." The autograph (dated Feb. 7, 1775) of that stern old moralist Dr. Samuel Johnson, gave the "reaction" for acquired syphilis and tuberculosis! In the Propaganda Department of this issue of THE JOURNAL an article appears dealing with an individual, one Yergin, who propounds a theory and a practice that bids fair to rank well with the "electronic reactions of Abrams." Yergin arranges the chemical elements according to their atomic weights and then adapts this arrangement to the keyboard of a piano. Of course there is a chart (copyright) which elaborates this matter in detail. Yergin declares that, when such an arrangement has been made on a piano "perfectly tuned," striking the keys "representing two or more elements" as they are known to be combined in the chemical field will produce the same effect on human beings as "would have been produced had the same compound been given in material chemical form." We commend Yergin's theories to the attention of Mr. Upton Sinclair; they should furnish material for at least one good magazine article. The subject may even seem worthy of study by Sir James Barr. In any event, it is all very interesting hot-weather reading—when one does not want to think.

URINARY INDIGO

Although in recent years there has been little, if any, mention of indigo as a constituent of human urine, it received occasional notice in earlier days, particularly in the period when cholera was more prevalent than today in European countries. Likewise, the older textbooks make mention of urinary concretions exhibiting indigo, whereas such findings appear to be uncommon at present. Studies which Hoppe-Seyler[1] of Kiel conducted during the war furnish an explanation of many of the facts regarding so-called indiguria. According to these investigations, urines which give a strong test for indican (potassium indoxyl sulphate) are readily acted on by bacteria, notably those of the colon type, so as to liberate indoxyl and subsequently form blue indigo in the presence of air. It is not strange, therefore, that germ-laden urines sometimes deposit the blue pigment on standing. In the course of these investigations, Hoppe-Seyler[2] has at length disposed of the contention that the precursor of indigo blue in the well known Jaffé test is some as yet unrecognized substance, by actually isolating the potassium indoxyl sulphate, which Baumann and Brieger claimed as the antecedent of indican in their pioneer studies of many years ago. Since then, indoxyl glycuronate has been added to the list of indigo-yielding occasional components of human urine. Thus the history of urinary indigo has largely been unraveled.

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[2] Beck, A.: Zur Frage des Roentgensarkoms, München. med. hnschr. **69**: 623 (April 28) 1922.

[3] These have been reprinted and will be sent on receipt of a request mpanied by a stamped, addressed envelop.

[1] Hoppe-Seyler, G.: Zur Kenntnis der indigobildenden Substanzen im Urin, 2, Ueber die Zersetzung der Indoxylschwefelsäure im Urin durch Bakterien und die Entstehung der sogenannten Indigurie, Ztschr. f. physiol. Chem. **97**: 250, 1916.

[2] Hoppe-Seyler, G.: Zur Kenntnis der indigobildenden Substanzen im Urin, 1, Darstellung von indoxylschwefelsaurem Kalium aus menschlichem Urin, Ztschr. f. physiol. Chem. **97**: 171, 1916.

Association News

THE GORGAS MEMORIAL FUND

At the St. Louis Annual Session the Board of Trustees reported to the House of Delegates that in response to a request received from the directors of the Gorgas Memorial Institute of Tropical and Preventive Medicine for the cooperation of the American Medical Association, the Board had taken action which resulted in the appointment of a committee, representing the American Medical Association, to act on the project. The following were appointed: Dr. Charles W. Richardson, Washington, D. C.; Dr. Fred B. Lund, Boston, and Dr. George E. de Schweinitz, Philadelphia.

The House of Delegates unqualifiedly endorsed the Gorgas Memorial as a tribute to a past President of the Association and one of its most distinguished and loved members. At its recent meeting the Executive Committee of the Board of Trustees received the following statement from the committee and directed its publication.

Statement and Appeal for Cooperation

As a result of the stimulating suggestion of President Porras of Panama, it has been resolved that a fitting memorial shall mark the humanitarian service of the late Major General William C. Gorgas, and the beneficent influence of his life and work on mankind throughout the world. Following the thought of President Porras, it has further been decided that this memorial shall take the form of a scientific institute for the study of tropical diseases and of preventive medicine.

No better place could have been selected than Panama City, the gateway between the Atlantic and the Pacific, where General Gorgas' well-planned and executed work made possible the building of the Panama Canal.

It is hardly necessary to call the attention of the medical profession to the far-reaching effects of General Gorgas' work on the welfare of the people of the whole world, especially in tropical and semitropical climates, and in all places subject to the inroads of infectious disease.

We of the medical profession remember him as our Surgeon General during the early part of the World War. We remember his prompt recognition of the necessity of bringing into active service large numbers of physicians and surgeons from civilian life. We remember his genial and kindly nature, his high character, and his steadfast effort directed toward the organization and equipment of the Medical Corps of the Army. We remember the patriotic response. We remember him as a great sanitary officer, to whom we wish to pay a lasting tribute.

A central committee has been formed, with Admiral Braisted, retired, ex-President of the American Medical Association, as its president. The American Medical Association has appointed a committee of three to work in accord with the central committee, and through its members this appeal is made to the American medical profession.

The plan is to build at Panama an institute for the study of tropical and infectious diseases, with a hospital, laboratories, departments for research and all other facilities required in an institute of this character, erected and administered according to the most progressive, modern ideals. The Panamanian government, owing to the far-sighted, philanthropic vision of President Porras, has donated the great Santo Tomas Hospital, and also the ground on which it is proposed immediately to construct the buildings as they have been described. Dr. Strong has been appointed the scientific director.

In conjunction with this work in Panama, there will be established in Tuscaloosa, Ala., the Gorgas School of Sanitation for the purpose of training country health workers, sanitary engineers and public health nurses, especially educated to deal with the problems peculiar to the Southern states.

An endowment of six and one-half million dollars will be required to enable the institute to carry on the work according to the plans which have been formed.

The Republic of Panama has demonstrated its sympathetic and practical interest in this enterprise with splendid liberality. The physicians of our country, and especially the members of the American Medical Association, surely will not disregard the memory of a former President, and will seize the opportunity to make in this respect a contribution of which they will be proud.

The campaign for funds is to be international. A large response is expected from North, Central and South America, since the nations of these countries have been the chief beneficiaries of the labors of General Gorgas. It is fitting that his co-workers of the American medical profession should be requested to respond generously to this appeal. It is hoped that every member of the American Medical Association will make as liberal a subscription as possible. Any sum will be gratefully received. Checks should be drawn to the order of the "Gorgas Fund" and should be mailed to the American Medical Association, 535 North Dearborn Street, Chicago.

Charles W. Richardson, Chairman,
Washington, D. C.,
F. B. Lund, Boston,
G. E. de Schweinitz, Philadelphia.

THE SCIENTIFIC EXHIBIT MEDALS

Here are reproduced (actual size) the obverse and reverse views of the gold medal, first award of the Scientific Exhibit of the American Medical Association at the St. Louis session. The medal was "awarded to Frank Hinman, D. M. Morison, A. Elmer Belt, R. K. Lee-Brown for a study on renal circulation."

The silver medal is struck from the same die as the gold medal. The silver medal was "awarded to Robert Shattuck Hodges, University of Alabama, for a study of certain culture medium characteristics of ringworm fungi."

COMMITTEE ON TOXIC EFFECTS OF LOCAL ANESTHETICS

A Committee for the Study of Toxic Effects of Local Anesthetics has been appointed to act under the Therapeutic Research Committee of the Council on Pharmacy and Chemistry. The personnel of the committee is as follows, the several members representing the sections of the Scientific Assembly as indicated: Emil Mayer, chairman, New York (Laryngology); Elliott C. Cutler, Boston (Surgery); Henry S. Dunning, New York (Stomatology); Robert S. Lamb, Washington, D. C. (Ophthalmology); David I. Macht, Baltimore (Medicine); Charles Norris, New York (Pathology); Alexander Randall, Philadelphia (Urology), and Robert A. Hatcher, secretary, New York (Pharmacology).

The purpose of the investigation which it is proposed shall be conducted is to assist in increasing the safety, value and importance of local anesthesia. All information received by the committee will be considered strictly confidential. The committee will appreciate the cooperation of physicians. This cooperation can most practically be given by furnishing the following information to the chairman or to one of the committee:

1. Have you, during 1920 or 1921, observed any toxic effects—fatal or not—following the use of cocain or any of the other local anesthetics?

2. If you have observed such toxic effects please submit a detailed report of each case; record, among other facts, data concerning the

patient's general condition, the occasion for using the local anesthetic, the drug employed, the method of administration and the dose administered.

3. Kindly inform the committee of the name and address of any physician whom you know to have had any accident with any one of the local anesthetics.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALASKA

Appointment of Medical Examiners.—Governor Bone appointed eight physicians as members of the Alaska Territorial Board of Medical Examiners, July 1, giving each division two memberships. The appointees are, first division, Dr. Harry C. DeVighne, Juneau, and Dr. Fred L. Goddard, Sitka; second division, Dr. Curtis W. Welch, Nome, and Dr. William Ramsey, Council; third division, Dr. Floyd B. Gillespie, Kennecott, and Dr. John B. Beeson, Anchorage, and fourth division, Dr. Frank R. De LaVergne, Fairbanks, and Dr. Joseph H. Romig, Nenana. These appointments are for four-year terms, and are all reappointments with the exception of Dr. Beeson.

CALIFORNIA

Personal.—Dr. Wendell A. Jones, Arlington, has been appointed director of the Riverside County Hospital to succeed Dr. Edward H. Wood, who resigned on account of ill health.——Dr. Clarence D. Dickey, San Bernardino, was appointed county physician, and local health officer for the sixth, eighth and tenth judicial townships, August 7.

Health Center.—Whittier is to be made the health center for the part of Los Angeles County served by the physicians of that city. A plan in contemplation involves a contract between the city of Whittier and the board of supervisors of Los Angeles County for the performance of the functions relating to the work of the health officers of Whittier. The county will furnish a full-time health officer, and Whittier will pay the sum of $2,000 a year to Los Angeles County for his services.

Physiotherapy Course.—A course of study for the training of technicians in physiotherapy has recently been instituted at Stanford University Hospital, San Francisco. This course is designed to give adequate theoretical and practical knowledge to those persons who want to have efficient training in this branch of medical treatment to be administered under the supervision of the medical profession. The course was instituted to meet the demand for wider knowledge of physiotherapy in its application to rehabilitation and industrial accident work.

Revocation of Licenses Reconsidered.—At the meeting of the state board of medical examiners, June 28-29, various cases of revocation and suspension of licenses were reconsidered. In the case of Dr. Jacob L. Arbogast, Sacramento, whose license was revoked at the February meeting on account of conviction of violation of the Harrison Narcotic Law, probation of one year was granted.——The case of Dr. Charles E. Brown, Fresno, whose license was suspended on conviction of violation of the Harrison Narcotic Law, as of February, on rehearing was dismissed.

Hospital News.—A site has been purchased for a hospital at San Pedro. More than $50,000 has been subscribed to the Harbor Hospital Association of San Pedro for this purpose.——A psychopathic ward will be added to the Orange County Hospital, Orange, at a cost of $28,000. A court room will be provided in connection with the addition.——The cornerstone of the new fifty bed addition to the Paradise Valley Sanatorium at National City was laid, July 2.——Dr. Paul M. Carrington has taken over the management of the Alpine Sanatorium at Alpine, San Diego County, and will continue it as an open staff hospital.——The Celite Hospital, Lompoc, was completely destroyed by fire recently. No lives were lost. It will be reconstructed in the near future.——A new $500,000 plant will be erected at Glendale for the Glendale Sanatorium. The first unit of the "health plant" will contain 150 private rooms for patients, and accommodations will be provided for a training class of fifty or sixty nurses.——The People's Hospital Committee will erect a community hospital at Long Beach.——An addition will be made to the Seaside Hospital, Long Beach, at a cost of $135,000.

GEORGIA

Wesley Memorial Hospital.—The new Wesley Memorial Hospital, erected on the campus of Emory University School of Medicine, Atlanta, will be opened in September. The first unit represents an outlay of $1,250,000, while the total cost of the institution, when finished, will be more than $3,000,000. Connected with the new hospital will be the Lucy Elizabeth Candler Memorial, which will be the maternity pavilion, erected with funds donated by the children of the late Mrs. Asa G. Candler. The bed capacity of the first unit will be 235, with a total capacity, when completed, of 500. This institution will ultimately become the teaching instrument of the medical school. The staff will be elected in September.

INDIANA

Physician's License Revoked.—A report from the Indiana State Board of Medical Registration and Examination states that at a meeting, July 12, the license of Dr. William A. Wenz to practice medicine in Indiana was revoked on the ground that he was guilty of obtaining money by misrepresentation and fraud. Dr. Wenz was formerly of Champaign, Ill., but later became a resident of Indiana. The indictment on which he was tried was based on an action which occurred at Hammond.

IOWA

New Quarantine Rules.—At a meeting of the state board of health in Iowa City, August 5, new rules were formulated in regard to the quarantine of contagious diseases. It was decided to adopt a placard covering the detection, care and exclusion from schools of various contagious diseases. A copy of the placard will be furnished for every school in the state. The board inspected the medical laboratory at the State University of Iowa College of Medicine, and found that in the making of one test alone they had saved the state in the last year more than four times the cost of the health board to the state. Wassermann blood tests made in the commercial laboratories cost $5. During July the university laboratory made 2,477 tests free of charge, saving the citizens of the state $12,385.

KANSAS

Hospital News.—A new infirmary building will be erected at the Kansas Masonic Home, Wichita, at a cost of $20,000. ——The Julius Rotter Hospital, Parsons, will in future be known as the Parsons Clinical Hospital.

LOUISIANA

Permit Refused Tuberculosis Hospital.—Permission to construct a free clinic and hospital on the Gentilly Road, near Bayou St. John, was refused the Louisiana Antituberculosis League by the city commission of New Orleans, August 8. The society has been trying for months to obtain a permit for the hospital, but each time a site was selected the protest against the hospital was renewed.

Training School for Girls.—A school for girls who have presented unusual problems at home or in the ordinary graded schools was opened recently at New Orleans. Examinations are made at the school by the examining staff, which consists of Dr. Charles L. Eshleman, internist; Drs. Henry Daspit and Walter J. Otis, neuropsychiatrists, and Prof. J. M. Fletcher, psychologist.

MAINE

Personal.—Stanley D. Wilson, Ph.D., Belfast, has been appointed dean of the Premedical School in connection with the Union Medical College, Peking, China, and has also been appointed honorary professor of the chemistry department of Peking University, having been head of the chemistry department for the last five years.——Dr. William G. Chamberlain, Fort Fairfield, was recently elected president of the Aroostook County Medical Society.

MARYLAND

Dohme Memorial Lectures.—Prof. H. J. Hamburger, professor of physiology, histology and physiologic chemistry at the University of Gronigen, Holland, will deliver the Charles E. Dohme Memorial Lectures at Johns Hopkins Medical School, October 10-12. This lectureship was recently established by Mrs. Dohme as a memorial to her husband, who was a manufacturer of pharmaceutical products. It is the purpose of the donor to have presented in these lectures discoveries which intimately concern chemistry, pharmacy and medicine. Professor Hamburger has chosen as the subject of his lecture "The Increasing Significance of Permeability Problems for the Biological and Medical Sciences."

MASSACHUSETTS

Tufts Elects a Dean.—Dr. Stephen Rushmore, associate professor of gynecology, Tufts Medical School, has been elected dean of the medical school to succeed Dr. Charles F. Painter, who resigned a year ago.

Personal.—Dr. Edward P. Richardson has been appointed chief of the full-time surgical service, which the trustees of the Massachusetts General Hospital have authorized to commence, September 1.——Dr. Clarence J. Gamble, Boston, was recently seriously injured in an aeroplane accident at Framingham. He is at the Framingham Hospital suffering from a broken nose, a fractured leg, a crushed shoulder and concussion of the brain.

Hospital Construction.—The new Swedish Hospital at Fairlawn will be completed about December 1. It will have 70 beds; a large residence on the hospital grounds will be remodeled and used as a nurses' home.——A campaign will be conducted to raise $150,000 to build a permanent wing to the Cape Cod Hospital, Hyannis. To meet present needs, a temporary portable building has been erected on the grounds.——The contract has been let for the construction of the main hospital and administration building, the first two units of the Lawrence Memorial Hospital, Medford. This hospital will be erected and endowed from a fund of about $800,000 left by the Hon. Daniel W. Lawrence and his son, Roswell B. Lawrence. It will be located on land donated by Mrs. Carolyn Lawrence.

MICHIGAN

Personal.—Dr. Bert U. Eastabrook, Detroit, has been appointed deputy commissioner of the state department of health to succeed W. F. Walker, who has been permanently assigned in charge of the Detroit Tuberculosis Sanatorium at Northville.——Dr. Milton B. Kay, Detroit, and Dr. Adolph Schoenfield, Detroit, were elected recently president and secretary, respectively, of the Maimonides Medical Society.

Hospital News.—A new fifty-four bed building will be erected for the County Tuberculous Hospital at Marshall, at a cost of $111,000. This building will be part of a group to be erected in the near future.——The contracts have been awarded for the construction of the Jennings Hospital in Detroit. Drs. Charles G. and Alpheus F. Jennings are founding the institution.——Plans are being revised for the new city hospital and nurses' home at Flint. Bids on the contract will be awarded this month. The new building will be a sixteen-story structure and will have accommodations for 300 patients. The estimated cost is $1,500,000.——The first hospital to be located in Monroe was opened August 14.

MINNESOTA

Visiting Nurses Will Charge More.—The Visiting Nurses' Association of Minneapolis has advanced its charge for each visit for one hour or fraction thereof from 75 cents to $1, it has been announced.

Hospital News.—The contract has been let for the construction of the new cottage for women at the State Hospital for the Insane at St. Peters. The new structure will be erected at a cost of $57,345.——The site has been selected for the new city hospital for Eveleth, which will be erected in the near future.

MISSISSIPPI

Change Name of Hospital.—The Matty Hersee Hospital, now in course of construction at Meridian, will be known on completion as the East Mississippi Charity Hospital, it has been announced. The plans call for a tile and brick building with accommodations for 200 patients.

Personal.—Dr. Henry L. Cook, Jackson, has been appointed full-time health officer of Hinds County.——Dr. Hubert H. Ramsay, Tylertown, has resigned as public health unit leader of Forrest County, and has accepted the appointment to take charge of the Mississippi Home for the Feebleminded at Ellisville.

Survey of Blind in the State.—The Mississippi Association for the Blind, permanent organization of which was effected, August 4, at Jackson, plans to make a survey to determine the number of blind persons in the state and the cause of blindness in each case. A social worker will be provided to make interviews and ascertain individual needs of the blind. The organization hopes to wage an educational war for the prevention of blindness and the conservation of vision, to assist the state board of health in stamping out diseases that cause blindness, and to help enforce the laws on the care of babies' eyes.

MONTANA

State Epidemiologist Appointed.—Dr. Francis A. Coward, Columbia, S. C., has been appointed state epidemiologist and director of the laboratory of the state board of health of Montana, to succeed Dr. E. D. Hitchcock, who resigned recently.

Laboratory Assistant Dies from Spotted Fever.—William Gettinger, U. S. Public Health Service, died at Hamilton, June 30, of Rocky Mountain spotted fever, contracted while engaged in laboratory work in connection with the investigation of the disease.

NEBRASKA

Hospital News.—The name of the Ford Hospital, Omaha, was changed recently by action of its board of trustees to the Paxton Memorial Hospital.——Plans have been prepared for an addition to St. Mary's Hospital, Columbus.——A $75,000 hospital building will be erected at Beatrice by the state.

NEW JERSEY

Inoculation as a Substitute for Dog Muzzling.—A dog inoculated against rabies within one year, if duly tagged to show that fact, is permitted to be unmuzzled on the streets of Englewood, under an ordinance recently enacted by the common council of Englewood.

Personal.—Dr. Fred A. Pringle, on the staff of the Essex County Hospital at Overbrook, Cedar Grove, has been appointed superintendent of the Essex County Hospital for Contagious Diseases at Belleville.——Dr. Jacob Roemer, Paterson, recently returned from abroad where he has spent nine months in Berlin, Vienna and Frankfort.

NEW YORK

Medical College Will Be Enlarged.—Although no definite plans have been drawn, it is reported that new buildings will be erected at Syracuse University College of Medicine to enlarge that institution. Proximity of the medical college to the Syracuse Free Dispensary is a factor which will tend to keep the college in its present location, although placing the college of medicine on the university campus proper has been discussed, and is favored by many.

Hospital News.—The Vassar Brothers Hospital, Poughkeepsie, will be enlarged from 117 beds to 225 in the near future, it is announced.——After ten years' litigation over the will of Mrs. Julia Butterfield, work on the hospital bequeathed by her to the village of Cold Springs was started, July 22.——A petition of the Jewish Aid Construction Society to build a tuberculosis sanatorium near White Pond was withdrawn at a hearing, before the state health department, July 20. Health officers testified that the proposed sanatorium would threaten contamination to the New York City water supply as White Pond is a part of the Croton watershed.——Fire recently destroyed the eastern end of the administration building of the Loomis Sanatorium, Loomis. The estimated loss is $50,000.

New York City

Causes of Death.—Among the 129,575 deaths in New York in 1921, only 707 were listed due to old age. It is reported that 104,600 persons who died lived to be 5 years or more of age, and that 65,000 died before they were 65 years of age.

Winter Coal for Hospitals.—The department of health has ordered all hospitals to report immediately their fuel requirements for the winter. The acting commissioner stated that fuel for the sick would be distributed from the first coal received in the city after mining operations are resumed.

Study Milk Pasteurization.—Under the direction of Dr. Charles E. North, director of the public health bureau, New York, a group of scientists started experiments, August 9, at the Borden Farm Products Company at Endicott, to determine the most satisfactory methods for the pasteurization of milk. The work is a series of laboratory tests, and required 14,000 quarts of milk and millions of typhoid and tuberculosis germs. The experiments will cover the effect of pasteurization at various temperatures on the bacteria of typhoid, tuberculosis and bovine tuberculosis, with the aim of adopting a uniform temperature for pasteurization.

Campaign to Reduce Infant Death Rate.—The division of maternity, infancy and child hygiene, recently organized by the state department of health, issued a call, August 17, to the women's organizations of the state to help in the new campaign to reduce the infant death rate. The department suggested that cooperation follow, in general, along three lines: (1) the formation of mothers' health clubs; (2) the provision of mother's helpers, who will go into homes and help with household duties at the time of confinement, and (3) the formation of mother and child hygiene study classes, to inform members of existing conditions in the community and to promote improvements.

NORTH CAROLINA

To Enlarge Barker Memorial.—Construction work is expected to start early this fall on the new home for the Clarence Barker Memorial Hospital and Dispensary at Biltmore. The orthopedic hospital, which was planned for a separate institute, will be a wing of this hospital, according to a recent decision. The first group of new buildings will be erected at a cost of $350,000.

Personal. — Dr. John C. Dye, formerly of Stateville, has sailed for Honolulu, where he will have charge of the eye department of the Tripler General Hospital.——Hunter McGuire Sweaney, Durham, has been appointed city and county physician.——Dr. Alexander Chester Bulla, Winston-Salem, in the midst of an inoculation campaign against typhoid fever, conducted by the state board of health, himself contracted the fever.

OHIO

Hospital News.—The Henry L. Wells Hospital, Cambridge, was dedicated and formally opened, June 29, with appropriate exercises.——A three-story addition will be erected at the Flower Hospital, Toledo.——A $100,000 building will be erected at the Community Hospital at Berea.

Name Revised at University.—By the action of the board of directors of the University of Cincinnati, the Christian R. Holmes chair of clinical medicine was recently changed to the Christian R. Holmes chair of surgery. This action was concurred in by the Carnegie Foundation, which had assigned $250,000 to establish a chair of clinical medicine in honor of Dr. Holmes.

Personal.—Dr. Guy T. Wasson, Jefferson, Ashtabula County Health Commissioner, assumed the office of commissioner of the Bucyrus district August 1, succeeding Dr. James J. Martin, resigned.——Dr. Howard D. McIntyre, instructor in physiology, University of Cincinnati Medical College, and clinical instructor in nervous and mental diseases at the General Hospital, recently resigned both these positions to become director of psychiatric research at White Oaks Farm, Marion. His wife, Dr. Aurelia P. McIntyre, has become director of the clinical laboratory at the Marion institution.——Dr. J. Morton Howell, formerly of Dayton, diplomatic agent and consul general at Cairo, Egypt, has been promoted to the post of envoy extraordinary and minister plenipotentiary to Egypt. This change occurred when Egypt became a free state.——Dr. Howard M. Brundage, Columbus, who has been ill since last November, has now returned to the medical staff of the Mount Carmel Hospital.——Dr. R. C. Dysart, Columbus, has recently returned from two and a half years' service with the American Red Cross as chief of medical supplies in the Baltic states. He has been appointed assistant in the division of communicable diseases of the state department of health.——Dr. Emery R. Hayhurst, Columbus, sustained serious injury to his right knee in an automobile accident, August 2.——Dr. Edward J. Schwartz, Columbus, has been appointed chief of the division of vital statistics to succeed Dr. Ulysses G. Murrell, Wilmington, who resigned recently.

PENNSYLVANIA

Children to Be Revaccinated.—Dr. Charles H. Witmer, county medical inspector at Lancaster, stated recently that there are hundreds of children in that city and county who have presented to the school authorities certificates stating that vaccination had been performed but on examination it is found these children have never been vaccinated successfully. Four county physicians have been appointed, and all children who have undergone unsuccessful attempts at vaccination are to be revaccinated.

Personal. — Dr. Eugene J. Hamborsky, Farrell, has been appointed examining surgeon for the Bureau of Pensions of the Department of the Interior at Washington, D. C., from Mercer County.——Dr. Leroy E. Chapman, coroner of Warren, has been appointed trustee at Warren State Hospital.——Dr. Edmund C. Bobby, chief of staff of the War Veterans' Hospital, Mont Alto, gave a demonstration of pneumothorax at a meeting of the Franklin County Medical Society, held at that hospital, July 15.——Dr. Richard D. Jameson, Lock Haven, has been appointed full-time health officer for Clinton County.——Dr. Harvey A. Price, Port Carbon, was seriously injured, July 10, when the steering gear of the automobile in which he was riding broke, and the machine plunged into the Schuylkill River.——Dr. George A. Parker arrived in Reading, August 4, to assume his duties as superintendent of the Reading Hospital. Dr. Parker was formerly superintendent at the Butterworth Hospital, Grand Rapids, Mich.

Philadelphia

Philadelphia Pediatric Society.—This society will celebrate its twenty-fifth anniversary, October 10, with a dinner and meeting. In honor of the occasion a special committee has been appointed on increase in membership, with the hope of bringing the membership to the five hundred mark.

Hospital News.—The contract has been let for the erection of a sixteen-story addition to Jefferson Hospital. It will be built on the site of the former nurses' home, Sansom and Clifton Streets. This addition is to be a memorial to the late Justice Samuel Gustine Thompson and will be erected at an estimated cost of $1,400,000.——The West Philadelphia Hospital for Women has purchased additional property for an annex.

Personal. — Dr. M. Luise Diez, Philadelphia, has been appointed obstetrician in the division of maternity, infancy and child hygiene of the New York State Department of Health.——Dr. Arthur C. Morgan has been appointed professor of applied therapeutics in the Temple University Medical Department, Philadelphia, to succeed Dr. Charles E. deM. Sajous, who resigned on account of the age limit, recently.——Dr. Carl F. Schmidt, Philadelphia, who has been engaged by the Rockefeller Foundation to do chemical research work in China, arrived in Peking, July 30.

Physical Development of Schoolchildren. — The instructor of medical inspection of public schools of Philadelphia recently announced that the division is now assisting in the revision of the school instruction courses in physiology and hygiene; about 1,000 undernourished children and their parents are being regularly instructed in proper health habits by the school physicians and nurses; stoop-shouldered children are being informed as to the causes of their condition by the school physicians, and are given proper corrective exercises by the instructor of the division of physical education, and about 50,000 children have been enrolled in the modern health crusade under the auspices of the Philadelphia Health Council and the tuberculosis committee. During the school year ending June, 1921, 222,605 annual physical examinations of pupils were made. Medical inspectors and nurses gave 100 talks in the schools at the annual celebration of Health Day.

RHODE ISLAND

Rhode Island Medico-Legal Society.—At the annual meeting of the society, June 29, held under the presidency of Dr. Roswell S. Wilcox, the following officers were elected for the ensuing year: president, James P. Littlefield; vice president, Dr. Harry S. Flynn, Providence, and secretary-treasurer, Dr. Jacob S. Kelley, Providence.

SOUTH CAROLINA

Board of Health Organized.—At a meeting called by the mayor, August 1, the Landrum Board of Health was organized. Dr. A. R. Walden was elected president of the board.

Hospital News.—A new $60,000 hospital will be erected at Charleston by the Greater Citadel Hospital.——A tuberculosis clinic has been established at the City Hospital, Greenville, under the auspices of that institution and the Greenville County Tuberculosis Association. An appropriation of $6,000 additional to the charity fund of the hospital was also voted, July 17. This brings the total sum for charity work to $12,000.——The new home for nurses at Columbia Hospital.

to be known as William Weston Hall, was formally opened by the mayor, July 28. The structure is named for Dr. William Weston and was erected at a cost of $100,000.——The contract has been let for an addition to the South Carolina Sanatorium, Columbia, to be completed, September 1.——The Julia Irby Hospital, Laurens, has been leased by Drs. Hugh R. Black and Samuel O. Black of Spartanburg, and will be reopened September 1.

SOUTH DAKOTA

To Enlarge State Sanatorium.—The South Dakota State Sanatorium for Tuberculosis, Custer, will be enlarged by the addition of two new pavilions, soon to be erected.——A new thirty bed hospital will be erected at Vermillion and it is expected to be ready for occupancy about September 15. Dr. Eugene M. Stansbury of Vermillion will be director of the institution.

WASHINGTON

Nurses' Club for Seattle.—At the annual convention of nurses held recently in Seattle, it was announced that a club house for nurses would be erected in Seattle at a cost of $400,000. The building will be seven stories high with 200 rooms, and will provide central headquarters for all nursing organizations.

Personal.—Dr. Frank M. Crosby, Kennewick, has resigned as health officer of East Benton County, and will be succeeded by C. F. McCluskey of Kennewick.——Dr. Walter Cowan has been appointed city and county health officer of Walla Walla to succeed Dr. E. A. Montague, who resigned recently to take up work at the U. S. Public Health Service Hospital at Fort Walla Walla.

Hospital News.—The new $150,000 building at St. Anthony's Hospital, Wenatchee, is completed and will soon be opened to patients.——Construction work on the U. S. Veterans' Hospital to be erected at Camp Lewis, Tacoma, at a cost of $3,000,000 was started in August.——The Valley Hospital, Puyallup, was opened for patients, August 15.——A new hospital will be erected at Everett at a cost of approximately $350,000.

CANADA

Society News.—The Winnipeg Medical Society offers a prize of $200 for the best essay on any subject related to the science or art of medicine. The essay must be in the hands of the secretary not later than December 31, and the society reserves the right to withhold the prize unless, in the opinion of the judges, the essays are of sufficient merit.

Canadian Radiological Society.—At the third annual convention of the society held recently in Winnipeg, the following officers were elected for the ensuing year: president, Dr. Lewis J. Carter, Brandon, Manit.; vice presidents, Drs. Charles W. Prowd, Vancouver, J. C. McMillan, Winnipeg, and Leo E. Pariseau, Montreal; secretary-treasurer, Dr. Louis K. Poyntz, Victoria. The rules and regulations governing the Canadian Registrar of Technicians established in 1921 were adopted, and Dr. Poyntz was appointed registrar and examiner.

Personal.—Dr. William Magner of Cork, Ireland, has been appointed pathologist to St. Michael's Hospital, Toronto.——Sir Edward Worthington, M.D., R. A. M. C., has been appointed Companion of the Order of the Indian Empire for services rendered with the Duke of Connaught in India.——Dr. John Fenton Argue, Ottawa, was recently elected president of the Ontario Medical Council.——Dr. Frank H. Pratten, medical superintendent of the Queen Alexandra Sanatorium, Byron, Ont., has been appointed an instructor in medicine at Western University Faculty of Medicine, London, Ont.——Brig.-Gen. F. E. Burnham, M.D., of the Canadian White Cross, has been awarded the Medaglia Commemorativa, by the state of Fiume, in recognition of his services.——Dr. George W. Graham, Toronto, has been appointed chief coroner for Ontario. Dr. Graham has been acting chief for more than a year.——Dr. Madge T. Macklin, A.B., has been appointed instructress in histology and embryology in the medical college of Western University, London. Dr. Macklin, it is asserted, is the first woman appointed to the staff of the university.

Hospital News.—A new $100,000 municipal hospital is being planned for Walkerville, Ont., following a recent vote of the city council.——Plans have been prepared for a new municipal hospital for Hardisty, Alberta, which will be erected at an estimated cost of $30,000.——The provincial government of Alberta will add to the Strathcona Hospital in Edmonton an eighty to 100 bed wing, for the use of ambulant soldier patients. The cost of this new construction will be $100,000.——Work has been started on the new wing of the St. Sauveur Orphanage at Quebec. It will be a seven-story structure, providing space for a dispensary, offices and bed rooms, and will be erected at a cost of $86,000.——The Grey Nuns Hospital at Regina, Sask., will erect a ninety-bed addition at a cost of $150,000. The new structure will contain thirty private wards and an isolation section of twenty-five beds.——The Victoria County Council, Nova Scotia, has accepted the offer of Charles T. Carruth of his summer residence, grounds and farm at Baddeck, valued at $25,000, to be used as a public hospital.——The province of Quebec will make a grant of $150,000 to the Mount La Salle Tuberculosis Hospital at Montreal, in addition to the grant of $100,000 already made. The hospital will be operated by the Sisters of Providence under a contract with the city of Montreal which requires that 200 free beds shall be maintained for patients, the city to pay $73,000 yearly, and the 250 remaining beds to be available to the public on payment of half the cost.——The minister of Soldiers' Civil Reestablishment will make a tour of inspection of all the hospitals, sanatoriums, and other institutions under the judisdiction of his department. He will visit the eighteen hospitals operated directly by the department, and also a number of others containing "government patients." It is also stated that the government has decided to appoint a royal commission to investigate charges made by the War Veterans' Association, as to mismanagement of pensions and insurance granted to returned soldiers.——A new wing will be erected at the General Hospital, Oshawa, and will be known as the Robert McLaughlin Memorial Wing. The new wing will contain twenty-five rooms, and will be set apart as a maternity department. It is expected that the building will be completed about October 1.——At a special meeting of the city council of Kingston, Ont., the additional sum of $25,000 was voted for the construction of a contagious disease building in connection with the General Hospital. The new structure will be erected at a cost of $200,000.

GENERAL

No Duty on Scientific Apparatus for Education.—The tariff bill as finally passed by the Senate provides that philosophical, scientific and library instruments and apparatus which are imported by educational institutions and used solely for educational purposes shall be admitted free of tariff duty. It was pointed out by Senator Sterling that this privilege had been accorded educational institutions in all previous tariff bills. The duty free provision was adopted by a vote of 30 to 26.

Government Investigation of Causes of Cancer.—It was announced by the Treasury office, August 10, that Dr. Joseph W. Scherechewsky, assistant surgeon-general, U. S. Public Health Service, Washington, D. C., has been commissioned to conduct an investigation into the cause of cancer. Headquarters for the investigation will be established in Boston, where it is planned to invite the cooperation of leading medical men and utilize the facilities there for collecting data.

Eye Sight Conservation.—The Eye Sight Conservation Council of America, New York City, is establishing a special mailing list for lecturers and writers interested in the subject of conservation of vision. Data and material will be prepared and issued periodically to persons whose names are on the special mailing list. There is need for lecturers who will appear before local organizations, such as Rotarian and Kiwanis Clubs, chambers of commerce, school and colleges, to present the subject of conservation of vision.

Pharmaceutical Association Takes Action on Alcohol Question.—According to the *Oil, Paint and Drug Reporter*, the American Pharmaceutical Association, meeting last week in Cleveland, "again went on record advocating the establishment of government dispensaries for the distribution of alcoholic beverages; advocated more uniform state narcotic laws and opposed a proposed provision providing for the use of premedicated alcohol for use in maufacturing medicinal preparations."

Hospital Beds for Lepers.—The House of Representatives has referred the bill appropriating $650,000 to be used in the erection of additional buildings at the National Leper Home at Carville, Iowa, to the Committee on Public Buildings and Grounds. The measure recently passed the Senate without a dissenting vote. It provides that the number of beds shall be increased to accommodate 500 lepers, with the understanding that the appropriation shall be increased at the next session of Congress, so that ultimately the Carville leprosarium will be sufficiently large to care for every leper in the United States. The home is now under the control of the U. S. Public Health Service.

Mental Hygiene Session of Educational Association.—At the annual meeting of the National Education Association at Boston, July 6-8, the afternoon of July 6 was devoted to mental hygiene. William H. Burnham, Ph.D., professor of pedagogy and school hygiene, Clark University, read a paper on "Mental Hygiene for the School Beginner;" Dr. Walter E. Fernald, superintendent of the Massachusetts School for the Feebleminded, spoke on "The Inauguration of a State-Wide School Clinic in Massachusetts"; Dr. Walter Timme, New York City, gave an address on "Some Internal Glandular Influences on Child Mentality," and the director of the bureau of education, Harrisburg, Pa., spoke on "Fatigue as a Factor in Education."

Association for the Study of Diseases of the Circulation.—At a meeting of a group of physicians interested in the study of diseases of the heart and circulatory system, held in St. Louis, May 23, this new national organization was formed for the purpose of providing a suitable forum for the discussion of matters pertaining to the study of diseases of the circulation. The officers for the year are: president, Dr. Stewart R. Roberts, Atlanta, Ga.; vice president, Dr. S. Calvin Smith, Philadelphia; secretary, Dr. Cary Eggleston, New York; treasurer, Dr. Walter W. Hamburger, Chicago. Dr. Joseph Sailer, Philadelphia, is chairman of the committee on organization. The association will meet on the Tuesday immediately preceding the annual scientific session of the American Medical Association. The next meeting will take place in San Francisco, June 26, 1923. The office of the association is at 34 East Seventy-Fifth Street, New York City.

Revocation of Permits.—The Treasury Department has ruled that "Permits may be revoked by the Federal Prohibition Commissioner or by any assistant or agent designed by him for that purpose. Prior to any such revocation, however, the permittees shall be given a hearing, upon citation issued by any of the persons authorized to revoke and served personally or by registered mail as provided in the act. During the pendency of such revocation proceedings the privileges under all permits issued to such permittee shall be temporarily suspended, unless the Federal Prohibition Commissioner shall otherwise order. Any such revocation proceedings may be reviewed by the Federal Prohibition Commissioner or the Commissioner of Internal Revenue, and the action taken therein affirmed, modified or reversed as the facts and law may warrant. The permittee may by appropriate proceedings in a court of equity have the final action in a revocation proceedings reviewed as provided in Sections 5 and 9 of the Act."

Senate Adopts Prohibitive Duty on Dyes and Drugs.—In the final passage of the tariff bill, the Senate reversed its position on the importation of dyes and synthetic medicines, and placed extremely high duties on all such articles. This action of the Senate is in accord with the position taken by The Journal in its editorial announcement of August 12, in behalf of American-made synthetic chemicals for medical purposes. There was read to the Senate a letter from Secretary of War John W. Weeks urging that the American dye industry and synthetic medicine industry be protected in the interest of national defense and public health. While the Senate did not vote that there should be an embargo on these products, the tariff duties are of such nature that they will in effect be a conservative check on the importation of dyes and synthetic medicines derived therefrom. The new duties are based on American instead of foreign valuation. They fix the duty on coal-tar dye intermediates at 10.5 cents a pound and an additional 75 per cent. ad valorem, and on finished dyes and coal-tar products, 90 per cent. ad valorem. In urging the adoption by the Senate of these rates, Senator Wadsworth of New York showed that England, France and Italy have placed an embargo against the importation of dyestuffs. He said that as a people we have paid little attention and given small encouragement to scientific research. He asserted that chemical laboratories cannot be maintained unless there is a chemical industry, and that research in the laboratory and chemical industry go hand in hand. As a result of the favorable action taken by the Senate on this legislation, it is said that approximately 200 laboratories and plants manufacturing medicinals and coal-tar products which have been built up in this country since the war will be enabled to continue operations which otherwise must have gone out of existence.

LATIN AMERICA

Personal.—The *Anales de la Sociedad del Guayas* mentions the return to Guayaquil of Dr. Francisco Rojas, after a special course in bacteriology in the United States.

Election of Officers.—The Sociedad Médico-Quirúrgica of Guayaquil held its election June 28. Dr. J. F. Heinert was elected president; Dr. J. V. Payeze G., vice president; Dr. G. Burbano and G. A. Fassio, secretaries; Dr. T. Maldonado Carbo, treasurer, and Dr. P. Egüez Baquerizo, librarian.

Preparations for the Mexican National Congress.—The committee in charge of the organization of the Seventh National Medical Congress of Mexico is issuing a series of bulletins as propaganda and aid. The fourth number just received is handsomely illustrated, with views of the city where the meeting is to be held, medals to be awarded, etc. The city is Saltillo, the date Sept. 3 to 10, 1922. Besides the various official notices and appeals, this *Bulletin* contains a ten page article of instructions for those writing medical articles for the congress or for publication. The selection of the theme, the title, the general plan, the conditions indispensable for a medical work, etc., and finally, the signs used in correcting proof are discussed in detail. The bibliography consists merely of five references, one to a similar article in the *Gaceta Médica de Mexico,* in 1921; one to an article by Uribe y Troncoso in the *Revista Cubana de Otalmologia,* and one by Ramón y Cajal, but the first on the list is the "Suggestions to Medical Authors," published by the American Medical Association. Dr. D. M. Vélez is the editor of the *Bulletin* and president of the congress.

FOREIGN

Biology Centennial.—Prof. M. J. Sirks in an article in a Rotterdam daily recently emphasized the importance to biology of the year 1822, as in that year Galton, Mendel and Pasteur were born. All three were pioneers in an unbroken field from which rich harvests have been reaped since.

Prohibition for Minors in Austria.—According to the new law in Austria, after August 1 every person giving or selling liquor to a minor, under 16, is liable to a penalty of not less than 1,000 or more than 100,000 crowns or two weeks imprisonment. The *Wiener klinische Wochenschrift* adds that no penalty is to be enforced if the minor is merely getting the liquor for an adult.

Memorials to Physicians.—A memorial to Dr. A. Charpy, professor of anatomy at the University of Toulouse, was recently erected by the faculty of medicine.——One of the pioneers in the treatment of tuberculosis in Italy, Prof. A. M. Manucci, is to have a marble memorial in the main public square of his native town, Calitri. Prof. A. Ferrannini collected the funds for the purpose.

Typhus Fever on Scottish Island.—An outbreak of typhus recently occurred on the Island of Raasay, and the theory has been advanced that the infection was traceable to the German prisoners who, during the war, were employed in the iron mines there. Several men from another island were recently given holdings on Raasay, and occupied the houses in which the Germans had previously lived. It is among these people that the disease has broken out. Physicians from Edinburgh and nurses have arrived on the island, and the patients are under treatment in a field hospital.

Practice of Medicine in the New Danish Provinces.—The return to Denmark of northern Schleswig has brought considerable confusion into the practice of medicine there, the Danish government not accepting German credentials and not allowing physicians from Germany to practice there unless they had been settled in the country before Jan. 1, 1918. The medical faculty at Copenhagen voted against accepting German degrees, saying that the medical course in Germany is not so thorough as in Denmark, being shorter. This shuts out all the young physicians who took part in the war and were unable to graduate until after 1918.

Election of Officers.—The president and vice president of the Association médicale des hôpitaux de Paris were until recently Professors Béclère and Broca, but they insisted on resigning their posts when retiring from their official duties elsewhere on reaching the age limit. They were elected honorary presidents, and the duties of acting president were conferred on Dr. Michon. Dr. Sergent was elected vice president and Dr. Ribadeau-Dumas, secretary general, with Dr. Courcoux, assistant secretary.

International Artificial Pneumothorax Association.—The *Schweizerische medizinische Wochenschrift* publishes an appeal from the general secretary of this association that physicians who make a practice of artificial pneumothorax will send him their names and addresses so that the published list will be as complete and perfect as possible. The annual dues are 5 francs, to be sent to Dr. U. Carpi, the secretary general, Lugano, Switzerland. He attends to international exchanges of reprints, etc., and supplies information on demand. The organ of the association, *Pneumothorax thérapeutique*, has not been revived since the war, on account of financial reasons, but arrangements are being made with the more important special journals in different countries to devote a special number to artificial pneumothorax.

Technical Verdict in "Rad-Jo" Suit Against Medical Publication. — The *Münchener medizinische Wochenschrift* brings the first report of the court decision in the appeal of the suit of the "Rad-Jo" manufacturers against the editor of the *Deutsche medizinische Wochenschrift* for slander on account of the denunciations in the latter journal of this nostrum and its manufacturers. The suit was an appeal by the plaintiff, and the court fined the editor 500 marks because he had styled the plaintiff as "belonging to the Gesindel der Kurpfuscher," "the tag-rag of quacks," which the court decided was technically "slanderous" according to the law, and the fine is inevitable, "gewissermassen als Ordnungsstrafe." Otherwise the court decision is a brilliant justification of the editor and an annihilating criticism of the "Rad-Jo" firm and their method of doing business and advertising. In order to prevent any misuse of this decision by the firm, the court decreed that in publishing the judgment, the reasons for it would have to be published with it. This is a most unusual precaution by a court, but the court deemed it necessary in dealing with this plaintiff. Our exchange adds, "In spite of the imposed fine, we can congratulate our brother editor, Dr. Schwalbe, on this outcome of the suit."

Personal.—Prof. Adrian Stokes has been appointed to the Sir William Dunn chair of pathology by the University of London at Guy's Hospital Medical School.——Dr. H. J. C. Gibson has been appointed medical superintendent of Dundee Royal Infirmary, Scotland, to succeed the late Dr. Fraser.——Dr. Charles Roberts has been appointed lecturer in practical surgery at the University of Manchester, England, and Dr. John A. C. Roy has been appointed clinical lecturer in mental diseases.——The honorary degrees conferred by the University of Edinburg, July 21, included the doctorate of laws on Sir Charles Scott Sherrington, professor of physiology in the University of Oxford.——Dr. Wertheimer was tendered an ovation by friends and students at his last lecture as professor of physiology at the University of Lille, having reached the age limit after thirty-nine years of incumbency. His final lecture was on the pancreas and was mainly a summary of his extensive research on this organ.——A bust of Professor Duret was recently installed by his friends in the faculty of medicine at Lille.——Dr. Hinojar of Madrid was the guest of honor at a banquet at Soria.——Dr. P. Belou of Buenos Aires recently presented to Prof. Ramón y Cajal of Madrid a parchment address sent by the students of the Argentine republic. Dr. Belou was on his way to the otology congress at Paris as delegate from the Buenos Aires Otorhinolaryngologic Society. The *Revista Española* states that he has been asked to give a graduate course in Paris this summer.——Dr. Pi y Suñer, professor of physiology at Barcelona, has been given an honorary degree by the University of Toulouse.——A gold medal was awarded to Dr. Mann of Trieste by the local medical society in recognition of his work in organizing the profession in the Trieste region and leading it successfully during the last nine years.——A souvenir volume depicting interesting events in the life of the Netherlands Medical Association in the last sixteen years was presented recently to Dr. Schreve in appreciation of his services during that time as secretary of the association. Professor Burger made the presentation and called attention to the autographed signatures of 400 medical friends.——Dr. R. Rössle, director of the Pathology Institute at Jena, has accepted a call to the chair of pathologic anatomy at Basel as successor to Hedinger.

Deaths in Other Countries

Dr. **Arthur J. Harries**, specialist in electrotherapeutics, died in London, July 28, aged 66.——Dr. **William F. Litchfield**, former president of the section of diseases of children of the Australasian Medical Congress, died, June 22, from angina pectoris.——Dr. **K. Brendel** died recently in Munich, aged 88. He practiced at Montevideo. during his active professional life.——Dr. **A. Bernard** of Paris, assassinated by a servant.——Dr. **Mertens**, director of the orphan asylum at Cologne.

Government Services

New Reserve Organizations

The Surgeon-General of the Army announces three new organizations in the Reserve Corps: General Hospital No. 56, University of Oklahoma School of Medicine, Oklahoma City; General Hospital No. 43, Emory University Unit, Emory University School of Medicine, Atlanta, Ga., and General Hospital No. 25, University of Cincinnati College of Medicine and Cincinnati General Hospital, Cincinnati.

Changes in Public Health Service

In accordance with departmental policy and regulations governing the U. S. Public Health Service, changes have been made in the administrative personnel of the service at Washington as follows: Asst. Surg.-Gen. C. C. Pierce, in charge of the division of venereal diseases, has been relieved from this duty, and Dr. Mark J. White, formerly engaged in hospital work in Chicago, has been appointed to succeed Dr. Pierce. The tour of duty of Dr. C. H. Lavinder as chief of the division of marine hospitals and relief has been terminated, and he has been succeeded by Dr. F. C. Smith, formerly on duty in Washington as chief of the tuberculosis section of the hospital division. Dr. A. M. Stimson, formerly assistant director of the hygienic laboratory, has been appointed chief of the division of scientific research, to succeed Dr. J. W. Schereschewsky. Dr. A. J. McLaughlin has been relieved from duty as chief of the division of the domestic quarantine and is succeeded by Dr. W. F. Draper, who has for a number of years been engaged in rural sanitation work of the public health service. Dr. R. H. Creel has been relieved as assistant surgeon-general in charge of foreign and insular quarantine and immigration, and has been succeeded as chief of this division by Dr. J. D. Long. Dr. Long is an officer who has had quarantine experience and latterly has been engaged in connection with the treatment of ex-service men. Asst. Surg.-Gen. B. S. Warren is relieved from the division of sanitary reports and statistics and is succeeded by Dr. B. J. Lloyd, who for the past few years has been engaged in administrative duty in the hospital division and in the Veterans' Bureau, in connection with the hospital treatment and care of ex-service men. The assistant surgeon-generals who are being relieved from the bureau have, with one exception, been on duty in the bureau for at least four years and have performed efficient services in the respective administrative posts which they have held. During their tours of duty under the supervision of Surg.-Gen. Hugh S. Cumming, the public health service has performed with credit the task of building up a hospital system and organization for the care of the ex-service men. These hospitals and their administration have only recently been transferred to the Veterans' Bureau by order of the President.

Hospitalization Provided for Spanish-American War Veterans

Under the provision of the Langley bill, approved April 20, 1922, the U. S. Veterans' Bureau is authorized to provide hospitalization to veterans of the Spanish-American War, the Philippine Insurrection and the Boxer rebellion, in hospitals under the control or jurisdiction of the U. S. Veterans' Bureau, when such veterans are suffering from tuberculosis or neuropsychiatric disease. A regulation is in progress of being issued covering the question of hospitalization of these veterans, and it is anticipated that it will be distributed shortly.

Consultation by Correspondence

The division of venereal diseases of the U. S. Public Health Service has recently developed a plan whereby the advice and counsel of several of the nation's most prominent syphilographers and genito-urinary surgeons will be made available to practicing physicians without cost. The plan allows private practitioners to forward information and data concerning their patients either through the state department of health or direct to the Public Health Service in Washington, D. C., who will promptly place it in the hands of the proper specialist for detailed discussion and reply. The plan is referred to as the "Consultation by Correspondence" service.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 1, 1922.

Annual Meeting of the British Medical Association

The ninetieth annual meeting of the British Medical Association has been held at Glasgow. The spacious building of the university provided ample accommodation for all the sections, and the gathering, which was attended by 1,500 members, was a great success from both the scientific and the social standpoint. The foreign guests included Dr. Forbes of New York, Professor Bull of Christiania, and Dr. Hindhede and Dr. Mygind of Copenhagen. No German or Austrian guests were present.

THE PRESIDENTIAL ADDRESS: BRAIN SURGERY

The president, Sir William Macewen, after sketching the history of the University of Glasgow, founded in 1450 by Pope Nicholas V, delivered an address on brain surgery, a subject which he has made his own and on which he gave a memorable address to the association as long ago as 1888. He was then able to show cases of lesions of many different regions of the brain which had been localized and removed by operation. He paid a tribute to the work of other surgeons—Horsley, Godlee and Ballance in this country, and Allan Star, his "old friend Keen, the youngest man in America," Cushing, D'Antona of Naples, Durante of Rome, Lucas-Championnière of Paris, and Bergmann and Krause of Berlin. Having given an outline of the development of localization, he pointed out that while there are "silent areas," whose functions we do not know sufficiently to determine when they are invaded by small neoplasms, yet when these enlarge sufficiently to involve adjacent parts by pressure or otherwise, the implication of these parts, in definite order, aids in indicating the position of the lesion.

Thus, the symptoms of a small abscess in the middle of the temporosphenoidal lobe above the tegmen are insufficient for a definite diagnosis, but those produced by a large abscess (or tumor) are quite distinctive. The syndrome pointed out by him in 1884 had been confirmed. The symptoms are due to pressure extending upward from the temporosphenoidal lobe to the adjacent structures and affecting them in ordered sequence. They are, first, passivity of the face on the opposite side, which, as the lesion extends, becomes definite paresis, and may end in paralysis. It is important to note that the facial paralysis is cortical, and therefore the eye can be shut, thus distinguishing the condition from facial paralysis due to a lesion of the nerve in the temporal bone. After the face, the arm becomes paretic, but not the leg. Coincidentally with the facial paralysis and sometimes preceding it, there is mydriasis on the same side as the lesion, with ptosis when the lesion is large. The president surveyed the whole subject of the localization of brain tumors, and narrated several cases from his great experience.

PROFESSIONAL SECRECY

At the representative meeting, there was a long and keen debate on the question of professional secrecy—a subject which, as recent letters show (THE JOURNAL, April 15, 1922, p. 1139), is a burning topic in the profession. At the last meeting, the following resolution was passed: "That the association use all its power to support a member who refuses to divulge, without the patient's consent, information obtained in the exercise of his professional duties, except where it is already provided by act of Parliament that he must do so." The council of the association considered that this resolution went too far and seemed to promise support to any member who chose to disobey an order that he should divulge information, and that to hold out that prospect would be to accept wider responsibility than was justified. It was therefore moved that this resolution be rescinded and the following substituted for it: "That the association support in every possible way any member who in the opinion of the council is deemed to have been justified in refusing to disclose any information he may have obtained in the exercise of his professional duties." Considerable opposition was expressed to this weakening of the original resolution, but the motion was carried by a majority. The general sense of the meeting, however, was that the position of the medical witness was not sufficiently protected in the courts and, after discussion, the following resolution was carried unanimously: "That as it is an essential principle of medical conduct that information obtained in connection with the treatment of patients should not be divulged without the consent of the patient concerned, the representative meeting expressed the opinion that the proper preservation of professional secrecy necessitates a measure of special consideration being recognized for medical witnesses in courts of law above and beyond what is accorded to the ordinary witnesses."

THE NATIONAL INSURANCE ACT

The following recommendation of the council was moved: "That the measure of success which has attended the experiment of providing medical benefit under the national health insurance act system has been sufficient to justify the profession in uniting to insure the continuance and improvement of the system." In the debate, the insurance acts were strongly criticized, but the motion was carried, 81 to 21.

THE HOSPITAL POLICY OF THE ASSOCIATION

The report of the council on the policy of the association in regard to the voluntary hospitals, stated in a previous letter (THE JOURNAL, April 15, 1922, p. 1138), came up for consideration. After much discussion and opposition, the paragraphs of the report were carried, with one important exception. The report claimed that a percentage of the payments made by or for patients (other than private patients, i. e., persons who are in a position to arrange directly for medical attendance independent of the hospital) should be passed into a fund for the benefit of the medical staff. Objection was made to this proposal as being much too sweeping. It costs $15 or $20 to maintain a patient in a hospital, and the staffs of the great London hospitals almost unanimously refused to take a percentage of the payments made by patients toward that maintenance. One speaker made the important point that if a patient contributed $10 a week toward maintenance, and the medical staff took $2 of that, it would really come from the gratuitous contributions made toward the support of the hospital. By a vote of 64 to 55, an amendment was carried confining the claim for a percentage of the payments to those made by public authorities and to those made by patients in excess of the cost of maintenance and accommodation.

PRESENTATIONS

The association's gold medal of merit and illuminated address were presented to Arthur Martin-Leake, V.C., F.R.C.S., who has the unique distinction of being the first man to whom was awarded a bar to the Victoria Cross for most conspicuous bravery and devotion to duty throughout the war. In 1902, he was awarded the Victoria Cross (the highest distinction in the British Army for valor) "for great devotion to duty and self-sacrifice, when he went out into the firing line to dress a wounded man under heavy fire from about forty Boers 100 yards away. He then went to attend a wounded officer, and while trying to place him in a more comfortable position was shot three times. He gave up only when thoroughly exhausted, and refused water until other wounded had been served." In 1915, he was awarded the bar to the Victoria Cross "for most conspicuous bravery and devotion to duty throughout the campaign, especially during the period October 29 to November 8, near Zonnebeke, in rescuing, while exposed to constant fire, a large number of wounded lying close to the enemy's trenches." The same presentation was made to the Right Hon. Sir T. Clifford Allbutt for his long and distinguished services to the profession and the association and in commemoration of his five years' presidency during the Great War.

THE ACTION OF ALCOHOL

Dr. E. Mellanby, professor of pharmacology, University of Sheffield, opened a discussion on the question, "To what extent can alcohol as a beverage be considered to have any influence on the human economy, mental disorders, industrial efficiency and infant mortality?" He described alcohol as a food-drug. As a drug, it might produce drowsiness by the smallest dose; at other times, excitement. Hence, two schools had arisen, one regarding it primarily as a stimulant to the nervous system, the other as a depressant from the first. But the stimulating effects were now generally regarded only as the result of depression of the inhibitory mechanism of the cerebral cortex. Alcohol must be regarded as a narcotic, but this did not, as some supposed, put it out of court either as a beverage or as a therapeutic agent. Narcotics had their sphere of usefulness as certainly as stimulants had. Modern life with its competition, acquisitiveness and restlessness had many undesirable features which made existence almost intolerable to many. Alcohol was taken as a beverage by the average man in order to escape for a time the strain of existence. Small quantities dispersed many of the worries and troubles of life, and so might play a part in restoring to better working order various functions of the body whose action was depressed by anxiety.

Thus, dyspepsia induced or exaggerated by worry might be favorably influenced, and gastric secretion and movements, which had been reduced, restored. Again, in syncope due to fright or pain, the inhibition might be removed by alcohol. But evidence of a direct stimulating action on the heart was not satisfactory. Alcohol was a stimulant only so far as it irritated the nerve endings of the mouth, esophagus and stomach. As to alcohol as a food, experiment had shown that a man who drank in half an hour whisky containing 171 c.c. of alcohol oxidized 10 c.c. an hour and was supplied with fifty-four calories an hour, at the rate of 1,300 calories a day, or about 40 per cent. of his heat loss. But this result had little interest from the medical standpoint, as severe intoxication was produced. But by giving alcohol in small doses, the maximum amount of energy in a unit of time without a toxic effect might be obtained. The food properties of alcohol could be best utilized in diabetes, when, in the modern treatment, ordinary food is withdrawn, as alcohol is oxidized without the production of sugar.

In the discussion which followed, Prof. A. R. Cushny said that although the body could use alcohol as a source of energy this did not mean that it was a desirable food or one to be recommended. The extreme case in which the value of alcohol had been demonstrated, given by Professor Mellanby, was a medical case and did not refer to the normal condition at all. Although alcohol was a food, it was also a poison, and the amount of food obtained from it was surprisingly small. Beer was equivalent only to a sweetened cup of coffee containing milk.

In a paper on the alcoholic psychoses, Dr. John T. MacCurdy of New York maintained a curiously noncommital attitude with regard to prohibition. Contrasting alcohol with other narcotics, he pointed out how much more useful opium was to the physician. As to the harm done, the narcotics rarely, if ever, induced dementia; and, pitiful though the state of the addict might be, the mental aberration or degradation and the economic losses produced were negligible compared with the ravages of alcohol. Only abnormal people used them, and their effect was, as a rule, only to wipe out reality, not to release impulses a too stringent consciousness is on guard against. The opium den showed little trace of sodality. Innumerable people, on the other hand, were made happier and therefore healthier by alcohol in moderation. For one inebriate, at least 100 drank in moderation. What would their fate be in an alcohol-free state? The changes would not be obvious, but they might be serious. True congeniality being under the new regimen essential for lively social intercourse, society would be split up into smaller groups and many would become quite seclusive. Sectionalism was not healthy for society any more than solitude for the individual. A certain number of moderate drinkers craved and needed excitement. There would be danger of their indulging in that kind of political activity in which the mere excitement of strife was an end in itself. As for the truly well-adapted folk, those who approached real normality, abstinence would produce no untoward results. If one could estimate their numbers, one could answer the great question, "Would prohibition be worth while?"

PROGNOSIS AND TREATMENT OF CHRONIC RENAL DISEASE

Prof. Hugh Maclean (London) opened a discussion on the prognosis and treatment of chronic renal disease. The information now obtainable from the renal efficiency tests had greatly altered our conceptions of renal disease. He recognized two main types: (1) hydremic nephritis, in which there were marked edema and retention of chlorids and water, but not retention of nitrogen, and no increase of urea, a type subacute rather than chronic; (2) chronic interstitial nephritis, in which there was little retention of salt and no edema, but tendency to retention of nitrogenous products and to cardiovascular changes. But it was not unusual to get a mixture of the two types. Prognosis should be based on: (1) the general clinical condition, (2) the cardiovascular state and (3) the biochemical tests. He considered the tests for renal efficiency of greater value than are clinical symptoms. He relied most on estimation of the blood urea and the urea concentration tests; but a single blood urea test might indicate only a temporary state. The state of the cardiovascular system must not be overlooked; but in many cases it might be partly affected without much damage of the kidneys. As to treatment, in the hydremic variety, if there was no retention of nitrogenous products, the indication was to give proteins in full amounts, and not withhold them, as was formerly practiced. In the severe cases, however, a low protein diet was best. Decapsulation of the kidney promised good results.

TREATMENT OF TUBERCULOSIS

In the section on public health, Prof. Wynne Sheffield delivered a strong indictment of the present treatment of tuberculosis. The taxpayer was being bled by an expenditure that did not give an adequate return; which, indeed, promoted poverty and public ill health. The fact was seldom appreciated that tuberculosis was a steadily decreasing disease before the public became excited about it. The system of three months' treatment of infective cases, in a hospital or sanatorium, by slightly prolonging life increased the opportunity for disseminating the disease when the patient returned to "domiciliary treatment." The whole of our tuberculosis administration was an example of the ill effects of neglecting the environment in favor of dealing with the individual. Well-intentioned but untrained persons awoke to the fact that large numbers were dying of tuberculosis, and open-air treatment and sanatoriums were boomed. There was an outbreak of "national societies," and provision of sanatoriums at enormous cost. It was now commonly held that the most hopeful function of the sanatorium was the isolation of the infective case. Yet we had been spending $50,000,000 on the treatment of tuberculosis, while there was no money available for elimination of the insanitary areas where we cultivated more cases of tuberculosis in a week than all the sanatoriums could care for in a year. The only practical sanatorium for the people was a reasonably healthy environment in their own homes. By increasing poverty through expensive schemes, we were creating more disease than we relieved.

PARIS

(From Our Regular Correspondent)

Aug. 4, 1922.

New Central Office of the International Red Cross

The central office of the League of Red Cross Societies, which has been located at Geneva, is to be transferred to Paris, rue Quentin-Bauchart 7, for a period of at least two years. In 1924 the council will decide whether it will be permanent. This move was dictated by the desirability of establishing the central office of the league in a center possessing all the means of giving publicity to its acts; also convenient access to records, and immediate contact with other important offices and societies.

Echinococcosis

The Société de pathologie comparée adopted recently the following resolution, which was presented by Drs. Devé, Weinberg and Morel:

> *Resolved,* That private slaughter houses be suppressed and be replaced by communal abattoirs.
>
> That the legislative enactments concerning the seizure of stray dogs and the destruction of animal carcasses be strictly enforced.
>
> That dogs should not be permitted to enter the flaying rooms at all, and the abattoirs only to a limited extent, as controlled by definite regulations.
>
> That the declaration of all animals discovered in the abattoirs to be infested with echinococci shall be obligatory.

The declaration of animals infested with echinococci would result in: (1) the seizure of the animal carcasses so infested and the effective destruction, preferably by fire, of every organ found to contain parasites, and (2) the examination of suspected dogs in the localities from which the infested carcasses originated. Furthermore, it would be desirable, in these same regions, to advise the public, and, more particularly, the butchers and farmers, by articles in the daily papers, by lectures and by the distribution of leaflets, of the danger of animals becoming infested through contact with suspected dogs; informing them, at the same time, of the means that should be taken to avoid such danger. Posters containing illustrations setting forth the nature of the echinococcus should be put up in the schoolrooms, the abattoirs and the flaying rooms.

Congress of University Women

The congress of the international federation of university women, recently held in Paris, brought together 350 delegates, representing eighteen different countries. The attendants of the congress were received by the rector of the Academy of Paris at the Sorbonne, where Mme. Cestre, Miss Caroline Spurgon, and the president of the federation, Dean Gildersleeve of Barnard College, New York, delivered addresses. A reception was given at the Union interalliée in honor of the American delegates to the congress. Monsieur Maurice Casenave, formerly chairman of the French mission to the United States, gave the address of welcome to the American delegates.

The Juvenile Red Cross

The three societies that constitute the French Red Cross (the Société de secours aux blessés militaires, the Union des Femmes de France and the Association des dames françaises) have decided to form, under the banner of the French Red Cross, a special group, with a view to coordinating and developing the charitable activities of the young people in France. This group has adopted the name: Section de la jeunesse française C. R. F. (Croix-Rouge française). It constitutes an integral part of the French Red Cross. It is not an independent society with by-laws of its own. Notwithstanding its obligation to comply with established rules, this juvenile society enjoys the necessary autonomy and may exercise sufficient initiative for its own progress and development. The purpose of this new group is to inculcate in French youth high ideals of brotherhood, charity and devotion.

Regional Organization of the Campaign Against Cancer

Dr. Bergonié, professor of electrotherapy and biophysics of the Faculté de médecine of Bordeaux, delivered an address recently before the medical bloc in parliament on the present aspects of the campaign against cancer in France. He referred to statistics to prove the onward march of cancer, and considered the efficacious weapon against its encroachments that deep roentgenotherapy furnishes. Bergonié pointed out, however, how difficult it was for the majority of Frenchmen—especially those not favored by fortune—to take advantage of the method. The equipment required is expensive and of a delicate character, being far too complicated to allow of its widespread installation. Under these conditions, the best solution of the problem is no doubt a regional organization such as Bergonié has brought about in southwestern France by collecting at various points all available types of equipment. The delimitation of the regions may be made to correspond, for the time being, to the areas tapped by the various universities. The units thus created will fulfil a triple purpose, serving at one and the same time as therapeutic, research and instruction centers.

Rôle of the Pituitary and the Pineal Bodies in Infantile Dystrophy

P. Lereboullet, assistant professor of the Faculté de médecine of Paris, recently reviewed the so-called hypophysial syndromes. Among these, the syndromes of osseous dystrophy (acromegaly, giantism, nanism) appear to be directly associated with changes of the pituitary body. These changes are doubtless brought about, at least to a great extent, by a tumor-like growth (adenoma with eosinophil cells). Hutinel's dystrophy of adolescence would seem to come under this same head. The adiposogenital syndrome, whether associated with nanism or giantism, seems to be not so much the result of functional alteration of the pituitary gland (as was believed for some time) as it is of the simultaneous (or isolated) involvement of the tubero-infundibular region adjacent. So-called hypophysial obesity is open to the same criticism, and appears often more the result of nerve lesions (whether associated or not with ventricular hydrocephalus) than of functional changes in the posterior lobe of the hypophysis. It is also often partly dominated by concomitant genital changes. Recent symptoms of postencephalitic obesity and of obesity associated with hydrocephalus may be better understood under the foregoing assumption than by invoking a hypophysial lesion. The polyuria of diabetes insipidus should be referred to changes in the tuber cinereum, but this syndrome is also frequently an indication of changes in the pituitary body.

In the examination of these cases we should, therefore, continue to look for changes in the hypophysis, and especially for indications of a tumor. But, at the same time, we should not lose sight of the importance of nerve changes, and whenever possible, especially if syphilis has preceded, endeavor to discover any involvement of the basilar membrane and adjacent centers.

Therapeutic considerations will continue, therefore, to take careful account of a possible hypophysial origin of these syndromes, since surgery (hypophysectomy and sellar trephination) and roentgenotherapy may be credited, at the present time, with unquestionably successful results, and since, on the other hand, hypophysial organotherapy, even though, as it would seem, it does not show the mechanism of true organotherapy, exerts a remarkable effect on a great number of symptoms; more particularly, polyuria.

The pathology of the pineal body is not only more limited but also less clearly marked. It is characterized by three types of manifestations: (1) a dystrophic syndrome evidenced by accelerated growth, the height rapidly reaching the maximum but not exceeding it; there is no sign of giantism, but occasionally nanism will be observed; the precocious development of the genital organs and increased pilosity accompany rapid growth and are often very marked; (2) a nervous syndrome, characterized by cerebral hypertension, together with headache, vomiting, convulsions, disturbances of vision, etc., to which are added certain signs revealed by lumbar puncture and notably hypertension of the cerebrospinal fluid, and (3) a peculiar ocular syndrome, distinguished by partial paralysis of the rotary muscles of the eye, due, according to Spiller, to a lesion of the anterior corpora quadrigemina. With this triple syndrome may be combined certain contingent factors: obesity and polyuria, which may be due to a secondary involvement of the floor of the third ventricle. A third sign is closely related to those characteristic of precocious puberty; namely, precocious mental development quite superior to that of children of the same age, as has been noted in several instances.

MEXICO CITY

(From Our Regular Correspondent)

Aug. 6, 1922.

New Members of the Academy of Medicine

Dr. Eliseo Ramirez of Mexico City, and Dr. Edmundo Escomel of Arequipa, Peru, have been admitted as active member and corresponding member, respectively, of the Academy of Medicine. The first submitted as his thesis a paper on physiology of the corpus luteum, and the second, a report on the treatment of amebiasis.

Personal

Dr. Bernardo Gastélum of Culiacan has arrived at Montevideo to take charge of the Mexican legation to Uruguay, a position to which he has been appointed.——Dr. Luis Felipe Obregón, Guatemalan minister to Mexico, has resigned his position because of a change of administration in his country.——Dr. F. Blanco Villalta has been appointed Argentine consul general to Mexico. During the absence of the Argentine minister he is in temporary charge of the legation.——The present Peruvian minister is Dr. I. de Mora.——Dr. Jesús González Urueña, professor of dermatology in the medical school, has resigned as member of the Academy of Medicine.

Statue to Dr. Montes de Oca

Steps are being taken to erect a statue to Dr. F. Montes de Oca. He was one of the most prominent Mexican surgeons, and many of the present surgeons were his pupils. The only discordant note is the plan to erect the statue in one of the most disreputable sections of Mexico City just because he happened to be the head of the Army Hospital, which is located there.

Yellow Fever

A foreigner died from yellow fever at the Gorgas Hospital, Tampico, July 28. It is suspected that he may have contracted the disease at Pánuco, a neighboring town. The public health department is carrying out all pertinent investigations to determine definitely the true nature of the disease. The diagnosis of yellow fever was not accepted immediately, since there had been no case of yellow fever in Mexico since March, 1922, and none at Tampico since January, 1921, and there is no evidence that the case may be from a foreign source. At all events, the antimosquito campaign is being pushed at Pánuco and Tampico, under the supervision of Drs. M. E. Connor and A. Cuarón, to keep the stegomyia under the safety limit and prevent any chance of further spread of the disease, even if the case should really prove to be yellow fever.

Yellow Fever Conference

With Dr. J. H. White, formerly of the U. S. Public Health Service, in the chair, the Second Conference on Yellow Fever was held, August 1-3. After listening to the report presented by the special commission which is conducting the yellow fever campaign in Mexico under the auspices of the public health department, with the cooperation of the Rockefeller Foundation, the delegates recommended to the department the discontinuance of all active work against yellow fever at the end of the present year, as the disease probably will be finally eradicated by that time. In the zones that previously had endemic foci, a supervising service will be continued indefinitely in order to prevent new outbreaks or the importation of patients from abroad. It was also decided to recommend to the department that an invitation be extended to the International Health Board to keep cooperating with the Mexican authorities in the campaign against communicable diseases, and also to take charge of training Mexican sanitary experts, as is done in other countries. In the discussion, proof was had of the cordial relations now existing between Mexican and American scientists, since Dr. White, the American sanitarian, pleaded for the appointment of sanitary attachés in the embassy personnel, and one of the Mexican members urged the exchange of sanitary missions among the nations on the western continent, in order to bring about a better understanding.

Celebration by the Mexican Medical Association

The Mexican Medical Association celebrated the third anniversary of its foundation, July 29, with a literary and musical entertainment. A speech was delivered by Dr. Brioso Vasconcelos, the editor of the *Gaceta Médica de México.*

BUENOS AIRES

(From Our Regular Correspondent)

July 8, 1922.

Outbreak of Smallpox at Avellaneda

For many years the Buenos Aires Public Assistance took great pride in the fact that it had eradicated smallpox through the rigid enforcement of compulsory vaccination and revaccination. Now it has suffered a serious disappointment. From the provinces, especially Cordoba, where the disease has not yet been controlled smallpox occasionally makes inroads elsewhere. Six cases have appeared in the province of Buenos Aires at Avellaneda, a town in the suburbs of the federal capital. A patient came here from Avellaneda and was placed in one of the wards in the Children's Hospital under the impression that the disease from which he suffered was hemorrhagic purpura. It was found later to be a serious case of smallpox. No precautions had been taken, and a few days afterward six of the persons in the hospital were taken sick with smallpox, one of them being a Sister of Mercy, who died within thirty-six hours. The hospital was closed, isolated and disinfected. Dr. A. Larguía was appointed to the position of superintendent, which had been vacant. It was found that in this hospital patients were not vaccinated on admission as in the municipal hospitals. These cases have brought about a more thorough enforcement of vaccination in the federal capital and the province of Buenos Aires. It seems likely that the outbreak will soon be a thing of the past.

The Academy of Medicine and the Cancer Institute

The Academy of Medicine celebrated its centenary recently. Prizes were awarded to Drs. Belou, Canton, Lagos García, Garzón Maceda and P. Rojas, for works submitted by them. The Cancer institute was inaugurated at the same time. An announcement was made that the academy was contemplating the establishment of an institute of experimental medicine. This originated a conflict, since the directing board of the university claims the authority to regulate the activities of the institute. According to the existing law, the academy is a consulting body without administrative authority, and its activities must be regulated by the directing board of the university. The academy argued that it could take charge independently of scientific institutes. The superior board entrusted the management of the institute to a special commission, mostly of members of the academy but presided over by the dean of the medical school. The academy took umbrage at this and forbade its members to accept appointments on the commission and turned over the institute to the medical school. On the other hand, it has requested the Argentine senate that it be granted absolute autonomy.

Public Health and Hospitals

The National Department of Public Health is pushing its hookworm campaign in Corrientes. It seems as if the provincial authorities are going to adopt special laws on this subject.

Besides the sanitary station established at Catamarca, those at La Rioja, Jujuy and San Luis are already finished. These stations have bacteriologic laboratories, antimalarial sections, disinfecting apparatus, and infant and antivenereal dispensaries.

Field hospitals have already been or will be inaugurated at Chilecito and Chamical (La Rioja), Copacabana (Caramarca), Perico and La Quiaca (Jujuy), Molinos and Güemes (Salta), La Banda (Santiago del Estero), Posadas (Misiones), Paso de los Libres (Corrientes) and Las Cuevas (Mendoza). These hospitals are located near the boundary line, on central traffic lines, and will permit supervision and prevention of the importation of epidemic diseases.

Lectures

A series of lectures on neurology has just been given by Professor Nonne of Hamburg. There has been announced the arrival of F. Krause, the surgeon, and F. Munk (Germans), P. Abrami and J. L. Faure (French), and W. Sharpe (American). The date of Dr. Sharpe's arrival is not yet definite.——Professors Chutro and Escudero's lectures have met with great success. As in previous years, graduate courses will be given this year.

Peptone in the Treatment of Anthrax

Drs. R. F. Vaccarezza, F. F. Inda and R. Posse have published a paper on the treatment of human anthrax based on their experience in the infectious disease clinic of the school of medicine. They treated 204 cases: fifty-six with antianthrax serum Méndez, with a death rate of 19.6 per cent.; ninety-four cases with this serum plus other medication, with a death rate of 20.2 per cent.; twenty-four cases with antianthrax bovine serum, with a death rate of 8.3 per cent.; thirty cases with antianthrax bovine serum plus other medication, with a death rate of 13.3 per cent.; fifteen cases with normal bovine serum, with a death rate of 20 per cent.; twenty-four cases with normal bovine serum plus other medication, with a death rate of 16.6 per cent., and fifty-nine cases with peptone alone, with a death rate of 6.67 per cent. The average mortality was 15.8 per cent. The authors concluded that while normal serum has no action experimentally, it has shown curative powers in human anthrax. Its value is virtually equal to that of immune serums. Peptone in muscular injections (from 10 to 20 c.c. a day, 10 per cent.) showed a therapeutic potency not inferior to anthrax serum, although naturally it has no specific action.

BERLIN

(*From Our Regular Correspondent*)

July 29, 1922.

The Brain of Ernst Haeckel

A few years before his death, Haeckel (in which Waldeyer afterward followed suit) gave his friend Friedrich Maurer, professor of anatomy at the University of Jena, the commission of examining his brain postmortem. Maurer recently reported the results of his examination to the Medizinisch-naturforschende Gesellschaft in Jena (*Deutsche medizinische Wochenschrift* **48,** Aug. 11, 1922). As would be expected from the great size of Haeckel's head (the immense hats that he wore were a matter of common remark), his brain was unusually heavy. A slight tendency to hydrocephalus was noted, a similar finding having been made in the case of Helmholtz and Adolf von Menzel. Consistent with the advanced age of the subject (86), there was a perceptible senile atrophy, as evidenced by the widened furrows in the frontal region. The motor area governing the movements of the left leg was much impaired, in which connection it should be noted that in 1911 Haeckel suffered a fracture of the left femur, whereby he lost almost entire use of the left leg. The visual area was remarkably well developed, which is not surprising in view of the fact that Haeckel had unusually good eyes, as was shown by his skill in quickly reproducing landscapes in water colors. In marked contrast with the powerfully developed frontal lobe, the preeminent *Denkapparat* (seat of the intellect), the precuneus, or quadrate lobe, a secondary psychic center located in the medial surface of the parietal lobe, near the region of the visual area, was only slightly developed. In contradistinction to Haeckel, the precuneus was unusually well developed in the brains of Helmholtz and the botanist Stahl. Of Stahl it has been remarked that he had very little to say about anything outside his specialty. Maurer does not draw any definite conclusions from these observations, but leaves that to later investigations.

Vital Statistics of German Cities for 1921

According to official publications, the population of the 343 larger cities from which reports are accessible had increased one million, being 25,700,000 in 1921, as compared with 24,700,000 in 1920. It is evident, therefore, that 41 per cent. of the total population of the empire resides in these 343 cities. This remarkable growth of the cities is doubtless due, to a considerable extent, to the influx from the smaller towns and to the immigration from foreign countries. The number of living infants born in these cities was 560,000, or 21.8 per thousand of population, which denoted a falling off when contrasted with the record for the previous year, which was 23.8 per thousand. Since it has been found that economic factors exert a great influence on the birth rate, Dr. Roesle, taking the value of the mark in relation to the American dollar as a basis, has been making a critical investigation of the possible effect of economic conditions. In order to discover the influence on the varying birth rate throughout the twelve months of the year, it is quite evidently necessary to date back nine months the birth rate for each month, since in this manner the month in which the children were conceived is ascertained. In 1921, the birth rate of the urban population continued to drop until August, or, taking the month of conception, back to November, 1920, in which month not only the value of the American dollar in marks but also the wholesale prices of German goods thereby affected reached the maximum of the observation period. Roesle therefore assumes that the failure of the rational increase in the birth rate for July, 1921 (conception month, October, 1920), to materialize is traceable to the further increase in the cost of living which followed the advance of the dollar and of the wholesale prices of German goods. In the months of February and March, 1921, the cost of living came down, and it is to be noted that there was a corresponding increase in the birth rate for the months of November and December, 1921 (just nine months later). It could not be shown that economic conditions exerted a perceptible influence on the death rate. The year 1921 shows the lowest recorded death rate in German cities with more than 15,000 inhabitants; namely, 13.5 per thousand of population, and excluding deaths among strangers and transients, the death rate was only 11.9. A comparison of the monthly death rates for former years brings out the fact that during the winter months of January, February and March, 1921, especially favorable weather conditions must have prevailed. The abnormally mild winter was followed by an abnormally hot summer, but the summer peak of infant mortality did not reach the terrible percentage of the summer of 1911. Also during the autumn of 1921 the weather conditions were favorable. These favorable weather conditions prevailed elsewhere as well, so that favorable death rates for the year 1921 are to be expected also from other countries. Only for the month of December, 1921, was there a higher death rate than for the corresponding month of the previous year, which is explainable by the severe influenza epidemic. The rapid and continued decrease in the death rate, since the war, is due, for the most part, to the improvement in the food situation.

The Number of Physicians in Germany

The number of physicians in active service in Germany at the present time is vastly greater, in proportion to the population, than before the war. While prewar statistics showed one physician for every 2,000 inhabitants, the record for 1820 is one physician for every 1,551 inhabitants. The total number of German physicians in 1920 was 37,389. The average annual death roll among physicians of Germany contains 800 names. Judging from the increase in the number of physicians, during the last few years, the number of physicians in Germany in 1925 will be around 43,000, or one physician to 1,400 inhabitants. The number of medical students has been decreasing of late. During the winter semester of 1919-1920 the number was 20,888, but in the summer semester of 1921 it had dropped to 16,737.

Marriages

Henry M. Wheeler, Grand Forks, N. D., to Miss Mae McCulloch of Cleveland, at Minneapolis, July 3.

Willard Strickland, Wendell, N. C., to Miss Cleo Mariner of Pocomoke, Md., in Richmond, Va., recently.

Harold Samuel Boquist, Minneapolis, to Miss Marion Scovell of Fridley, Minn., in July.

Clarence Lavan Bittner to Miss Emma Lou Jarvis, both of Sacramento, Calif., August 8.

Stanley Robert Maxeiner, Minneapolis, to Miss Madeline Teas Wood of St. Paul, July 27.

Charles Ambrose McCarthy to Miss Jennie White, both of Lawrence, Mass., July 27.

Frank Earl Adair to Mrs. Dorothy Wilde Moon, both of New York City, August 9.

Frederick Herman Neher to Miss Cecilia Kilbane, both of St. Paul, July 12.

Deaths

George Milbry Gould ⊕ Atlantic City, N. J.; Jefferson Medical College, Philadelphia, 1888, died at his home after an illness of three hours from heart disease, August 8, aged 74. Dr. Gould served in the Civil War as a drummer boy in 1861-1862 and as a volunteer in 1864-1865. He received his A.B. degree from Ohio Wesleyan University in 1873, and the A.M. in 1892. He attended the Harvard Divinity School in 1873 and served as a minister until he took up the study of medicine. After receiving his medical degree in 1888 he began practice, specializing in ophthalmology. He was editor of the *Medical News,* 1891-1895; *Philadelphia Medical Journal,* 1898-1900, and *American Medicine,* 1901-1906. Dr. Gould received the first Doyne Medal of the Ophthalmological Congress at Oxford, England. He was especially well known as a writer on medical subjects; while still a student he collaborated in the preparation of a compend of diseases of the eye; in 1890 appeared the first edition of "The Students' Medical Dictionary," the eleventh edition of which was published in 1900; his "New Medical Dictionary," published in 1891, passed through ten editions; the "Pocket Medical Dictionary," published in 1892, was last republished in 1913 and "The Practitioners' Medical Dictionary" passed through various editions from 1906 to 1917. One of his most important books was the "Anomalies and Curiosities of Medicine," written in collaboration with Dr. Pyle. Among his nonmedical works were a book of poems published in 1897, "Biographic Clinics," 1903-1909; "The History of Jefferson College," 1904; "Concerning Lafcadio Hearn," 1908; "The Infinite Presence," 1910, and "The Life and Letters of E. C. Stedman," 1910. He was a man of varied interests with a broad point of view and a thorough, practical writer.

Albert Herman Peters ⊕ Colorado Springs, Colo.; Keokuk Medical College, College of Physicians and Surgeons, Keokuk, Iowa, 1900; county physician; served in the M. C., U. S. Army, during the World War; died, August 2, at the Beth-El Hospital, from uremia, following an operation for appendicitis.

Asahel B. Gardner, Greenville, Texas; Medical Department of the Tulane University of Louisiana, New Orleans, 1885; member of the State Medical Association of Texas; Confederate veteran; formerly city health officer; died, August 5, aged 76.

James F. Jett, Linn, Mo.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, Ky., 1891; member of the Missouri State Medical Association; died, June 11, at St. Louis, aged 66, from pulmonary embolism.

William Walter Wertenberger, St. Joseph, Mo.; University of Michigan Medical School, Ann Arbor, 1892; aged 51; died, August 1, at the Noyes Memorial Hospital from wounds inflicted when struck by a bullet aimed at police officers by a bandit.

George Potter Reynolds ⊕ Alameda, Calif.; College of Physicians and Surgeons of Syracuse University, Syracuse, N. Y., 1873; died, August 4, at the Lane Hospital, San Francisco, aged 75, from bronchopneumonia and chronic bronchitis.

Frederick Celso Chirinos ⊕ Philadelphia; Temple University Department of Medicine, Philadelphia, 1906; served since 1917 as United States consul for Venezuela, retired on account of ill health; died, August 4, aged 56, from influenza.

Kate I. Graves, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1884; Hahnemann Medical College and Hospital of Chicago, 1885; died, August 12, at Fifield, Wis., aged 70, from heart disease.

Morris Leroy Potts, Trenton, N. J.; Jefferson Medical College, Philadelphia, 1912; member of the Medical Society of New Jersey; served in the M. C., U. S. Army, during the World War; died, July 7, aged 38.

Frederic William Loughran, New York City; Albany Medical College, N. Y., 1890; served in the M. C., U. S. Army, during the World War with the rank of major; died, August 5, aged 53, at River Bank, Conn.

William H. L. Hale, Philadelphia; Jefferson Medical College, Philadelphia, 1882; member of the Medical Society of the State of Pennsylvania; on the staff of the Wills Hospital; died, August 7, aged 62.

Edward F. Quinlan, New York City; Albany Medical College, Albany, N. Y., 1868; formerly president of the Sullivan County Medical Association; died, August 6, aged 76.

⊕ Indicates "Fellow" of the American Medical Association.

Robert Henry Baird, Cullman, Ala.; Medical College of Alabama, Tuscaloosa, Ala., 1892; member of the Medical Association of the State of Alabama; died, July 24, aged 56, from heart disease.

Richard F. B. Seaman, Locust Valley, N. Y.; Medical Department of Columbia College, New York City, 1881; member of the Medical Society of the State of New York; died, August 6, aged 68.

Thomas E. Ashinhurst ⊕ Waurika, Okla.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, Ky., 1905; died, July 13, aged 45, from chronic nephritis.

George C. Hook, Bellbrook, Ohio; Columbus Medical College, Columbus, Ohio, 1885; member of the Ohio State Medical Association; died, June 13, aged 68, from cerebral hemorrhage.

Herman J. Morganstein, Weingarten, Mo.; Missouri Medical College, St. Louis, 1885; member of the Missouri State Medical Association; died, June 10, aged 63, from cerebral hemorrhage.

John Robert Coleman, Shelton, S. C.; Medical College of the State of South Carolina, Charleston, 1887; died, July 24, aged 57, at the Pryor Hospital, Chester, from lymphatic leukemia.

George Washington Piper, Decherd, Tenn.; University of the South, Sewanee, Tenn., 1909; member of the Tennessee State Medical Association; died, May 29, aged 58, from paresis.

Harry Ulysses Sherman, Easton, Pa.; Jefferson Medical College, Philadelphia, 1892; aged 53, died, August 5, at his summer home in Phillipsburg, N. J., from pneumonia.

Charles Sanford, Board Camp, Ark. (license, Arkansas, 1903); member of the Arkansas Medical Society; veteran of the Spanish-American War; died, July 27, aged 63.

Pierre A. Siegelstein, New York City; Medical Department of the University of the City of New York, 1891; died suddenly, August 9, aged 52, from heart disease.

Albert Barnes Donaldson ⊕ Cynwyd, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1899; died, August 6, aged 51, from heart disease.

John C. Campbell, Powell, Ohio; University of Michigan Medical School, Ann Arbor, 1879; Rush Medical College, Chicago, 1882; died, June 26, aged 67.

August J. A. Kuehn, Toledo, Ohio; Medical Department of the University of the City of New York, 1892; died, August 9, at St. Vincent's Hospital, aged 67.

James H. Rowsey ⊕ Huntington, W. Va.; Kentucky School of Medicine, Louisville, Ky., 1892; died, August 3, aged 54, from carcinoma of the stomach.

Joseph C. Stevens, Drumright, Okla. (licensed, years of practice); member of the Oklahoma State Medical Association; died, August 4, aged 57.

Richard Carter Smith, Newport, Tenn.; Vanderbilt University Medical Department, Nashville, Tenn., 1881; died, August 9, aged 66.

Julius Thomas Holden, Marianna, Fla.; Medical Department of the University of the City of New York, 1855; died, August 1, aged 88.

William Offee Story, La Salle, Ill.; Eclectic Medical Institute, Cincinnati, 1894; died, August 7, aged 53, from carcinoma of the stomach.

Benjamin C. Stewart ⊕ Ute, Iowa; Sioux City College of Medicine, Sioux City, Iowa, 1903; died, August 12, aged 42, from embolism.

Floyd F. Swimley, Forest, Ohio; Starling Medical College, Columbus, Ohio, 1898; also a pharmacist; died, June 24, from heart disease.

James M. White, Covina, Calif.; University of Maryland School of Medicine, Baltimore, 1879; died, July 12, aged 64, from paresis.

Joe W. Robinson, French Camps, Miss.; Louisville Medical College, Louisville, Ky., 1872; died, July 29, aged 83, from senility.

Charles W. Watson, Denver; Medical Department University of Louisville, Louisville, Ky., 1874; died, August 2, aged 70.

Edward A. Russell, Fleming, Pa.; Pennsylvania Medical College, Philadelphia, 1864; died, June 1, aged 84.

John B. Davis, Atlantic City, N. J.; Jefferson Medical College, Philadelphia, 1870; died, August 7, aged 78.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

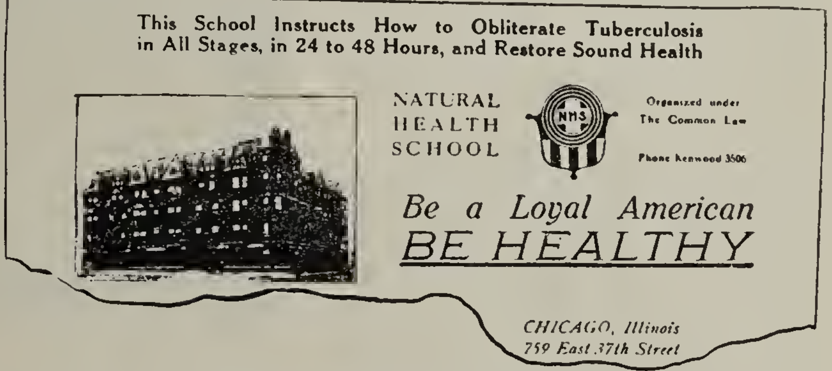
THE NATURAL HEALTH SCHOOL

The "Structural Dietetics" and "True Musical Therapy" of Yergin

During the past few months we have received several inquiries regarding the "Natural Health School" whose address is given as 759 E. 37th St., Chicago. Here is one of the many; it is from a county tuberculosis association in Michigan:

> "Have been advised to write you in regard to the standing of the Natural Health School of 759 East 37th Street, Chicago, Ill. Because of their advertising two of our clinic patients were induced to try their treatment for tuberculosis. The result was no help, loss of vitality, health, money and time. Also a cry to our association to try and find out what right they had to do as they are and to try and prevent other tuberculous patients from doing as these two have."

The "Natural Health School" seems to be the latest creation of Milo Erskine Yergin and his wife, M. Kathay Yergin. In Yergin's "literature" he usually styles himself "Dr. M. E. Yergin," although, apparently, he never places the letters "M.D." after his name. He does, occasionally, however, style himself "M. E. Yergin, D. O., D. C." While Yergin seems careful to avoid the suffix "M.D.," the impression is given that he is a graduate and licentiate in medicine. Our records fail to show that Yergin was ever graduated by a medical school or was ever licensed to practice medicine. Part of the Yergin advertising paraphernalia for the present scheme, the Natural Health School, is a publication, the *Natural Health School Journal.* This publication is sometimes issued in typewritten mimeograph form and sometimes printed. The price is $2.00 a year or 10 cents a copy. In the issue of June 27, 1921, several pages were devoted to Yergin's alleged educational qualifications.



This School Instructs How to Obliterate Tuberculosis in All Stages, in 24 to 48 Hours, and Restore Sound Health

NATURAL
HEALTH
SCHOOL

Organized under
The Common Law

Phone Kenwood 3506

Be a Loyal American
BE HEALTHY

CHICAGO, Illinois
759 East 37th Street

Photographic reproduction of the letter-head used by Yergin. Note the claim that tuberculosis can be cured in forty-eight hours.

SOME OF YERGIN'S QUALIFICATIONS

According to this source of information Yergin "has spent fully FOURTEEN YEARS in the various schools of medicine in postgraduate work." These fourteen years, we are told, were "distributed in the following schools—Allopathic or 'regular,' six years. Several years variously in the Homeopathic, Eclectic, Physiomedical and Chiropractic Schools." We learn further that in 1901 he was a vegetarian chef in New York City and in the same year seems to have been teaching telegraphy and typewriting in a "business college" in Newark, N. J. It is also claimed that Yergin, in 1911 and 1912 "was faculty member of the National School of Chiropractic" and at one time owned a third interest in this institution. We are told that "Dr. Yergin is well versed in hydrotherapy," "has a practical knowledge of osteopathy and spondylotherapy," and, further, that "Dr. Yergin is licensed by the Illinois State Board of Health, and registered in Peoria, Champaign and Chicago."

A search through a number of the Chicago city directories covering the past twenty years discloses the following references that may have some bearing on the present case:

1908: Yergin, Milo E., tel. opr.
1911: Yergin, Milo E., printer.

The name of Milo E. Yergin does not appear in the Chicago city directory for 1910; neither does it appear in any issue subsequent to 1911.

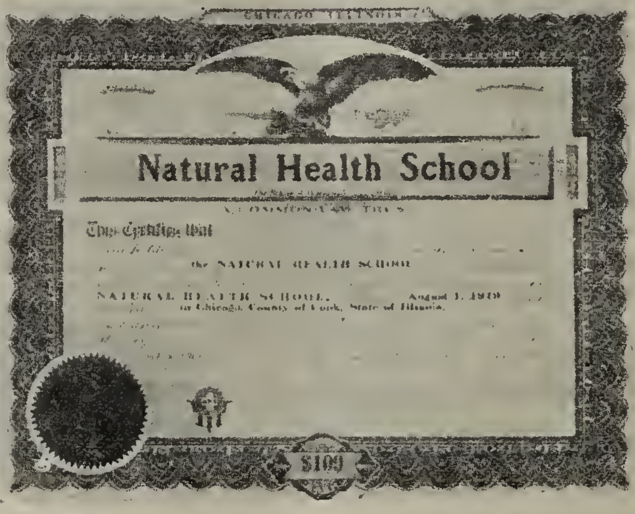
THE NATIONAL HEALTH LEAGUE

A few years ago the Yergins were conducting the "National Health League Sanitarium" (with "Lady and Gentlemen Nurses") at Champaign, Ill., together with the "National Health League Institute" and "The National Health League Food Plant." Then there was an "Institute of Reactive Therapeutics" which held forth at 1701 W. Washington Boulevard, Chicago. From this address was sold Yergin's "Home Study Course of Structural Dietetics" for which "Dr. Yergin usually charged $100," instead of the "ridiculously low" price of $25, at which it was then offered. The "resident course" was $50! This same "course" was also advertised for a while by the "National Health League" from Kidder, Mo. (Population about 300).

In addition to the "course" on "Structural Dietetics," Yergin also had more material merchandise for sale: the "All Natural Salt" put up in two pound packages and sold for 50 cents a package.

In 1915 Yergin was in Nashville, Tenn., where, according to the local papers, "broad plans" were being laid for the "wide and effectual distribution of the products of the League Food Plant," it being the plan "to make Nashville the headquarters of the League and the home of the Health Food Factory."

In 1914 Yergin wrote to a Chicago paper offering it, without charge ("a sacrifice in the interests of humanity"), an epitome of his system of "Structural Dietetics." Attached to the face of the letter sent to this paper was a "sticker," quoting one "J. M. W. Cannon, M.D.," to the effect that "Dr. Yergin is the best and most broadly informed in medical matters, and the most up-to-date in the treatment of disease of any doctor it has been my privilege to meet." Yergin, apparently, was willing to admit it.


Natural Health School

$100

Of course the "school" issues diplomas! Here is a greatly reduced reproduction of these works of art.

THE COOPERATIVE FOOD COMPANY AND THE N. H. S.

In 1920 Milo E. Yergin was president of the "Co-operative Food Company" a common law concern conducted first from 4216 Cottage Grove Ave., Chicago, and later from his present address. The Co-operative Food Company advertised "Dr. Yergin's Pus and Pain Chart." The chart sold for $10 and was advertised under the claim that it would enable one "with the simple foods of nature" to control and completely obliterate in from fifteen minutes to fifteen hours any kind of pain and all pus conditions. The "Pus and Pain Chart" was a mimeographed affair of twenty pages. Apparently, it was impossible to work the marvels of the "Pus and Pain Chart" unless one had certain "natural foods described in this chart." There were "Sea Food Baths," "Earth Food Table Salt," "Food Iodine," "Cinnamon Food Oil," "Myrrh Compound" and "Cold Food." All were for sale by the Co-operative Food Company at prices ranging from 25 cents to $3.00 a package. The use of "chemically pure Epsom Salt" was also recommended (under no circumstances for internal use) and this would be furnished at $1.00 a pound, transportation extra. Later, the name of the "Co-operative Food Company" was changed to the "N. H. S. Food Plant."

POTIONS AND PIETY

Reverting again to the "Natural Health School": This seems to combine a strong mixture of religious fanaticism with the practice of the healing art. Scripture is quoted freely and the latest issue of the *Natural Health School Journal* declares that the world will come to an end within the next two years. A most gorgeous description is given of the world to come with a picture portraying the wall around the New Jerusalem, said to be "of pure jasper, at least two hundred eighty-eight feet above its foundations"—with an inset of the Equitable Life Building to show that this wall is as high as the New York skyscraper!

Although Yergin seems convinced that the world will come to an end within the next twenty-four months, and says that no subscriptions to the *Natural Health School Journal* will be accepted after Sept. 1, 1922, he urges his followers to buy stock in the Natural Health School. Possibly it is a misnomer to speak of "buying" this stock, although it is Yergin's own phrase, as one learns by further search that this stock is "non-interest bearing" and "pays no dividends after the manner of this world." Nevertheless, "each person can purchase" as much stock as he desires. The price is $100—cash, after the manner of this world!

Yergin and his Natural Health School, it seems, went through a period of trial from December, 1920, to May, 1921. During this period, we are told "a definite attempt" was made "to destroy the life of Dr. Yergin by occult supremacy." Thus:

> "Persons attempting to come to the School Rooms were in several instances prevented by a sudden onsweep of overmastering fear.
>
> "Others were made deathly sick and some fainted in the School Room. Night after night this occurred until the source was recognized and the spiritualistic and occult influences destroyed by God in answer to the prayers of those in charge of the NHS.
>
> "For over two months, finances, which had been regular, suddenly dropped from several hundred dollars per month to less than $25, until the cause was located in spiritualistic and occult opposing effort, and then in answer to prayer, God destroyed the opposing power and at once restored the normal income of the sustaining elements of the NHS."

TRUE MUSICAL THERAPY

Yergin has developed a theory as interestingly bizarre as some of those of Albert Abrams of San Francisco. He puts forward a "True Musical Therapy," whereby, with the aid of a piano "thoroughly in tune, having high quality strings," it is possible to produce vibration rates corresponding to the chemical elements! We read:

> "Take for instance, MERCURY and CHLORINE and strike the keys on a well-tuned piano, corresponding to these chemicals on the Key Chart—D in octavo two, and B in octavo seven as marked—and after a few seconds, a sensitive person will respond with a noticeable flow of saliva in the mouth.
>
> "Keep the keys sounding for a few moments and it will start a bowel action."

The possibilities in treating stomachache, soft corns, psoriasis or smallpox by playing the piano, seem unlimited. As not all of us can become virtuosos, Yergin is coming to the rescue—if he has time before the world comes to an end. Says he:

> "It is the plan of the writer, as soon as he is at liberty to do so—free from other duties sufficiently—to write out true therapeutical music, and have it perforated on rolls, so that those who wish to have musical healing and health-restoring effects accomplished upon themselves, can do so by placing these rolls in a good player piano.
>
> "This, however, will not work on the ordinary player piano. It must be a piano that is thoroughly in tune, having high-quality strings."

It is fair to assume that when these marvels are consummated the Natural Health School will be in the piano business—putting out instruments that have "high-quality strings." One of Yergin's disciples might work on the possibility of extending this musical therapy to the phonograph trade.

The preposterous nonsense promulgated by Yergin is, apparently, accepted at its face value by many laymen, and not a few so-called "drugless practitioners." The harm that men of this type can do is realized when one reads of individuals who are "treating" sufferers from tuberculosis, cancer and equally serious conditions by the fantastic principles laid down by Yergin and the nostrums sold by him.

Truly, Goethe was right: "Nothing is more terrible than active ignorance."

Correspondence

MEETINGS OF RUSSIAN MEDICAL AND SURGICAL SOCIETIES

To the Editor:—The Russian Pirogoff Surgical Society of Petrograd has announced that the Fifteenth Russian Surgical Congress will take place in September, 1922. The organization committee consists of the council of the society: president, Professor Grekow; vice president, Professor Oppel; treasurer, Professor Tanowsky; secretaries, Dozent Melnikoff and Dozent Lissizyn, in collaboration with members of the surgical society: Professor Turner, Professor Wreden, Professor Schewkunenko, Professor Rokitzky, Professor Poljenoff, Professor Girgolaff, Professor Schaack, Professor Dshanelidze, Professor Cholzoff, Dozent Smirnoff, Dozent Hesse, Dr. Petraschewskaja and Dr. Manniloff.

The leading subjects brought forward for discussion in joint sessions with the congress of medicine, set for the same time, are:

1. Anatomy and pathology of the vascular system: "The Architecture of the Blood Vessels," Professor Schewkunenko; "Functional Changes in Blood Vessels of Isolated Organs in Different Diseases," Professor Krawkoff; "Pathology of the Arterial Wall," Professor Antischkoff; "Pathology of the Vascular Tonus," Professor Lang; "The Peripheral 'Arterial Heart,'" Dozent Kurschakoff; "Gangraena Arterica Suprarenalis," Professor Oppel.

2. Chronic ulcer of the stomach: communications by Professor Martynoff and Professor Grekow.

3. Surgical complications of exanthematic and recurrent fever; communication by Dozent Hesse.

4. Treatment of surgical tuberculosis: communications by Professor Spisharny and Professor Wreden.

The congress will be held at Petrograd between September 25 and October 1. One day will be devoted to questions of urology. Accommodations will be provided for foreign visitors. Steps have been taken to secure lodgings, food and reduced railway fares. A meeting of welcome will be held, September 24. Communications should be sent to the secretaries of the society: Dozent Melnikoff, Petrograd, 33/35, F. Nischegorodskaja, and Dozent Lissizyn, Petrograd 30, 4 Sixth Roshdestwenskaja.

Prof. S. Grekow, Petrograd.
President, Russian Pirogoff Society.

THE EMBARGO ON DYES AND DRUGS

To the Editor:—I wish to take exception to your editorial appearing in the issue of Aug. 12, 1922, on "Continue the Embargo on Dyes and Drugs."

As a member of the medical profession and a member of the American Medical Association, I protest against the rôle you wish the members to assume. The embargo on dyes and drugs is not a question for the medical profession to decide—unless the question affects the quality of the drugs sold or the direct health of the public. These are not the points on which your arguments are based.

Your arguments savor of politics and directly favor the manufacturers of drugs and dyes and only very indirectly the medical profession and society.

At the present time the prices of drugs, medical supplies and books are exorbitant in my opinion, and any embargo on them would keep these prices up rather than lower them, which would be to the benefit of both physician and patient. (Compare the 1914 prices of synthetic drugs, for instance, acetylsalicylic acid, arsphenamin, phenol, cinchophen and sodium salicylate, with the present.—Ed.) I trust you will find space in your columns for my letter, for I should like to obtain the opinion of medical men more competent than I am.

James A. Honeij, M.D., Boston.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POTASSIUM SULPHOCYANATE IN TOOTH PASTES

To the Editor:—Please inform me through Queries and Minor Notes whether potassium sulphocyanate could be included in a formula for a tooth paste without risk of its breaking down and forming new and harmful combinations.

L. H. Wirt, D.D.S., South Bend, Ind.

Answer.—Potassium sulphocyanate occurs generally, though not constantly, in human saliva in minute amounts (0.1 part per million). Potassium sulphocyanate is decomposed by oxidizing agents in presence of moisture. While it is not likely that this reaction would take place to any serious extent in tooth pastes, the possibility that it might do so (especially in preparations containing potassium chlorate) would seem to be a valid reason why this salt should not be used in dentifrices. Further, there would seem to be no logical reason why the substance should be so used since Gies and Kahn found that the growth of bacteria was not retarded in mediums containing 8 per cent. of the salt (*Dental Cosmos* **55**:40, 1913).

EPINEPHRIN IN ASTHMA

To the Editor:—In regard to the use of epinephrin chlorid hypodermically in cases of asthma for relief of the attacks, please give opinion on the proper dosage and how often this may be repeated within the limits of safety. How often within twenty-four hours or a week would a therapeutic dose be safely given?

B. M. Jewell, M.D., Lowell, Ind.

Answer.—The proper dose here as elsewhere is just enough. This may vary from 0.25 to 1 c.c. or more of the 1:1,000 solution of epinephrin injected hypodermically. The effect may be expected within a few minutes. If the dose acts, it will relieve within twenty minutes. If it does not, trial with a larger dose is indicated. The effect usually does not last longer than two hours—long enough in the ordinary asthmatic attack. In a protracted asthmatic state, the injections may have to be repeated every two hours for as long a time as is required. No ill results have been encountered at two hour interval administrations for a long time.

PANAMA LARVICIDE — OIL SPRAYERS — MOSQUITO CLASSIFICATIONS

To the Editor:—1. What is the best way to prepare the so-called Panama larvicide? 2. Where can oil sprayers be obtained? 3. What is the best oil to be used? 4. Where can I get a publication having a more recent classification of mosquitoes, especially anopheles, than that of Theobald? 5. Where could I find a complete review of Bass' plan for antimalarial work?

L. García Maldonado, M.D., Venezuela.

Answer.—1. The Panama larvicide is thus prepared: One hundred and fifty gallons of crude phenol (carbolic acid) having a specific gravity not greater than 0.97 and containing not less than 30 per cent. of tar acids is heated in an iron tank with a steam coil to a temperature of 212 F., and then 200 pounds of powdered or finely broken common resin is poured in. The mixture is kept at a temperature of 212 F. Thirty pounds of caustic soda dissolved in 60 gallons of water is then added, and the solution is kept at the same temperature until a dark emulsion without sediment is formed. The mixture is thoroughly stirred from the time the resin is added until the end. One part of the emulsion to 10,000 parts of water is said to kill anopheles larvae in less than half an hour, while 1 part to 5,000 parts of water will kill them in from five to ten minutes. The Panama larvicide is mixed with five parts of water and sprayed on pools or along the banks of streams. This larvicide, added to five parts of crude petroleum, favors its spread on the surface of the water. A good method is to place the mixture in a barrel and permit it to drip on the surface of the stream or pond to be treated.

2. Spraying may be done with any ordinary sprinkler or with a hose.

3. A light quality of oil should be used, such as the one known to dealers as Fuel Oil 29-31.

4. Howard and Others: Mosquitoes of North and Central America and the West Indies, published by the Carnegie Institution, Washington, D. C.

5. References to Bass' plan will be found in:

Bass, C. C.: Studies on Malaria Control, *South. M. J.* **12**: 306 (June) 1919; Control of Malaria by Quinin Sterilization of Human Host, ibid. **13**: 250 (April) 1920; Studies on Malaria Control, The Journal, July 5, 1919, p. 21; Malaria Control Operations in Relation to the Ultimate Suppression of the Disease, The Journal, July 22, 1922, p. 277.

Mayne, Bruce, and Carter, H. R.: Popularizing a Quinin Formula for the Treatment of Malarial Fever, The Journal, Oct. 11, 1919, p. 1119.

Rose, Wickliffe: Field Experiments in Malaria Control, The Journal, Nov. 8, 1919, p. 1414.

Full information on malaria control may be secured from Le Prince and Orenstein's book, "Mosquito Control in Panama," New York, G. P. Putnam's Son, 1916, and in publications of the U. S. Public Health Service and International Health Board of the Rockefeller Foundation.

INTENSITY AND PENETRATION OF ROENTGEN RAYS

To the Editor:—Your reply in Queries and Minor Notes to Dr. Paul Peniston regarding the penetration of roentgen rays is, of course, quite correct, but I see where he has been confused. He has mixed intensity with penetration.

It is well known that the intensity of light regardless of its quality, i. e., color, varies as the square of the distance.

Roentgen rays follow exactly the same law. A photographic plate exposed at a certain distance to a roentgen-ray tube in action will show on being developed a certain amount of silver deposited in the gelatin film on the plate.

If another plate is exposed to exactly the same tube for exactly the same time but at twice the distance, the resulting action on the same area of the plate will only be one quarter as much.

Of course, this has nothing to do with the penetration of the rays, and means only that the quantity of rays reaching a certain area will vary as the square of the distance of that area from the focus of the roentgen-ray tube, or, in other words, twice the distance, four times the exposure—a very useful thing to know in radiography.

W. Conyers Herring, M.D., Parsons, Kan.

The Prestige of the Physician and Surgeon.—"The prestige of the physician and surgeon," says the *Journal Médical Haitien*, "is nowhere what it was at the beginning of the twentieth century. The year 1900 was the surgeon's golden year from all standpoints. At that time the young surgeon, freshly armed with surgical asepsis, passed from one success to another, and appeared to the public as if crowned with the halo of the hero and the demigod. But everything comes to an end, and the world is willing to burn today what it revered yesterday. Thus it is natural that physicians do not enjoy their former prestige. Moreover, the courage of the soldier, who risked his life for others during the World War, has calmed the people's admiration for the surgeon's audacity, who, after all, risks only the life of another. On the other hand, medicine today lacks the sensational cures as for puerperal fever and croup, and the public, spoiled by such wonderful medical successes, have become more and more exacting. In the depths of their hearts they bear a grudge against physicians because, notwithstanding the progress of science, people still die as our ancestors did in the dark ages. The progress of hygiene, the preservation of armies against typhoid, does not interest them. What they want is the physician's guarantee that they will not die."

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, Sept. 5. Sec., Dr. Harry C. DeVighne, Juneau.
District of Columbia: Washington, Oct. 10. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.
Florida: Tallahassee, Oct. 10-11. Sec., Dr. W. M. Rowlett, Tampa.
Georgia: Atlanta, Oct. 10-12. Sec., Dr. C. T. Nolan, Marietta.
Hawaii: Honolulu, Oct. 9-12. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.
Idaho: Boise, Oct. 3. Director, Mr. Paul Davis, Boise.
Illinois: Chicago, Oct. 10-12. Supt. of Registration, Mr. V. C. Michels, Springfield.
Kansas: Topeka, Oct. 10. Sec., Dr. A. S. Ross, Sabetha.
Massachusetts: Boston, Sept. 12-14. Sec., Dr. Samuel H. Calderwood, State House, Boston.
Michigan: Lansing, Oct. 10-12. Sec., Dr. Beverly D. Harison, 504 Washington Arcade, Detroit.
Minnesota: Minneapolis, Oct. 3-5. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.
Montana: Helena, Oct. 3. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
New Hampshire: Concord, Sept. 7-8. Sec., Dr. Charles Duncan, Concord.
New Mexico: Santa Fe, Oct. 9-10. Sec., Dr. R. E. McBride, Las Cruces.
New York: Albany, Buffalo, New York and Syracuse, Sept. 25-28. Ass't, Professional Examinations, Mr. Herbert J. Hamilton, State Education, Albany.
Oklahoma: Oklahoma City, Oct. 10-11. Sec., Dr. J. M. Byrum, Shawnee.
Porto Rico: San Juan, Oct. 3. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.
West Virginia: Huntington, Oct. 10. State Health Commissioner, Dr. W. T. Henshaw, Charleston.

California April Examination

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports the oral and written examination held at Los Angeles, April 11, 1922. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 25 candidates who took the physicians' and surgeons' examination, 17, including 2 osteopaths, passed, and 9, including 6 osteopaths, failed. Of the 14 candidates who took the drugless practitioners' examination, 7 passed and 7 failed. Thirty-one candidates were licensed by reciprocity, and one candidate received an osteopathic license by reciprocity. Three candidates were licensed on government credentials. Three candidates took the examination to practice midwifery and failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Los Angeles	(1920)	76.4
College of Physicians and Surgeons, San Francisco	(1918)	75
Stanford University	(1922)	87.2
Rush Medical College	(1922)	83.7, 85.7, 85.9, 86, 88.6, 89.6, 89.7, 89.9, 91.7
School of Medicine and Surgery, Lisbon	(1919)*	75
University of Moscow	(1909)*	80.5
Medical School of American University, Beirut	(1908)*	77.7
Osteopaths		75. 75
FAILED		
University of Cincinnati	(1921)	55.5
Kyushu Imperial University, Fukuoka	(1913)*	67
Nagasaki Special Medical School	(1918)*	65.5
Osteopaths		67, 68.1, 70.3, 71.8, 72.3 †

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
California Medical College	(1905)	Nevada
Hahnemann Medical College of the Pacific	(1914)	Washington
Bennett College of Eclectic Medicine and Surgery	(1906)	Illinois
Chicago College of Medicine and Surgery	(1914) (1917)	Illinois
College of Physicians and Surgeons, Chicago	(1905)	Wisconsin
Hahnemann Med. College and Hospital of Chicago	(1906)	Illinois
Illinois Medical College	(1910)	Washington
Northwestern University	(1909) Illinois, (1912)	Oklahoma
Rush Medical College	(1882)	Nebraska
State University of Iowa College of Medicine	(1908)	Iowa
Louisville Medical College	(1888)	Kentucky
Tulane University	(1914) Louisiana, (1919)	Tennessee
University of Minnesota	(1907)	Minnesota
St. Louis University School of Medicine	(1908)	Penna.
Washington University	(1906)	Illinois
John A. Creighton Medical College	(1896)	Illinois
University of Nebraska	(1917)	Nebraska
Columbia University	(1889)	Mass.
Eclectic Medical College of the City of New York	(1909)	New York
University of Buffalo	(1905), (1910)	New York
Cleveland College of Physicians and Surgeons	(1902)	Washington
Medical College of Ohio	(1906) Ohio, (1909)	Utah
Ohio State University College of Medicine	(1920)	Ohio
Jefferson Medical College	(1900)	Penna.

University of Pennsylvania	(1899)	New Jersey, New York
Osteopath		Iowa

College	ENDORSEMENT OF CREDENTIALS Year Grad.	Endorsement with
Georgetown University	(1901)	U. S. Army
University of Michigan Medical School	(1907)	U. S. Army
University of Pennsylvania	(1897)	U. S. Navy

* Graduation not verified.
† No grade given.

Colorado April Examination

Dr. David A. Strickler, secretary, Colorado State Board of Medical Examiners, reports the oral, written and practical examination held at Denver, April 4, 1922. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 13 candidates who took the physicians' and surgeons' examination, 10 including 5 osteopaths, passed, and 3, including 2 osteopaths, failed. Fifteen candidates were licensed by reciprocity. Eighteen candidates were licensed to practice as chiropractors. Two candidates were licensed to practice chiropody, and one candidate was licensed to practice midwifery. The following colleges were represented:

College	PASSED Year Grad.	Per Cent.
Kansas City College of Physicians and Surgeons	(1920)	76.7
Washington University	(1921)	80.7
University of West Tennessee	(1921)	75
Queen's University	(1919)	75.5
University of Toronto	(1916)	82.4
Osteopaths		75, 76, 76.5, 80.5, 81.6
	FAILED	
Jenner Medical College	(1903)*	69.2
Osteopaths		36.5, 65.3

College	LICENSED BY RECIPROCITY Year Grad.	Reciprocity with
University of Alabama	(1917)	Alabama
Northwestern University	(1906) Wyoming, (1914), (1920)	Illinois
Rush Medical College	(1921)	Illinois
Indiana University	(1921)	Indiana
University of Michigan Medical School	(1921)	Michigan
St. Louis University School of Medicine	(1916), (1917)	Missouri
Univ. Med. Coll. of Kansas City	(1889) Missouri, (1903)	Kansas
Washington University	(1905)	Missouri
College of Phys. and Surgs. in the City of New York	(1890)	New York
University of Pennsylvania	(1915)	New York
Marquette University	(1914)	Wisconsin

* Graduation not verified.

Connecticut Reciprocity Report

Dr. Edwin C. M. Hall, secretary, Connecticut Homeopathic Medical Examining Board, reports that from Jan. 21 to March 14, 1922, three candidates were licensed by reciprocity. The following colleges were represented:

College	LICENSED BY RECIPROCITY Year Grad.	Reciprocity with
New York Homeopathic Medical College and Flower Hospital	(1900) New York, (1914)	Maryland
Cleveland-Pulte Medical College	(1909)	New York

Virginia June Examination

Dr. J. W. Preston, secretary, Virginia State Board of Medical Examiners, reports the written examination held at Richmond, June 20-23, 1922. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Forty-five candidates were examined, all of whom passed. Twelve candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED Year Grad.	Per Cent.
Johns Hopkins University	(1921)	92.5
Maryland Medical College	(1911)	85
Harvard University	(1922)	88.9, 89.5, 90.7
College of Phys. and Surgs. in the City of New York	(1896)	*
Jefferson Medical College	(1921)	81.7
University of Pennsylvania	(1920) 87.6, (1921)	95
Woman's Medical College of Pennsylvania	(1921)	91.5
Medical College of Virginia	(1921) 86.8, (1922)	80.3, 83.4, 83.6, 83.9, 83.9, 84, 84, 84.5, 85.3, 85.6, 87.1, 87.5, 87.9, 88.6, 88.8, 88.9, 89.1, 89.7, 89.9, 90.1, 90.4, 90.5, 92.5
University of Virginia	(1919) 91.4, (1920) 88.6, (1921) 87.9, 90.7, (1922)	79.9, 86.4, 87.3, 87.9, 88, 88.9, 89

College	LICENSED BY RECIPROCITY Year Grad.	Reciprocity with
Johns Hopkins University	(1918), (1919)	Maryland
North Carolina Medical College	(1917)	N. Carolina
University of Cincinnati College of Medicine	(1919) W. Virginia (1921)	Ohio
Western Reserve University	(1917), (1920)	Ohio
Medical College of the State of South Carolina	(1913)	S. Carolina
Chattanooga Medical College	(1902)	Tennessee
Lincoln Memorial University	(1910)	Tennessee
University of Virginia	(1913) Maryland, (1920)	Louisiana

* No grade given.

Book Notices

Critères de L'Aptitude au Vol en Avion. Etude Comparative des Différentes Méthodes D'Examen Employées en France, dans les Pays Alliés et chez les Puissances Centrales. Par Docteur Pierre Perrin de Brichambaut. Paper. Pp. 329. Paris: Louis Arnette, 1921.

This work, written by one who proved himself during the war a fearless aviator, is dedicated to the memory of aviation and medical comrades who fell on the field of honor. It is a full statement and critical review of the medical examination to select fliers in France. The value of this study is enhanced by the account given of the corresponding examination methods in Great Britain, the United States, Italy and Germany. Dr. de Brichambaut writes with authority. He was not only the distinguished commander of a flying squadron, but also a medical examiner who has given much thought to the application and development of the various tests used in the selection of those best fitted for flying. As a pilot from 1912 to 1919 he made good use of his opportunities to observe many of the sensations and reactions incidental to flight at various altitudes. The result is a valuable contribution to aeronautic bibliography which medical aero-officers may read with profit. In view of the great part played by French fliers during the war, it is interesting to learn that the first work on "le mal des aviateurs" appeared as late as 1911, and the first official circular for military candidates was issued in September, 1912. A second official circular was issued in 1914, when political rumblings in Europe suggested trouble ahead. At the same time a survey was made of available fliers which included military pilots, reserve pilots and sportsmen. Soon after war began, these diminished rapidly, less from the enemy than from accidents during flight. As these accidents could not be explained altogether by faults in the machines or by atmospheric conditions, attention was concentrated on abnormal physiologic reactions and on pathologic troubles present in the flier. This led to an official circular defining medical requirements to be insisted on and the tests to be employed when selecting men for military aviators. This circular was based on reports of investigations in various scientific fields, going on since 1911, on problems which had presented themselves either during the course of the medical examination of candidates or during flight. These requirements, modified from time to time as progressive laboratory investigations and field observations suggested, led to systematized tests which pointed out the type of man that might be trained successfully, and the medical care to be taken of those actively engaged. The latter was a very important part of the medical officer's duty, "to prevent staleness," as the English authors name it. The general rules finally laid down were nearly the same in all the allied forces. The conditions demanded by the French Aero Medical Board are fully stated by Dr. de Brichambaut, and the reasons for them sufficiently discussed. This work differs from similar textbooks that have appeared in English in the brevity and clearness with which the essentials are expressed. To take but one example: "Aviation demands a particular resistance in the ear inseparable from anatomic integrity. Tendency to vertigo necessitates exclusion; also ear lesions, especially chronic suppuration and recurring attacks of ear troubles." Following such a statement there is a full discussion of the tests employed to meet this demand. Of special interest is the discussion on the tests for vision, for audition and the integrity of the vestibular mechanism. As one would expect, much care was given to neurologic and psychologic tests. Full use was made of Professor Broca's oscillating chair, in which the candidates could be turned in all the planes of the semicircular canals, and the reactions noted and registered. After all, such tests are but the prelude. The question the examination has to answer is not so much what the individual response to a separate stimulus during a specific test may be, but what is the reaction likely to follow an unexpected movement in an unexpected plane of space requiring the rapid coordination of many afferent stimuli. A man with a perfect physique may make a bad flier. Neurologic and psychologic tests are necessary, and will not lead one astray if we remember the limitations of the information they give. What has to be insisted on is that the afferent stimuli during each moment of flying be coordinated into a harmonious motor response, a response which must not be too slow, or whose slowness is such that it may be improved by appropriate training. This is a point which requires more insistence than it usually receives.

Animaux Venimeux et Venins. La Fonction Venimeuse chez tous les Animaux; les Appareils Venimeux, les Venins et Leurs Propriétés; les Fonctions et Usages des Venins;. L'Envenimation et son Traitement. Par Marie Phisalix, Docteur en Médecine de la Faculté de Paris. Volumes 1 and 2. Paper. Price, 120 francs. Pp. 1600, with 538 illustrations. Paris: Masson & Cie, 1922.

The first volume of this stately work deals with various venomous animal species, including protozoa, insects and fishes, and the second with the venomous batrachians, lizards and snakes. During the last thirty years Césaire and Marie Phisalix have published more than 200 articles dealing with venomous animals. Césaire Phisalix was one of the discoverers of antiserum for snake venom. After his unfortunate and premature death in 1906, the investigations were continued by Mme. Phisalix, who in 1916 received the Bréant prize from the Academy of Sciences. The present work is a great triumph for this intrepid woman of science. Profusely and artistically illustrated and provided with full bibliographies and indexes, it is the most complete work so far published on venomous animals and venom intoxication, and will be a landmark of continuous value to zoologists, physiologists and physicians.

Blood Transfusion. By Geoffrey Keynes, M.A., M.D., F.R.C.S., Second Assistant, Surgical Professorial Unit St. Bartholomew's Hospital. Cloth. Price, $3. Pp. 166, with 13 illustrations. New York: Oxford University Press, 1922.

The fundamental principles, generally accepted indications and technical details of modern blood transfusion are presented clearly and adequately enough. The historical sketch in Chapter I is interesting. The statement (p. 72) that "the corpuscles of Group IV lack iso-agglutinins" must be an error. To claim (p. 52) that in pernicious anemia the patient's life can be prolonged by repeated transfusion for months or even years beyond the time when it otherwise would end hardly seems warranted in face of the great variation in the course and duration of this disease. The possible usefulness of the book in this country is vitiated by a blind and uncompromising adherence to the Moss grouping, now largely abandoned here in favor of the prior Jansky grouping in an effort to avoid unnecessary confusion and eventual disaster. It is unfortunate that the one brief explanation of the differences of these groupings is not correct (p. 71).

Psychological Examinations of College Students. By F. Edith Carothers, Ph.D. Columbia University Contributions to Philosophy and Psychology. Volume XXVII. No. 3. Paper. Price, $1.25. Pp. 82. New York: Archives of Psychology, 1922.

This monograph is a study of the scores obtained by three groups of Barnard College freshmen in numerous psychologic tests, college examinations and physical measurements. The aim has been to determine the reliability of the mental tests selected as a measure of innate general and special mental endowment, and their correlation with college marks and physical measurements. In agreement with the work of others, especially Karl Pearson, no relation was found between innate intelligence and physical measurements (height, weight and strength). Moreover, the relation between intelligence, as determined by the tests used and college grades, was found to be too low to be of prognostic value for general success with college studies or for special fitness. That is, the author using her test-scores as a guide cannot predict satisfactorily the student's success in terms of college marks in general or in special subjects of study. In spite of the low correlations, the author defends the value of the tests as a true measure of mental capacity and as a guide for vocational direction. This she infers from a comparison of college grades that are admittedly inaccurate with highly standardized tests that are of mathematically tested reliability. But though this may be true, the proof consists in checking the test-scores against some practical achievement; and among college students, unfortunately, the marks are the only check, leaving the author's point unproved. It is regretted that no relationship between scores on the sixteen tests chosen and the failures at the end of the freshman year has been determined; for in the latter form of guidance, fitness to undertake college training at all, mental tests have shown their most practical value. There is a characteristic absence of any provision for psychiatric study in the author's suggestions for intensive investigation "to form a comprehensive idea of the student's mental and moral caliber."

Miscellany

DERMATOSIS FOLLOWING USE OF CUTTING OILS

The introduction of high-speed metal-cutting machines in industry led to the use of oils to minimize the heat caused by the friction between the cutting tool and the metal under operation. Lard oil was at first the most popular, but owing to the high cost and to the fact that lard oil has a tendency to gum, experiments were undertaken to combine cheaper oils with water. The resultant mixtures became known as cutting compounds. Many manufacturers prepare their own cutting compounds, and some consider their "mixtures" a trade secret. Machine oil, caustic soda, denatured alcohol and kerosene enter into some compounds. Graphite is held in suspension in other cutting compounds. Phenol (carbolic acid) enters into others. Adulterants, such as rosin oil, cottonseed oil, rape oil, aluminum soap and lead soap, are frequently used to lower the cost. Sperm oil, fish oil, whale oil, olive oil, castor oil and lard oil are commonly used.

METHODS OF APPLICATION

The use of cutting oils, says McConnell in *Public Health Reports*, July 21, 1922, has become so universal that few machine shops, however small, do not employ them. Various methods are used to apply the oil to the work. A "drip-can," consisting of a small can with a hole punched in the bottom, may be suspended above the machine. A delivery tube of some flexible material may be attached to the can in order to direct the oil upon the cutting tool. When only a small amount is required, a "dauber," made of waste wound around a stick, may be used to apply the oil. The larger plants apply the oil by forcing it by means of a pump through pipes leading from a central reservoir to individual machines. Oils are used over and over again for the sake of economy. Various devices depending on sedimentation, filtration, straining, magnetization, or a combination of two or more of these systems, are used to free used oil of steel shavings, or dust, or other suspended foreign material. A Detroit automobile plant which uses 1,300 gallons of oil daily, according to McConnell, reclaims 500 gallons.

REQUEST FOR ASSISTANCE

Many industrial plants requested the U. S. Public Health Service to inform them of methods in use to prevent the dermatosis caused among their employees by cutting oils and compounds. McConnell's report covers the study of 2,060 workers, whose occupations require contact with one or more of a large variety of cutting oils. Of that number, 557, or about 27 per cent., had a dermatosis characteristic among metal-cutting operatives.

LESIONS

The skin affection, commonly called "oil acne," or "oil pimples," starts as comedones in the orifices of the hair follicles. Each comedo becomes a reddish, circumscribed, macular lesion with a slight tendency to elevation. They develop rapidly into papular lesions, about the size of a pea, with circular bases and conical tops through which the cilia protrude. They are hard, discrete, and commonly distributed on the dorsum of the hands, both surfaces of the forearms and the anterior surfaces of the thighs. Workers who have a habit of brushing their hair back with their hand have lesions on the forehead and face.

SYMPTOMS

The only symptom complained of in uncomplicated cases is itching, which at times is intense. These papules, on expression, discharge a hard, sebaceous substance. One of two things happens after the maculopapular eruption appears: The lesions retrogress or become infected and develop into pustules and abscesses. In three of the cases examined, the lesions grew into varying-sized tubercles, apparently neoplastic in type, very firm, and pink.

THEORIES AS TO CAUSE

The infectious theory, McConnell says, assumes that cutting oils and lubricating compounds support the growth of pyogenic micro-organisms, which gain entrance to the skin through minute punctures made by metal chips carried by the oil to the skin. If so, the dermatosis should be prevented by sterilizing the oil and removing the metal chips from the oil. However, the dermatosis is not prevented either by sterilization or by the use of disinfectants, and in two plants which removed the metal chips by magnetism, 22 and 30 per cent. of the employees, respectively, had the dermatosis.

The chemical theory has gained popularity, and it cannot be denied that certain ingredients found in some of the oils are capable of causing a dermatosis. However, examination of the primary lesions fails to reveal an inflammation such as would be expected from chemical irritation. Furthermore, chemical irritants probably would act upon the interfollicular skin areas, where no lesions are found. Added proof that chemicals peculiar to the oils do not necessarily cause this dermatosis lies in the fact that men working in coal dust or in any inert powder frequently develop identically the same sort of skin lesion.

The theory of mechanical obstruction of sebaceous ducts in dry-skinned persons, the author continues, best fits the facts in this investigation. Age, length of exposure, diet, complexion and other possible factors were studied in men working on the same machines and under the same conditions, to find a clue to the cause. The only difference found was that a large majority of those having the dermatosis had a dry skin, while those not having the dermatosis had an oily skin. Workers having naturally a very dry skin develop the dermatosis rapidly, while those with oilier skin require a greater length of time.

McConnell concludes that the weight of evidence incriminates cutting oils and lubricating compounds of all types carrying extraneous matter in suspension as the primary cause in producing the initial dermatosis by obstructing the sebaceous orifices, and that the underlying or basic cause is a deficiency of the natural oiliness of the skin. Infecting organisms, partly through the patient's scratching, enter through the primary dermatitic lesions, and cause a secondary infection as a complication. In other cases, abrasions produced by small metal shavings become infected and complicate the dermatosis. The condition so arising is not, however, allied to the primary dermatosis.

PROPHYLAXIS AND TREATMENT

Prevention depends, first, on thorough cleanliness, and, secondly, on the application of wool fat or wool fat and castor oil to the exposed skin surfaces at the beginning of the work period.

INFLUENZA OUTBREAK IN THE WINTER OF 1921-1922

The return of influenza in pandemic form in November and December, 1921, was synchronous with a marked increase in the death rate over a large area. Northwestern Europe appears to have suffered most heavily, says the Health Section of the League of Nations in "Epidemiological Intelligence." The time of maximum intensity of the outbreak varied in different places from December to February. The epidemic began with a great number of fairly mild cases in November, accompanied by an increase in the general mortality rate. The fatal cases, however, do not appear to have presented symptoms characteristic of epidemic influenza; at any rate, the deaths were not ascribed to that disease. A marked increase in the number of deaths returned as due to heart disease is particularly noteworthy. A similar coincidence, continues the report, was observed in the milk influenza outbreak in London in November, 1919, which caused only about twenty deaths a week directly due to influenza, but which nevertheless was accompanied by a 70 per cent. increase in the mortality from heart disease, and an abnormally high death rate from diseases of the respiratory tract. Similar observations were made under the apparently very mild outbreak in Holland during the winter of 1920-1921.

HEALTH MATTERS IN BULGARIA

For the administration of the public health service, Bulgaria is divided into fifteen sanitary districts, and the districts are subdivided into 114 sanitary counties. There is a minister of public health, who is also the minister of internal affairs; a director of public health, and a supreme medical council consisting of eight physicians and an attorney. Each sanitary district, and each sanitary county, has a physician in charge of the public health work. In addition, there are six regional malaria medical inspectors, three quarantine medical officers, and six microscopists. There are fourteen first class hospitals, seventeen second class, and fifty-one third class. There are three tuberculosis sanatoriums, two hospitals for the insane, and one invalids' institute. The population of Bulgaria is about 5,000,000.

During the occupation of northern Bulgaria in 1913, the Roumanians carried away all hospital equipment, and except for a few of the first class hospitals, the hospitals are sadly in need of all kinds of equipment. For this fiscal year, 141,000,000 leva was appropriated for the public health service, while 542,000,000 leva was appropriated for the war ministry. Salaries are classified. A county physician, single, gets six dollars a month.

The Bulgarian populace is not well informed on health matters, and does not therefore take kindly to preventive measures. All sorts of quacks flourish. There are many talisman-writers, fortune tellers, necromancers, readers and demon-expellers. The death rate is high generally, but especially high among native Bulgarians, and much less among other nationalities within the kingdom.

Medicolegal

Sanatorium and Physicians' Charges; Circumstances to be Considered

(Young Bros. v. Succession of Von Schoeler (La.), 91 So. R. 551)

The Supreme Court of Louisiana, in affirming a judgment in favor of the plaintiffs, says that they were the owners of a sanatorium in which Mrs. Von Schoeler was a patient from Oct. 10, 1919, until her death, March 3, 1920. The demand on which they sued was for $3,400, made up of the following items: For room and board, and for care and attention of Mrs. Von Schoeler in the sanatorium during the time in question, $700; for constant medical attention, nursing, and medicines for various diseases named (but not stated by the court), from May 20, 1919, to March 3, 1920, $2,500; and for the amount paid consulting physicians, $200. There was no serious objection to the first and third items of the account, which, under the evidence, appeared to be reasonable and proper charges. With regard to the item of $2,500, the theory of the opposition was that the charge was exorbitant and disproportionate to the services rendered to, or that were required by, Mrs. Von Schoeler; in other words, that she was not a sufferer from all or any of the numerous maladies for which the plaintiffs claimed to have treated her. But the testimony of the defendant, which was directed in the main toward proving that fact, failed of its purpose. On the other hand, there was testimony for the plaintiffs that the patient was a very exacting and troublesome one, and that the charges were fair, just and proper. One physician testified that all medical societies and associations had adopted a plan to charge the patient according to his income; that this plan was fair to the patient and to the physician, and that specialists ordinarily charged larger fees than a general practitioner. The father of the plaintiffs, a physician, who was corroborated in all material details by the testimony of the plaintiffs, testified that Mrs. Von Schoeler was a very sick woman, very temperamental, and hard to manage; that she was very exacting and required close attention; that he attended her from May 20, 1919, three or four times a day every day or so and possibly one or two times at night, and that he would have to remain with her for several hours; that she had diseases that, in one of her temperament, required a great deal of attention in order to get any results; that when she came to the sanatorium she was more exacting and more trying, and that she grew worse; that she was in bed three fourths of the time; that she was a chronic invalid; that she had cirrhosis of the liver and other diseases as well as what is known as anxiety neurosis; that she died of edema of the lungs and dilatation of the heart and contributing causes. It also appeared in the evidence that she was addicted to strong drink, and for twenty months of the last two years of her life was in a sanatorium for treatment.

Law and jurisprudence, the court goes on to say, have not laid down any hard and fast rule for guidance in the matter of physicians' charges. Courts must of necessity, to a great extent, rely on the opinions of reputable members of the profession as to the value and character of the services rendered; and such charges are not to be determined wholly on the skill of the physician, nor on the amount of services rendered; but the value of the patient's estate and his ability to pay may be taken into consideration. In *Succession of Levitan*, 143 La. 1027, 79 So. R. 829, the court said that it was common information that physicians and surgeons do not regulate their charges by any fixed standard of pecuniary value, but, to a certain extent, base them on the ability of the patient to pay. The property of the succession of Mrs. Von Schoeler was inventoried at about $40,000. It was worth more than that sum. In view of all the testimony, this court is not prepared to say that the charges made by the plaintiffs were unreasonable or excessive.

Validity of Regulations Requiring Vaccination

(State ex rel. Lehman v. Partlow et al., Directors of School Dist. No. 1, Thurston County (Wash.), 205 Pac. R. 420)

The Supreme Court of Washington, in affirming a judgment that, on demurrer, quashed an alternative writ of mandate and dismissed the action, says that the facts were not in dispute. In July, 1921, the state board of health adopted a regulation which requires that, if smallpox exists in a community, the county or city boards of health shall provide free vaccination for persons having no funds to procure vaccination from other sources; and, when smallpox exists in a community, no child, teacher, or janitor shall be permitted to attend school, teach or labor therein, without presenting satisfactory evidence of having been successfully vaccinated within seven years; with a proviso relative to any one who should not be vaccinated because of some physical defect or disease. In January, 1922, the director of public health of the state notified the county health officer of Thurston County, and the city health officer of Olympia, which comprises School District No. 1, that, in his opinion, owing to the prevalence of smallpox in the public schools of the district, all pupils in the schools in question were "contacts," and that, because of the conditions, the regulation of the state board of health should be vigorously enforced; and the county health officer gave notice of said directions to the directors of the school district. On January 19, the directors issued a bulletin or notice which stated that:

> Prior to Feb. 1, 1922, it will be necessary for every pupil, janitor and teacher in the schools of Thurston County to present to the school authorities either a physician's certificate showing that the individual concerned has had smallpox or a similar certificate evidencing vaccination within the last seven years. Those who do not comply with the foregoing regulations are to be excluded from the schools and isolated in their homes for a period of eighteen days immediately following the date mentioned.

A minor daughter of the relator's was then a pupil in one of the schools of the district. It was not claimed that she was in fact a disease carrier, or was other than a normal, healthy child. She, however, failed to comply with the regulation of the state board of health, or with the notice from the school board, and was accordingly excluded from the school in which she was enrolled on Feb. 1, 1922. Thereupon, her father filed his affidavit in the superior court seeking a mandate requiring the school directors to readmit her to the public schools. The question presented was one of law only, Had the state board of health power to promulgate and enforce the regulation mentioned? The supreme court holds that it had, declaring that, since in *State ex rel. McBride v. Superior Court*, 103 Wash. 409, 174 Pac. 973, after a full investigation and consideration, the supreme court, in an exhaustive opinion, upheld the statute, and declared the acts and rulings of the board of health final and conclusive and not to be reviewed by the courts or denied because the authority might be abused or the law maladministered, and that the finding of a fact by a properly constituted health officer was final and binding on the public as well as on the courts, nothing further need be said, especially as there was no allegation or contention that the action complained of in this case was in any wise arbitrary, capricious or unreasonable.

Some contention was made that because school directors are not specifically named in the statute as among the officers whose duty it is to enforce the rules and regulations of the state board of health, the notice given by the respondents should be held to be ineffectual for any purpose. But the order of the director of health, being valid, was binding on all affected thereby, and the respondents, as school directors, had no more right to disregard or disobey that order in their official capacity than they would have as individuals. It was further urged that the provision in their notice with reference to isolation was not embraced in the regulation of the state board of health, and that the school board had no authority to add anything thereto, or to adopt rules of its own on that subject. But the eighteen-day isolation period having fully expired before this case was reached for hearing in the supreme court, the question became a moot one only, which the court would not then consider or decide.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Minneapolis, Sept. 19-23. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Sec'y.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Albany, N. Y., Sept. 19-21. Dr. James E. Davis, 111 Josephine Ave., Detroit, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 18-20.

American Child Hygiene Association, Washington, D. C., Oct. 12-14. Miss G. B. Knipp, 111 Cathedral St., Baltimore, Md., Secretary.

American Electro-Therapeutic Association, New York, Sept. 19-22. Dr. Richard Kovacs, 223 E. 68th St., New York, Registrar.

American Public Health Association, Cleveland, Ohio, Oct. 16-19.

American Roentgen Ray Society, Los Angeles, Sept. 12-16. Dr. H. E. Potter, 122 S. Michigan Ave., Chicago, Secretary.

Association of Military Surgeons of the United States, Washington, D. C., Oct. 12-14. Col. James Robb Church, M. C., U. S. Army, Medical Museum and Library, Washington, D. C., Secretary.

Colorado State Medical Society, Colorado Springs, Oct. 3-5. Dr. F. B. Stephenson, Metropolitan Bldg., Denver, Secretary.

Delaware State Medical Society, Dover, Oct. 10. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Indiana State Medical Association, Muncie, Sept. 27-29. Dr. Charles N. Combs, Terre Haute, Secretary.

Kentucky State Medical Association, Paducah, Oct. 16-19. Dr. J. A. McCormack, 532 W. Main St., Louisville, Secretary.

Medical Association of the Southwest, Hot Springs, Ark., Oct. 4-6. Dr. W. H. Bailey, 115 West 21st Street, Oklahoma City, Okla., Sec'y.

Minnesota State Medical Association, Minneapolis, Oct. 12-13. Dr. Carl B. Drake, Central Bank Building, St. Paul, Secretary.

Mississippi Valley Medical Association, Rochester, Minn., Oct. 10-12. Dr. Henry Enos Tuley, 244 Francis Bldg., Louisville, Ky., Secretary.

Missouri Valley, Medical Society of the, St. Joseph, Mo., Sept. 21-22. Dr. Charles W. Fassett, 115 E. 31st St., Kansas City, Mo., Secretary.

Nevada State Medical Association, Reno, Oct. 6-7. Dr. Horace J. Brown, Goldfield, Secretary.

Pacific Coast Oto-Ophthalmological Society, Salt Lake City, Sept. 14-16. Dr. Edward D. LeCompte, Boston Bldg., Salt Lake City, Utah, Sec'y.

Pennsylvania, Medical Society of the State of, Scranton, Oct. 2-5. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Utah State Medical Association, Salt Lake City, Aug. 31-Sept. 2. Dr. W. L. Rich, Boston Bldg., Salt Lake City, Secretary.

Vermont State Medical Society, Burlington, Oct. 12-13. Dr. W. G. Ricker, St. Johnsbury, Secretary.

Washington State Medical Association, Tacoma, Sept. 5-6. Dr. C. H. Thomson, 508 Cobb Bldg., Seattle, Secretary.

Wisconsin, State Medical Society of, Green Lake, Sept. 6-8. Dr. Rock Sleyster, Wauwatosa, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

July, 1922, **2**, No. 4

*Interepidemic Influenza. E. O. Jordan, Chicago.—p. 325.
Anthrax Hazard in Pennsylvania Tanneries: H. F. Smyth, Philadelphia.—p. 346.
Decomposition of "Feedy" Salmon. A. C. Hunter, Washington, D. C.—p. 368.
Larvae of American Anopheles Mosquitoes, in Relation to Classification and Identification. F. M. Root, Baltimore.—p. 379.
Mosquitoes and Other Bloodsucking Flies from Porto Rico. F. M. Root, Baltimore.—p. 394.
*Criticism of Supposed Rodent Origin of Human Giardiasis. C. E. Simon, Baltimore.—p. 406.
Systematic Relationship of Giardia Lamblia Stiles, 1915, from Man and Giardia Agilis Kunstler, 1882, from Tadpole. R. W. Hegner, Baltimore.—p. 435.
Comparative Study of Giardias Living in Man, Rabbit and Dog. R. W. Hegner, Baltimore.—p. 442.

Interepidemic Influenza.—Jordan asserts that there is no escape from the conclusion that the so-called influenza of interepidemic years is in whole or in part different from the influenza of the great epidemics of 1918 and 1920. A great many of the deaths recorded under the name influenza in the years between epidemics are certainly not due to the same microbic causes as those occurring in epidemic years. Localized outbreaks and indeed individual cases of influenza-like disease and of all mild respiratory diseases seem to demand more searching study than they have yet received, bacteriologically, epidemiologically and clinically.

Rodent Origin of Human Giardiasis.—Simon believes to have established that specific differences exist between the human giardia and the mouse form, as was first suggested by Bensen and subsequently by Kofoid and Christiansen, and that similar differences also exist between the human form and the meadow mouse form and between the latter and the mouse form, as was first suggested by Kofoid and Christiansen, though in both instances on what the authors regards as insufficient evidence. It seems warrantable to assign species names to the three forms, and Simon accepts that of *muris* for the mouse form, as suggested by Bensen, and the name *microti* for the meadow mouse form. He believes that Stiles is justified in rejecting Kofoid's term enterica and that according to the rules of nomenclature the organism should henceforth be known as *Giardia lamblia*. Culture rats and wild rats cannot be infected with *Giardia lamblia*, while they may readily be infected with *Giardia muris*. Culture rats, wild rats, and wild mice cannot be infected with *Giardia microti*. There is no basis for the assumption that the human infection is referable to either rats, mice, or meadow mice. Simon believes that the human infection is of human origin.

Archives of Ophthalmology, New Rochelle, N. Y.

July, 1922, **51**, No. 4

Ocular Manifestations of Internal Secretion. E. Fuchs, Vienna.—p. 307.
Relations Between Eye and Ear (Including Vestibular Organ). J. Van Der Hoeve, Leiden, Holland.—p. 321.
Intracapsular Expression Extraction of Cataract. A. S. and L. D. Green, San Francisco.—p. 338.
Present Status of Vaccine Therapy in Eye Diseases with Special Reference to Autogenous Vaccines: Report of Cases. L. H. Lanier, Texarkana, Ark.—p. 349.
Tendon Tucker and Method of Suturing. F. E. Burch, St. Paul.—p. 360.
Eviscero-Neurotomy with an Endothesis as Substitute for Enucleation. T. J. Dimitry, New Orleans.—p. 365.
Causes of Blindness Among Filipinos as Observed in Philippine General Hospital Dispensary. A. S. Fernando, Manila.—p. 374.
Three Cases of Tuberculosis of Conjunctiva. F. Nicolas, Manila.—p. 379.
Intraocular Foreign Body. L. D. Brose, Evansville, Ind.—p. 384.
Ocular Pemphigus. L. B. Whitham, Baltimore.—p. 389.

Boston Medical and Surgical Journal

July 27, 1922, **187**, No. 4

Value of Basal Metabolism Determinations in Diagnosis and Treatment of Hyperthyroidism. H. F. Stoll, Hartford, Conn.—p. 127.
Moisture Absorbing Efficiency of Carbon Dioxid Absorbents for Metabolism Apparatus. R. E. Wilson, Boston.—p. 133.
*Mortality from Diabetes. F. L. Hoffman, Newark, N. J.—p. 135.
*General Paresis at Danvers State Hospital. H. M. Watkins, Hathorne, Mass.—p. 137.
*Analysis of 500 Cases Referred to Boston City Hospital Outpatient Heart Clinic. B. E. Hamilton and J. E. Hallisey, Boston.—p. 139.
Some Facts Concerning Digitalis. T. J. O'Brien, Boston.—p. 141.

Value of Basal Metabolism Determination in Hyperthyroidism.—As deviations from the normal in basal metabolic rates are not always dependent on diseases of the thyroid, Stoll urges that a very careful history and painstaking examination should always precede the basal metabolism determination. This clinical study, if sufficiently thorough, will suffice to make the diagnosis in many cases. There are borderline cases, however, in which the metabolic rate will prove very helpful. In conjunction with the usual clinical signs of toxicity the basal metabolic rate assists materially in deciding what form of therapy is more advisable. As changes in the metabolic rate frequently precede changes in the clinical picture, metabolism estimations at stated periods afford a valuable means of checking any therapeutic measure, either medical or surgical.

Correction Table for Carbon Dioxid Absorbents.—In order to retain the advantage of noncaking absorbents for carbon dioxid and yet eliminate the errors due to calculating on the basis of the ordinary tables, a correction table has been constructed by Wilson by modifying Clarke's table to allow for 80 per cent. relative humidity in the warm air as measured. This change decreases Clarke's correction factors by amounts varying from 0.013 at 15 C. to 0.030 at 30 C.

Mortality from Diabetes.—Hoffman presents the results of a study of the mortality from diabetes in foreign countries. The range in relative frequency is extraordinary, reaching a maximum of 38.4 per 100,000 of population in the Island of Malta, 18.1 for the Isle of Man, and 16.1 for the Island of Jamaica, 1.1 for the Bahamas, and 1.0 for Venezuela. The average diabetes death rate for the United States registration area is 16.4 per 100,000 of population. The American death rate is decidely above the normal average of 11.8 for England and Wales, and while unquestionably somewhat affected by the relatively large Jewish population in the large cities, this factor cannot be considered as primarily responsible for the marked excess. The normal diabetic death rate of New York City for the five years ending with 1919 was 19.8 per 100,000 of population, or higher than the maximum rate reported for the city of Berlin, 17.9 per 100,000; or for Copenhagen, Denmark, for which the rate is 17.1; but for Amsterdam, Holland, the rate is 15.9. The minimum rates are reported for Tokio, Japan, or 4.1; for Singapore, or 4.3; for Manila, P. I., or 4.5; and for the City of Mexico, or 5.4. For a few of the cities for which the information is available the following rates, according to sex, at ages 20 and over, are of interest: Berlin, Germany, males 31.4 and females 20.8 per 100,000; Copenhagen, Denmark, males 28.1 and females 20.9; Florence, Italy, males 27.1 and females 14.5; Christiania, Norway, males 24.4 and females 14.5; Victoria, B. C., males 12.0 and females 15.3; Montevideo, Uruguay, males 13.7 and females 25.9; London, England, males 16.8 and females 14.8; and Singapore, Straits Settlement, males 5.5 and females 6.7.

Antisyphilitic Treatment for Paresis.—Watkins urges that routine administration of antisyphilitic therapy is called for in all cases of paresis. Practically no ill effects have been observed under intensive treatment. Twenty per cent. are able to "carry on" outside by the aid of the social service department and outside clinics. Seventy-seven per cent. of those in hospital are able to do some form of useful work, while, of the sixty-seven studied, only nine are in bed, and only four of those continuously.

Rheumatic Heart Disease.—From a survey of 500 unselected cases of heart disease made by Hamilton and Hallisey it appears that rheumatic heart disease is extraordinarily fatal, at any rate among children and adolescents. This series suggests that the great majority of adolescents with rheumatic heart disease have an expectation of life of less than a decade. Forty-nine of 202 unselected rheumatic heart disease cases, under careful observation, showed more or less strong evidence of an active infectious process of the heart. Activity of rheumatic heart disease is easily overlooked. Approximately 15 per cent. of cases referred to a general heart clinic have neurasthenia with symptoms suggesting heart disease. These cases usually have been diagnosed wrongly as cases of true heart disease.

Delaware State Medical Journal, Wilmington

April, May, June, 1922, **13**, No. 2

Profitable Reading for the Doctor. J. McFarland, Philadelphia.—p. 9.

Johns Hopkins Hospital Bulletin, Baltimore

July, 1922, **33**, No. 377

*Studies in Asymptomatic Neurosyphilis. J. E. Moore, Baltimore.—p. 231.

*Biochemistry of Tuberculosis. E. R. Long, Chicago.—p. 246.

Dissemination of Bacteria in Upper Air Passages. III. Relation of Bacteria to Mucous Membranes. A. L. Bloomfield, Baltimore.—p. 252.

*Changes in Omentum of Rabbit During Mild Irritations; with Especial Reference to Specificity of Mesothelium. R. S. Cunningham, Baltimore.—p. 257.

Asymptomatic Neurosyphilis.—It is shown by Moore that early invasion of the central nervous system in syphilis is common, occurring in 26.4 per cent. of a series of 352 patients with primary and secondary syphilis. Of ninety-four early neurosyphilitics, seventy-two were asymptomatic, and were detected only by the routine application of spinal puncture. Early asymptomatic neurosyphilis may be divided into three subgroups on the basis of the spinal fluid findings and the response of the various groups to treatment. Invasion of the central nervous system probably occurs in the majority of all patients with syphilis, and unless the course of the disease is influenced from without (by treatment), this invasion takes place in most instances within the first year after infection. The ability of the invading organisms to produce clinical neurosyphilis probably depends on the defense mechanism of the individual patient. The experimental and clinical evidence bearing on these points is reviewed. Early asymptomatic neurosyphilis is more common in the white race than in negroes, but is equally frequent in men and women, of either or both races. Prolonged regular treatment influences favorably the incidence of early asymptomatic neurosyphilis. Irregular or lapsing treatment, on the other hand, markedly increases its incidence. A study of this material from the standpoint of strains of *Treponema pallidum* furnishes no support to the theory of the existence of a neurotropic strain of organism. That the spinal fluid abnormalities of early asymptomatic neurosyphilis are evidence of actual anatomic damage to the nervous system is indicated by the frequency of certain minor subjective and objective neurologic signs in this class of patients. An appreciation of these signs, and of the significance of a persistently positive blood Wassermann reaction in treated patients, furnishes a clinical diagnostic aid for the recognition of neurologic invasion. Spinal puncture is an indispensable routine procedure in the management of early syphilis. Unless it is employed, many patients will be discharged as cured who are nevertheless candidates for clinical neurosyphilis. It should be performed as a routine after the first or second course of arsphenamin, and unless a lapse in treatment occurs, need not be repeated (if negative) until the end of treatment and the probation period. All three groups of asymptomatic neurosyphilis may be serologically and clinically "cured" by appropriate methods of treatment. Early asymptomatic neurosyphilis is the forerunner of clinical neurosyphilis. There is suggested an outline of treatment for early syphilis, the uniform application of which will markedly reduce the incidence of asymptomatic neurosyphilis, and probably, therefore, of clinical neurosyphilis.

Biochemistry of Tuberculosis.—In progressive tuberculosis, Long asserts, the rate of metabolism is increased, as a result of the operation of two factors, hyperthermia and the toxic effect of a foreign protein on protoplasm. As far as protein destruction is concerned, the second of these seems to be the more important, for hyperthermia per se does not increase nitrogen elimination in the normal subject. Yet it may well be that in the increased general metabolism induced directly by fever, the tissues become impoverished in those protein sparing constituents which serve to prevent protein destruction at similar temperature in health, and that protein may for this reason be drawn on to maintain the high level of total energy transformation. In less severe, afebrile tuberculosis such tissue destruction as does take place is probably the result of the action of some poison on the cells. In the chain of chemical factors involved in the progression of tuberculosis the tubercle bacillus is the first link, a wax armored micro-organism, maintaining itself in necrotic tissue, picking and choosing its nutriment from the heterogenous mass set before it, utilizing the glyceral of hydrolyzed fats, and probably building its wax therefrom, taking ammonia from certain of the amino acids produced in the digestion of dead protein, utilizing others directly to speed up the process of synthesis of its own protein, autolyzing to a slight extent, sufficiently to sensitize the surrounding host to its diffusible protein products, being carried by the lymph, by phagocytes or otherwise, to new soil, there to be met by a nonspecific foreign body response, which in the end operates to produce anemia and death of the isolated cells. Then there is the failure of that dead tissue to autolyze, perhaps because of ferment inhibiting substances within the bacillus, the phenomenon of caseation. Finally, there is more or less absorption of foreign protein from that focus, that of the bacillus itself and that of the distintegrating tissue, both toxic to the body protoplasm, both capable of causing fever and stimulating the metabolism of the host, so that in severe cases the typical picture of consumption ensues.

Changes in Omentum Caused by Mild Irritations.—In the study of the omentum during mild irritations by means of methods outlined by Cunningham, it has become entirely clear that the serosal lining cells and the fibroblasts react differently both as regards their morphologic appearance and the distribution of their vital dye content. The serosal lining cells increase in thickness and are much more compact than the normal, flat, platelike structures. They differ considerably in size and shape, being round, oval or square, and some of them have a few, fine pointed processes which vary in size but not in character. The vital dye content is more diffuse than in the normal cells, but there is never any dye to be seen in any of the fine processes. On the other hand, the fibroblast during irritation becomes an elaborately branched structure, forming a marked contrast to the compact serosal cell. The processes of the fibroblasts vary enormously in size and shape; some are long and slender, others branched into two or more subdivisions, and many have bulblike enlargements, especially where they branch. The vital dye is distributed throughout these processes, the granules often being collected in the bulb-like enlargements. It is thus obvious that during the course of a mild irritation the changes which take place in the mesothelial and fibroblastic elements indicate that they become even more widely separated from each other in their group characteristics. The cell bodies and processes of these two cell species are morphologically quite distinct in regard to size, shape and general characteristics. It seems entirely justifiable to conclude that such marked differences must denote some variation in the structure of the cytoplasm, and hence indicate some especial adaptation for certain definite physiologic activities. In addition to these morphologic criteria, it has been demonstrated that the vital dye content of the fibroblast and the mesothelial cell presents a sharp contrast.

Journal of Bacteriology, Baltimore

July, 1922, **7**, No. 4

Quantitative Determinations of Biochemical Changes Produced by Saprophytic Anaerobe. L. D. Bushnell, Lawrence, Kan.—p. 373.

Proportion of Viable Bacteria in Young Cultures with Especial Reference to Technic Employed in Counting. G. S. Wilson, London.—p. 405.

Method of Detecting Rennet Production by Bacteria. H. J. Conn, Geneva, N. Y.—p. 447.

Journal of Immunology, Baltimore

July, 1922, **7**, No. 4

*Serologic Study of Gonococcus Group. J. C. Torrey and G. T. Buckell, New York.—p. 305.

Studies on Acute Respiratory Infections. XI. Serologic Study of Alpha Streptococci from Upper Respiratory Tract. A. Goldman, New York.—p. 361.

Serology of Gonococcus Group.—An analysis made by Torrey and Buckell by agglutinin absorption methods of the serologic relationships of seventy-seven gonococcus strains, isolated from cases of acute and chronic gonorrhea and its complications, indicated that they may not be distributed among a number of clear-cut immunologic types. These gonococcus strains were representative of those occurring in widely separated geographic localities. Evidence is submitted which indicates the existence of a marked tendency to antigenic lability on the part of the gonococcus. Cross absorption experiments indicated clearly that no definite serologic distinction may be drawn between strains isolated from vulvovaginitis cases in children and those from gonorrheal in adults. A few representative strains with generalized relationships and good antigenic properties have been designated as suitable for use in a stock vaccine, and also for the preparation of a polyvalent antiserum. A marked degree of correspondence was noted between strain affinities as revealed by agglutinin absorption and complement fixation tests. Two strains of gonococcus have been seelcted, each of which covers a large part of the group, and which may be used to advantage in preparing an antigen for complement fixation diagnostic tests. It is also suggested that a second antigen, prepared from a number of selected irregular strains, be employed in conjunction with the one prepared from the two generalized strains.

Journal of Laboratory and Clinical Medicine, St. Louis

July, 1922, 7, No. 10

*Studies in Focal Infection. R. N. De Niord and B. J. Bixby, Buffalo.—p. 573.
*Pharmacology of Benzyl Compounds. II. C. Nielsen and J. A. Higgins, Chicago.—p. 579.
Presence of Bacteria and Formed Elements in Urine of Rabbits. H. F. Helmholz and F. Millikin, Rochester, Minn.—p. 589.
*Etiology of Scarlet Fever. IV. Variation or Types of Alkali-Producing Organism in Scarlet Fever. R. W. Pryer, Detroit.—p. 592.
Possible Defensive Factors in Cancer of Rectum. W. C. MacCarty and J. K. W. Kehrer, Rochester, Minn.—p. 602.
Sociological Aspects of Heart Disease. S. Neuhof, New York.—p. 606.
*Rouleaux Formation of Red Cells in Various Types of Disease. D. B. Swift, Boston.—p. 614.
Precipitin Test in Detection of Bacterium Diphtheriae. G. H. Smith and C. E. Kaufman, New Haven, Conn.—p. 619.
Micromethod for Nonprotein Nitrogen Using Two-Tenths of Cubic Centimeter of Blood. C. M. Wilhelmj, St. Louis.—p. 622.
Cellular Elements of Cerebrospinal Fluid. A. Levinson, Chicago.—p. 626.

Studies in Focal Infection.—The main fact to which DeNiord and Bixby direct attention is that infections, whether producing pus or not, give rise to a nuclear degeneration of a proteolytic type from the nuclei of the cells so broken down, the end product of which is uric acid. Uric acid is eliminated with some difficulty by the kidneys and consequently tends to accumulate in the blood when produced in larger quantities than normal over a period of time. Examination of the urine may thus for a long period of time show no more than the normal content of uric acid, while at the same time the blood chemistry reveals a uricacidemia, which is a diagnostic finding indicating a chronic infection somewhere in the body. The authors report that practice based on this assumption has been most happy in the result it yields. Among the cases treated the clinical diagnosis had been: erythema nodosum, sciatica, arthritis, corneal ulcer, beginning glaucoma, intercostal neuralgia, gout, chorea, neuritis, myalgia, neurasthenia, myocarditis, optic neuritis and secondary anemia. The uric acid in milligrams per cubic centimeter varied between 3.2 and 4.5. The treatment of the focal infection in most instances consisted in tooth extraction, with an additional appendectomy or tonsillectomy in some cases.

Pharmacology of Benzyl Compounds.—Observations made by Nielsen and Higgins suggest that the relaxing power of benzyl esters on the smooth muscle fibers of the intestine, as a rule, is dependent on the benzyl content and on the rate of hydrolysis of the benzyl compound. In all cases in which comparative records were obtained, with the exception of those of benzyl salicylate and benzyl acetylsalicylate, it was found that the higher the rate of hydrolysis the greater the efficiency. According to these findings, benzyl fumarate is more efficient than benzyl succinate, particularly with regard to initial action; the succinate is more efficient than the stearate, the acetate more powerful than the cinnamate, which in turn is of higher efficiency than the benzoate. The high relaxing power of benzyl salicylate and benzyl acetylsalicylate, in spite of their slow rate of benzyl hydrolysis, may be attributed to their intact molecules. These compounds differ from other benzyl esters in that their molecules contain hydroxl or substituted hydroxyl groups. The benzyl acetysalicylate is more efficient as an intestinal relaxant than the salicylate, in fact it is more powerful than any of the benzyl esters investigated. Various benzyl compounds other than benzyl esters, namely, benzyl phenolate, benzyl ethyl ether, and monobenzyl barbituric acid, as well as benzaldehyd, also possess smooth muscle relaxing properties.

Etiology of Scarlet Fever.—The organism previously reported on by Pryer as found only in scarlet fever, shows several varieties, one of which is, under certain conditions, somewhat similar in its morphology to *B. diphtheriae* and which may be a toxin producer. Diphtheria antitoxin protects against this culture, provided the antitoxin is given some time before the injection of the culture. A preliminary report is made of results obtained by cultivating material from patients sick with scarlet fever which it is believed justifies the tentative conclusion that this variable organism is the cause of scarlet fever.

Rouleaux Formation of Erythrocytes in Various Diseases.—In the study of rouleaux in disease, emphasis is placed by Swift on the necessity of a technic which permits quantitative measurements by varying the dilution of the serum and the cellular suspension. In seven out of seventeen cases of Hodgkin's disease rouleaux formation was completely lacking under conditions in which normal red cells formed intense rouleaux. In all the cases of leukemia examined, rouleaux formation was lacking to a greater or lesser degree. It was thought that this deficiency of the red cells from cases of Hodgkin's disease and leukemia might be due to the anemia which occurs in these diseases and that the change is not due to the anemia per se, is shown by the fact that the red cells of pernicious anemia formed rouleaux well. Normal rouleaux always occurred in the cases of cancer and sarcoma and in the cases of infectious disease that were tested. These results were clear cut. On the contrary, the results obtained in cases of leukemia and Hodgkin's disease were variable. It would seem that if there is any valuable information to be gained by testing for rouleaux formation, some finer development or adjustment of technic than that used must be established.

Lying-In Hospital of City of New York Bulletin

July, 1922, 12, No. 2

*Management of Teeth During Pregnancy. W. N. Rowley, Rochester, Minn.—p. 82.
Certain Points in Management of Second Stage of Labor. R. McPherson, New York.—p. 87.
*Improved Maternity Care as a Public Health Question. G. W. Kosmak, New York.—p. 90.
*Hemorrhages in New-Born. J. R. Losee, New York.—p. 100.
*Cases of Pseudocyesis. M. Rosensohn, New York.—p. 107.
*Cerebral Hemorrhage in New-Born. J. R. Losee, New York.—p. 109.
Case of Typhoid Fever Complicating Pregnancy. M. Rosensohn, New York.—p. 114.

Management of Teeth During Pregnancy.—Rowley asserts that the removal of teeth with periapical infection and extensive caries can be done safely during pregnancy. Surgical removal in such cases is preferable in the presence of definite roentgenologic evidence of granuloma. Careful roentgen-ray examination, and interpretation and cooperation with the dentist, are highly essential. Surgical extractions in these cases should be done according to a definite plan, with a careful consideration of the number of teeth to be removed at one operation, the condition of the patient and her reaction following the first extraction. Repeated examination of the urine, temperature and leukocytes should be made, and general symptoms of reaction manifested by the patient should be observed carefully. Pyorrhea should not be overlooked and cavities in vital teeth should be filled with cement rather than with more permanent materials. In the presence of pathologic conditions associated with pregnancy, the same precautions must be taken as are observed in similar conditions existing independently of pregnancy. The eradication of foci of infection other than the teeth is equally important in the hygiene of pregnancy.

Maternity Care a Public Health Problem.—It is Kosmak's belief that improvement in obstetrics will result more rapidly and more directly from a recognition of the fact by the medical profession, by an improvement of teaching facilities in obstetrics, by an acknowledgment of this as one of the major branches of medicine and by a full realization of the fact that improved maternity and infant care are medical problems pure and simple with certain underlying economic factors, but a problem that must be kept free from all schemes for the endowment of motherhood, compulsory health insurance, or the subtle influences of the feminist movement.

Hemorrhage in New-Born.—Sixteen cases of hemorrhage of the new-born treated by blood transfusion are reported by Losee. Eight of these had been treated with normal human serum without any result and in one the hemorrhage recurred after blood transfusion. There are seven cases of subcutaneous hemorrhage, three of cerebral hemorrhage following operative delivery, three of hemorrhage from the umbilicus, two with gastro-intestinal hemorrhage and one from the wound following circumcision. Two of the babies with cerebral hemorrhage have been reported by their attending physician to be well one year after birth. No neurologic examination has been made in these cases.

Pseudocyesis.—From Nov. 1, 1916, to Nov. 1, 1917, ten cases of spurious pregnancy in patients whose ages have varied from 16 to 42 years were seen at the Lying-In Hospital. In eight amenorrhea had been present from three to ten months; in two there had been slight staining at the menstrual time; in all, the subjective signs were the distension of the breasts, the swelling of the abdomen with the sense of pressure in the lower portions, and paraesthesiae about the vulva. Of these ten, to a greater or less degree, in eight there had been the gastric disturbances with the nausea or vomiting in the early months. In two in whom the pregnancy, as judged by the cessation of the menstrual function, had apparently existed for less than four months, no quickening had been felt, while in the other eight, fetal movements had definitely been noted. Of these eight, two had, according to the calculations and to the surprise and fear of the patients, gone one month beyond term. Of the ten, in six there was a history of increase in weight during the period of amenorrhea varying from 10 to 35 pounds. On physical examination, in all but one case the existence of pregnancy, certainly to the period or anywhere near the period thought by the patient could at once be positively excluded. Abdominal palpation alone sufficed in most cases, especially when the patients claimed a pregnancy four months or more. In all cases a vaginal examination was made and showed no discoloration and no increase in size of the uterus, and no softening of the cervix. In no case was there any secretion in the breasts.

Cerebral Hemorrhage in New-Born.—Cerebral hemorrhage, Losee says, is a most constant necropsy finding in intra-uterine deaths and in infants' deaths during the first few days of life. Intra-uterine asphyxia, trauma and hemorrhagic disease in the new-born are the most common causes of this condition. The clinical picture of cerebral hemorrhage in the new-born is usually sufficient to establish a definite diagnosis. Lumbar puncture will determine the diagnosis sometimes in the doubtful cases but its value in draining blood from the entire subarachnoid space depends on certain conditions mentioned in the text. The success of the operation for decompression depends on the location and extent of the lesion.

Military Surgeon, Washington, D. C.

July, 1922, **51**, No. 1

Some Celebrated Marches During War. R. A. Foster.—p. 1.
Army Histopathologic Service. G. R. Callender and J. F. Coupal.—p. 6.
Post Library. P. M. Ashburn.—p. 13.
Medical Reserve Corps. C. E. Verdier.—p. 22.
Epidemiologic Study of Scarlet Fever and Its Control in Army Camps. E. B. Maynard.—p. 25.
Review of Eighteen Cases of Pulmonary Abscess. W. O. H. Prosser.—p. 37.
Plastic Repair Nasal Displacement and Deformity. R. H. Goldthwaite.—p. 42.
Mental Instability in Ex-Service Men—How Acquired; How Remedied. S. Wolfe, Salt Lake City, Utah.—p. 44.
Schedule of Ratings for Eye, Ear, Nose and Throat Disabilities in America, Great Britain, France, Italy, Belgium and Germany. H. V. Würdemann.—p. 47.
Plan for Conservation of Health of Males Within Second Decade of Life in Relation to Military Defense. W. S. Dow.—p. 74.
Children's Clinic at Fort Sam Houston, Texas. E. C. McCulloch.—p. 94.

Nebraska State Medical Journal, Norfolk

July, 1922, **7**, No. 7

Malignant Disease from Standpoint of Physician and with Particular Reference to Borderline Cases. G. Dock, St. Louis.—p. 221.
Review of Twenty-Three Cases of Pyloric Stenosis. J. A. Henske, Omaha.—p. 227.
Basal Metabolism: Its Clinical Value. G. W. Covey, Lincoln.—p. 231.
Sputum Borne Diseases in View of Lessons of World War. J. M. Banister, Omaha.—p. 238.
Intestinal Drainage in Intussusception. J. Buis, Pender.—p. 242.
Pneumoperitoneum as an Aid in Obstetrical and Gynecological Diagnosis. E. C. Sage, Omaha.—p. 244.

Oklahoma State Medical Association Journal, Muskogee

July, 1922, **15**, No. 7

Uterine Fibroids and Surgical Treatment. A. W. Pigford, Tulsa.—p. 215.
Cancers of Cervix. L. A. Turley, Oklahoma City.—p. 220.
Radiotherapy in Treatment of Uterine Bleeding. S. D. Neely, Muskogee.—p. 225.
Spinal Cord Tumors. A. D. Young, Oklahoma City.—p. 228.
Sarcoma of the Antrum: Report of a Case. H. S. Browne, Ponca City.—p. 230.

Porto Rico Medical Association Bulletin, San Juan

June 30, 1922, **16**, No. 137

*Relations Between Filariasis and Other Tropical Lymphopathies. R. Ruiz Arnau.—p. 95.
*Modern Treatment of Gonococcus Infection. Amalio Roldán.—p. 100.
Fracture of the Scapula. M. Guzmán Rodriguez, Jr.—p. 112.
Prophylaxis of Venereal Disease. V. Hernández Usera.—p. 114.
*Calculus in Male Urethra. Diego Biascoechea.—p. 118.

Disease of the Lymphatic System in the Tropics.—Ruiz Arnau has had many years of experience in hospital and private practice in the tropics, and has been impressed with the common factors, some of them latent, in certain tropical affections which present widely diverse clinical pictures. The lymphatic system, in particular, is an important factor, but it is not the lymph itself, but the walls of the lymphatics which are permanently relaxed from the relaxation of the muscular fibers contained within these walls. This insufficiency of the muscular fibers is the consequence of the continuous enervating influence of the hot climate. These relaxed muscular fibers stretch easily, especially under the influence of gravity during long standing, or of fatigue of the voluntary muscles, of sluggish circulation, and inadequate aspiration into the thorax—all of which we know affect the circulation in the lymphatic system. This sluggish functioning and ectasia, which might be called primary climatic lymphectasia, is a permanent condition in residents in the tropics and is slowly acquired by newcomers, but it gradually retrogresses on change to a cooler climate. It may persist latent all through life during residence in the tropics if the predisposing factors do not happen to rouse it. But it forms the substratum on which elephantiasis, etc., develop, and it explains the tendency to recurrence, with or without infection or parasitism. This conception of primary, pure lymphectasia explains the peculiar features of filariasis, especially its predilection for regions which suffer most from the action of gravity, allowing the easier penetration of the larvae and providing quieter foci for the multiplication of the parasite. These facts explain why persons do not contract filariasis in the tropics until they have been there some time.

Modern Orientations in Treatment of Gonococcus Infection.—Roldán recalls that he was the first in Spain to apply vaccine in treatment of gonococcus infection in women. This was in 1912, and his experience has been highly satisfactory with it since. He states that the apparent failures were always traceable to new infection except in the group of the gravest operative cases in which pains and secretion persisted, only slightly modified by the vaccine therapy. He extols diathermy as a powerful aid, and describes the indications and technic for both men and women. The best results are generally realized with it in gonococcus adnexitis and metritis, acute and chronic. He adds that by perfecting the technic we may hope to be able to realize the complete cure of all gonococcus affections.

Calculus in Male Urethra.—The calculus impacted in the meatus was as large as a hen's egg. The man of 46 related that nine years before he had a sensation, while bathing in the river, as if something had escaped from the bladder, and since then there had been difficulty in micturition. The urine escaped through several fistulas above the impacted calculus. It weighed 55 gm. and was 2¼ inches long by 1½ wide. The communication is illustrated.

Southwestern Medicine, Phoenix, Ariz.

July, 1922, **6**, No. 7

State Medicine from Health Officers' Viewpoint. G. S. Luckett, Santa Fe, N. M.—p. 255.
Principles of Organized Medicine. A. L. Gustetter, Nogales, Ariz.—p. 258.
Operation of Election in Cholecystitis. C. Epler, Pueblo, Colo.—p. 270.
Instruction of Midwives in San Miguel County. L. Wills, Las Vegas, N. M.—p. 276.

Tennessee State Medical Association Journal, Nashville

July, 1922, **15**, No. 3

Reduction in Diarrhea and Enteritis. E. L. Bishop, Tenn.—p. 131.
Report of Two Unusual Cases; Double Ectopic Pregnancy with Foetuses at Full Term: Porro Cesarean Section Due to Distortion of the Uterus and Transverse Presentation. H. M. Tigert, Tenn.—p. 132.
The Treatment of Fibroid Tumors. C. N. Cowden, Tenn.—p. 135.
The Thymus Gland. K. M. Buck, Memphis, Tenn.—p. 144.
Report of Operations for Cancer of Stomach; Stone in Both Kidneys and Bladder; Gangrenous Appendicitis and Intussusception. W. D. Haggard, Nashville, Tenn.—p. 146.

Texas State Journal of Medicine, Ft. Worth

July, 1922, **18**, No. 3

Sequels of Epidemic Encephalitis. K. H. Beall, Fort Worth.—p. 157.
Case of Leukemia Cutis, and Treatment of Four Cases of Leukemia with Radium and Roentgen Ray. I. L. McGlasson, San Antonio.—p. 158.
Case of Leukemia. J. R. McKnight, and F. D. Francis, Fort Sam Houston.—p. 161.
Rabies and Pasteur Treatment. H. S. White, El Paso.—p. 163.
Endemic of Vincent's Angina Occurring Among College Students. J. M. Frazier Belton.—p. 166.
Malaria Control Problem of Texas. J. A. LePrince, Washington, D. C.—p. 168.
Case of Asthma Hypersensitive to Sheep Wool. I. S. Kahn, San Antonio.—p. 171.
Effects of Indelible Lead in Tissues. J. B. Thomas, Midland.—p. 171.

U. S. Naval Medical Bulletin, Washington, D. C.

July, 1922, **17**, No. 1

Sanitary Inspector of Community. W. H. Bell.—p. 7.
Acid-Base Equilibrium. C. W. O. Bunker.—p. 21.
Aviation Medicine in U. S. Navy. J. F. Neuberger.—p. 34.
Personal Hygiene of Aviators. C. M. Belli, Royal Italian Navy.—p. 39.
Gas Warfare: Adoption, Method of Use, Protection of Troops. W. R. Galwey, R. A. M. C.—p. 47.
Functions and Organization of Medical Corps Units Serving with Marine Corps in Field. S. N. Raynor.—p. 59.

West Virginia Medical Journal, Huntington

July, 1922, **17**, No. 1

Unsolved Problems of Preventive Medicine. A. Arkin, Morgantown.—p. 1.
State Problems. F. F. Farnsworth.—p. 11.
Milk and the Public Health. J. G. Townsend, Charleston.—p. 16.

Wisconsin Medical Journal, Milwaukee

July, 1922, **21**, No. 2

Preoperative and Postoperative Treatment and Care of Patients. J. V. R. Lyman, Eau Claire.—p. 45.
*Graded Thoracoplasty for Unilateral Bronchiectasis. C. A. Hedblom, Rochester, Minn.—p. 48.
End Results in Fractures. J. M. Dodd, Ashland.—p. 52.
Neurologic Manifestations of Pernicious Anemia. L. M. Warfield, Milwaukee.—p. 54.
Salient Points in Normal Labor. G. S. Jones, Milwaukee.—p. 57.
Differentiation of Hyperthyroidism and of Heart from Neurasthenic States. B. E. Hamilton and F. H. Lahey, Boston.—p. 59.

Graded Thoracoplasty for Unilateral Bronchiectasis.—The results detailed by Hedlom he believes justify extending the indications for thoracoplasty to include the earlier cases of milder grade and also those of advanced bronchiectasis.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

July 20, 1922, **16**, No. 2

*Signs of Filarial Disease. B. Blacklock.—p. 107.
*Two Cases of Cardiac Aneurysm. A. Ingram and J. W. S. Macfie.—p. 119.
Cestodes in Collection of Indian Museum. T. Southwell.—p. 127.
Cryptocotyle Lingua (Creplin, 1825), Fischoeder, 1903, in a Dog in England. P. A. Maplestone.—p. 153.
Genital Armature of Female Mosquito. J. W. S. Macfie and A. Ingram.—p. 157.
Australian Cestodes. P. A. Maplestone and T. Southwell.—p. 189.
Incidence of a Disease in Population Groups, the Number of People in Which is Known or Unknown. J. W. W. Stephens.—p. 199.
Experimental Infestation of Physopsis Africana. F. G. Cawston.—p. 207.
Culicidae in Venezuela; Descriptions of New Species. A. M. Evans.—p. 213.
Ancylostomes Recorded from Sixty-Seven Postmortems Performed in Amazonas. R. M. Gordon.—p. 223.

Signs of Filarial Disease.—Two hundred and forty cases were examined by Blacklock with a view to establishing a correlation between "signs of filarial disease" and the occurrence of *Microfilaria bancrofti* in the blood. The figures obtained show that in this series many of the "signs of filarial disease" have no more correlation with the presence of microfilaria in the blood than has hernia; some have less.

Cardiac Aneurysm.—One of the cases cited by Ingram and Macfie was an aneurysm of the left auricle and the other of the anterior cusp of the mitral valve.

British Journal of Tuberculosis, London

July, 1922, **16**, No. 3

*Intensive Heliotherapy and Sea Bathing in Surgical Tuberculosis. H. Gauvain.—p. 105.
Application to Tuberculosis of Successful Treatment of Leprosy by Soluble Preparations of Chaulmoogra, Cod Liver Oil and Other Oils. L. Rogers.—p. 105.
Tuberculous Diseases Diploma (Wales) and What It Aims At. L. Cummins.—p. 115.
Additional or Reinfection Tuberculosis. E. R. Baldwin.—p. 120.
Emergency Instruction to Examining Physicians in Diagnosis of Pulmonary Tuberculosis. H. S. Cumming, Washington.—p. 125.

Heliotherapy and Sea Bathing in Surgical Tuberculosis.—The sea bathing practiced by Gauvain at Hayling Island, Hampshire, is carefully graduated. Ambulant patients first paddle for increasing periods, later are sprayed with cold sea water over increasing areas of the body, and finally full immersion is permitted. Recumbent patients are first progressively sprayed, later immersed as their condition permits and for carefully graduated periods. A brisk reaction is sought, and this is hastened by taking each patient from the sea, placing him within a wattle protected enclosure, where he is wiped down before the radiant heat of an open coke brazier. His feet are put in warm water and he is given a hot drink. Then follows a sun bath. The stimulating effect of this procedure is remarkable. Immersion is followed by deeper respirations of great amplitude which effecually expand the lungs and expel waste products. The circulation is profoundly modified. The first chilling effect causes contraction of the superficial capillaries, followed, when reaction occurs, by their dilatation. All parts of the body are, in phases, flushed by an increased volume of blood and lymph, the blood supply to diseased tissues likewise increasing. There is added excretion from lungs, kidneys and skin. Toxins are thus more freely eliminated and there is definite tissue change. Probably timed sea bathing, followed by brisk towelling and a graduated sun bath, produces a sense of exhilaration and well being which nothing else can convey. The effect is said to be striking and much greater than can be produced by sun treatment alone, especially in lupus.

British Medical Journal, London

July 22, 1922, **2**, No. 3212

*Aspects of Cardiac Disease. J. Hay.—p. 115.
Acute Arsenical Poisoning. W. H. Willcox.—p. 118.
*Blood Serum in Pernicious Anemia. E. M. Brockbank.—p. 124.
High Percentage of Abnormal Obstetric Cases in General Practice. J. W. Anderson.—p. 126.

Aspect of Cardiac Disease.—Irregular action of the heart, according to Hay, is not merely a matter of degree. The types differ fundamentally and their significance varies widely. The most important group is that of fibrillation of the auricle, characterized by a specific and fundamental change in the activity of the auricles, and a frequent and disorderly action of the ventricles. This increases the load of the heart and is the most common cause of cardiac failure. The recognition of this form of irregularity is not difficult, requiring only the fingers and a trained intelligence. Fibrillation is not confined to any one particular form of cardiac lesion, but may occur at any age, and when once established tends to persist. The digitalis group produces a remarkable slowing of the ventricular rate with consequent improvement in the patient. Auricular fibrillation can in 50 per cent. of the cases be terminated by quinidin sulphate, but in many patients the fibrillation recurs, and the exhibition of this drug is not without danger.

Blood Serum in Pernicious Anemia.—Brockbank states that the serum of pernicious anemia is always definitely yellow and that of all other anemias nearly colorless. The color may be seen in two or three drops of serum in a small glass bulb. Oxyhemoglobin absorption bands appear in the serum of the great majority of cases of pernicious anemia, and can easily be seen by a pocket spectroscope. They are not seen in the serum of other anemias. There may be some free oxyhemoglobin in the plasma of the circulating blood of the disease. It is possible, judging from the serum, that there are at least two varieties of the disease. Blood platelets are generally very scanty or absent, but when present are a sign of potential regeneration of red cells by the bone marrow and indicate a good temporary prognosis. The abnormal conditions of the red corpuscles suggest the possibility of pernicious anemia being a malignant disease of the blood.

Journal of Pathology and Bacteriology, Edinburgh

July, 1922, **25**, No. 3

Properties of Syphilitic Serums in Relation to Specificity of Immunity Reactions. J. Holker.—p. 281.
Opacity of Mixture of Serum and Wassermann "Antigen" in Progressively Increasing Concentrations of Sodium Chlorid. J. Holker.—p. 291.
Action of Dilute Acids in Blood Cultures. I. W. Hall.—p. 297.
*Histology of Case of Anapyhlactic Shock Occurring in a Man. H. R. Dean.—p. 305.
Effect of Electrolytes on Hemolysis. H. D. Wright and P. MacCallum.—p. 316.
*Influence of Anesthesia on Restoration of Volume of Blood After Hemorrhage and After Transfusion. A. E. Boycott and C. P. Jones.—p. 335.
Serologic Examination of One Hundred Strains of Gonococcus. W. J. Tulloch.—p. 346.
*Influence of Parathyroidectomy on Skeleton of Animals Normally Nourished, and on Rickets and Osteomalacia Produced by Deficient Diet. V. Korenchevsky.—p. 366.
*Sonne Dysentery Bacillus in Australia. S. W. Patterson and F. E. Williams.—p. 393.

Histology of Anaphylactic Shock.—Dean reports in detail his findings from the histologic examination of the tissue of a man who died in a state of shock induced by a shrapnel wound of the back and right shoulder. The patient, a soldier, aged 22, died of acute anaphylactic shock seventy minutes after a fourth injection of tetanus antitoxin. As far as it can be ascertained the patient had been perfectly healthy until the day of his death. All wounds had completely healed at the time of death. All four injections of horse serum were subcutaneous. The amount of serum injected on each occation was presumably about 5 c.c. The intervals between the injections were five, sixteen and twelve days. No symptoms appear to have followed the earlier injections. The onset of symptoms was immediate, with cyanosis and vomiting. Death occurred in about seventy minutes and was apparently the result of a fall of blood pressure and cardiac failure. At the postmortem examination the liver weighed 62 ounces, had a deep purplish color and appeared to contain an excess of blood. Sections of the liver showed an extreme dilatation and engorgement of the sinusoids. The liver cells showed marked changes, which is of interest. The lungs showed an irregular dilatation of the capillaries. In places the alveoli were compressed, in places dilated. The tonsils were enlarged. There was an enlargement of the lymph glands of the neck, axillae, thorax, abdomen and of the inguinal regions. There was no trace of thymus tissue. The macroscopic and microscopic appearances of the liver were very similar to those described by Weil in acute anaphylactic death in dogs. It seems probable that in this man the primary and essential change was in the liver, and that a fall in blood pressure was the result of a dilatation of the capillaries of the liver. The capillaries of the liver, lungs, small vessels of the heart, stomach, pancreas and spleen contained enormous numbers of leukocytes. Twelve per cent. of the leukocytes in the capillaries of the liver were polymorphonuclear eosinophils. The observations made in this case support Weil's belief that dilatation of the hepatic capillaries is an important factor in the anaphylactic state in man.

Influence of Anesthesia on Restoration of Blood Volume.—Under anesthesia the restoration of the blood volume after hemorrhage is slower and less complete than in nonanesthetized rabbits. This is attributed by Boycott and Jones to a diminution in the permeability of the capillary wall to liquid passing from the tissue fluid to the blood.

Influence of Parathyroidectomy on Skeleton.—Korenchevsky's results agree in the main with those of Jovane and Vaglio, Hohlbaum, Reuss and Leopold. He has not so far been able to confirm those of Erdheim on the rickets producing effect of removal of the parathyroids. It would appear that the parathyroidectomy produces no marked influence on the skeleton of rats kept on normal or rickets producing diets, corroborating the view that there is no essential distinction between rickets and osteomalacia, the only modifying influence being age.

Sonne Dysentery Bacillus.—The characters of a group of bacilli corresponding to the dysentery bacillus of Sonne, isolated from cases of dysentery in Australia, are described by Patterson and Williams.

Journal of Tropical Medicine and Hygiene, London

June 15, 1922, **25**, No. 12

Epidemiology and Administration. W. G. Armstrong.—p. 45.
Appreciation of Patrick Manson. F. Mott.—p. 162.
Appreciation of Patrick Manson as a Bacteriologist. R. T. Hewlett.—p. 163.
Appreciation of Patrick Manson as a Dermatologist. J. M. H. Macleod.—p. 163.
Manson's Part in Helminthologic Discovery. H. A. Baylis.—p. 164.
Carriers of Filaria Bancrofti. F. W. Edwards.—p. 168.
Acclimatization and Sunstroke. G. Giglioli.—p. 185.
Synopsis of Family Linguatulidae. L. W. Sambon.—p. 188.

July 1, 1922, **25**, No. 13

*Dangers of Rapid Intravenous Injection of Concentrated Solutions of Quinin Bihydrochlorid. U. N. Brahmachari.—p. 209.
*Perforation of Ileum Probably Caused by Ascaris Lumbricoides. A. Ingram.—p. 211.
*Blackwater Fever in Paqua. W. E. Giblin.—p. 212.

Intravenous Injection of Quinin Bihydrochlorid.—In Brahmachari's opinion, the amount of quinin injected into a vein at the bend of the elbow should not be more than $^1/_{120}$ grain per second or ½ grain per minute. This will mean that 10 grains will take twenty minutes for completion of the injection. Using a dilution of 1 : 300, this will mean that 10 c.c. will take one minute for injection, and the total amount of fluid injected will be 200 c.c. Injection of fluid beyond this limit into a patient whose blood pressure is very low is likely to cause pulmonary edema, which may prove very serious in certain cases of pernicious malaria. A dilution less than that may make it very difficult to inject at the rate of $^1/_{120}$ grain quinin per second. The rate of injection should be still slower in the case of children. Brahmachari suggests that 5 grains should be injected in patients below 15 years of age in twenty minutes, which is half the rate in the case of an adult.

Perforation of Ileum by Ascaris. — In the case cited by Ingram death was due to peritonitis following perforation of the intestine occurring in a case of typhoid, this perforation most probably being caused by an *Ascaris lumbricoides* pushing through a weakened part of the intestinal wall.

Blackwater Fever and Malaria.—Giblin states that malaria is an essential contributing cause in the production of the hemolytic factor which has still to be demonstrated. It is impossible to define blackwater fever with any definite precision as it is not a specific disease, but rather a symptom complex; in fact, a complication of malaria. To adequately treat the malarial factor will prevent the appearance of blackwater fever.

Lancet, London

July 22, 1922, **2**, No. 5160

Transatlantic Development of Rhinolaryngology. H. S. Birkett, Montreal.—p. 159.
*Cancer of Larynx: Operation of Laryngofissure and Results in Intrinsic Variety. St. C. Thomson.—p. 163.
*Chronic Appendicitis and Recurrent Abdominal Pain. W. H. Battle.—p. 165.
Retention of Urine in Elderly Men. J. S. Joly.—p. 170.
*Periarterial Injection of Alcohol in Treatment of Senile Gangrene. W. S. Handley.—p. 173.
Dangers of Rapid Intravenous Injection of Quinin Solution. U. N. Brahmachari.—p. 175.
Significance of Erythromelalgia in Cases of Intermittent Claudication of Lower Extremities. F. P. Weber.—p. 176.
*Cerebral Abscess Complicating Bronchiectasis. C. de W. Gibb.—p. 177.
*Administration of Thyroid Gland in Hydrocephalus. J. P. Gray.—p. 177.

Laryngofissure for Cancer of Larynx.—Twenty-one years' experience with the operation of laryngofissure has convinced Thomson that if cancer is limited to a vocal cord and is operated on with every care laryngofissure is safe in execution and certain in its results. The operative death rate should be nil, a serviceable voice can be promised, and there is every prospect of permanent freedom from recurrence.

Chronic Appendicitis and Recurrent Abdominal Pain.—In all painful conditions of the abdomen for which relief is sought Battle says it is advisable to think of the appendix as a possible cause, for the large proportion of them are dependent on disease of that part of the intestinal canal. The essential points in the differential diagnosis between this and other conditions are reviewed.

Periarterial Injection of Alcohol for Senile Gangrene.—Two cases are cited by Handley to illustrate a new method free from some of the objections attendant on the operation of sympathectomy introduced by Leriche. In sympathectomy local contraction of the artery occurs and a period of very low circulation, lasting up to fifteen hours, precedes the onset of vasodilator symptoms. The vasodilator symptoms, when they supervene, last only three or four weeks. It is obvious that an initial extreme vasoconstriction lasting possibly as long as fifteen hours may be very dangerous in gangrene or threatened gangrene, and that the period of vasodilatation secured—three or four weeks only—is all too short for the accomplishment of such a great work as the separation of the toes or of a portion of the foot. In periarterial alcohol injection there is no initial period of diminished circulation; the vaso dilator results aimed at by the operation are produced at once, without any temporary aggravation of the condition which the operation is intended to cure. No local contraction of the artery occurs at the site of the injection. In a case of senile gangrene of the foot Handley exposed the right femoral artery in Hunter's canal, divided its sheath, and with a very fine hypodermic needle, obliquely introduced into the tunica adventitia, injected about 4 minims of rectified spirit at each of four equidistant points around its circumference. No pulsation could be felt in the artery, even when exposed. No local change in the caliber of the artery followed the injection, but where the alcohol was injected a whitish, ill-defined, opaque band appeared around the vessel.

Cerebral Abscess Complicating Bronchiectasis.—In Gibb's case the abscess remained latent producing no symptoms referable to the brain until excited to activity by a fall on the head. There was no evidence of a gross head injury sufficient to account for the symptoms, and it was thought that possibly the active development of some cerebral condition made the man giddy and caused him to fall. Headache and slow pulse suggested cerebral tumor, gumma, or abscess, but the absence of optic neuritis was against these. The only localizing symptom consisted in the late development of left arm and left leg paralysis. Slight bleeding from the nose, stated to have occurred immediately on receipt of the injury, indicated the possibility of a fractured base, but there was no further bleeding. The possibility of a lung infection becoming generalized and attaching the cranium was considered. An abscess about the size of a large walnut was found in the right temporosphenoidal lobe. It consisted of a thick capsule containing greenish-yellow pus. From its size and the thickness of its wall the abscess was judged to be of long standing. Signs of fractured skull or of middle-ear disease were absent. There were several large bronchiectatic cavities in the lower lobe of the right lung. There were areas of bronchopneumonia in the lower lobe of the left lung. The trachea and bronchi were full of pus. The pus from the cerebral abscess on cultivation gave a growth of Friedlander's pneumobacilli.

Thyroid Gland Treatment of Hydrocephalus.—Gray reports a case of hydrocephalus completely cured by thyroid feeding, 1 grain daily by mouth.

Sei-I-Kwai Medical Journal, Tokyo, Japan

June, 1922, **41**, No. 463

*Physiologic Study of Yoga. S. Uramoto.—p. 1.

Blood Pressure and Respiration During Yoga.—Yoga or other similar religious abstract meditation is usually adopted as the method for religious mental training by Buddhists of the Sen sect (Dhyana) and by the Hindus. With the former, the bodily conditions of yoga are somewhat definite, while the mental conditions are somewhat various. In most cases, however, attention is concentrated on a question set for meditation. The mental and physical conditions can be considered as a special case of hypnotism, perhaps even as a state of autosuggestion, because in this case, the mental state can change positively, which change is not possible in entirely negative mental conditions of pure hypnotism. Uramoto endeavored to investigate the changes of blood pressure and rate of respiration during yoga. He made his observations on a priest of Dhyana, 38 years of age, who had spent the twenty years of his religious life in the Sen sect of Buddhism. The pulse curve and respiratory movements became lower during the yoga, but not slower or irregular. The curve always recovered its original height several minutes after the subject awakened. Uramoto is convinced that these changes are the symptoms of restrained functions, which from the point of view of psychophysical parallelism are physical conditions reacted on by mental conditions. In certain cases the pulse curve becomes suddenly lower even to an almost straight line. This may be a symptom of the sudden entrance into trance, which can only be performed by long practice. Then, again, the respiratory movements become irregular in depth, without any change in the pulse. Such symptom may occur in disturbed meditation owing to unfavorable mental and physical conditions. In this experiment, there was no such remarkable change in the respiratory functions as Imai observed in his experiment when the respiratory sounds were hardly audible through the stethoscope.

South African Medical Record, Cape Town

June 10, 1922, **20**, No. 11

Antibodies and Immunity. J. Pratt-Johnson.
Case of Choleraic Diarrhea of Streptococcal Origin. C. Lundie.—p. 209.
*Treatment of Epilepsy by Snake Venom. W. Russell.—p. 209.

Treatment of Epilepsy by Snake Venom.—Ten cases of idiopathic epilepsy were selected by Russell at random, cases in which the epileptic seizures were not attributable to any definite organic cause, for treatment with a mixture of the venom of the cobra and puff adder. The number of fits per week was obtained in each case for the twenty-six weeks previous to the commencement of treatment. Treatment was begun during September, 1921. In each case 0.0015 c.c. liquid venom, in 2 c.c. of distilled water, was injected into the deltoid muscle. The injections were repeated at intervals of seven days, for seven weeks, the dose being gradually increased to 0.01 c.c. liquid venom. Owing to a delay in obtaining further supplies of venom, an interval of six weeks elapsed before treatment could be continued. No further injections were given to three female patients on account of their extreme unwillingness to undergo the pain and discomfort associated with the injections. Treatment was, therefore, continued in the seven male cases only, gradually increasing doses being given at weekly intervals for eleven weeks, until a dose of 0.025 c.c. liquid venom had been reached. In each case a record of fits was kept while venom was being given, and for six weeks after the last injection. In two cases a slight decrease took place in the average number of fits per week. In one case only one fit was seen in the six months of treatment. In the remaining seven cases a definite increase in the number of fits occurred. One patient developed status epilepticus five weeks after the cessation of the injections, and died.

Annales des Maladies Vénériennes, Paris

July, 1922, **17**, No. 7

*Arsphenamins and Hemoclastic Crisis. J. Golay and Benveniste.—p. 481.
*Reinfection with Syphilis. Carle.—p. 497.
Syphilis in Northern Africa. G. Lacapère.—p. 493. Cont'n.
Syphilitic Gangrene of Penis. E. Orphanidès.—p. 516.
Plastic Induration of Corpus Cavernosum. Montpellier et al.—p. 523.
Bismuth in Treatment of Neurosyphilis. Evrard.—p. 525.

Action of Arsphenamin on the Blood.—Golay applied the test for hemoclasis in twenty patients under arsphenamin treatment. In 65 per cent. there was not the slightest sign of any shock action from the drug. In 20 per cent. the blood pressure dropped; in 5 per cent. there was transient leukopenia, and in 5 per cent. both drop in pressure and leukopenia. The complete hemoclastic crisis was never encountered in the group.

Reinfection with Syphilis.—Carle discusses the conditions under which reinfection can occur. It is becoming more and more frequent every day. He published in 1921 a case of unequivocal reinfection after treatment with mercury alone, and as early as 1901 he had observed a number of cases of reinfection. He here describes two new instances, and reiterates that the biologic laws are not mathematical laws; their equations contain imponderables which we are unable to seize. We have all seen secondary phenomena develop six months after the most thorough treatment, and, on the other hand, have seen a new primary chancre develop after most inadequate treatment. We need not despair of the future of the patient even if he has been dilatory in applying for treatment, and we must not discard the idea of a reinfection because we know of the thorough treatment. Another fact brought out by this study of reinfections is that many instances of reinfection must have escaped recognition in the past. In both the cases reported here, the old syphilitics considered themselves safe from new infection. He advises warning against the danger of reinfection, especially when the man is married, to protect the wife.

Annales de Médecine, Paris

May, 1922, **11**, No. 5

*The Wassermann Test in Spinal Fluid. Cestan and Riser.—p. 365.
*Cardiorenal Dyspnea. F. Bezançon et al.—p. 386.
*White Dermography. A. Sézary.—p. 403.
Intercostal Neurofibromatosis. Souques et al.—p. 416.
*The Plague. E. Joltrain and L. de Gennes.—p. 424.
*The Schick Reaction. P. F. Armand-Delille.—p. 435.

Quantitative Wassermann Test.—Cestan and Riser compared the intensity of the Wassermann reaction in the spinal fluid in eighty-two cases of general paresis or meningitis, tabes or cerebral arteritis on repeated application of the test to the spinal fluid. In all of these the Wassermann reaction was sometimes very pronounced, so that it is impossible to base the differential diagnosis of syphilitic disease of the nervous system on the intensity of the response to the test.

The Dyspnea with Heart plus Kidney Disease.—Examination of respiratory organs, heart and kidneys in cases of paroxysmal dyspnea classifies it as (1) acute pulmonary edema, which is exceedingly rare; (2) congestion, with edema at the base, which is very common; (3) acute exacerbation of infectious processes in the bronchi and alveoli with sclerosis of the lungs and impending insufficiency of the right heart; (4) cardiorenal asthma. In the latter group there is always a history of infections and intoxications damaging the cardio-arterial and renal system. Syphilis takes the lead here. There is also a "pulmonary past," and a recent seasonal infection. The sclerosis in the lungs, the old bronchitis, or the tendency to emphysema is the irritating thorn inducing a focus of lesser resistance in this cardiorenal asthma, the same as in true asthma. This thorn localizes the reaction to the colloidoclastic shock in the respiratory tract, instead of the skin or nervous system being the predisposed soil as when urticaria or migraine develop. In treatment of cardiorenal asthma, venesection is the one remarkably effectual remedy; it should be abundant, and there should be no hesitation in repeating it. It should be supplemented with absolute repose, an energetic purge and restriction to "lactosed water" alone, followed by a milk diet, keeping the ration low. After the attack is over, means to reduce the blood pressure, with theobromin and restriction of salt, should be supplemented with stimulants for the heart at the slightest sign of failing compensation. Iodid, datura and belladonna have little if any action in true cardiorenal asthma, but epinephrin has a decided sedative action in the paroxysm of suffocation. It should always be followed by venesection which is the sovereign remedy for asthma from heart disease.

White Dermography.—Sézary concludes from analysis of the so-called suprarenal white line in 500 subjects that it is a physiologic phenomenon, and has nothing to do with insufficiency of the suprarenals. The variability in different persons depends merely on the tonus of the smooth muscle fibers at the moment.

Bubonic Plague.—This study of the cases of plague observed at Paris in June, 1920, and since says that although the epidemic seems to be extinct, yet isolated cases are still being encountered. The antiserum is more effectual the earlier it is given. The doses should be large and given by the vein. Joltrain and de Gennes reiterate that the plague once imported into a locality never disappears again completely. Vaccination is the most effectual means of prophylaxis. Two injections at five or eight days' interval usually immunize an infant completely for from six months to a year, even in the midst of an epidemic. "Otherwise" they add, "the prophylaxis of plague encounters often insurmountable obstacles. The declaration of cases of plague is a matter that goes beyond the medical domain, and may become an important question of international policy. The most essential element is the destruction of the rats, but this is easier to order than to carry out."

The Schick Reaction.—Armand-Delille endorses the value of the Schick reaction in the fight against diphtheria, and advises following the example of the Americans in respect to utilizing it as a guide for immunizing both children and adults. In conclusion, he says, "I cannot cite the extensive bibliography on the subject. The Quarterly Cumulative Index, published by the American Medical Association, can be consulted for this. . . ."

Archives Franco-Belges de Chirurgie, Brussels

March, 1922, **25**, No. 6

*Colectomy for Megacolon. L. Sencert and R. Simon.—p. 493.
Congenital Megacolon. P. Woringer.—p. 502.
*To Insure Continence of Artificial Anus. A. Jentzer.—p. 505.
*Perforation of Gastroduodenal Ulcers. L. Courty.—p. 508.
*Diverticulum in Esophagus. L. van den Wildenberg.—p. 526.
Pyocyaneus Vaccine Treatment. Favreul and Fortineau.—p. 543.
*Traumatic Epilepsy. Marquis and Roger.—p. 560.
*Spinal Anesthesia. Caraven.—p. 567.
Strangulated Diaphragmatic Hernia. Le Jemtel.—p. 570.
Polyadenomatosis of Large Intestine. Gruget.—p. 573.

Colectomy for Megacolon.—The man of 54 and the woman of 38 were both cured of all disturbances by the operation.

To Insure Continence with Artificial Anus.—Jentzer emphasizes the functional adaptation which transforms the colostomy in time into a continent, sphincter-like opening. The microscope in a case described revealed the hypertrophy of the different layers forming the artificial anus, which had been perfectly continent for five years. He suggests that this hypertrophy might be accelerated and intensified by electric treatment. The abdominal muscles, under the influence of the electricity, act like a curtain to close the opening, while the smooth muscle of the intestine can be felt contracting around the finger. Systematic electric treatment would thus have a tendency to hasten the functional adaptation of the new anus.

Perforation of Gastroduodenal Ulcers.—Courty bases the diagnosis on the sudden atrocious pain, shock, the stiffening of the abdominal wall, and a history of dyspeptic disturbances, almost regardless of the location of the pain. The maximum may not be felt in the epigastrium, and the pain may spread to the right iliac fossa. It is then often mistaken for appendicitis. Success depends on the promptness of the intervention; the literature shows 90 per cent. cured when the operation followed within eight hours, before peritonitis had become installed.

Diverticula in Pharynx and Esophagus.—In seven cases Wildenberg fastened the tip of the very large diverticulum higher than its mouth, thus emptying the bag of its contents and preventing its filling up again. This alone sufficed to cure in four cases. In three others the diverticulum was excised later. One patient was a man of 56 who had had disturbance from this cause for twenty-one years. The diverticulum was the largest on record, Wildenberg says, but the man was completely cured by turning the base upward and suturing it under the skin in the neck, with excision three months later. By this time the man's weight had increased from 58 to 78 kg. The article is profusely illustrated.

Indications for Operative Treatment of Traumatic Epilepsy.—Marquis and Roger remark that all agree on the necessity for operative intervention when there is a subdural hematoma, a superficial foreign body, or a bone growth or plate pressing on the brain. They warn against operating when the foreign body is deep in the brain. Relief may be obtained by lumbar puncture or application of ice to the head. Iodid ionization to act on the sclerosis, and calcium to soothe the nervous system may be useful adjuvants.

Spinal Anesthesia.—Caraven has injected procain plus caffein in sixty cases for intraspinal anesthesia and states that the by-effects were numerous although he never had a serious mishap. The drop in arterial pressure was constant.

Bulletin de l'Académie de Médecine, Paris

June 13, 1922, **87**, No. 24

*Uterine Fibromas. Témoin.—p. 636.
*Radiotherapy of Hay Fever. Barcat and Balzer.—p. 642.
*Diuresis in Failing Compensation. G. Etienne and M. Verain.—p. 646.
*The Individual Health Card. O. Laurent.—p. 649.
The Thoracic Duct in Filariasis. L. Nattan-Larrier.—p. 651.
Epithelioma in a Goiter. A. Pettit.—p. 654.
Auscultation Symptom of Hydatid Cyst in Liver. Chavannaz.—p. 656.
Bismuth in Treatment of Syphilis. H. Grenet et al.—p. 658.

Uterine Fibromas.—Témoin has made a practice since before 1896 of enucleating fibromas instead of removing the fibromatous uterus unless the organ was so pathologic that gestation was out of the question. The results have always been extremely satisfactory, and childbearing later has not been interfered with. In four of five cases the fibroma was enucleated without interfering with the existing pregnancy.

Radiotherapy of Hay-Fever.—Barcat reports excellent results in ten cases of hay-fever in which he applied very small doses of the radium or roentgen rays to the eyes and nasal mucosa once a week. The symptoms all subsided in a few days up to three weeks, and some of the patients had no recurrence during the succeeding hay-fever seasons. The others have had only much attenuated and less numerous attacks. His first three cases date from 1913.

Diuresis in Failing Compensation.—Etienne and Verain call attention to the way in which the kidneys work extra hard when the heart begins to fail. This compensating hyperfunctioning of the kidneys at the beginning of failing compensation in cardiovascular functioning is reflected in the Ambard constant before the change in conditions can be detected in any other way. In fifty-nine afebrile cases in which the Ambard constant was below 0.070, there was heart disease in thirty-seven. In five of the cases it was even below 0.040. Only sound kidneys can do this extra work and as soon as the kidneys show signs of failing, the Ambard constant rises.

The Individual Health Card.—Laurent urges the organization of what, he says, might be called the Institut de la Prévoyance Médicale, for periodical medical examination of the well after 40. His plan includes regional centers, an annual fee, and an individual card record. It would amount in time to a vast practical medical encyclopedia, he says, along the lines of the Life Extension Institute in the United States.

June 20, 1922, **87**, No. 25

Uterine Fibromas. Béclère.—p. 664.
*Prehistoric Splint for Fractured Forearm. Peyneau.—p. 668.
Prophylaxis of Malta Fever. H. Vincent.—p. 672.
*Resection of Nerves of Stomach. A. Latarjet.—p. 681.
Transfusion of Blood. V. Pauchet.—p. 692.
*Passage of Nematodes Through Skin. Neveu-Lemaire.—p. 697.

Prehistoric Splint.—The baked clay apparatus was found in a collection of prehistoric articles belonging to the first iron age, found in southern France. It is 15 cm. long by 5 wide and 5 high, and bears the perfect imprint of the forearm and hand as if it were a splint for immobilization of the fractured right arm.

Resection of Stomach Nerves.—Latarjet's experiments on dogs apparently confirmed that the nerves of the stomach can be totally or partially resected without harm, and that this reduces the tonus and the force of the peristalsis and also the amount of hydrochloric acid secreted. It took seven hours for the evacuation of the stomach after the denervation, when two hours sufficed before. On the basis of these data he resected the nerves of the stomach in 6 cases of tabetic gastric crises; in 6 of gastric or duodenal ulcers and in 10 of stomach disturbances without apparent lesions. He supplemented the denervation with a gastro-enterostomy in some of the total 24 cases. In the 6 tabetic cases the pains and vomiting were much improved in 2 cases; in another patient no effect was apparent; in another there was improvement, but only temporary. The fifth patient was completely cured; there has been no return of the gastric crises during the six months since. The cure was complete also in the sixth case; to date both the gastric crises and the morphin addiction are apparently cured. The 6 gastric ulcer patients all consider themselves cured; the denervation had been supplemented with gastro-enterostomy. In the 10 cases of stomach disturbances without apparent lesions, one woman was cured by the denervation of pains in the stomach and vomiting, after years of suffering. No benefit had followed appendicectomy and fixation of the kidney, but there has been no return of the stomach symptoms since the denervation. The success is equally striking in a man of 53 with pains in the stomach for twenty years. In 2 other cases the condition had not been improved by a gastro-enterostomy, but the denervation one and six years later banished the pains. In 4 others a gastro-enterostomy was done at the same time as the nerves were resected, and the cure was prompt and immediate. Another one in this group was cured but soon succumbed to an intercurrent infectious disease. The tenth patient in this group was tuberculous and had intense gastralgia. No benefit was derived from the denervation, nor from a gastro-enterostomy later. Only one or two in the total 24 patients were mentally abnormal. The nerves of the stomach, he says, are arranged in three pedicles, and he resects each one, as he explains.

Penetration of Nematodes Through the Skin.—Neveu-Lemaire refers to recent research which has confirmed the passage through the skin of the larvae of ten nematode parasites of animals besides those of man. It has also been established that these parasites of animals may get into the skin of man and induce a skin affection although they die off before they invade other tissue. This "ground itch" may occur in animals, likewise, from human parasites entering the skin, although they do not survive to infest other tissues.

Bulletin Médical, Paris

July 1, 1922, **36**, No. 27

Vagosympathetic Hemoclasis and Dystonia. G. Drouet.—p. 549.
Indications for Ouabain. E. Desesquelle.—p. 550.

July 8, 1922, **36**, No. 28

The Contemporaneous Evolution of Surgery. Forgue.—p. 563.

Bulletins de la Société Médicale des Hôpitaux, Paris

June 2, 1922. **46**, No. 19

*Bleeding Time Under Arsphenamin. A. Sézary.—p. 862.
*Autovaccine Therapy of Gonococcemia. J. Tapie and M. Riser.—p. 863.
*Anaphylaxis to Mercury. Gougerot and Blamoutier.—pp. 868 and 873.
Ulcer in Ileum in Pneumonia with Uremia. Lemierre and Lévesque.—p. 877.
*Antibodies in Tuberculosis. P. Armand-Delille et al.—p. 883.
*Splenopneumonia Reaction. P. F. Armand-Delille et al.—p. 886.
Myopthy with Inherited Syphilis. G. Milian and Lelong.—p. 893.

Change in Bleeding Time Under Arsphenamin.—Sézary noticed in three cases that the bleeding time became prolonged under the influence of a French arsphenamin. One of these patients was not seen again, but both of the other two soon developed symptoms showing progressive intolerance of the drug. The tendency to hemorrhage evidenced by the lengthening of the bleeding time suggests injury of the liver from the medication, and warns of toxic complications.

Gonococcus Septicemia.—The intermittent fever persisted during ten months, unmodified by treatment with colloidal metals, antimeningococcus serum, autohemotherapy and quinine. But it was arrested at once with an autogenous vaccine. The robust man of 35 had never presented any skin or joint or viscera complications, and the diplococcus found in the blood could not be cultivated, but the first onset of the fever had been during the decline of acute gonorrhea with orchitis. Bloch and Sergent have each reported a similar cure in a case of meningococcus sepsis and gonococcus sepsis. The autogenous vaccine may induce a curative shock without specific action.

Mercurial Erythrodermia.—The intense desquamating eruption in the man of 67 developed on resuming mercurial treatment by the mouth after seven years' suspension. He had never displayed any intolerance for mercury during the previous courses of mercurial treatment. The symptoms of the anaphylaxis to mercury developed after a very small amount of mercury had been taken. The pruritus became evident the third day, and the eruption the fifth. The tenth day it became intense, but there were none of the usual symptoms of mercurial poisoning. The liver was large and tender, with urobilinuria, alimentary glycosuria and the hemoclastic crisis. The eruption could be induced and banished at will by giving a little mercury by the mouth. Gougerot and Blamoutier had no opportunity to attempt desensitization, but they accomplished this in a case of erythrodermia from intolerance to arsphenamin, giving the drug in small doses by the mouth at first and then subcutaneously.

Anaphylaxis to Mercury.—Gougerot and Blamoutier ascribe to the mercury that was being applied to the scalp, or as a mouth wash, or by subcutaneous injections, the severe dermatitis, edema of the skin and mucous membranes, and diarrhea with hemorrhage observed in a number of cases described. In other cases there were severe local reactions to the injections of mercury. All such cases seem to offer a prospect of successful desensitization whether the disturbances occurred on first taking the drug (idiosyncrasy) or the intolerance had developed later (anaphylaxis). The question now is, Will a preliminary small dose protect against them? Certain recent experiences seem to indicate this.

Antibodies in Tuberculous Serum.—Repeated examination of 177 tuberculous subjects showed that the antibody content of the blood serum fluctuated at times without known cause. It is no criterion for the diagnosis or prognosis. This statement by Armand-Delille is corroborated by Rist.

Splenopneumonia Reactions in Children.—Massive condensation of part or all of the lung, with the lung casting a total shadow, was observed in a number of children. Three typical cases are described. It proved impossible to induce pneumothorax. Comby remarked in connection with these cases that although a tuberculous origin seems unmistakable, the prognosis is not grave. The children recover in time without even bronchiectasia. A pneumothorax can do only harm, and the attempt always fails.

Journal de Médecine de Lyon

July 5, 1922, **3**, No. 60

Acute Infectious Edema of the Larynx. J. Garel and A. Gignoux.—p. 381.
Delirium and Psychoses in Infectious Diseases. A. Porot.—p. 391.
Sympatheticotony and Vagotony. A. Mazeran.—p. 399.

Journal de Radiologie, Paris

June, 1922, **6**, No. 6

Radiography of the Base of the Skull. E. J. Hirtz.—p. 253.
Deep Radiotherapy. Nadaud.—p. 264. Cont'n.
Action of Galvanic Current on Healthy and Diseased Tissues. Challiol and Laquerrière.—p. 271.
Radiography in Dentistry. H. J. Harwood and A. Comte.—p. 276.
*Supradiaphragmatic Inversion of Stomach. Brun et al.—p. 278.
Multilocular Cyst in Tibia. Yvernault.—p. 281.
Bilateral Fracture of Humerus. Ravanier and Laquerrière.—p. 283.
Iodid of Potassium Ionization in Furunculosis. Laquerrière.—p. 284.

Congenital Supradiaphragmatic Inversion of Stomach.—In the case reported by Brun and his co-workers radiography showed that the stomach of the child of 11 was entirely above the right diaphragm. The small intestine, except at its proximal extremity, the cecum and colon were in a normal position. The case is interesting from the standpoint of radiographic diagnosis as the difficulty was in ascertaining if the stomach was above or under the diaphragm. The diagnosis was confirmed by the Trendelenburg position.

Journal d'Urologie, Paris

April, 1922, **13**, No. 4

*Bilateral Polycystic Kidney. G. Marion.—p. 241.
*Rectum Opening in Bladder. V. Cristol.—p. 243.
*Urethroperineal Urine Fistulas. Fonseca.—p. 249.
Balanic Urine Abscess. Reynard and Juvin.—p. 259.
Bar in Bladder Masking Right Meatus. R. H. Kummer.—p. 263.

Bilateral Polycystic Kidneys.—Marion peels off the surface of the kidney by cutting with scissors the protruding wall of the superficial cysts. The capsule is too closely adherent in these cases for decapsulation. He has applied this *pelage* in three cases and with the best results. It relieved the intense pains completely, and one of the patients returned three years later, asking to have the same operation done on the other kidney, as this second kidney was now causing pain. The woman succumbed to postoperative pneumonia after this second operation. Another woman has been under observation for fourteen years. The pains in the right kidney were cured completely in 1908 by this operation. Four years later the left kidney required it, and the cure was complete for nine years. Then the pains returned in the left kidney, and the patient asked for operative relief anew. This kidney is very large. Conditions have improved under repose, and he has deferred operating. Functional tests show little change in the work of the kidneys during the last ten years, with satisfactory output of urea and chlorids. In his third case the decortication cured the hematuria for which the operation was done.

Rectum Opening in Bladder.—Cristol reports the case of a new-born infant on whom he operated by the perineal route to correct this malformation. He did not attempt to suture the gap left in the bladder and in the rectum. The raw surface of the rectum closed the small hole in the bladder, and it healed spontaneously.

Urethroperineal Urine Fistulas.—The experience and observation of Fonseca of Rio de Janeiro have convinced him, he says, that when a stricture of the male urethra is a factor in a urine abscess or cooperitis, almost invariably it heals without a persisting fistula. Under other conditions a long persisting and often permanent fistula is the rule. This is the rule also in all cases of whatever origin when the lesion breaks through the skin, either spontaneously or from inadequate intervention, or acute gonorrhea, that has not been properly treated. He describes a group of thirteen cases which show the different outlook in the stricture and the infection cases. They impress the necessity for radical measures from the start, partial resection of the urethra, in all infected cases outside of acute gonorrhea, when the diagnosis is once made, instead of wasting time and efforts on curetting, cauterization, etc.

Presse Médicale, Paris

June 10, 1922, **30**, No. 46

*Prophylaxis of Measles. P. Nobécourt and J. Paraf.—p. 497.
*Radium Treatment of the Esophagus. R. Bensaude and P. Hillemand.—p. 498.
Influenza Bacillus in Influenza. S. Livierato.—p. 500.
Anticoagulants. J. P. Langlois and L. Binet.—p. 501.

Serum in Prophylaxis of Measles.—Nobécourt relates that none of the twenty children inoculated with convalescents' serum within six days of the exposure to measles developed the disease, while all the controls did. The serum was taken from two adults and one child, between the eighteenth and the twenty-second days after the onset of typical measles.

Thread Guide for Radium Treatment of the Esophagus.—Bensaude and Hillemand apply the Sippy thread method for radium treatment of the esophagus, as they describe with illustrations. Under the radium the esophagus became permeable and the bleeding and the fetid secretion from the cancer were arrested. The patient gains in weight and feels as if he were cured. Survivals of two, three and even four years (Guisez) have been known, and Holz claims a complete cure in one case. The guiding thread does away with fear of the radium catheter going astray or perforating the wall.

July 1, 1922, **30**, No. 52

*Blood Test of Liver Functioning. P. Emile-Weil et al.—p. 553.
*Gangrene from Carbon Monoxid Poisoning. A. Girault and A. Richard.—p. 556.
Phenobarbital in Treatment of Epilepsy. J. Mirc.—p. 557.
Danger of Camphor by the Vein. L. Cheinisse.—p. 558.

Blood Test of Liver Disease.—Whenever the liver is seriously pathologic the blood is profoundly altered, and coagulation does not occur as in normal conditions. Weil and his co-workers list seven various abnormal features of coagulation as determined in a large number of cases of liver disease. They call this the *syndrome hémocrasique des hépatiques*, and state that it can be estimated by the bleeding time. This is exaggerated and irregular with liver disease, and this is one of the earliest signs of any infection or intoxication modifying liver functioning. The blood coagulates less readily, there is less retraction of the clot, and the clot crumbles or is redissolved—all of which is manifest in the changes in the bleeding time. The curve of repeated bleeding-time tests shows the great spontaneous irregularity, fasting, especially in females, and above all when there is a tendency to hemorrhage. The curve of the bleeding time can be instructively supplemented by determining the fibrinogen content, refraction, and the viscosity of the plasma, but even without these, the bleeding time curve alone will throw light on important functions of the liver hitherto left unexplored in the clinic.

Gangrene Following Carbon Monoxid Poisoning.—The poisoning had been from a charcoal stove, and patches of gangrene developed at points where there had been compression. Another feature of the case was the total retention of urine and feces. The paresis of the bladder allowed the accumulation of urine to such an extent that the diagnosis when the woman entered the hospital had been abdominal tumor. There was also tardy albuminuria. The slowness with which these disturbances developed and the long delay before they righted themselves, confirmed the serious damage from the protracted anoxemia.

Progrès Médical, Paris

June 24, 1922, **37**, No. 25

*Exophthalmic Goiter Syndrome.. C. Achard.—p. 289. Conc'n.
Radiotherapy and Radium Therapy. R. Proust.—p. 292.

Exophthalmic Goiter Syndrome.—This is the last of a series of articles by Achard. In conclusion he states that we must distinguish between the mild form and the grave form of exophthalmic goiter. Mild forms must be treated by physical and mental hygiene, and by climatotherapy, hydrotherapy, electrotherapy, and simple medication applicable to subjective disorders and the general condition. Grave forms require a more active treatment. Radiotherapy is valuable for soft goiter or goiter of recent appearance. If it fails, surgery is indicated, and an operation in stages, ligature of arteries combined with thyroidectomy, entails the least risk. The treatment of the cause of the disease should be considered. Syphilis may be incriminated, and we must always look for it and treat it if suspected. Sometimes tuberculous thyroiditis or acute rheumatism may be the cause of the exophthalmic goiter. The latter is a combination of symptoms, a syndrome, rather than a true disease, that is, traceable to a special cause. We must distinguish between the symptoms belonging directly to the exophthalmic syndrome, and associated disorders not directly due to it. Glycolytic insufficiency is one of the latter. When it is found with the exophthalmic goiter syndrome, it is connected with its ordinary causes, and has no more connection with the hyperthyroidism than it has with hypothyroidism when noted in myxedema. The same may be said of other endocrine disturbances which may be found more or less frequently with exophthalmic goiter.

Revue de Médecine, Paris

May, 1922, **39**, No. 5

Anemia and Malaria. J. Rieux and G. Delater.—p. 257.
*Neuralgia of Abdominal Walls. W. Janowski.—p. 269.
Nonprotein Nitrogen in Chronic Uremic Nephritis. P. Siguret.—p. 289.
*Biologic Thought in France. R.Mourgue.—p. 296.
Present Status of Tuberculosis. H. Godlewski.—p. 311.

Neuralgia of the Abdominal Walls.—Janowski published in 1906 a study of intercostal neuralgia based on 440 cases. His experience later has confirmed the remarkable way in which intercostal neuralgia may simulate many affections of internal organs. He here presents a similar study of neuralgia in the abdominal wall, and the number of internal affections which it may simulate is even more imposing and puzzling. He reviews the whole list, and relates many cases of what seemed to be grave organic disease of long standing cured by measures to relieve the neuralgia, blisters to the four or five tender points. These painful points vary in location; they may be on the anterior or posterior axillary line when simulating gallstone mischief. The abdominal wall was sensitive in his 10 cases simulating stomach disease, and the tender points were remote from the stomach. The nausea and vomiting in 2 of the cases came on while the women were dressing, fasting. In 7 in this group, pressure on these tender points induced salivation. In 12 cases there had been pains and pyrosis for months. All were cured with a cantharides plaster (mouche de Milan) applied to the tender points. In 8 cases the pains seemed to indicate a floating kidney. In these cases the painful points were on the mammary line, two or three fingerbreadths above the umbilicus, or in the eighth or ninth intercostal space. In 6 cases kidney stones had been diagnosed; the painful points were on the mammary line above the umbilicus and on the anterior axillary line. The skin of the abdomen should be taken up in folds from the costal arch across the epigastrium, to detect any extra tenderness. This shows that the painful points are in the skin alone, the muscles, etc., responding with normal sensations on palpation. The cure of the painful points under a blister may be followed by the disappearance of symptoms which have been masquerading as chronic parametritis, appendicitis, enteritis, etc. He advises to palpate folds of the skin of the abdomen whenever any patient complains of pains and says that the abdominal wall is itself extremely tender. The neuralgia of the wall may accompany actual disease of organs, but great relief is realized by curing the neuralgia and thus reducing the clinical picture to this extent.

Currents of Biologic Thought in France.—Mourgue's historical sketch refers to the beginning of the nineteenth century. He quotes in particular R. d'Amador's views on system in medicine.

Schweizerische medizinische Wochenschrift, Basel

July 6, 1922, **52**, No. 27

Experimental Rotation Tests of Semicircular Canals. F. Rohrer.—p. 669.
Cocain: History and Clinical Import. P. Wolfer.—p. 674.
*Indications for Treatment of Myomas. W. Fürst.—p. 679.
Roentgen Ray Table. A. Steinegger.—p. 682.

Treatment of Uterine Myomas.—Fürst emphasizes that women must be reexamined after radiotherapy of uterine myomas. Especially those who have not had microscopic examination of the growths. Radiotherapy should be reserved for the tumors which it can probably cure completely. To decide this may require dilatation of the cervix, palpation of the uterine cavity, and microscopic revision of the mucosa, or prolonged observation of the course.

July 13, 1922, **52**, No. 28

Sanatoriums and Droplet Infection. C. Flügge.—p. 689.
*Biologic Activators. K. Kottmann.—p. 695.
Cultivation of Tissue in the Test Tube. Busse.—p. 701.
Pituitary Treatment of Dwarf Growth. E. Bleuler.—p. 703.
Bismuth Treatment of Syphilis. P. Wolfer.—p. 703.

Biologic Activators.—Kottmann's photoserologic test is made with a colloidal silver salt in the serum. This is exposed to the light and a photographic developer added. The serum then turns brown, as if it had been "developed" like a photograph. The serum responds to the test differently when it has been previously treated with organ tissue, and especially with tissue from a cancerous organ. The change in tint is notably retarded. A similar difference was evident between serum from normal persons and those with cancer. Vegetable tissue has a similar retarding action. He reasoned that there must be some substance in all these tissues that modifies the colloidal state of the serum. The amounts required are minimal, and his research indicates that the substance in question is a kind of vitamin. Cod liver oil has the same activating action. These biologic activators or vitamins may be of endogenous or exogenous origin. They can be recognized by their retarding action on the photoserologic test response, as well as by MacCollum's feeding tests and Glanzmann's experiments on animals. Kottmann remarks in conclusion that we also have to reckon with antivitamins, which act as moderators and maintain the balance.

Policlinico, Rome

June 5, 1922, **29**, No. 23

*Quinidin in Auricular Fibrillation. A. Sebastiani.—p. 741.
*Surgical Treatment of Epithelioma on Hand. A. Manna.—p. 753.
Rancid Butter. A. Filippini.—p. 755.

Quinidin in Auricular Fibrillation.—Sebastiani treated ten patients with auricular fibrillation with quinidin, after digitalis had helped to restore compensation, and in six of the patients normal rhythm was restored. In the four others the fibrillation changed to flutter. One patient had a return of the fibrillation on two occasions, but each time it yielded promptly on resumption of the quinidin. One man of 58 had flutter supersede the fibrillation the second day, but the third day the rhythm became normal. At the same time as this happened, left hemiplegia suddenly developed. Evidently some small clot was dislodged as the auricle began to beat normally, and it was swept into some vessel in the brain. The hemiplegia began to improve the same day. and by the end of the week nothing was left of it but a slight facial paresis. The heart beat is still normal and the man feels well.

Epithelioma on Hand.—The cancer in Manna's case embraced the thumb and adjacent back of the hand, and the glands in the axilla and above the elbow were already involved. He removed these glands before attacking the primary tumor four days later. It is his routine practice to operate on the cancerous glands first. This prevents further metastasis, and the patient may not consent to an operation on the metastases after the primary growth is once removed. The tumor had been stationary for four years as an apparently harmless, very small lump, but then it was excised. The reddish scar then gradually grew larger, and at the sixth month it was cauterized with some chemical, probably sulphuric acid, applied every second day for a month. From the first application of the caustic the glands swelled and the tumor ulcerated. It continued to proliferate rapidly and was soon a large cancer.

June 12, 1922, **29**, No. 24

Chronic Constipation from Surgical Standpoint. M. Bufalini and C. Romiti.—p. 773.
Rat-Bite Fever in Woman. A. Ruggiero.—p. 781.
Autoserotherapy in Pulmonary Tuberculosis. G. Ferrari.—p. 786.

June 15, 1922, **29**, Surgical Section No. 6

*Telangiectatic Pedunculated Granuloma. G. Anzilotti.—p. 301.
*Repeated Spinal Anesthesia in Same Subject. I. di Pace.—p. 311.
Fibroma of Ear. T. Laurenti.—p. 330.
*Surgery of Papilla of Vater. O. Tenani.—p. 333. Conc'n.
Present Status of Renal Tuberculosis. R. Alessandri.—p. 348. Conc'n.

Pseudobotryomycosis.—Anzilotti has encountered fifteen cases of what seemed to be botryomycosis, but it proved to be merely pedunculated granulomas with a tendency to telangiectasis. The tumor was on the hand, lip, chin, tongue or scalp, and some scratch or bite or other injury had preceded its development in all but one case. There has been no recurrence in any instance since the extirpation of the tumors.

Repeated Spinal Anesthesia.—The five cases reported by Di Pace seem to establish that when an attempt to induce spinal anesthesia has failed on account of the subject's lack of receptivity, the anesthesia will run the same course on another occasion, if the attempt is made again after an interval of days, weeks or years. Whatever the course the first time, the repetition will duplicate it.

Surgery of the Papilla of Vater.—Tenani summarizes briefly 14 cases of papillectomy on record and 11 of papillectomy plus resection of the duodenum. Only 4 durable cures were realized in the two groups. He reviews other operations involving the duodenum and pancreas, and discusses the management of the stump of the pancreas. Its secretion has to be given an outlet; in a personal case, after a preliminary gastro-enterostomy, he sutured the stump of the pancreas to open into the intestine. Kausch has also reported a case in which this method was applied. The bile duct and the pancreatic duct were both implanted in the duodenum, but separately. Tenani's patient was permanently cured, while in Kausch's case obstruction of the bile duct proved fatal the twenty-third month. Necropsy showed that there was no metastasis, and the operation had thus been a success. The aim in operating should be to utilize gravity as much as possible to insure the proper flow of bile, etc., and impede reflux of food into, or ascending infection of the bile passages.

Archivos Españoles de Pediatría, Madrid

April, 1922, **6**, No. 4

*Vaccine Therapy of Whooping Cough. Martín González-Alvarez.—p. 193.
Aortic Insufficiency of Rheumatismal Origin in Children. A. Armand Ugón.—p. 205.
*Autovaccine Treatment of Purulent Urinary Disease in Children. A. R. Lozano.—p. 213.

Vaccine Therapy of Whooping Cough.—The vaccine used in the 269 cases was Ferrán's antialfa vaccine. In the last series of 242 cases, 75 were cured, 69 improved; no effect was apparent in 50, and the vaccine was suspended in 8 as complications had developed. From three to five injections were made in three or five days, and the cure was complete in about two weeks as a rule.

Vaccine Therapy in Purulent Urinary Disease in Children.—Lozano calls attention to the prompt cure in five new cases of pyelonephritis or pyelocystitis. All were cured except one child whose pyelocystitis was of several months' standing. The age ranged from 4 months to 12 years. He says that the routine practice should be urinary antiseptics first, followed systematically with the autogenous vaccine, with or without further use of the chemical antiseptics.

Prensa Médica Argentina, Buenos Aires

June 10, 1922, **9**, No. 1

*Sequelae of Epidemic Encephalitis. G. Aráoz Alfaro.—p. 1.
*Reflex Cardiospasm from Gallstones. C. Bonorino Udaondo and Onofre Catalano.—p. 6.
*Progressive Toxic Deafness. E. V. Segura.—p. 8.
*Recklinghausen's Disease. Mamerto Acuña and F. Bazán.—p. 12.
Formula for Healing of Wounds. G. Bosch Arana.—p. 19.
Serum Refractometry in the Pregnant. S. Mazza and D. Iraeta.—p. 24.
The Hemoclastic Crisis in Children. F. Bazán.—p. 26. Cont'd.
Syphilis and the Cerebrospinal Fluid. Nonne.—p. 33. Cont'd.

Sequelae of Epidemic Encephalitis.—In one of Aráoz Alfaro's three cases the parkinsonism and clonic spasms are rather the prolongation of the disease than sequelae. In the child of 10 the mind has become impaired, in addition to the motor symptoms. This patient presents surprising facility in certain rapid, vigorous movements; this contrasts remarkably with the parkinsonian rigidity and motor amnesia at all other times. In the two adults there is a tendency to catatonia besides the parkinsonian rigidity and intentional tremor. The condition seemed to be improving in the second year but since has grown progressively worse.

Reflex Cardiospasm.—The man of 36 had had two attacks of gallstone colic within a few years, but was otherwise well until early in 1920 when transient cardiospasm kept returning. This intermittent and progressive cardiospasm persisted for several months, with other signs of vagotonia. A return of the gallstone colic compelled cholecystectomy, after which there was no further tendency to cardiospasm. Buettner has reported a case in which, along with spasm of the pylorus and middle of the stomach, there was occasional cardiospasm. These visceral or general reflex reactions to cholelithiasis seem to be more common in subjects with thyroid deficiency, but the endocrine derangement is liable to mask the causal disease. In the present case there were no signs of endocrine disturbance.

Toxic Deafness.—Segura remarks that any and every intoxication to which the organism is liable may induce progressive deafness, and may entail any kind of pathologic anatomic changes. In certain persons and families the ear seems more vulnerable than in others, and we should be on the alert to ward off damage from toxic injury of any kind. He is confident that much more than is generally supposed can be accomplished by wise guidance of the predisposed, with exercises to train and improve the hearing, and treatment with radioactive waters or radium salts to stimulate metabolism in general and the emunctories. He adds that progressive deafness is growing more and more frequent every day, and he ascribes this to the influence of modern civilized life with its sluggish elimination of waste.

Recklinghausen's Disease.—The girl of 12 with inherited syphilis presented the complete form of Recklinghausen's disease; the boy of 11 had only the spots on the skin and the typical apathy. and backward mental development of the disease, unable to remember his own name.

Revista Médica del Uruguay, Montevideo

June, 1922, **25**, No. 6

*Masked Peritonitis. A. Canzani.—p. 473.
*Normal Plus Ectopic Pregnancy. C. P. Colistro.—p. 476.
Case of Appendicitis. R. M. del Campo.—p. 482.
*Syphilis of the Tonsil.' J. May.—p. 485.

Masked Peritonitis.—In the four obstetric cases described by Canzani, the women died with nothing to suggest peritonitis, but necropsy revealed purulent peritonitis. Since these experiences, he makes a point of puncturing the pouch of Douglas at the slightest suspicion of trouble. Capillary puncture is entirely harmless, but it discloses any tendency to peritonitis. Although the knowledge of the peritonitis in these cases could not have averted the fatal outcome, in some conditions active treatment might prove effectual.

Simultaneous Normal and Extra-Uterine Pregnancy.—Colistro remarks that in thirty-five of seventy-three cases of this dual pregnancy, the uterine pregnancy continued to term unmodified by the laparotomy required for the ectopic. In two personally observed cases, uterine abortion had occurred at the second or third month, and the continuance of hemorrhage and other symptoms was explained by the laparotomy disclosing the tubal gestation. In one woman the right tube was involved although the pains had been in the left side. She had lost much blood at the uterine abortion, and she died soon after the laparotomy. The other extra-uterine pregnancy was suspected from the signs of internal hemorrhage although only a few days had elapsed since the uterine abortion. In another case a fibroma in the pregnant uterus had been diagnosed, but the operation showed merely that the ovum was embedded in one angle of the organ.

Syphilis of the Tonsil.—May relates that the man's "sore throat" had been ascribed to diphtheria and been given antitoxin treatment. No effect was apparent, and May differentiated syphilitic disease of the tonsil by the yellowish aspect and swelling, the pains in ankles and elbows, especially at night, the acute impairment in hearing, the swollen glands in the neck, and slight difficulty in breathing and swallowing. The lesion on one tonsil was evidently the primary sore; on the other tonsil, a secondary lesion. The pains in the bones subsided at once under specific treatment, and the tonsils cleared up promptly. In a total of 2,771 cases of syphilis in Foresti's service, the tonsils were the seat of the primary lesion in 11; in a later series of 1,885 cases, only in 3, including the one here described, and 3 other cases in private practice. He ascribes the infection to drinking glasses, as cases of eruptive syphilis were found in the environment.

Archiv für Kinderheilkunde, Stuttgart

July 1, 1922, **71**, No. 3

*Abscess-Forming Pneumonia in Infants. E. Nassau.—p. 161.
*Own Urine Test for Tuberculosis. A. Andreasch.—p. 169.
*Postdiphtheric Paralysis. H. Hünerberger.—p. 175.
*Prevalence of Tuberculosis in Children. K. Barchetti.—p. 180.
Experimental Research on Vitamin Free Diets. E. Weitbrecht.—p. 192.
The Age Incidence of Appendicitis. E. Schlossmann.—p. 208.

Abscess-Forming Pneumonia in Infants.—Nassau describes an epidemic of a rapidly fatal form of bronchopneumonia in thirteen artificially fed young infants in an institution. It was distinguished by the necropsy finding of cavities, from the size of a pinhead to that of a bean, scattered through the lungs. The negative bacteriologic findings and the appearance of the cases when influenza was not prevailing seem to exclude influenza, although in certain respects the disease recalls the grave influenza pneumonia of adults. The epidemic was followed by some cases of a fatal enteritis, with a long course suggesting typhoid, with lung manifestations. The broncho-enterocatarrh was generally fatal in the artificially fed.

Own Urine Reaction.—Andreasch found the Wildbolz test frequently but not always positive in active tuberculosis.

Postdiphtheric Paralysis.—In one of the two children described, the paresis of the right pterygoid muscle caused distortion of the lower jaw when the mouth was opened. The second and third branches of the trigeminal nerve had borne the brunt of the diphtheria toxin but they gradually recuperated. In the second child, the toxic action was pronounced in the muscles of the neck and back. The head could not be held up long, and the child could not raise himself when reclining. The extensive paralysis suggests acute poliomyelitis rather than diphtheria, but there is nothing otherwise to sustain this assumption, while the child had had mild diphtheria four weeks before.

Frequency of Tuberculosis in Children.—Barchetti reports systematic examination of children at Graz, a city of 150,000 inhabitants. The proportion responding positively to tuberculin tests was much smaller than in Vienna. The tuberculosis death rate in adults is also lower in Graz.

Archiv für klinische Chirurgie, Berlin

June 16, 1922, **120**, No. 1

*Cancer in the Rectum. E. E. Pribram.—p. 1.
Appendicitis Statistics. E. Seifert and E. Augustin.—p. 35.
Etiology of Ischemic Contracture. O. Beck.—p. 61.
*Decapsulation of Kidney. V. Hoffmann.—p. 84.
Inflammation Studied in the Capillaries. G. Magnus.—p. 96.
*Recurrence of Gastric Ulcer. H. Finsterer.—p. 111.
*Gastric Juice as Antiseptic. L. Schönbauer.—p. 125.
Case of Gas Cysts in Intestines. F. Schulte.—p. 138.
*Mediastinal Tumors. Sorge.—p. 150.
Transplantation of Skin Flaps. N. Takahashi and R. Miyata.—p. 170.

Cancer of the Rectum.—Pribram analyzes the ultimate outcome in 320 cases of rectal cancer. A radical operation was undertaken only in 43.4 per cent. Many of the patients related that they had been long treated for hemorrhoids, rectal fissure or intestinal catarrh before the nature of the disease had been recognized. In 3.5 per cent. a parent or brother or sister had died of cancer, and in 24 cases there had been preceding hemorrhoids, and in 9 other cases a fissure or fistula or polyps. Metastasis was common, mostly in liver (22 cases), mesentery (10), lungs (6), peritoneum, small intestine and sacrum (3 each), and glands (48). Of the 118 operated on before 1919, 22.8 per cent. have been permanently cured for three years. Omitting the operative fatalities, the proportion is 33.3 per cent. permanently cured. All types of cancer were represented in this cured group. The best ultimate outcome was realized with the Hochenegg method of drawing out the rectum; next to this, with resection and circular suture, and Rotter's flap plastic reenforcing of the suture. Colostomy allowed survival for several years in some of the inoperable cases; in others it improved conditions so that a radical operation could be undertaken. The combined abdominal-sacral method has the two grave dangers of operative shock and infection of the pelvic peritoneum. The latter may entail capillary thrombosis with slow necrosis of the bowel. A plastic operation with muscle to reconstruct the sphincter seldom succeeds; the use of a rubber ring, as Matti suggests, is better. Five pages of bibliography, titles set solid, are appended.

Experimental Study of Decapsulation of the Kidney.—Hoffmann's research on cats and rabbits demonstrated in every instance unmistakable benefit from the decapsulation after acute injuries of the kidneys. His colored plate shows the marked difference in favor of the decapsulated kidney after ligation of both ureters, for example.

Prophylaxis of Postoperative Peptic Ulcer.—Finsterer describes a number of cases which apparently sustain his claim that the best way to ward off postoperative peptic ulcers is by resecting as much as possible of the secreting surface of the stomach, removing 75 to 80 per cent. of the stomach. In two of his cases peptic ulcer developed notwithstanding resection of the pylorus and duodenum and the old ulcer. These patients were men in the forties, brothers, and both have been cured since the stomach was extensively resected, leaving only about a fifth of the organ.

Gastric Juice as an Antiseptic.—Schönbauer ascribes to the antiseptic action of the hydrochloric acid and pepsin the fact that while 70 per cent. died of his thirteen operative cases of perforation of a duodenal ulcer, only 19 per cent. died of the sixteen cases of perforated gastric ulcer. On these premises he experimented with dogs, injecting them with hydrochloric acid and pepsin after peritonitis had been induced. This is a physiologic antiseptic, and it does no harm when injected into the peritoneum or joints. No adhesions formed in up to two months in any of the animals. It was used in four clinical cases of peritonitis from perforation and in a case of empyema of the knee, with extremely good results. The proportions were 4.5 gm. of diluted hydrochloric acid and 1 gm. of synthetic pepsin (digesting power of 1:3,000), in 1,500 c.c. of distilled water. None of the dogs thus treated died, while all died that were treated with 3 per cent. hydrochloric acid alone or saline.

Mediastinal Tumor.—The symptoms from the large sarcoma in the upper mediastinum had puzzling periods of remission, during which the young man felt relieved from all his disturbances for the time being. Arsphenamin also displayed great efficacy in improving the condition temporarily. This drug seemed to soften up and destroy the older cells of the tumor and it melted down, materially relieving the symptoms. The younger cells, on the other hand, seemed to be stimulated to more rapid growth, as was evident in the early increase in size. Inoperable mediastinal tumors should therefore be treated with arsphenamin and roentgen exposures.

Beiträge zur klinischen Chirurgie, Tübingen

1922, **126**, No. 1. Kümmell Festschrift. First Half

*Angiospastic Conditions. J. Wieting.—p. 1.
Peptic Jejunal Ulcer After Gastro-Enterostomy. H. Brütt.—p. 41.
Acquired Syphilis of the Small Intestine. R. Schmidt.—p. 61.
Nine Thousand Appendicectomies. Marsch.—p. 67.
Tardy Hemorrhage After Appendicectomy. H. Mertens.—p. 80.
*Splenectomy with Cirrhosis of Liver: Two Cases. E. Birt.—p. 83.
Cancer of Bile Ducts and Papilla of Vater. H. Brütt.—p. 90.
Pseudorecurrence After Gallstone Operations. Treplin.—p. 108.
Acute Hemorrhagic Necrosis of Pancreas. K. P. Müller.—p. 113.
Correction of Urethral Defect by Ekehorn's Method. Sudeck.—p. 130.
*Fate of Joint Transplants in Fingers. F. Oehlecker.—p. 135.
*Bone and Joint Tuberculosis. A. Blencke.—p. 182.
*The Latest Treatment of Surgical Tuberculosis. H. Kümmell, Jr., and R. Paschen.—p. 206.

Spasm and Paralysis of Blood Vessels.—Wieting explains how the functioning of the blood vessels is highly independent. It is subject only to the vegetative nervous system, as this feels the effect of the suprarenal hormone which controls the giving off of carbon dioxid in the venous blood after receiving the oxygen in the arterial blood. This is a kind of respiration in the tissues, and it is synchronous with the heart vessel rhythm. He discusses the whole field of spastic and paralytic conditions in the vessels from exogenous or endogenous irritation or of mental origin, as in fright and joy. The segmental or the general reaction to the constricting or dilating influence varies in intensity in certain persons. It may amount to an actual angiospastic diathesis. Treatment differs according as the disturbances are the result of constriction or dilatation of the vessels of this or that region, and as the irritation comes from within or without. It is possible that we might influence this angiospastic diathesis (which includes Raynaud's disease, angina pectoris, intermittent claudication, angina abdominis, etc.) by removing a suprarenal, just as we remove part of the thyroid in treatment of exophthalmic goiter. By reducing the amount of functioning suprarenal tissue, we would reduce the tonus of the blood vessels, and thus might do away with the predisposition to spasmodic contraction, the spasmophilia. The opposite condition, tonus deficiency (which seems to be a factor in melancholia, etc.) should be combated by means to compensate the insufficient endocrine functioning, giving epinephrin or pituitary extract, etc., or by gland implants. He does not know of any attempt in this line to date. In acute disturbances, as after freezing, gymnastic exercises of the vessels, with alternating hot and cold baths, strengthen the musculature of the vessels and smooth the pathways for the regulating impulses, and clear away obstacles. Vasomotor paralysis, on the other hand, in an acute form is an important element in all collapse conditions.

Splenectomy with Cirrhosis of Liver.—In Birt's two cases the ascites and enlarged liver justified the operation, and the outcome was favorable in one of the two women. In the other the ascites returned. It might have been better to have supplemented the splenectomy with omentopexy, but he did not dare to attempt it as severe hemorrhage followed each introduction of the needle.

Joint Implants in the Fingers.—Oehlecker reports the present outcome in 8 cases in which an entire joint was transplanted into a finger over six years ago. In 4 cases the joint was taken from the patient himself; in the others from another person. The results are better in the autoplastic cases, and can be regarded as ideal in one case in which the whole joint and two half joints were transplanted from the second toe into the left little finger of a boy of 12. Several enchondromas had been removed from his fingers, and as he had a talent for piano playing, his parents wanted a usable little finger. The joints of the second toe are peculiarly adapted for transplanting whole joints in this way. A partial homoplastic joint transplant is also liable to prove a success for the basal joint. The operations on the middle joint gave only mediocre results. In 3 cases he transplanted the pedunculated big toe in place of the thumb, but the attempt had to be abandoned in one case as the patient could not stand the discomfort. He used the toe on the same side but Müller advises the opposite side as more convenient. He compares his 3 cases with 9 from the literature, and illustrates another case in which the big toe was grafted on the stump of the left wrist after the hand had been blown off by an explosion. To make a claw hand out of the round stump, a segment of the radius was resected, and the toe was sutured to the shortened radius. He also illustrates a very successful case of reconstruction of nearly the entire face after a shell wound. The reconstruction was done with pieces from the man's own tibia, ribs and scapula, besides homoplastic material, including a big toe, two finger phalanges, and an ear and a lipoma. The attempts at free transplantation of epiphysial cartilage, as done by himself and others, never proved successful. But good results have been obtained with pedunculated flaps of the kind.

Treatment of Bone and Joint Tuberculosis.—Blencke declares that time and experience are convincing him more and more that nothing but an earlier diagnosis and early specialist orthopedic treatment will improve the statistics of bone and joint tuberculosis. The fine results obtained from heliotherapy alone in certain cases probably cannot be duplicated by the general practitioner. Two cases are described to show the dire results of trusting to the practitioner's treatment with sunlight, roentgenization and passive hyperemia. Only when the children were immobilized in plaster and kept out of doors all the time did they begin to improve. His article is based on his impressions with 1,439 cases of bone and joint tuberculosis. Kümmell and Paschen emphasize the importance of institutional treatment, as outpatients do not thrive in comparison with the children who are given systematic sanatorium treatment with immobilization.

Deutsche medizinische Wochenschrift, Berlin

June 9, 1922, **48**, No. 23

Prevention of Childbed Fever. Zweifel.—p. 759.
*Irradiation of Carcinoma of Cervix Uteri. E. Zweifel.—p. 762.
Etiology of Psoriasis. Bettmann.—p. 762.
Atypical Cases of Purulent Peritonitis. V. Schilling.—p. 764.
Body Temperature and Sleep. P. Lindig.—p. 765.
Arsphenamin Dermatitis. W. Heyn.—p. 767.
*Alimentary Hyperglycemia and Glycosuria. G. Hetényi.—p. 770.
Early Diagnosis of Gastrocolic Fistula. H. Arons.—p. 771.
Serotherapy in Primary and Secondary Anemia. Wetterer.—p. 772.
Roentgenologic Progress with the "Radio-Silex" Apparatus. H. Schoen. —p. 773.
Causal Morphology and Practical Medicine. G. Ettisch.—p. 773. Conc'n.
Treatment of Gynecologic Secretory Disturbances. Freund.—p. 776.

Results of Roentgen Irradiation in Carcinoma of the Cervix Uteri.—Zweifel reports that of 43 patients of the first and most favorable group, who took the full course of treatment, 35, or 81 per cent., were cured (no recurrence inside of five years). Of 50 such cases of the second group, 18, or 36 per cent., were cured, and of 121 of the third group, 13, or 10.4 per cent. One patient of the fourth group was cured. Since 1917 he has combined mesothorium irradiation regularly with roentgen irradiation, and so far the results are favorable.

Alimentary Hyperglycemia and Glycosuria. — Hetényi found that peroral ingestion of 100 gm. of dextrose causes also in healthy persons an increase of blood sugar, but in the various diseases of the liver the increase is much more marked. A slight increase of blood sugar (below 40 per cent.) is strong evidence against the presence of an affection of the liver. In the genesis of alimentary glycosuria the condition of the kidneys is of great importance.

Jahrbuch für Kinderheilkunde, Berlin

July, 1922, **99**, No. 1

*Research on Infants' Blood. P. György.—p. 1.
*Tuberculosis of Child Kidney. H. Eliasberg.—p. 13.
*Diabetes in an Infant. R. Kochmann.—p. 20.
*Growth Pallor. K. Benjamin.—p. 28.
*Absorption of Epinephrin. R. Cahn and B. Steiner.—p. 44.

Research on Infants' Blood.—György tabulates the calcium and the inorganic phosphorus content of the blood serum in groups of twelve and thirteen infants.

Tuberculosis of the Kidney in Children.—Eliasberg has encountered five cases in the last three years, and emphasizes the importance of the differential diagnosis. The prospect of a cure depends upon this more than with almost any other affection. All the children presented chronic pyuria, but no bacilli were found with the ordinary methylene blue stain. Inoculation of animals is the only means for detection of the tuberculosis with this abacterial pyuria. Hematuria was frequent; with colon bacillus pyuria, hematuria is rare. Cystoscopy and catheterization of the ureters, with tubercle bacilli in the urine, are decisive. Three of the five children were in good general condition. Two died from tuberculous meningitis after the successful nephrectomy, and a third from the rapid spread of the disease to the other kidney and lungs. Nephrectomy is the proper treatment. When done early enough the outlook is good.

Diabetes in an Infant.—Kochmann states that there was no history of diabetes or syphilis in the family, but the infant of 4½ months had from 5 to 9 per cent. glucose in the urine. It was artificially fed and was always hungry, but did not seem to have any digestive disturbances although taking up to 2 liters of food daily, with two tablespoonfuls of lactose at each feeding. By reducing the intake of sugar, the glycosuria dropped to traces, but the child declined visibly. It improved anew when whole milk was given, as also on oatmeal gruel. On malt extract the glycosuria ran up to 28.9 gm. in the twenty-four hour urine. The child succumbed to intercurrent pneumonia before it was 8 months old, the blood sugar running up at last to 0.3 to 0.44 per cent., with extreme acetonuria. The mother had had two severe falls during her pregnancy, and in the literature on diabetes, trauma is often mentioned as of etiologic importance. The case reaffirms the advantage of oatmeal as the best source for carbohydrates; lactose can be avoided by the use of buttermilk. Fat in the butter-flour mixture seems to be well borne as long as there is no danger of acidosis. When no carbohydrates were given, the general condition grew worse, confirming that the intermediate metabolism requires sugar, and in the lack of a proper supply, the body forms it from its own tissues.

Growth Pallor.—Benjamin refers to the pseudo-anemia of school children, the consequence of overexcitability of the vasomotor nervous system.

Absorption of Epinephrin.—Cahn and Steiner examined the blood for hyperglycemia before and after subcutaneous injection of epinephrin. They assume that hyperglycemia afterward testifies that the epinephrin has been absorbed. This was found to be constantly the case, even when there was no rise in blood pressure from the epinephrin.

Klinische Wochenschrift, Berlin

April 15, 1922, **1**, No. 16

Testing Wound Antiseptics with Animals. H. Braun.—p. 761.
Biologic Effect of Roentgen Rays. H. Holthusen.—p. 766.
*Extirpation of the Spleen. P. Morawitz.—p. 769.
Chronic Traumatic Inflammations of the Knee Joint. Rost.—p. 772.
An Ideal Aneurysm Operation. E. Rehn.—p. 776.
Primary Wound Closure, Especially in Pleural Empyema. Fischer.—p. 778.
Otogenous Brain Abscess in Left Temporal Lobe. A. Esch.—p. 781.
*Pain Due to Os Tibiale Externum. S. Peltesohn.—p. 783.
Effect of Shepherd's Purse on Uterus. Wiechowski and Halphen.—p. 786.
The Living Organism of Cold-Blooded Animals As an Indicator of Colloidal Changes. H. Molitor and E. P. Pick.—p. 787.
Scapula Snapping Sound. O. Heinemann.—p. 787.
Practical Results of Wound Antisepsis. W. v. Gaza.—p. 788.
Dispensary for Cases of Surgical Tuberculosis. Kisch.—p. 791.
Transplantation of Tissues. W. Schulze.—p. 793.

Indications for Splenectomy.—Morawitz brings out that more extensive research on the functions of the spleen and the relationship of the spleen to other organs is needed; also a more accurate diagnosis of chronic tumors of the spleen, and a clearer knowledge of the diseases in which extirpation of the spleen may be indicated before more precise indications for such operation will be possible. He emphasizes that we have in the past regarded the spleen too much from the passive side; it has been looked upon as a mechanical filter inserted in the blood stream. Recent researches, however, have shown that the spleen is a hemolytic organ which probably brings about certain changes in the blood elements, instead of being a mere dumping ground for waste blood products. When we see that in hemolytic icterus the enlarged spleen is crowded with erythrocytes in all stages of disintegration; when we observe further that this exaggerated hemolysis is arrested by splenectomy, we can scarcely refuse to believe in the hemolytic action of this organ. Hormonal functions of the spleen may also play a certain rôle. Owing to the rather high mortality resulting from extirpation of the spleen in pernicious anemia we hesitate to advise such intervention, which, at the best, only promises a remission of a few years. Morawitz recommends it only when all other therapeutic remedies have been tried and it seems evident that the hemolysis in the spleen is an important factor in the disease; for instance, when the spleen is distinctly palpable. Eppinger, however, attaches no importance to the enlargement of the spleen as an indication for operation. We cannot expect much from extirpation of the spleen in leukemia and in erythremia; in the latter disease we have in roentgen irradiation an effective method of treatment. In the hypertrophic form of cirrhosis of the liver, extirpation of the spleen has been tried (Eppinger). The icterus retrogressed, and the liver became smaller, but no permanent results have been vouched for in such cases as yet.

The Occurrence and Significance of Os Tibiale Externum in Relation to Pains in the Foot.—Peltesohn states that in the foot of adolescents (as a rule, in the first half of the second decade) pains frequently occur which are associated with an inconstant os tibiale externum. If in the case of pes valgus (not pes planus) in a young person we find a marked protuberance of the navicular bone, which is painful on pressure or even spontaneously, and if a distortion of the foot has occurred, it is probable that there is an os tibiale externum, which can doubtless be diagnosed even without a roentgenographic examination. In recent cases the pain will subside on application of adhesive-plaster bandages holding the foot in supination, with the use of a special insole. In older cases the insoles will usually suffice. The insoles must be adjusted by an orthopedic specialist. It is quite possible for an os tibiale externum to be the predisposing cause of pes valgus in early years.

Münchener medizinische Wochenschrift, Munich

June 9, 1922, **69**, No. 23

*Medical Theories Concerning the Human Organism. A. Bier.—p. 845.
*Tuberculin Treatment of Bronchial Asthma. W. Storm van Leeuwen and H. Varekamp (Leiden).—p. 849.
Significance of Ovarian Lipoids. F. von Mikulicz-Radecki.—p. 851.
Observations on Six Hundred Operations Performed Under Local Anesthesia. T. Schaps.—p. 854.
Sedimentation Speed of Red Corpuscles in Citrated Blood of Syphilitic Infants. K. Bätzold.—p. 857.
Differential Diagnosis of Incipient Tuberculous Spondylitis and Chronic Rheumatism of the Back. P. Pitzen.—p. 858.
Comparative Investigations on Various Tuberculins in Diagnostic Application. Schall.—p. 859.
Technic of Vaginal Lavage. L. Zill.—p. 860.
Spread of Venereal Disease in Nürnberg. L. Voigt.—p. 861.
The Gastroduodenal Sound. T. Bársony and E. Egan.—p. 863.
Blood Pressure After Application of Artificial Heliotherapy to Children. A. Meyer.—p. 864.
Percutaneous Treatment of Tuberculosis. J. Petruschky.—p. 865.
Art of Embalming One Hundred Years Ago. E. Ebstein.—p. 866.
Differential Diagnosis of Tumors of Breast. A. Krecke.—p. 866.

Medical Theories in Regard to the Human Organism and Life in General; More Particularly, the Mechanistic and the Teleologic Theories.—Bier holds that it does not matter so much if a theory does eventually prove to be unfounded, if it is only fruitful in that it stimulates investigation and furnishes a rallying ground. For example, the darwinian theory was not correct in every particular, but it proved exceedingly fruitful in the field of biology and in the realm of many other sciences. Bier admits that he is a teleologist. In spite of the many attacks against the teleologic theory, down through the ages, it has never been overthrown. Assertions that there are many dysteleologic processes and activities in the organism are being refuted more and more. But above all, and that is the main thing, the teleologic theory has also proved to be exceedingly fruitful of results, and, in view of the inadequacy of the causal theory, was needed to supplement the latter. In general, then, it should be recognized that theories are necessary. They constitute the best means of preparing the way for progress. "He who is inclined to despise them, let him recall that antisepsis, which has proved to be of such eminently practical value, was developed through theoretical meditation. Then, too, was asepsis developed through practice? no, rather through theory."

Tuberculin Treatment of Bronchial Asthma.—Storm van Leeuwen and Varekamp give a preliminary report of the favorable results they have secured by using tuberculin in the treatment of a series of 150 patients with bronchial asthma. They plan to publish a complete report within the next twelve months. An abstract on Pietroforte's tuberculin treatment of asthma will be found in The Journal **75**:1030, 1920.

Finska Läkaresällskapets Handlingar, Helsingfors

May-June, 1922, **64**, No. 5-6

*The Capillaries in Disease of the Blood. E. Hisinger-Jägerskiöld.—p. 235.
*Juvenile Osteochondritis of the Hip Joint. Lennart Stråhle.—p. 244.
Case of Hernia on Spigel's Line. T. Sandelin.—p. 268.
*Cutaneous Emphysema with Pulmonary Tuberculosis. G. Becker.—p. 274.
Treatment of Bone and Joint Tuberculosis. G. A. Wetterstrand.—p. 280.

The Capillaries in Pernicious Anemia and Other Blood Diseases.—The capillaries were sometimes found empty and at other times unusually narrow, which well explains the pallor in diseases of the blood. There may be constitutional hypoplasia of the capillaries in addition to their functional insufficiency.

The Calvé-Legg-Perthes Affection of the Hip Joint.—Stråhle describes this condition saying that it has never been encountered in Finland, but Tiisala on page 285 reports a case at Helsingfors.

Cutaneous Emphysema with Pulmonary Tuberculosis.—Becker has been able to find only eighty-one cases of this kind on record, including one published in Finland. In the case personally observed the man had both tuberculous meningitis and two tuberculous cavities in the left lung. The emphysema seemed to start from the right lung, and he ascribes it to rupture of alveoli. The man had been kept under the influence of morphin so there was no violent coughing at the time.

Hospitalstidende, Copenhagen

June 15, 1922, **65**, No. 22

Pathologic Physiology of the Lungs in Heart Disease. C. Lundsgaard and K. Schierbeck.—p. 349. Conc'n in No. 23, p. 365.
Wertheim's Operation; Twenty-Four Cases. E. Lassen.—p. 360.

June 20, 1922, **65**, No. 23

Osteo-Arthritis in Young Woman. H. Jansen.—p. 371.

June 24, 1922, **65**, No. 24

Vestibular Nystagmus. R. Lund.—p. 381. Conc'n No. 25, p. 397.
Experimental Research on Labyrinth Functioning. R. Lund.—p. 387. Cont'd.

Norsk Magazin for Lægevidenskaben, Christiania

July, 1922, **83**, No. 7

Arterial Pulse in Influenza Pneumonia. F. Leegaard.—p. 497.
*Albinism in Man. V. Magnus.—p. 509.
Rupture of Stomach from Contusion. G. Ipsen.—p. 514.
Polydactylia plus Brachydactylia. W. Bjerknes.—p. 517.
*Perforation of Bowel by Fish-Bone. G. Lützow-Holm.—p. 523.
*Pathogenesis of Exophthalmic Goiter. J. Holst.—p. 527.
Evolution of Radiotherapy in Norway. P. Amundsen.—p. 539.

Albinism in Man.—Magnus has succeeded in obtaining records of 174 cases of albinism in Norway. The proportion to the population where they live is 1 : 9,649. Information in regard to heredity was obtained in 108 cases—a total of fifty families. In his compilation the albinism showed a recessive mendelian character in some instances and a dominant in others. In 13 marriages between cousins, there were 27 albinos among the offspring and 69 normally pigmented. In 2 marriages between uncle and niece, 2 of the 9 children were albinos. In 6 marriages between less close relations, 14 of the 23 children were albinos, and in 35 nonconsanguineous marriages there were 62 albino to 96 normally pigmented children.

Perforation of Intestine by Fish-Bone.—In Holm's three cases the operation had been done on the diagnosis of acute or chronic appendicitis. The hole made by a fish-bone is so small that it may escape detection. An abscess generally forms when there is chronic irritation from the foreign body. In one of his cases, as also in Morton's case, the surgeon's pricking his finger on the fish-bone first explained the case. Normal gastric juice dissolves fish-bones as a rule. If not dissolved, they usually pass through the bowel without harm. He cites only nine cases from the records.

Pathogenesis of Exophthalmic Goiter.—Holst comments on the way in which a primary exophthalmic goiter may keep up an active growth with progressive emaciation of the rest of the body. The parenchyma of this form of goiter seems thus to have a certain independent autonomy. It begins with multiple epithelial tumors which merge into each other until the pathologic condition is diffuse. Cancer of the thyroid sometimes induces fulminating exophthalmic goiter symptoms. He adds that acromegaly, which in many respects resembles exophthalmic goiter most closely, is the result of an epithelial tumor in the organ which resembles the thyroid most, namely, the pituitary body.

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PHYSIOLOGIC STANDARDS IN GASTRO-ENTEROLOGY *

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Recent advances in the physiology of digestion, particularly the work of Cannon,[1] Carlson[2] and Alvarez,[3] add emphasis to the rôle that motor disturbances play in the production of gastro-intestinal symptomatology. Only a few years ago we were primarily concerned about secretory changes, and fine distinctions were drawn in regard to the variations in gastric acidity. Rehfuss and Hawk[4] have shown that the highest degree of acidity occurs in healthy young subjects. Finally the researches of Johnson and Hurst,[5] confirmed by Carlson and others, demonstrated that the mucosa of the gastro-intestinal tract (except the anal canal) was devoid of pain nerve endings. Thus it appears that the terms hyperacidity, hyperesthesia gastrica and gastralgia are destined to be relegated to the junk heap of medical history.

Most investigators agree with Carlson that the pain in gastric and duodenal ulcer is largely, if not entirely, due to motor phenomena. The pain of intestinal colic is evidently produced by spasmodic contractions of the intestinal wall. As Carlson[6] summarizes, "All gastro-intestinal pains of definite peripheral origin are essentially contraction pains." Cannon,[7] as well as Meltzer,[8] has shown that the gastro-intestinal movements occur in a definite, orderly fashion. The work of Alvarez[9] reveals a gradient of irritability from cardia to pylorus. He suggests that the entire gastro-intestinal tube may have been originally so constructed that the rhythmicity of any one segment varied inversely as the distance from the pharynx. We are therefore justified in visualizing the gastro-intestinal tract as a beautiful mechanism whose motor apparatus functions in a rhythmic, orderly fashion, concomitant with appropriate, specific chemical changes.

With such a physiologic ideal before us, let us briefly review some of the deviations from the normal that present themselves in the gastro-enterologic clinic. The dyspepsia syndrome (belching, heartburn and vomiting) is obviously due to motor disturbances. We are indebted to Alvarez[10] for the rational explanation of the nature of the disturbed motor processes. The foregoing symptoms plus nausea and anorexia form a group that we recognize under the generic term dyspepsia, which may be caused by gallbladder and appendix disease and cardiac and renal diseases, as well as by primary disturbances in the nervous system. We must determine whether the inhibiting factor originates primarily in the nervous system or in some diseased organ remote from the stomach. "The monkey wrench in the works" may come from widely different sources.

In a type of dyspepsia occurring in sensitive persons who are free from organic disease and whose gastro-intestinal mechanism is unimpaired, the patients develop a habit of belching; they are continually trying to get the "gas off their stomachs." The delicate mechanism of the cardia is thus upset, acid regurgitates into the esophagus, and heartburn results; regurgitation of food and vomiting may occur. We must convince such patients, as well as ourselves, that they are free from organic disease and that their digestive powers are good. They should be taught that belching is a bad habit which should be brought under control of the will, as it interrupts the orderly gastric movements; that gas is a natural product of digestion and must be let alone.

Physicians know the derangements of the digestive function which are produced by strong emotions. Mills[11] has repeatedly observed a high grade transient stasis occurring in patients with unimpaired gastro-intestinal motility during an attack of migraine. I have frequently noted the most severe forms of gastro-intestinal stasis in patients exhibiting the periodic form of manic-depressive insanity. In the time intervening between the attacks, a complete restoration to normal motor function occurs. In severe cases of this form of psychosis, the motor changes are so great that they are often mistaken for the cause of the mental disturbance instead of the result; in fact, many of these patients have been subjected to ill-advised gastro-intestinal surgical procedures in a misguided effort to cure the psychosis. Patients suffering from milder psychoses often present a baffling group of gastro-intestinal symptoms. This group is also particularly likely to show associated endocrine disorders. Careful analysis of the subjective symptoms will usually establish the diagnosis.

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* Chairman's address, read before the Section on Gastro-Enterology and Proctology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Cannon, W. B.: The Mechanical Factors of Digestion, London, 1911.
2. Carlson, A. J.: Tr. Am. Gastro-Enterol. A., 1911.
3. Alvarez, W. C.: The Motor Functions of the Intestine from a New Point of View, J. A. M. A. **65**: 388 (July 31) 1915.
4. Rehfuss and Hawk: Tr. Am. Gastro-Enterol. A., 1919, p. 62.
5. Johnson and Hurst: Goulstonian Lectures on the Sensibility of the Alimentary Canal, Oxford, 1910.
6. Carlson, A. J.: Tr. Am. Gastro-Enterol. A., 1911, p. 227.
7. Cannon, W. B.: The Importance of Tonus for the Movements of the Alimentary Canal, Arch. Int. Med. **8**: 421 (Oct.) 1911.
8. Meltzer, S. J.: The Relation of the Purgative Action of Magnesium Sulphate to Peristalsis, and the General Law of Crossed Innervation, Arch. Int. Med. **15**: 955 (June) 1915.
9. Alvarez, W. C.: Tr. Am. Gastro-Enterol. A., 1919, p. 46.
10. Alvarez, W. C.: Reverse Peristalsis, J. A. M. A. **69**: 2018 (Dec. 15) 1917.
11. Mills, R. W.: Tr. Am. Gastro-Enterol. A., 1918, p. 43.

The disturbances in colonic motility are of special interest. Hurst[12] fixes a physiologic standard for normal defecation, asserting that the colon in normal, healthy young adults should be emptied from the splenic flexure to the anus. The work of Hurst and W. J. Mayo[13] on the anatomy and physiology of the rectosigmoid apparatus discloses a definite mechanism comparable to the ileocecal valve and cardia. They demonstrate that the column of fecal matter is held at the rectosigmoid angle until the time for defecation occurs. Under normal conditions the rectum is free from fecal matter except during the act of defecation.

Using the foregoing standards, I[14] reported a large percentage of patients who presented themselves for treatment for constipation, who in reality exhibited no colonic stasis but were suffering from the effects of the habitual use of cathartics and enemas. To restore normal function in these patients it was necessary only to permit the intact colonic mechanism to perform its work unimpeded by drugs or enemas.

When one opens the lower colon of any healthy vertebrate, including man, one will find formed, desiccated fecal matter. It is obvious that restoration of function cannot consist in changing the contents from a dry to a liquid state by the habitual use of drugs and enemas. Unfortunately, a large number of physicians are still obsessed with the notion that the human colon is a sewer that should be kept continuously "flushed out." Carlson[15] says, "Auerbach's plexus is the brain of the intestine." It is a brain much older and better organized than that of man, who lightly attempts to interfere with a biologic function established in all forms of life throughout the ages. Abdominal or colonic massage is absurd. Who has the presumption to state at what time the intestinal contents should move forward? It is our duty to attempt restoration of normal rhythm instead of using methods that tend toward further disorganization. In pathologic conditions, such as angulations, adhesions and colonic redundancies, the intestine, though crippled, will continue its intelligent efforts to function. The wonderful adaptability of the intestine is well demonstrated in the gross anatomic changes produced by tuberculosis and new growths.

A clear concept of physiologic standards will aid in diagnosis and simplify therapy. Deviations from the normal may often be corrected by dietetic and hygienic measures. At the same time, we as physicians should hold fast to our dearly purchased surgical concepts, such as gallbladder disease, appendicitis and obstructing ulcer. It is appalling to contemplate the tons of pepsin consumed annually by persons whose stomachs are free from any secretory abnormality, as well as the carloads of cathartic pills swallowed by patients with intact enterocolonic mechanisms. Let us plead, then, for the recognition of physiologic gastro-intestinal standards and the application of the standards in our diagnostic and therapeutic work.

4731 Westminster Place.

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[12] Hurst, A. F.: Constipation and Allied Intestinal Disorders, Oxford, 1919.

[13] Mayo, W. J.: Surg., Gynec. & Obst. **25**: 616 (Dec.) 1917.

[14] Soper, H. W.: Med. Clin. N. America **4**: 901 (Nov.) 1920.

[15] Carlson, A. J.: Tr. Am. Gastro-Enterol. A., 1911, p. 217.

Tuberculosis.—If an accurate general census could be made of all persons, regardless of the state of their health, approximately one in five, or 20 per cent., should give a history of tuberculosis in at least one parent, since about one person in ten dies of the disease.—*J. Lab. and Clin. Med.*, February, 1922.

THE PRESENT STATUS OF THE USE OF DRUGS IN HEART DISEASE

WITH ESPECIAL REFERENCE TO DIGITALIS AND QUINIDIN *

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The discussion of the present status of the use of drugs in heart disease will perforce deal primarily with digitalis and quinidin, the two most important. Other drugs are, to be sure, quite rightly used in heart disease, but they may be touched on more briefly at the outset. Still other drugs are probably wrongly used, and of these there is little time to speak.

DRUGS USEFUL IN PREVENTING OR ARRESTING HEART DISEASE

The first group of drugs to be mentioned is that which comprises medicines used to treat the causes of heart disease. Mercury, potassium iodid and arsphenamin are indicated for syphilis whether or not the heart and vessels are demonstrably involved. By the early and thorough treatment of syphilis, probably much heart disease can be prevented.

Another and even more important cause of heart disease is rheumatic fever. The sufficient use of salicylates in combating rheumatic fever cannot be overemphasized, for it is likely that, with early control of the infection, considerable heart trouble in young persons may be prevented. Even with actual rheumatic heart disease already present, further attacks of rheumatic fever should be quenched, as is often possible, by saturation with salicylates. In this way increase in the degree of heart damage may be avoided.

There is a rumor widespread in the community, among physicians as well as among laymen, that acetylsalicylic acid and some other salicylate preparations are bad for the heart. I think that the rumor is unfounded and perhaps is responsible itself for some heart trouble through the failure to administer salicylates, when rheumatic fever is present, just because heart lesions are found. I have administered as much as 200 or 300 grains of salicylates in the course of a few days when indicated, and with striking relief, to combat rheumatic fever in patients with heart disease. It rarely is necessary to give so much; rapid saturation and maintenance of saturation by small doses frequently suffice.

Of course there are toxic symptoms—tinnitus, dizziness, headache and nausea from salicylate saturation—but these are not cardiac symptoms. Unfortunately, in acute or subacute endocarditis, of rheumatic or other origin, in which joint or muscle pains are absent, salicylates are often, and perhaps usually, ineffective. The same holds true of chorea.

St. Lawrence's work[1] on potential heart disease is confirmatory of this situation so far as his few statistics go. In the course of more than four years, a considerable percentage of the children with chorea developed demonstrable heart lesions, while none of the children with rheumatic fever developed heart lesions. Although these figures doubtless cannot be taken as representative of the exact situation, nevertheless they are very illuminating. We can obviously treat rheumatic fever better than we can treat chorea. In addition to salicylate therapy, we must not forget the undoubted value of tonsillectomy in the prevention of further rheumatic involvement.

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* From the Massachusetts General Hospital.

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] St. Lawrence, William: Effect of Tonsillectomy on Recurrence of Acute Rheumatic Fever and Chorea, J. A. M. A. **75**: 1035 (Oct. 16) 1920.

In the battle against the insidious and very serious condition called subacute bacterial, or malignant, endocarditis, we are well-nigh helpless. All manner of drugs have been tried and abandoned, and nursing care with symptomatic therapy has been resorted to at the last. However, arsenic offers possible promise. It has been used with uncertain success, but the recent report by Dr. Capps[2] of eight cases, all with positive blood cultures, treated by subcutaneous injections of sodium cacodylate daily for weeks with four recoveries, is most encouraging. The series, however, is too small to afford us more than hopeful promise. The work with this drug should be followed up more extensively.

Other types of heart disease, arteriosclerotic, thyroid, hypertensive and congenital, cannot be combated primarily by drug therapy. The use of potassium iodid in the treatment of arteriosclerosis still rests on an empiric basis. Perhaps it is of some value, but there is little proof of its value as yet.

In definite hyperthyroidism, treatment by roentgen ray or operation, or both, probably averts a considerable amount of myocardial damage. Possibly in some mild cases, quinin hydrobromid and rest may suffice.

In the cardiac sluggishness of hypothyroidism, thyroid gland is of course a specific, and in such cases the T-wave of the electrocardiogram can be seen to rise steadily under its influence.

Hypertensive heart disease may possibly be prevented in part by symptomatic treatment of nervous tension, nephritis or whatever may be behind the condition.

In congenital heart disease, we are helpless so far as prevention by drug therapy goes, except occasionally, perhaps, in the treatment of syphilis in the parents to prevent congenital syphilis in the children.

In the nervous heart, or effort, syndrome, treatment of the underlying condition may include sedatives such as bromids, but psychotherapy and regulation of life are much more important.

SYMPTOMATIC DRUG THERAPY IN HEART DISEASE

The next group of drugs of value in heart disease that must be discussed briefly, before I take up digitalis and quinidin, are those used symptomatically, chiefly in heart failure. Sedatives are often invaluable, whether to quiet the irritation from palpitation or to relieve the distress or cough due to heart failure. Bromids, hypnotics and narcotics all have their place.

Diuretics in the presence of edema are frequently of value, if digitalis itself is not rapidly or sufficiently effective. Purgation in moderation may be helpful, but a patient may be unduly exhausted by the use of purgatives. Diaphoretics are in general contraindicated.

Very valuable symptomatic therapy lies in the use of the vasodilators, the nitrites, particularly amyl nitrite and nitroglycerin, for the pain of anginal failure, and occasionally for the spells of nocturnal orthopnea which, without the use of vasodilators, would go on to pulmonary edema. For the more extensive agony of coronary thrombosis, morphin may be needed. Stimulants have occasional value; for example, caffein may be used in respiratory distress, particularly to regulate the respiration in Cheyne-Stokes breathing.

Rarely, strychnin, as nux vomica, to stimulate the appetite, may be of use; in large doses it is a stimulant to the central nervous system, but for ordinary use in heart disease it is ineffective, and in failure with a rapid ventricular rate in auricular fibrillation it is probably contraindicated. Camphor, epinephrin and other such drugs have little or no place in cardiac therapy. We waste enormous quantities of these drugs annually.

DIGITALIS

Indications for Its Use.—The use of digitalis is indicated in only two conditions: first, in heart failure of the congestive type, and second, in auricular fibrillation or auricular flutter with a rapid ventricular rate, whether or not failure is present. Digitalis is a toxic drug, and unless there is some clear indication for its use I do not believe that it should be given. It is conceivable that it may sometimes do more harm than good.

I once so irritated my heart by digitalis taken experimentally that I produced frequent premature beats, at times bigeminal, at the height of the effect, an annoying palpitation accompanying this phenomenon, and for some months thereafter I suffered from occasional short paroxysms of tachycardia. In two patients, I have actually induced paroxysms of auricular fibrillation by digitalis. Thus it is obvious that digitalis is an irritant to the heart.

Its routine use in infectious disease, whether typhoid fever, influenza or pneumonia, and its routine use before or after operation is to be deplored. If auricular fibrillation or flutter or congestive failure should supervene in any of these conditions, we can, by large doses of digitalis administered by mouth or intravenously, quickly combat the condition within a few hours at the most. Relatively rarely does such a need arise; therefore, there is no reason for afflicting everybody with a poisonous drug when only now and then it may be needed.

Even in emergency, digitalis is often given when it is not indicated, for example, in so-called surgical shock or in the prostration due to an infectious disease. Under such circumstances, the condition is primarily not heart failure: it is a toxic vasomotor failure. In such a condition as vasomotor collapse there is no indication for digitalis.

The particularly remarkable reputation of digitalis is due mainly to its dramatic effect in auricular fibrillation. The impression seems to be rife in some quarters that the drug may be as effective in normal rhythm as in auricular fibrillation. The reason this is not so is obvious: Digitalis acts in two ways on the heart: first, it depresses conduction, thereby inducing heart block; second, it acts directly on the myocardium to increase the degree of systolic contraction. This second effect will occur both with normal rhythm and auricular fibrillation, but the benefit from the first effect is almost wholly one-sided.

Depression of conduction in normal rhythm rarely produces dropped beats, and the depression of the pacemaker is often insufficient to reduce the pulse rate. Extreme depression of the pacemaker by digitalis may, however, actually produce auricular paralysis with standstill and idioventricular rhythm (so-called complete sino-auricular block). This is not particularly desirable, though some reduction in pulse rate at times may be, if it can be brought about. In auricular fibrillation, however, the conduction system is particularly susceptible to the effect of digitalis, and it is in this condition that a rapid reduction of ventricular rate of 20, 40, 60 or even 80 or 100 beats a minute may bring much relief to the heart.

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[2] Capps, J. A.: Eight Cases of Malignant Endocarditis, report read before the Association of American Physicians, Washington, D. C.

It is for this reason that Lewis has spoken of digitalis as a sedative for the heart more than as a stimulant. Occasionally, by proper saturation with digitalis, the heart rate may drop within from forty-eight to seventy-two hours from 170 to 70. The saving of 100 beats a minute for the heart (most of them ineffective anyway in supporting the circulation) means the saving of more than 100,000 contractions a day. This means an astonishing rest for the myocardium in the course of hours and days.

No wonder that the rapid recovery from grave congestive failure under such conditions seems like a miracle. In flutter of the auricles, the mechanism by which digitalis brings relief to the overworking heart is somewhat similar. An increase in the degree of auriculoventricular block is produced from two to one to four or more to one; finally, fibrillation of the auricles which is paroxysmal may be induced, giving way to normal rhythm in some cases. Thus, once more I want to emphasize the fact that digitalis acts not only as a stimulant in increasing the degree of systolic contraction in auricular fibrillation as well as in normal rhythm, but also, by its sedative action on the heart, it improves the circulation far more effectively in auricular fibrillation than in normal rhythm. Although MacKenzie and Lewis have perhaps expressed an extreme opinion concerning digitalis action, their view is worthy of widespread adoption, with the simple qualification that in normal rhythm also digitalis may be effective in some cases of failure.

Administration of Digitalis.—After the discussion of the indications for digitalis therapy, a few words should be said about the method of administration. Given a leaf of proper potency as determined physiologically, it matters little or not at all whether it is administered in pill form as powdered leaf, by tincture or infusion, though the last, if made according to the U. S. Pharmacopeia directions, will be too weak. Usually not enough digitalis is taken. If there is urgent need for its use, it should be given in sufficient dosage to saturate the system in forty-eight hours or less.

Estimation of this amount by weight is desirable, and Eggleston[3] has suggested 0.15 gm. of the leaf (or 1½ cat units) for every 10 pounds in weight. One half of this amount may be given at once and another quarter after six hours, an eighth more in six more hours, and so on until saturation is evidenced by toxic symptoms, by marked reduction in ventricular rate or by the production of a coupled pulse. I have found that the amount figured out for a satisfactory saturation may be sometimes 0.1 gm. of the standardized leaf rather than 0.15 gm., which in some cases may result in disagreeable toxic symptoms. Also, I think this dosage may be spread through two days more evenly, that is, by giving one sixth of the dose three times a day for two days.

However, these are merely slight variations of the original directions of Withering that digitalis be given "until it either acts on the kidneys, the stomach, the pulse, or the bowels," so long neglected by the medical profession and emphasized again of late years by Eggleston, Robinson,[4] and others. In a few cases I have given nearly the whole calculated dose of digitalis in one administration, but the production of auricular fibrillation or severe nausea and vomiting makes this unwise. The best course to steer generally is the middle one, between ineffective small doses and a maximal dose at the outset.

That recognition of the proper dosage of digitalis is relatively recent, and that in some quarters the proper dosage is not even now recognized, is illustrated by two cases:

A woman with rheumatic heart disease, mitral stenosis, auricular fibrillation and anasarca was treated less than twenty years ago without any satisfactory reduction of ventricular pulse rate or edema in weeks of hospital care in bed. She was given digitalis, but too little. After discharge, still with an apex rate of more than 100 and with edema, she was treated by an especially discerning internist, who afforded her quick and extensive relief by digitalization.

A woman of middle age with rheumatic heart disease, mitral stenosis, auricular fibrillation and marked anasarca, whom I saw last year with a physician in a country town, had received small doses of digitalis and crategus without relief. I ordered saturation, and two days later she was unbelievably improved. The physician was amazed at the dosage of digitalis employed.

Another important point concerning the administration of digitalis is the maintenance of saturation when indicated, as it very often is. One of the weaknesses of the past in the treatment of heart failure has been the frequent discontinuance of digitalis after a beneficial effect had been secured in auricular fibrillation. This was undoubtedly the result of the failure to recognize the nature of absolute arrhythmia. As the patient in the course of two or three weeks excreted the accumulated digitalis, he would lose its beneficial effects, his pulse rate would rise, and again he would go through an attack of so-called cardiac decompensation. This attack, in turn, would be relieved by a so-called course of digitalis often too slowly carried out, and then the process would be repeated. Thus time, money and strength would be lost by the working man or woman, and undoubtedly life would be shortened by this widespread failure to realize the need of maintaining saturation in auricular fibrillation.

In general, the adult system excretes the equivalent of from 0.1 to 0.2 gm. (from 1½ to 3 grains) of the leaf daily, the equivalent of from 1 to 2 c.c., or from 15 to 30 minims of the tincture. Therefore it is necessary to administer this amount every day to maintain saturation when once it has been properly secured. This point cannot be overemphasized, for patients hitherto badly crippled may be kept at work for months or years in relative comfort by daily administration of digitalis. There does not seem to be any injurious effect from this long-continued use of the drug.

Finally, with regard to the administration of digitalis, the question arises as to whether or not it is effective in small doses over long intervals of time. Of course, if the small daily dose is in amount just above the amount daily excreted, there may be a very gradual accumulation and finally a saturation with beneficial results. If, however, very small doses are given which do not allow accumulation, the effect is problematic. Empirically, there seems to be at times some benefit in such cases; but the effects are so doubtful, or other measures are so often more responsible for the improvement experienced that one should maintain an open mind on this point until more evidence has been accumulated, if possible. Always we must remember to discount the benefit derived from other therapeutic measures, such as rest in bed, in the analysis of the benefits from drug therapy.

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[3] Eggleston, Cary: Administration of Digitalis by "Eggleston Method," J. A. M. A. **74**: 733 (March 13) 1920.

[4] Robinson, G. C.: Southern M. J. **13**: 396 (June) 1920.

One last phase of the discussion of digitalis remains. Of what value are the other drugs of the digitalis group—strophanthus, squill, apocynum and convallaria? I believe that they may all be discarded from our resources in the treatment of heart disease. Digitalis will do as well or better all the things that these other drugs can do in improving the circulation. Even strophanthus may, I believe, be dispensed with. Whether administered by mouth or by vein, digitalis is as good or better. Rarely is intravenous digitalization necessary in any case and, when it is, we can secure effects in a few minutes from good digitalis preparations. At times it is said that squill, apocynum or convallaria is less toxic than digitalis. This lesser toxicity in such cases simply means that the preparation is relatively inert. Crataegus has apparently no effect on the heart, even in very large doses, and so does not belong to the digitalis group.

QUINIDIN

Quinidin sulphate is the first important drug, since the introduction of digitalis by Withering more than a hundred years ago, that proved to have a specific effect on the heart. Its trial followed the discovery a few years ago that quinin could on rare occasions abolish the absolute arrhythmia of the heart, called auricular fibrillation. It has already passed through the preliminary test stage, and certain fairly definite indications and contraindications for its use have been noted. By some its praises have been extravagantly sung; by others it has been condemned as a dangerous or, at least, a useless drug. As so often happens, the truth seems to lie between these extreme views. It is still a bit too early to advise its use at large in the community, but there is absolutely no reason why it should not be employed to considerable advantage in properly selected cases under close observation. The proper selection of the cases and, for the present at least, their reasonably close observation are essential.

Indications for the Use of Quinidin.—Again, as for digitalis, I shall discuss first the indications for the use of quinidin sulphate and then the manner of its administration. Quinidin is indicated particularly in the treatment of auricular fibrillation of recent origin, preferably of less than six months' duration, when heart failure has not been, or is not, an important feature, and in the prevention of paroxysmal auricular fibrillation.

Sex does not seem to play any rôle in the favorable or unfavorable response to the drug. Age and the type of heart disease responsible for the auricular fibrillation in our series of seventy-five cases seem to play something of a part, the older and arteriosclerotic and thyroid patients behaving better than the younger and rheumatic patients.[5] Seventy-six per cent. of the twenty-one arteriosclerotic patients were restored to normal as compared with 61 per cent. of the forty-four rheumatic patients, and 43 per cent. of the arteriosclerotic patients maintained normal rhythm as compared with 27 per cent. of the rheumatic patients. The duration of heart disease and, particularly, the duration of the auricular fibrillation do influence the reaction considerably.

Chronic heart disease, especially with chronic mitral stenosis and auricular fibrillation more than a year old, is in general a contraindication, for several reasons. First, there is a very real danger from embolism (cerebral, pulmonary or other) and from auricular thrombosis, when the auricles start again their normal contraction after years of the ineffective activity occurring in fibrillation. Also, thrombosis in the auricles is more common in mitral stenosis than without stenosis. The second reason for not recommending quinidin in such cases is that in a relatively low percentage the heart returns to normal, and most of those that do return to normal relapse again shortly.

Heart failure also seems to be a contraindication to the use of quinidin. Auricular flutter is an occurrence, during its use, that indicates the advisability of stopping the drug. In two cases of our series, flutter induced from fibrillation by quinidin was stopped under further quinidin therapy with poor results for the patients. Rarely, patients are sensitive to the drug and, if not properly tested first, may be subject to severe toxic effects, such as the respiratory paralysis reported by Frey.[6] Rarely, sudden death results from an unknown cause—perhaps embolism, perhaps ventricular fibrillation.

Drs. Viko and Marvin have assisted me in a clinical study of the action of quinidin sulphate during the last year. We have given it in seventy-five cases of persistent auricular fibrillation and flutter (three of the latter) at the Massachusetts General and New Haven hospitals. The first sixty cases were unselected, and our conclusions from this group I have already expressed. In the total seventy-five cases, fifty-one hearts, or 68 per cent., were restored to normal rhythm, and of these, twenty-six, or 35 per cent., have maintained normal rhythm for from a few weeks to a year at the present writing.

In twenty-seven cases of auricular fibrillation of less than six months' duration, twenty-two hearts, or 81 per cent., were restored to normal rhythm, and fifteen, or 56 per cent., maintained normal rhythm. In twenty-three cases of auricular fibrillation of more than two years' duration, eleven hearts, or 48 per cent., were restored to normal, but only three, or 13 per cent., maintained normal rhythm. In forty-eight cases of congestive failure, thirty-two hearts, or 67 per cent., were restored to normal, but only eleven, or 23 per cent., maintained normal rhythm, while in twenty-seven cases in which failure did not occur, nineteen hearts, or 70 per cent., regained normal rhythm and, fifteen, or 56 per cent., retained it.

Seven of a group of nine patients with paroxysmal auricular fibrillation (and flutter) have been much benefited because of the marked reduction or abolition of the attacks by quinidin. In other cardiac disturbances, such as premature beats, heart block and paroxysmal tachycardia, the action of quinidin is uncertain or useless. Occasionally premature beats can be abolished but they recur on stopping the drug. Quinidin should not be used indiscriminately for arrhythmia, and certainly should not be administered simply because a patient with heart disease is not doing well, his physician having heard vaguely of the new cardiac therapy with quinidin.

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[5] Quite likely this is because failure occurred more often in the rheumatic cases of our series than in the arteriosclerotic cases.

[6] Frey, W.: Therap. Halbmonatsh. **35**: 534-536 (Sept. 1) 1921.

It is in auricular fibrillation of recent origin, without heart failure or pronounced mitral stenosis, that quinidin therapy seems at present to be especially indicated. The fact that the restoration to normal rhythm often brings striking relief, chiefly from the subjective discomfort of the palpitation, is familiar to all who have treated many patients. It is also conceivable that, if the onset of permanent fibrillation can be indefinitely postponed, life may be prolonged.

Administration of Quinidin.—A satisfactory method for the administration of quinidin may be briefly stated. I have felt that it is wisest to administer digitalis before starting quinidin, especially if there is any heart failure, although we have restored normal rhythm in two patients not digitalized and in four other patients who were not benefited by the digitalis. Two test doses of quinidin sulphate of 0.2 gm. (3 grains), each in capsule or tablet, are given, one at 2 p. m. and the other at 4 p. m. If there are no toxic symptoms of cinchonism, 0.4 gm. (6 grains) is given at 10 a. m., 12 m. and 2, 4 and 6 p. m., the following day and the day or two after until the rhythm becomes regular, either because of the onset of flutter or of normal rhythm, or until toxic symptoms appear, though such are rare with this dosage.

If fibrillation continues after this amount of 4.4 or 6.4 gm. of the drug has been administered in two and one-half or three and one-half days, it is hardly worth while to give more, for, even if normal rhythm is later induced, it is likely to relapse quickly to fibrillation. Thirty-one, or 60 per cent., of our fifty-one patients whose hearts were restored to normal rhythm required less than 4 gm. of quinidin, and eighteen of these, or 58 per cent., maintained normal rhythm, while of the other twenty patients requiring more than 4 gm. twelve, or 60 per cent., relapsed. The shorter the duration of fibrillation, the less the amount of quinidin necessary to restore normal rhythm.

Finally the question of rationing comes up. Daily rations of 0.4 gm. (6 grains) of the drug are effective in the prevention or reduction of paroxysms of auricular fibrillation. There seems to be some indication also that it may be wise to ration patients with permanent fibrillation after the return to normal rhythm, but in some cases normal rhythm was maintained for months without rations. Rationing with less than 0.4 gm. a day has been generally less satisfactory than rationing with 0.4 gm. After weeks or months, the drug may be omitted to see if normal rhythm can be maintained without it. There are sometimes auditory disturbances on long continuance of the drug.

CONCLUSION

Definite indications exist both for the use of digitalis and for the use of quinidin, and neither drug should be given indiscriminately to patients with cardiac symptoms or signs.

ABSTRACT OF DISCUSSION

Dr. John Wyckoff, New York: Dr. White has pointed out the way in which we should bend our energies in the future study of quinidin. To date there are only about 500 reported cases of patients treated with this drug. In the different clinics in which this drug has been studied, all cases of auricular fibrillation have been treated as they presented themselves. They have not been selected. This has been the first step. Auricular fibrillation is not a disease. It is a functional change, sometimes temporary, at other times chronic, due to different causes, such as toxins, acute infections and chronic myocardial change. Furthermore, we know that the treating of unselected auricular fibrillation has been attended by certain untoward symptoms and a considerable mortality. The reaction against the use of the drug is likely to be great unless it is stressed, as Dr. White has pointed out, that the greatest benefit and fewest untoward effects seem to occur when quinidin is used in cases of auricular fibrillation of short duration and in cases of paroxysmal fibrillation.

Dr. Fred M. Smith, Chicago: I fully agree with what Dr. White has said. He has taken a very rational point of view of the whole question. It is well known that patients with auricular fibrillation do very well with digitalis. In most instances the medication has to be continued over long periods of time. Ambulatory patients may be taught how to estimate the amount of digitalis necessary in their case. They are instructed in regard to taking their heart rate, and are told that a continued rapid rate should not be permitted. They take sufficient digitalis to maintain a reasonable check on the cardiac rate. At present it would seem that quinidin may be given with very little danger in the type of cases in which Dr. White has recommended the use of this drug. It would also seem that the medication may be continued in small doses over long periods of time without any apparent ill effects. I have patients under observation who have taken 3 grains once or twice a day over a period of four or five months without harm. Dr. Pardee tells me that he has a patient who, contrary to his instructions, continued taking 5 grains once a day for about a year without harmful results. Quinidin may be of value in the treatment of the premature contraction. It is well known that this condition may be very alarming to the patient, and the drugs that are ordinarily employed in the treatment of cardiac conditions often do not influence the frequency of this disorder. In some of our patients who did not respond to other methods of treatment, quinidin eliminated the premature beat. The general condition rapidly improved in some instances following the disappearance of the premature contraction. They were able to sleep, their appetite returned, and one patient gained 20 pounds. In the beginning of the treatment the patients were instructed to take 3 grains three times a day. Later the number of doses was reduced to two and finally to one dose a day. In some cases the quinidin has been discontinued without a return of the premature contraction. The patients were instructed to take the medicine as far as possible a short time before the expected time for the appearance of the irregularity of the heart. In some cases the premature contraction appeared most frequently after meals; in others after retiring at night, and in one instance at 2 or 3 o'clock in the morning. In some cases the quinidin apparently did not influence the frequency of the premature contraction.

Dr. Walter J. Wilson, Detroit: In the main, I agree with what Dr. White has said. However, I am not willing to delete all the drugs that he has. I have had very satisfactory results from the use of strophanthin intravenously. Ordinarily I start with $\frac{1}{500}$ grain and increase to $\frac{1}{250}$ grain. In a case of pulmonary edema in which one wishes quick results, strophanthin is satisfactory in combination with caffein. Also, when tincture of digitalis is ineffective in doses of 2 drams a day, after three days' use, in cases of auricular flutter, the addition of squills, in the form of syrup of squills, one-half teaspoonful four times a day, has a number of times resulted in the resumption of normal rhythm within from twenty-four to forty-eight hours. I have had one unfortunate result from the use of quinidin, in a case of mitral stenosis in which the auricles had been in fibrillation for about eighteen months. Five grains was used one day and 10 grains the next. After the use of 10 grains of this drug, no change was noted in the electrocardiogram. However, after taking an additional five grains, the patient had an attack of embolism in the night and died within a few moments. No one can definitely state that this accident was due to quinidin, but the fact remains that it occurred soon after its administration. The patient had been very satisfactorily controlled by the continued administration of digitalis, and it would have seemed the better policy to continue the conservative line of treatment. Quinidin apparently produces an acute disturbance in the heart muscle, and should be used with great caution. The careful administration of this drug should mean that these patients should be put to bed, and during the period of administration, should be treated as cases of acute cardiac decompensation. I do not advocate, as yet, its use by the general practitioner. Paroxysmal fibrillation ceases with such great suddenness that it is not safe to base general conclusions for its use on the observation of such cases.

Dr. Louis Faugeres Bishop, New York: I endorse everything Dr. White has said. The weak point in our fibrillation study at present is that only a few of us have had a chance to know the natural history of the fibrillation. For the last few years I have instructed every one who had attacks of palpation to come immediately to the office for an electrocardiogram. I have found in this way that short, self-limited attacks of fibrillation are comparatively common. We cannot always diagnose them clinically, particularly when the pulse is pretty regular. Fibrillation is much more common than we believed. The natural history of chronic fibrillation is that it begins by short, self-limited attacks. These attacks become longer, and by and by, when some time has passed, the condition becomes permanent. It is very hard to appraise justly the effect of any treatment in diseases characterized by recurrent, self-limited attacks. When I was a young man, I thought I was getting wonderful results in epilepsy because I had a lot of people who did not have attacks, but close study showed that those with remissions were coming to me and the others were going elsewhere. It is very hard to judge of treatment in self-limited, recurrent conditions. There is no doubt whatsoever that quinidin has a specific effect, but I think the value of it is rather exaggerated at present. The continuous use of digitalis over long periods of time in old heart cases has been accepted by some of the best clinicians in the world. I would not be without this resource. I believe that a person having attacks of decompensation should take digitalis continuously. There is this class of heart patients who should take digitalis over long periods of time. Of course, suitable intermissions and adjustments of dosage would go with the general policy of continuous use. Ipecac has certain attributes in common with quinin. I tried the use of ¼ grain of powdered ipecac and 1 grain of powdered digitalis in capsules in some cases of fibrillation. I have nothing definite to say about it, except that, curiously enough, quite a number of these old fibrillators preferred this treatment. They said that they liked the effect better than that of plain digitalis.

Dr. Arthur E. Strauss, St. Louis: The paper was really on the present status of drugs in cardiac therapy. Most of the men who have discussed the paper have limited themselves to the discussion of quinidin. We must not forget to emphasize, as Dr. White did, the wonderful results we have obtained with digitalis, particularly since digitalis has been so thoroughly studied. I merely mention this to point the way along which we should work in the study of quinidin. We did get results with digitalis from the beginning of its use. We have obtained results for a long time. However, we have had our best results since the accurate work of Eggleston. That is the way in which we should study quinidin. It is very valuable to have a summary at this time of the actions, use and results of quinidin. However, I do not believe that we are justified in drawing final conclusions, as Dr. White did today, either as to the type of case in which quinidin should be used, the dosage, or the like. I should like to ask Dr. White regarding his statement that the patient preferably should be digitalized before the administration of quinidin. I do not refer to the decompensated heart. If we accept the theory of Lewis that digitalis tends to prolong fibrillation, and that digitalis and quinidin have practically antagonistic actions, why should we first digitalize the patient, thus tending to prolong the fibrillation, and then later use quinidin to stop it? There is no question that after the normal mechanism has been restored with quinidin, digitalis is a very valuable adjunct in treatment.

Dr. Lee Rice, Galveston, Texas: I was much pleased to hear that Dr. White is willing to discard other drugs than digitalis in the treatment of heart disease. I am particularly interested in strophanthin. We have had two deaths at John Sealy Hospital following the injection of strophanthin. In one case a necropsy was performed in less than two hours, and the heart was found in very firm systole. A young man suffering from opium poisoning died, and the necropsy was performed in less than fifty minutes. His heart was found in firm systole. We have been recommending the discontinuance of strophantin in all cases, and giving only digitalis, or some of its preparations. In the early experimental work with quinidin, beginning about two years ago, after we had arrested fibrillation and restored a normal rhythm, if we thought a daily ration was required, we began with a better known drug, quinin hydrobromid, because we were then afraid of quinidin. We observed beneficial effects from the use of quinin hydrobromid. Now, however, we are using quinidin daily, 0.4 gm., and have had one patient taking it steadily for seven months, and another for six months, without observing any detrimental effects.

Dr. George B. Crow, Burlington, Iowa: I want to ask Dr. White what, if any, drugs he found effective in paroxysmal attacks of tachycardia.

Dr. Paul D. White, Boston: I was much interested in the report of Dr. Smith as to the effect of quinidin in premature beats. That is a point for further study. There is no question that in some cases premature beats can be dispelled by the use of quinidin, and by thoroughly extensive study we may find out which cases are helped in that way. In regard to strophanthin intravenously, I have not had to use it for more than a year or two because of the satisfactory effects I have always had from digitalis. Quinidin is certainly unsatisfactory in many cases of chronic fibrillation. There is really danger for patients who have had fibrillation for years and are doing very well under digitalis. It seems hardly wise to put them to the risk of embolus when they are quite comfortable under digitalis. In paroxysmal fibrillation there is no question that we get relief in most of the cases we have handled. We had one young man who was having paroxysms of fibrillation quite regularly when I began to ration him. We gave him quinidin once a week. It was not effective. He was having paroxysms two or three times a week. Then I gave quinidin twice a week and then every other day. He would have a paroxysm on the second day. Then we gave it daily in 3 grain doses. That was almost completely effective. Following that, we gave him 6 grains a day. I believe that Dr. Strauss' final conclusions are not justified. My opinion was presented of the present status of the use of the drug. In regard to digitalis: Some of the cases we have just treated have been taken without selection, and some of them had a good deal of failure. We did not feel justified in giving quinidin to a patient who had more or less failure with a rapid ventricular rate. We feel that we should restore circulation first. Our results from the use of quinidin after the use of digitalis have been as good as anybody's. Our percentage of restoration to normal rhythm has been quite high. Whether or not we would get better results with the use of digitalis first, I do not know. You can saturate the patient with digitalis and give him quinidin and restore normal rhythm within a day or two. I have been asked to say something about patients who cannot take digitalis because of nausea. Such patients can take drugs of the digitalis group, but they take them in such small doses that they do not get benefit from them. They have to be treated by other measures, rest in bed and sedatives, and whatever measures we have to combat the symptoms of heart disease.

Change in Attitude Toward Mental Cases.—Until a comparatively recent period, the individual who showed aberrant behavior traits was looked upon as an outcast from the social group and was made to pay a heavy penalty for being different from his fellows. Within the last two decades, however, a radical change has taken place in the community attitude toward the individual who does not conform to its customs and standards of conduct. Two factors contributed more than any others to bring about this change. The first was the recognition of insanity as a form of disease and the equipment of hospitals for the care of the mentally sick. The second was the development of modern psychology, with its refutation of the old philosophical doctrine of freedom of the will and its conception of the human individual as an organism able to react only within the limits of instinctive, emotional, and intellectual endowment.—Sands and Blanchard, *Mental Hygiene*, July, 1922.

FURTHER EXPERIENCES WITH PHENOBARBITAL (LUMINAL) IN EPILEPSY *

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At the session of the American Medical Association in 1920, I had the privilege of making a summary report on personal experiences with phenobarbital (luminal) in the treatment of epilepsy [1] which was based on the observation of about 100 cases. The majority of them had been under treatment for periods varying from several months to two years, while only a small number had been under uninterrupted treatment since 1914.

This paper is based on a total of 200 cases of epilepsy under my care, exclusive of the patients sent only for consultation and of those who did not return after one or two visits.

My first patients were principally the mild type of ambulatory epileptic, who naturally brought to the office similar material. Following the publication of my paper, however, I was visited by persons with some of the most intractable cases—patients who had received various remedies with little or no benefit, and others who had already been given phenobarbital with indifferent or no results. This might explain the differences in results as compared with the first patients treated with phenobarbital.

The uncertain manner in which different patients reacted to the same remedy must have also puzzled some of my colleagues, from whose correspondence I learned that they were gravely disturbed by the possibility that the American-made product might not be identical with that manufactured in Europe. In order to gain some certainty on this point, I ran two series of ten cases each, one group receiving the domestic article, while the other was given imported phenobarbital. From a careful comparison of results I concluded that there were no essential differences between the two products, that if there were any differences, they were those of patient and disease, not of drugs.

In order to facilitate description, I shall record my experiences under the subheadings of (1) grand mal, (2) petit mal, (3) mixed types, (4) psychic epilepsy, (5) epilepsy in the insane, and (6) epilepsy in the feebleminded.

GRAND MAL EPILEPSY

There being very few cases of grand mal without an admixture of some petit mal attacks, I class under this caption the cases in which the attacks are principally of the major type, though occasional minor seizures are also recorded. There were under my observation sixty cases—forty for a period of three years, ten during a period of five years, and ten from a few months to seven years. Eight of the patients belonging in this group had no attacks in four years, and twenty none in two years, while the rest enjoyed immunity from seizures during periods varying from a few months to nearly two years. Three of my patients were uninfluenced by treatment; even maximum doses failed to produce the slightest effect on the attacks.

The average dose was 2 grains (0.13 gm.) of phenobarbital daily, given at night before retiring in nocturnal epilepsy, and during the day in the diurnal form. The benefits obtained from average doses of phenobarbital within a few days from the beginning of treatment were such that for some time at least I gave myself up to the belief that failure to obtain results in a given case of epilepsy meant that the dose of phenobarbital was inadequate. Like others, I soon discovered that even in this, the most responsive group to the phenobarbital treatment, there are individuals who are refractory to the largest doses of phenobarbital; fortunately, these are exceptions. In a general way the statement still holds good that the convulsive variety of epilepsy almost always yields to phenobarbital in correct dosage, and that it is mostly the wrong dose which is responsible for unsatisfactory results and toxic symptoms.

PETIT MAL EPILEPSY

In this group I put the patients suffering principally from minor attacks, with almost complete freedom from the major ones. Minor seizures may last from a few seconds to a minute, and are accompanied by vasomotor phenomena, such as a change in color, especially blanching of the lips at the oral angle, momentary losses of consciousness, or the development of slight motor phenomena short of convulsions.

For the purposes of this report I may divide the entire group into two subgroups: (*a*) petit mal cases in which attacks occur at short or long intervals as isolated seizures, with perhaps an occasional major attack, and (*b*) cases in which the seizures occur quite frequently—from twenty to a hundred daily, with only occasional major attacks.

(*a*) There were seventy cases belonging to this subgroup, that is, they were patients who suffered from petit mal seizures and had a history of but few major attacks. In ten cases there was complete disappearance of both petit and grand mal attacks during a period of from one to two years, while in sixty there was marked diminution as to frequency; instead of one or two daily there were perhaps two monthly spells.

The cases were treated by the fractional method of administering phenobarbital, namely, in divided doses of from ½ grain to 1½ grains (0.03 to 0.1 gm.) of phenobarbital three times daily. Improvement in this class of patients was marked. All spoke of eventual cures, and none desired to return to older methods of treatment.

(*b*) In patients affected with numerous petit mal attacks daily, each lasting perhaps a second, phenobarbital was not nearly so effective as in those of subgroup *a;* nevertheless, the drug exerted a beneficial effect in that the number of seizures was considerably reduced. Of the thirty-five cases coming under my observation, I was unable by the administration of moderate-sized doses of phenobarbital to modify the course in eight, while very large doses became prohibitive on account of the production of drowsiness and apathy. We were evidently confronted with the worst form of epilepsy, and the failures were less surprising than the successes.

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* Read before the Section on Nervous and Mental Diseases at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Grinker, Julius: Experiences with Luminal in Epilepsy, J. A. M. A. 75: 588 (Aug. 28) 1920.

The average dose of phenobarbital administered to these patients was 1½ grains (0.1 gm.) three times daily, but I usually begin with three-fourths grain (0.05 gm.) and then increase to 1 grain (0.065 gm.), 1¼ grain (0.08 gm.), 1½ grains (0.1 gm.), 2 grains (0.13 gm.), 2¼ grains (0.15 gm.) and then to a maximum dose of 2½ grains (0.16 gm.) of phenobarbital, three times daily. Each of the doses mentioned is tried for only three days in order to discover its efficacy for a particular case. The rule is to give as little as possible, but sufficient to make an impression on the number of attacks. In some cases that are slow to respond to medium-sized doses, occasionally results are obtained by overpowering the system with large doses, thus breaking the epileptic habit, and then gradually returning to average doses.

MIXED TYPES

As the majority of patients with epilepsy suffer from both grand mal and petit mal attacks, all of the cases may be considered mixed. But, having already divided epileptics into the predominantly grand mal and the predominantly petit mal cases, I speak of those patients as belonging to the mixed types in whom the two kinds of attacks occur in about equal proportions. Of this group I treated thirty-five cases during periods varying from a few months to several years. There was improvement in all of them. In ten of the cases there had been no attacks of either variety during periods of from several months to one year; then perhaps one or two attacks would occur with another interval between, lasting weeks or months. In the remaining twenty-five cases of this group, major attacks did not return, while minor seizures were reduced to occasional ones—possibly once or twice monthly. In two cases only the major attacks were favorably influenced, having become less frequent, while minor attacks continued as before.

The usual dose of phenobarbital administered in these cases was from 2 to 3 grains (0.13 to 0.195 gm.) daily, divided into two or three doses.

PSYCHIC EPILEPSY

Four cases of psychic epilepsy came under my observation, all responding favorably to treatment with phenobarbital. One patient with postparoxysmal excitement and homicidal tendencies following the major attacks ceased to develop furors since the remedy caused the disappearance of the convulsions. Another patient, the victim of epileptic somnambulism occurring monthly or bimonthly, has been free from sleep walking during an entire year while under treatment with 2 grain (0.13 gm.) doses of phenobarbital nightly. Similarly, a case of postparoxysmal ambulatory automatism lasting sometimes hours after an attack reacted favorably to treatment with phenobarbital. The fourth case was one of postparoxysmal delirium with destructive tendencies. There were no outbreaks of furor during eight months while under treatment with phenobarbital.

EPILEPSY IN THE INSANE

My personal experience with epilepsy in the insane was limited to one patient who presented symptoms of dementia praecox with advanced mental deterioration. After a short course of phenobarbital the seizures became few, but the psychotic manifestations were as numerous as before treatment.

On account of the dearth of cases in my own practice, I may be pardoned for briefly referring to the work of others:

Foley[2] relates his clinical experiences with phenobarbital in the insane and arrives at the following conclusions:

> Notwithstanding the reduction in the number of convulsions, the severity of each convulsive attack of those having convulsions was greatly increased; there was a marked increase of irritability and in some this increased to deep furor. Attacks were so severe in some that removal to the hydrotherapeutic department became necessary. A few developed status with fatal results. The attendants in charge experienced greater difficulty in controlling the patients while under the luminal treatment than under the bromide medication. Injuries were more numerous, and at the end of the three months' period the luminal treatment was discontinued.
>
> From our observation of these two groups we have decided that so far as luminal in the treatment of the epileptic with psychosis is concerned, it is of no special benefit. We are getting better results with the old-time bromide mixture and careful regulation in diet. Our patients are quieter and injuries are less than during the months when they were under the luminal treatment.

Sands,[3] an equally reliable observer, and one working with similar material, had more favorable results: He studied eighty-six cases of epilepsy, covering a period of eight months and limited to female psychotic epileptic patients. He employed the dose of three-fourths grain (0.05 gm.) three times daily, and speaks of striking results. There was a decided decrease in the number of seizures (from 502 recorded seizures in May, 1919, to only eight seizures in May, 1920), and the convulsions were milder and of shorter duration. There was a definite decrease and change in the unpleasant after-effects of the seizures. He was enabled to parole patients whom he otherwise would not have considered fit to leave the institution. Patients became quieter, and the general morale of the ward showed a decided improvement. There was a decided decrease in the number of injuries received during seizures, and in the number of altercations with other patients. Fewer demands were made on the overworked staff. The after-effects of the drug have been practically nil.

Kirk,[4] of the Arkansas Hospital for Nervous Diseases, with a clinical material of more than 200 cases of epilepsy, speaks thus of his experiences with phenobarbital:

> On December 8, 1919, the most severe cases were selected for treatment. The results were so remarkable that all cases of idiopathic epilepsy were given treatment. The method consisted of 1½ grains of luminal at bedtime. There were sixty-one patients who had no convulsions since treatment was begun. One hundred and six patients had less than five convulsions while under treatment; forty-five had more than five. There was immediate decrease in the severity of the seizures, many of them changing from grand mal to petit mal; decrease in the severity of furor and a shortening of the time of confused states; a general improvement of the moral tone of the wards, and a complete cessation of seizures in a large number of cases. No deleterious effects were observed on kidneys or stomach; circulation, temperature and respiration were uninfluenced. It is not a habit-forming drug and is not attended by any pleasurable or disagreeable sensa-

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[2] Foley, E. A.: Institution Quarterly, Springfield, Ill., June 30, 1921.

[3] Sands, I. J.: Luminal Therapy in the Control of Epileptic Seizures, Arch. Neurol. & Psychiat. **5**: 305 (March) 1921.

[4] Kirk, C. C.: Analysis of More Than Two Hundred Cases of Epilepsy Treated with Luminal, J. Arkansas M. Soc. **17**: 128 (Nov.) 1920.

tion. In certain cases the drug is effective in twenty-four to forty-eight hours; in others not until a week or more has passed.

EPILEPSY IN THE FEEBLEMINDED

There were eleven patients belonging to the feebleminded group, in all of whom except one there was noted decided mental improvement after lessening or cessation of convulsions. This exception was the case of an idiotic boy, aged 3 years, suffering from numerous petit mal seizures daily. At first the attacks became considerably reduced in number, but drowsiness and a state of bewilderment regularly followed the taking of moderate doses of phenobarbital; later even large doses failed to reduce the number of attacks. This was an extremely unfavorable case for treatment, bromid having failed before phenobarbital. Contrary to the experiences of some observers of the frankly insane, the feebleminded epileptic seemed to receive a new impetus to higher mental growth. As is well known, numerous epileptic seizures favor mental deterioration even in otherwise normal persons. As soon as the cause, the epileptic attacks, had been removed, greater possibilities were created for stimulating what little mentality there was in these mentally underdeveloped patients.

Thus, an epileptic girl, aged 3 years, the subject of numerous petit mal seizures, before the administration of phenobarbital paid not the slightest attention to her environment and failed to express joy in the satisfaction of her wants. Her eyes did not follow the light, and noise left her unmoved; she did not appear to recognize persons, even her mother. Never having learned to walk or move about, she was practically a breathing automaton. After the exhibition of phenobarbital for a period of six months, during all of which time there was no recurrence of seizures, the patient began to recognize her mother; followed the light, and manifested considerable excitement at the jingling of keys; in addition, she learned to crawl and to stand up against a chair. Though the patient is still an idiot and will probably always remain one, this glimmer of intelligence makes her less of a charge than before treatment.

Another case worth special mention is that of an imbecile woman, aged 35. She suffered from mixed epileptic seizures all her life, and finally had deteriorated physically and mentally, so that she rarely left her bed and never her room. Before treatment she enjoyed the pleasures of a 3 year old child. After a short course of treatment with phenobarbital in 1½ grain (0.1 gm.) doses night and morning, she regularly joined her family at meals, engaged in general conversation, and cleared up to a degree never anticipated by her people.

BY-EFFECTS OF PHENOBARBITAL (TOXIC SYMPTOMS)

During the administration of phenobarbital, whether given to produce sleep or as an antiepileptic remedy, certain unpleasant after-effects have been observed. These followed mostly the administration of large doses, though in a few instances average doses had the same effect. Chief of these were: (*a*) certain forms of dermatitis resembling the exanthem of measles and scarlet fever, appearing either early or late in the course of treatment with phenobarbital; (*b*) states of apathy; drowsiness and sluggish mentality, bordering on idiocy; ataxia, and slow speech—conditions often observed after large doses of bromid in the days before phenobarbital—especially after large doses of phenobarbital; (*c*) conditions of asthenia, or extreme muscular weakness, characterized by an inability to dress or attend to nature's calls; (*d*) extreme irritability and an irascible temper, leading sometimes to violent acts, and (*e*) states of intoxication allied to that of alcohol and often mistaken for it.

(*a*) In my series of 200 cases I found six patients with hypersensitive skins who developed rashes resembling measles: two of this number regularly when the dose of phenobarbital exceeded 3 grains (0.195 gm.) daily; of the others two became somewhat feverish with the rash: the remainder could not take the smallest dose of phenobarbital without suffering from an itching eruption. After the administration of liquor potasii arsenitis (Fowler's solution) in 5 drop (0.3 c.c.) doses three times daily, three of the patients could continue with moderate doses of phenobarbital so as partially to control the epileptic seizures.

(*b*) As an example of apathy may be cited the case of a man, aged 25, who had suffered during a period of ten years from numerous petit mal attacks, with occasional grand mal attacks. Small doses of phenobarbital failed to effect a decrease in the frequency of seizures; it became, therefore, necessary to push the dose to 3 grains (0.195 gm.) three times daily. The effect was a subsidence of attacks; but the patient talked and acted like a dribbling idiot, became ataxic in gait, and his speech was unintelligible. With these after-effects following the larger doses, it became necessary to reduce the dose of phenobarbital, but the effect on the attacks remained minimal.

(*c*) The patient with asthenia was a boy, aged 17, who had suffered from attacks of petit mal to the number of from twenty-five to fifty daily; bromids exerted little or no effect. The patient was referred to me for the exhibition of phenobarbital in effective doses, the usual dose having been tried by the family physician without the slightest benefit. After doses of 8 grains (0.5 gm.) daily, the patient became practically a vegetating automaton; he became weak and could not move about; the weakness was more muscular than mental. Smaller doses are now being given by the family physician, who reports that the attacks are not quite as frequent, but the patient manages to get about and is otherwise fairly comfortable.

(*d*) After taking phenobarbital, several of the patients changed from a state of more or less constant depression before taking the remedy to one of exaltation, irritability, quarrelsomeness and general fault finding. Not having previously noticed this phenomenon in my patients, I attempted to explain to myself the irritable attacks as epileptic equivalents. Soon, however, I discovered similar phenomena in others, and I concluded that they were the result of treatment with phenobarbital. In most of the cases these manifestations were lessened in frequency when the dose was slightly reduced, or disappeared after the same dose was continued. One patient not only displayed an irascible temper, but also became violent and assaulted his family. In that case I was obliged to give very small doses of phenobarbital, combined with moderate doses of bromids, and thus I lost the beneficial effects on the epileptic seizures, while gaining peace for the family.

(*e*) An example of phenobarbital producing a state of intoxication like that of alcohol is the case of a man, aged 54, who was a sufferer from numerous attacks, of minor epilepsy which had a tendency to throw him to the floor suddenly. Average doses of 1½ or 2 grains (0.1 or 0.13 gm.) of phenobarbital did not have the desired effect on his attacks; the larger doses, up to 4 and 5 grains (0.26 and 0.32 gm.) daily, had a marked beneficial effect on the seizures, but the patient after taking the medicine acted and felt as though under the influence of alcohol. So much did this state resemble ordinary drunkenness that his friends and neighbors repeatedly accused him of drinking "moonshine." During these phenobarbital "sprees" his speech became thick and indistinct, he slurred his words and syllables, and he developed a reeling gait. Mentally he was alert, and conversed on topics of the day, but was rather euphoric and always in an exalted mood. It became necessary to reduce the dose and allow the patient to have occasional attacks.

Almost from the day that the drug had become known as a hypnotic, the continental journals contained references as to the toxicity of phenobarbital. The doses administered were naturally larger than those given in epilepsy, and toxic effects were observed often. Thus, Emanuel [5] reported on the exanthems of phenobarbital in 1912, and Patschke [6] in the same year reported a case of phenobarbital intoxication in which the patient became loquacious, excited, exalted, manifested a flippant behavior and altogether acted like an alcoholic. Another of his patients, after 5 grain (0.324 gm.) doses of phenobarbital regularly, had the feeling as though she had imbibed a glass of whisky. A praecox patient, after receiving the equivalent of 6 grains (0.4 gm.) of phenobarbital for sleeplessness, became excited, got out of bed, threw about his clothes, and behaved as a drunken man. The same author observed a measles-like rash in four cases, which disappeared in from six to eight days after the administration of the remedy had ceased. He also observed vertigo of an alarming type in one case.

Deist,[7] von Klebelsberg [8] and Fuchs,[9] in 1914, all warned against the indiscriminate use of phenobarbital because of the toxic effects produced by large doses. Ungar,[10] in 1914, reported a most interesting case of phenobarbital poisoning after the administration of 45 grains (2.9 gm.). In that case there was complete loss of consciousness, areflexia, Cheyne-Stokes' respiration, absent pulse, limp paralysis of the extremities, blindness, contracted pupils with sluggish light reaction, vertigo, vomiting, rash, paralysis of the bladder and rectum, aphasia and convulsions. The patient recovered in twenty-five days. In 1914, Christinger,[11] as did Foley, in 1921, stated that in her opinion the suppression of the motor manifestations in insane epileptics has an unfavorable effect on the psychic outbreaks of the patients. Many are worse, and attacks occur more frequently. Curschmann [12] and Strauss [13] each reported on several cases of phenobarbital exanthems, which they describe as resembling measles more than scarlatina. There was desquamation in one of Strauss' cases; of the other cases, two were of cardiac or renal type, and in his remaining two cases there was an elevation of temperature. Phillips [14] reported a case of his own under the title of phenobarbital poisoning, and cited some of the newer literature on phenobarbital poisoning to which the reader is referred. In his case the course was similar to that of measles, with high temperature, sore throat, severe gastro-intestinal disturbances, rash, desquamation, etc., but there was also nephritis. This author in his conclusions states that the drug should be administered with great care—a statement which everybody will accept; also that patients should report to their physician on the first appearance of a skin rash or of any untoward symptom, and should immediately stop taking the drug. However, experience prompts me to take exception both to premise and conclusion of the following paragraph:

> Since there is little difference between the therapeutic and fatal dose, phenobarbital should not be prescribed in single doses of more than 1½ grains (0.1 gm.), and not more than 3 grains (0.2 gm.) should be taken in twenty-four hours.

There is a vast difference between the therapeutic and the fatal dose. In treating the insane it has often been necessary to give for short periods of time 3 to 5 grain (0.195 to 0.324 gm.) doses of phenobarbital daily, either to subdue maniacal attacks or to produce sleep—and I have encountered no ill effects from its use. In the treatment of epilepsy I have occasionally given 3 and 3½ grains (0.195 and 0.23 gm.) of phenobarbital three times daily without the slightest ill effects, toxic symptoms or fatalities. As for the same author's admonition to examine the urine of patients taking phenobarbital once or twice weekly, I regard this as a luxury, not a necessity. My ambulatory patients are seen only once a month, and urinary examinations are made occasionally. Thus far I have not seen a case of nephritis following the administration of phenobarbital.

SUMMARY

The best results from phenobarbital were obtained in cases of grand mal, and in petit mal when there was a motor element in the attacks. Less benefit was observed in the cases characterized by isolated petit mal attacks, and least of all in those with numerous petit mal attacks. When the sensory and psychic components predominated in the seizures, reduction of attacks was the rule, while complete cessation for long periods was the exception. The feebleminded epileptic was greatly benefited by treatment with phenobarbital, provided the drug caused a cessation of convulsions. Psychic epilepsy is favorably influenced by phenobarbital if the psychic outbreak is the consequence of complete or incomplete convulsions. The efficacy of phenobarbital in the epileptic insane has not been proved, as of the four equally competent authorities, two are extremely optimistic, while the other two have assumed a forbidding attitude toward phenobarbital. Perhaps further proof will be forthcoming from our large colonies for epileptics to decide this question for us.

Regarding the so-called toxic effects from phenobarbital, the number occurring in my series was small compared with the total number (200) under observation, namely, a dozen cases, and these were rather mild compared with those reported in the literature. There were no fatalities from phenobarbital in my practice, and I believe that the danger, though a real one, has been greatly exaggerated.

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[5] Emanuel, Gustav: Neurol. Centralbl. **31**: 563, 1912.
[6] Patschke, F.: Neurol. Centralbl. **31**: 899, 1912.
[7] Deist, H.: Sommer's Klinik f. Psych. u. Nervenkrankh. **8**: 1, 1913.
[8] Von Klebelsberg, Ernst: Psych. neurol. Wchnschr., 1912, p. 415; Neurol. Centralbl. **32**: 193, 1913.
[9] Fuchs: Neurol. Centralbl. **33**: 128, 1914.
[10] Ungar: Wien. klin. Wchnschr. **27**: 847, 1914; Neurol. Centralbl. **34**: 68, 1915.
[11] Christinger, Minna: Neurol. Centralbl. **33**: 760, 1914.
[12] Curschmann: Therap. Halbmonatsh. **31**: 148, 1917.
[13] Strauss: Therap. Halbmonatsh. **31**: 338, 1917.
[14] Phillips, John: Phenobarbital (Luminal) Poisoning, J. A. M. A. **78**: 1199 (April 22) 1922.

The bromids have been entirely displaced by phenobarbital in my management of epilepsy, although the former drug still finds a place when phenobarbital is not well tolerated.

In a general way I have adhered to the dietary rule of not permitting red meats, but I do not insist on a restricted or salt-free diet, as I formerly did when using bromids.

The doses of phenobarbital varied from 1½ grains (0.1 gm.) daily to from 9 to 10 grains (0.6 to 0.65 gm.) daily. The last doses were administered in few cases and then only for short periods of time, while in the majority of cases from 2 to 3 grains (0.13 to 0.195 gm.) of phenobarbital constituted the average daily dose.

I can report no cures. Knowing that phenobarbital is only a symptomatic remedy, I am loath to withdraw it altogether even from patients who have remained free from attacks for from five to seven years.

Parenthetically, I may state that my confidence in the efficacy of phenobarbital as an antiepileptic remedy has caused me to utilize it as a therapeutic test in two of my cases. One was a case of true somnambulism occurring monthly or bimonthly, without a history of epileptiform attacks. Phenobarbital in 2 grain (0.13 gm.) nightly doses at once caused the cessation of sleep walking, which has not recurred during the entire period of its administration (one year). Another case in which phenobarbital acted in the double rôle of therapeutics and diagnosis is the following: A schoolgirl, aged 13, developed peculiar motor spasms during which there was tetanoid contraction of the upper and lower extremities. Soon after the administration of average doses of phenobarbital there were no more attacks, and the patient believed herself cured. Then followed another attack, phenobarbital was resumed, and there have been no attacks since (fourteen months).

COMMENT

It will be observed that the best results from phenobarbital were obtained in those forms of epilepsy which are accompanied by convulsions, namely, the grand mal variety, while less brilliant results were seen in the so-called petit mal attacks and in the psychotic outbreaks. I believe that the explanation will be found in an analysis of the epileptic attack itself. Each convulsion, either major or minor, reveals two components in different proportions: (*a*) the motor element, and (*b*) the sensory element in a broad sense, which includes the psychic. The efficacy of phenobarbital—an anticonvulsive remedy—increases in proportion to the predominance or not of the motor element in a given attack; hence the splendid effects in grand mal and in those cases of petit mal with motor manifestations. And for the same reason phenobarbital is less effective in the sensory losses or so-called "absences" of petit mal epilepsy. In other words, the greater the motor upset, the more effective is the remedy, while sensory and psychic upheavals are benefited only secondarily. With this in mind we can also understand why the mentality of epileptics taking phenobarbital is improved. It appears that mental deterioration in the epileptic largely depends on the disturbances of the cerebral circulation by repeated attacks acting mechanically or through the vasomotor mechanism. The prevention of frequent mechanical insults is an indirect means of mental improvement; and epileptic dementia, in many cases really bromid depression, rapidly disappears under phenobarbital medication. The effect may even be greater than anticipated, for many patients, especially early in the treatment, appear somewhat exalted. Epileptic dementia consists for the most part of apathy, lack of concentration and general mental inertia with memory losses. After inhibiting attacks, the patient becomes more animated in his conversation and more active physically, the characteristic facies and gait of the epileptic disappear, and he again appears as a normal individual.

Whether the explanation given is correct or there is some other, the fact remains that the patient's mentality is often improved after the successful administration of phenobarbital, as was shown not only in the normal epileptics, but also in the defectives under my observation.

CONCLUSIONS

1. Phenobarbital is the most effective symptomatic remedy in the management of epilepsy.

2. The best results are obtained in the convulsive types of the disease—both grand mal and petit mal, with effects that are almost specific. The sensory and psychic forms of epilepsy are greatly benefited, if not by cessation then by reduction of seizures.

3. There has been no mental deterioration from the administration of phenobarbital; on the contrary, patients have become more alert and keen, have lost their unnatural reticence and the fatuous, acne-marked facial expression previously the sign of an epileptic.

4. Phenobarbital, when taken over many years, neither causes damage to the viscera nor results in habit formation.

5. Large doses are mainly responsible for the so-called toxic and by-effects.

6. The art of administering phenobarbital consists in finding a dose suitable to each case without the production of unpleasant by-effects. One should begin with average doses of from 1½ to 2 grains (0.1 to 0.13 gm.) of phenobarbital daily, and "feel" his way up or down the scale until results are obtained. Large doses should not be resorted to unless the smaller ones prove ineffective; and even then there should be a gradual return to smaller doses.

7. An indiscriminate use of phenobarbital is fraught with danger and is certain to bring discredit on the most valuable antiepileptic remedy in our therapeutic armamentarium.

25 East Washington Street.

ABSTRACT OF DISCUSSION

Dr. David S. Booth, St. Louis: I have twice had the privilege of discussing a paper by Dr. Grinker on the use of phenobarbital. On those occasions, Dr. Grinker seemed to be more optimistic as to the results of this treatment, and I disagreed with him. I can more fully agree with him at this time. In those previous discussions I mentioned what Dr. Grinker has here brought to our attention, the ill effects of phenobarbital, and especially the causing of drowsiness. I have had it cause drowsiness to such an extent that the patient could not attend to business, and yet it did not control the attacks. In those cases in which phenobarbital fails, or in those cases in which it has been given at all, has it been Dr. Grinker's experience that the bromids then will not be of any benefit? I have heard or read such an opinion, and if Dr. Grinker has had any experience in this line, I would ask what his observation has been.

Dr. F. E. Coulter, Omaha: In the last eight years I have found phenobarbital a very effective remedy, in many cases far superior to the bromids, and with many of the objectionable features of the bromids eliminated. If Dr. Grinker will add to the use of phenobarbital the removal of the causes of epilepsy, which produce the syndrome, or whatever they wish to call it, I think he will then cover the field of treatment quite well.

Dr. A. L. Skoog, Kansas City, Mo.: I wish to subscribe to what Dr. Grinker said respecting his further experience in the use of phenobarbital in the treatment of epilepsy. He is right in warning about observation when starting the patient on the treatment. Perhaps even closer observation is demanded with this drug than with bromid therapy. I will cite one case illustrating this point. A healthy, robust girl, aged 15, weighing 140 pounds, had had bromid therapy without any result. I placed her on 1 grain (0.065 gm.) doses of phenobarbital, given but once a day, in the evening. After the third or fourth dose the patient was extremely drowsy and apathetic. It was evident that she suffered from toxic manifestations.

Dr. E. T. Ponder, Little Rock, Ark.: We have used phenobarbital at the state hospital in Arkansas for several years with satisfaction. Dr. Grinker did not mention the treatment of status epilepticus. In this we use a solution of phenobarbital sodium, approximately 5 grains of the drug to 20 minims of the solution. We give this in conjunction with the bath or cold pack. Since instituting that treatment we have never lost a case of status epilepticus.

Dr. Charles R. Woodson, St. Joseph, Mo.: In regard to the treatment of status epilepticus, for seventeen years I had charge of the state hospital and since then of a sanatorium, and my treatment in the cases mentioned has been from 60 to 80 grains (4 to 5.3 gm.) of bromid, and I have not lost a case and have not failed to relieve the condition, except in a very few cases.

Dr. Julius Grinker, Chicago: Dr. Booth is right—the bromids seem to lose effect after the unsuccessful administration of phenobarbital—a statement I made in my first paper. In two or three cases I have suggested a return to the bromid, and the patients regularly requested to be put back on phenobarbital. In some cases not responsive to the phenobarbital treatment, I have discovered a way out of the difficulty, and that is, I combine the bromid with phenobarbital in one prescription. I believe that in this way one may gradually return to the bromids. However, before giving a patient phenobarbital I make sure that the bromids have not been successful. During the last two or three years I have used little or no bromid. In regard to toxic doses, before taking up phenobarbital therapy in any case it is worth while to inform oneself as to what untoward effects may be expected from the use of this agent and watch the patient very closely. In the beginning of treatment I see the patients often and, after having settled on the dose, I ask them to return only once a month. I may also state that I have had a hard time keeping girls from marrying after having been on the phenobarbital treatment. It is wrong to advise marriage, because the patients are not cured. One can keep the patient feeling and acting as a normal person for years—something the bromids accomplish but seldom.

Mother's Milk.—All our science and all our art have not yet provided a substance so good as the mother's milk. Yet how little we know about it. I believe physiologists are not yet determined as to whether breast milk is really a secretion or not. Certainly we have no proved knowledge as to the cause of its sudden appearance in the breasts, and little knowledge as to the conditions controlling it either in quantity or in quality. Why is true milk never secreted as long as the child is in the uterus? After a woman has had a child, and has nursed that child, small quantities of milk frequently remain in the breasts, and may be expressed on pressure for months or years subsequently, but as soon as that woman becomes pregnant again, the milk disappears from her breasts once more. True, an oily fluid-colostrum appears in the breasts during pregnancy, but no true milk until some seventy hours after the infant's birth.—Johnstone, *Edinburgh M. J.*, May, 1922.

ANTEPOSITION AND RETROPOSITION OF THE UTERUS: INCIDENCE AND SYMPTOMS[*]

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One thousand consecutive cases of unmarried women, aged from 15 to 45 years, who had no record of pelvic infection, pelvic tumor or pregnancy were studied to determine, if possible, the relative frequency with which the various displacements of the uterus and the attendant symptoms occur in cases in which no pathologic or physiologic factors could have affected the position of the uterus. Polak[1] says that one woman in every five has retroversion, congenital or acquired. The cases in this series represent the congenital type.

In the series of 1,000 cases, retroposition of the uterus was found during routine examination in 202 (20.2 per cent.); this indicates that the ratio of 1 to 5 is constant in the congenital type. The diagnostician is often puzzled by the fact that the general examination of a patient may disclose a retroverted or retroflexed uterus without a history suggestive of a pelvic lesion, and the next patient examined with the same condition of the pelvis may have dysmenorrhea and backache, for which she is seeking relief. Often patients with dysmenorrhea, backache and constipation, whose uteri have been restored to the normal position by surgical measures, still complain of the same symptoms, showing that in many cases the position of the uterus is only one etiologic factor.

When the uterus is in normal position, the ligaments act merely as guy-ropes and not as means of suspension. The uterus is maintained in its normal position by (1) the proper tone of the anatomic supports; (2) the elasticity of the musculature of the uterus; (3) the intact pelvic floor, and (4) the intra-abdominal pressure, which serves to keep the anterior wall of the uterus in contact with the bladder. Backward rotation or prolapse of the uterus occurs when these factors fail to exert their normal influence. The organ is necessarily mobile. By manipulation it can be rotated posteriorly through an angle of 180 degrees and laterally through an angle of 45 degrees, but under normal conditions it returns to its proper position after the temporary displacement.

Graves[2] says that the relaxation of the pelvic supports, with consequent permanent retroversion, is not the result of ordinary falls or injuries. In the normal woman, nature has provided for accidents of this kind, and unless the bladder is greatly distended the sudden increase of abdominal pressure serves only to force the uterus into anteposition. Displacement of the uterus, which would remain an abnormal displacement as the result of trauma, would mean the rupturing or tearing of its normal supports with the usual symptoms of an acute condition in the abdomen.

In the true congenital cases of retroversion the fetal type persists, the axis of the organ is perpendicular and the intestine fills the uterovesical space. It is reasonable to assume that the second and third degrees of retroposition are the result of continued intra-abdominal pressure during childhood and early adult life.

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[*] From the Section on Medicine, Mayo Clinic.

[*] Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Polak, J. O.: Acquired Retrodisplacements of Uterus, New York M. J. **111**: 89 (Jan. 17) 1920.

2. Graves, W. P.: Gynecology, Philadelphia, W. B. Saunders Company, 1916.

It is often noted that congenital retroposition per se does not give rise to symptoms; our statistics confirm this, but symptoms complained of in the acquired type, in which the retroposition was first noticed following infection, childbirth or the development of a tumor, are more common in the cases of congenital retroposition than in the cases of anteposition.

The patients in this series came to the Mayo Clinic because of a variety of complaints, and were subjected to general examination regardless of the nature of their diseases. In many of the records studied, no distinction had been made between retroversion and retroflexion, or between anteversion and anteflexion; therefore, the inclusive terms anteposition and retroposition are used.

RECORD OF ONE THOUSAND CONSECUTIVE CASES OF MALPOSITION OF UTERUS IN UNMARRIED WOMEN

	Uterus Normal or in Anteposition		Uterus in Retroposition	
	No.	Percentage	No.	Percentage
Regularity of menstruation mentioned by	787	98.6 of 798	202	100.0 of 202
Regular menstruation	641	81.44 of 787	157	77.72 of 202
Irregular menstruation	146	18.55 of 787	45	22.27 of 202
Character of menstrual flow mentioned by	488	61.1 of 798	129	63.8 of 202
Moderate flow	289	59.22 of 488	72	55.81 of 129
Scant flow	109	22.33 of 488	26	20.15 of 129
Profuse flow	90	18.44 of 488	31	24.03 of 129
Dysmenorrhea, Grade 3 or 4	102	12.8 of 798	33	16.33 of 202
Backache during menstrual periods	58	7.26 of 798	23	11.38 of 202
Intermenstrual backache	67	8.39 of 798	27	13.36 of 202
Intermenstrual pelvic pain	16	2.0 of 798	11	5.44 of 202
Headache during menstrual periods	36	4.51 of 798	11	5.44 of 202
Intermenstrual headache	221	27.69 of 798	71	35.14 of 202
Leukorrhea	127	15.91 of 798	50	24.75 of 202
Nervousness	305	38.22 of 798	78	38.61 of 202
Constipation	272	34.08 of 798	77	38.11 of 202
Irritation of the bladder	54	6.76 of 798	15	7.42 of 202
General condition mentioned by	723	96.0 of 798	202	100.0 of 202
General condition, good	300	41.49 of 723	110	54.45 of 202
General condition, fair	376	52.0 of 723	81	40.1 of 202
General condition, poor	47	6.5 of 723	11	5.44 of 202
Operation advised	6	0.75 of 798	3	1.48 of 202
Dilatation and curettage for dysmenorrhea advised but not urged	4	0.51 of 798		
Number of patients (total, 1,000)	798	79.8 of 1,000	202	20.2 of 1,000
Average age of patients	25.87 years		26.7 years	
Average age when menses began	13.85 years		14.18 years	

In the series of 1,000 patients, anteposition, probably the normal position in most cases, occurred in 798 (79.8 per cent.) In view of the fact that the infantile type of uterus with which one expects to find delayed menstruation is more often in the anteposition, it is of interest that in these cases menstruation was established at the average age of 13.85 years, and in cases of retroposition, at the average age of 14.18 years.

Dysmenorrhea occurred in 102 (12.8 per cent.) of the patients in whom the uterus was in anteposition, and in thirty-three (16.33 per cent.) of patients with retroposition. Only patients who complained of severe pain, Grades 3 or 4, were listed as having dysmenorrhea.

Seven hundred and eighty-seven of the 798 patients with anteposition mentioned periodicity of menstruation. One hundred and forty-six (18.55 per cent.) of the 787 menstruated irregularly, and forty-five (22.27 per cent.) of the 202 with retroposition menstruated irregularly. Four hundred and eighty-eight of the patients with anteposition and 129 patients with retroposition mentioned the character of the flow. The menstrual flow was scant in 109 patients (22.33 per cent.) with anteposition, and in twenty-six (20.15 per cent.) with retroposition; the menstrual flow was moderate or normal in 289 patients (59.22 per cent.) with anteposition and in seventy-two (55.81 per cent.) with retroposition. On the other hand, profuse menstrual flow was recorded in the histories of ninety (18.44 per cent.) with anteposition, and in the histories of thirty-one patients (24.03 per cent.) with retroposition, probably because of passive congestion.

Backache was not a common complaint. It occurred during menstruation in only 7.25 per cent. of the 798 patients with anteposition, and in 11.38 per cent. of the 202 patients with retroposition. Intermenstrual backache occurred in 8.39 per cent. of all the patients, although the ratio remained the same in retroposition and in anteposition.

None of the 1,000 patients had marked leukorrhea; it was mentioned in the history of 15.91 per cent. of the patients with anteposition and in the history of 24.75 per cent. of the patients with retroposition. It was difficult to correlate nervousness, constipation and general debility with the pelvic findings, as these three symptoms depended largely on the complaints for which the patients came to the clinic. Some came because of hyperthyroidism, and many came because of postinfluenzal debility. Only about 7 per cent. of all the patients had irritability of the bladder; it was slightly more frequent in the patients with retroposition.

Operation for pelvic complaints (practically always dysmenorrhea) was advised for only six (0.75 per cent.) of the patients with anteposition, and for three (1.48 per cent.) of the patients with retroposition.

Many of the patients with retroposition have other evidences of deficient tissue-supporting strength, such as scoliosis, enteroptosis and poor muscular development. Unfortunately, surgery seldom affords relief in these cases, as the uterine displacement is simply one expression of subnormal muscular development and often of endocrine dysfunction. These patients require careful analyses and, usually, readjustment of their habits and living conditions.

Certain patients with retroposition who seek relief from dysmenorrhea are apparently well-developed, healthy women. In this group, if the pain occurs before the flow is well established, and is relieved after it becomes free, the outlook for relief is good after proper correction of the displaced organ.

CONCLUSIONS

1. Uncomplicated retroposition of the uterus occurs in 20.2 per cent. of unmarried women.

2. The age at which menstruation becomes established is practically the same in women with anteposition and in those with retroposition of the uterus.

3. Dysmenorrhea is about 1.3 times as common in women with retroposition as with anteposition.

4. Patients with retroposition had intermenstrual backache slightly more often than those with anteposition.

5. There seems to be little difference in the character and incidence of symptoms as a whole in cases of anteposition and in cases of retroposition of the uterus.

6. Congenital retroposition of the uterus, associated with backache, dysmenorrhea and so forth, usually is part of a general picture of deficiency of development.

7. Surgical procedure to relieve pelvic symptoms in uncomplicated cases should be advised only after careful study of the patient from the point of view of the general, as well as the gynecologic, condition.

FREQUENCY AND CLINICAL SIGNIFICANCE OF DISPLACEMENTS OF THE UTERUS *

PALMER FINDLEY, M.D.
OMAHA

In my effort to determine the clinical significance of displacements of the uterus, I have culled from 3,763 gynecologic records 480 cases of retroversion and retroflexion, and to this number I have added seventy cases of prolapsus, making a total of 550 displacements, or approximately one displacement in seven gynecologic cases as they have occurred in private practice.

No forward or lateral displacements of the uterus are considered, for the reason either that they are congenital and in themselves are symptom free, or that they are dependent on encroaching lesions which directly lead to the displacement.

In the preparation of this report, I divested myself of all preconceived prejudices and have let these records speak for themselves, without regard for the voluminous literature that has accumulated on the subject.

For the purposes of this analysis, it is assumed that prolapsus is but the end stage of retroversion and as such may properly be incorporated in the consideration of retrodisplacements. Indeed, it may be well contended that an uncomplicated retrodisplacement is of no clinical significance save that of the first step in the development of prolapsus. It is my impression that gynecologists are fairly well agreed that uncomplicated retrodisplacements of the uterus give rise to no symptoms and deserve no consideration at the hands of the surgeon. This statement may be qualified in reference to sterility, which, for mechanical reasons, is influenced to a limited degree.

For generations, women have been led to believe that displacements of the uterus give rise to all manner of local and general disturbances, and now, when informed by a physician that the "womb is out of place," they are disposed to rationalize all complaints on the basis of the displacement.

Furthermore, it is obvious from a perusal of our modern textbooks that the medical student and general practitioner are too often misled by the elaborate symptomatology credited to uterine displacements. Under the caption of retrodisplacements of the uterus, we often find an astounding array of symptoms: sterility, leukorrhea, dysmenorrhea, backache, pain in the sides radiating to the thighs, bladder and rectal disturbances, constipation, anemia, loss of flesh, general fatigue, nervousness and what not. Then, by way of apology, the assertion is usually made that these symptoms are often due to complicating lesions in the pelvis. Would it not be better to say in unmistakable language that retroversions and retroflexions of the uterus do not in themselves cause symptoms and that they are of no clinical significance in the absence of descent of the uterus; that the pelvic symptoms complained of are chargeable to associated lesions within the pelvis, and that, in the absence of pelvic lesions other than the backward displacement, we must look for more remote factors to account for the pelvic disturbances?

It is imperative that these patients should be examined not only for static faults but also for physiologic disturbances of organic balance. A backward displacement or prolapse of the uterus accompanied by backache too often elicits ill-timed advice for operation without consideration for their static alinement. As Lowman has recently said, "The reason that so many chronic cases stay chronic is largely due to the fact that they are not completely gone over and all the points of nerve leakage ascertained."

Have we not all observed cases in which retrodisplacements give rise to no pelvic disorder until, through suggestion, the displaced uterus becomes a pain-pathway for neurosis in a woman who has acquired nervous instability from overstress?

Theilhauber, in 1895, opened the way for acceptance of this point of view when he said that the symptoms commonly referred to retrodisplacements were in reality due to other conditions associated with the displacement and that the displacement should be regarded as an accidental accompaniment. Schroeder found retroversions in 25 per cent. of medical cases in which there were no pelvic symptoms.

Of the 480 retroversions and retroflexions, twenty (4 per cent.) were uncomplicated. No postmenopausal cases were included among the uncomplicated cases, it being assumed that an uncomplicated retroversion is physiologic in the senile stage. Of the twenty patients having uncomplicated cases, fifteen had borne children. The average age was 28 years. Nervousness was the dominating factor in all these cases. In the case of two patients who were operated on, one later gave birth to a baby after a long period of sterility, and the other was relieved of her pelvic complaints. I cannot refrain from expressing the wish that my nonoperating record in this class of cases had been 100 per cent., notwithstanding the fact that results seem to have justified the operations. Five of these patients complained of backache in the menstrual period, two of pelvic pains, four of leukorrhea and three of sterility. But the outstanding clinical phenomenon in the twenty uncomplicated cases was nervousness—they all had a pelvic squint.

Turning now to the complicated cases of retroversion and retroflexion, I find 460. Only cases were included in which operation had been performed, together with a lesser number in which there was no operation but in which the accuracy of the anatomic findings on the examining table could be reasonably relied on.

It appears from the records that in almost all instances the indications for operation rested on the complicating pelvic lesions and not on the displacement of the uterus. With these 460 case records all carefully charted, it was convincing and enlightening as demonstrating how it was almost uniformly possible to ascribe the various symptoms to the one or many associated lesions in the pelvis without incriminating the displaced uterus. Most difficult of all was the accounting for backaches in the absence of any demonstrable pathologic condition within or behind the uterus. Many such backaches were ascribed to faulty posture, the result of a relaxed abdomen; or to a tilted pelvis, the result of fatigue attitude. As secondary considerations may be mentioned faulty foot mechanics, sacroiliac relaxation and focal infections. Failing in all these to find a satisfactory explanation for the backache, there is the ever-present neurosis to fall back on. Chipman quotes La Rochefoucauld as saying: "Pain is the greatest liar in the world, but of all these painful

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liars we know that backache is the most Ananias—or Sapphira." Backache is indeed a vexed problem—one that it is difficult to classify and even to localize, and yet it is the most common complaint of women. For my part, I do not believe an uncomplicated retrodisplacement causes backache. It is only when the uterus begins its descent through the pelvis that it may be said to cause backache.

We have heard much of congestion of the uterus as the direct result of retrodisplacements, and this alleged congestion is held accountable for menorrhagia, dysmenorrhea and leukorrhea. A study of my case records convinces me that these symptoms are more satisfactorily accounted for by the presence of morbid changes in the uterus and adnexa.

In a total of 395 retroversions and retroflexions, 134 (34.15 per cent.) were in nulliparas, of whom sixty-four were married and seventy single. In the twenty uncomplicated cases, there were sixteen married women, and but one of this number was sterile. In 375 cases of retroversion associated with various pelvic lesions, sixty-five married women were sterile—a percentage of 17.3. In eighty-six cases of retroflexion with associated pelvic lesions, fourteen of the married women were sterile—a percentage of 16.2 as compared with 6.25 per cent. of sterility in the twenty uncomplicated cases of retroversion and retroflexion. This leads me to the conclusion that an uncomplicated backward displacement of the uterus has little or no influence on pregnancy; that when sterility exists we must look to complications both local and general for the underlying cause.

As for pressure symptoms referred to bladder, rectum and pelvic nerves, I can see no rational basis for assuming that a perfectly movable, normal uterus in retroposition can be held accountable. Whatever pressure symptoms may exist are due to gross pelvic lesions associated with the displacement.

I have incorporated seventy cases of prolapsus in my series of displacements; sixty-eight of this number were in multiparas and two in nulliparas. Ten patients were in the postmenopausal state. In two, there was complete absence of symptoms. Fifteen of the seventy patients (21.4 per cent.) complained of menorrhagia—a proportion far exceeding that found in retrodisplacements, and for the reason that prolapsus is common to an age when myopathic hemorrhages most often occur. Backache was complained of in fully half the cases, and it was noted that backache was a more prominent symptom in prolapse of moderate degree than in procidentia. As in flatfoot, so in prolapsus uteri, there is greater strain on the supporting structures in the early stages of the descent.

A very moderate degree of descensus is not uncommonly associated with retroversions in nulliparas, but procidentia is rare in women who have not borne children. Two such cases are among the number recorded, a percentage of 2.85, which corresponds fairly closely with the figures of Weinberg, who found 3.45 per cent. of all prolapsus in infants and nulliparous women. It has been estimated that 86 per cent. of procidentia in the new-born is associated with spina bifida, and this does not reckon with cases of spina bifida occulta. In twenty-eight multiparous women with prolapsus, Ebeler found 23 (82.14 per cent.) with occult spina bifida. Various interpretations have been placed on the concurrence of spina bifida and prolapsus. Unquestionably, there is an element of infantilism in most if not all cases. One of my patients was an inmate of an institute for the feebleminded. Kepler collected the records of eighty cases of procidentia in nulliparous women, and thirty-eight were mentally defective. There is weakening of the supports of the uterus through defective innervation, coupled with the effects of intra-abdominal pressure; here we have the answer to the mechanism of prolapsus in the new-born and in nulliparous women.

CONCLUSIONS

1. An uncomplicated retrodisplacement of the uterus is of no clinical significance save that of a preliminary step in the development of prolapsus. This statement should be qualified in reference to sterility, which for mechanical reasons is influenced to a limited degree.

2. With the possible exception of sterility, pelvic symptoms are chargeable to associated lesions within the pelvis and to more remote factors.

3. Pelvic complaints are engendered by suggestion, and as a result of suggestion the displaced uterus becomes a pain-pathway for neurosis in a woman who has acquired nervous instability from overstress.

4. There were 480 retroversions and retroflexions, and only twenty (4 per cent.) were uncomplicated. The pelvic complications comprised the whole category of pelvic lesions.

5. The indications for operative intervention rested in the associated pelvic lesions and not in the displacement of the uterus.

6. It was not always possible to account for backache, and the correction of the displacement, together with the removal of accompanying pelvic lesions, did not always relieve the backache. Failing to find a satisfactory explanation within the pelvis for backache, rather than accept an uncomplicated retroversion or retroflexion as the causal factor, I have looked to faulty posture, the tilted pelvis from fatigue attitude, faulty foot mechanics, sacro-iliac relaxation and focal infection.

7. The popular idea that uncomplicated retrodisplacements of the uterus result in congestion of the uterus, which, in turn, causes such disturbances as leukorrhea, dysmenorrhea and menorrhagia, is not justified in fact. These symptoms are more satisfactorily accounted for by the presence of morbid changes in the uterus and adnexa.

8. Referring to the question of sterility in retrodisplacements of the uterus, I find: 6.25 per cent. sterility in uncomplicated cases; 16 per cent. sterility in complicated retroversions, and 25 per cent. sterility in complicated retroflexions. Here, again, it is evident that the associated pelvic lesions are largely responsible. The small percentage of sterility (6.25) in uncomplicated retroversion and retroflexion would indicate the comparative insignificance of the displacement as a factor in the causation of sterility.

9. Pressure symptoms referred to bladder, rectum and pelvic nerves are to be ascribed to the presence of gross pelvic lesions and not to the displaced uterus.

10. Prolapsus is the end-stage of retroversion. Seventy cases are included in my series of 550 displacements of the uterus. Two patients in these seventy cases were primiparas. Menorrhagia was found in 21.2 per cent. of the seventy cases. Backache was found in fully half of the cases and was more common in prolapse of lesser degree than in procidentia. Procidentia in nulliparous women is rare and is due to defective innervation coupled with the effects of intra-abdominal pressure.

11. In response to the request of our secretary, I have endeavored to find in my records the answer to the following questions:

(*a*) What is the frequency in nulliparous women?

Answer: Retroversions, 169 (42 plus per cent.); retroflexions, twenty-nine (33 plus per cent.); prolapsus, two (2.85 per cent.).

(*b*) What is the frequency in women who have borne children?

Answer: Retroversions, 225 (57 plus per cent.); retroflexions, fifty-seven (66 plus per cent.); prolapsus, sixty-eight (97.15 per cent.).

(*c*) To what extent are symptoms chargeable to the displacement of the uterus rather than to the associated pelvic lesions?

Answer: An uncomplicated retroversion and retroflexion does not give rise to symptoms with the possible exception of sterility, and then to a limited degree. It is one thing to have symptoms referred to the uterus and quite another to have them emanate from the uterus. In prolapsus uteri, backache and a dragging sensation in the pelvis are symptoms directly chargeable to the displacement, as may be certain bladder and rectal disturbances.

(*d*) To what extent can tentative measures be relied on to bring the desired relief, either temporary or permanent?

Answer: It has not been my purpose to discuss treatment of these displacements. In a general way I will say that tentative measures have a very limited field of application, as the symptoms complained of are usually caused by associated pelvic lesions which, as a rule, call for surgical intervention. In prolapsus, the pessary has its place as a temporary expedient, but never as a permanent measure unless operative means are contraindicated. General hygienic measures and psychotherapy are not to be disregarded.

(*e*) How often do these symptoms call for operation?

Answer: Uncomplicated retrodisplacements never call for operation. Complicated retroversions and retroflexions may or may not call for operation. The indications for operation are supplied by the associated pelvic lesions and not by the displacement of the uterus. Seventy-six per cent. of my patients were operated on.

Prolapsus is preeminently a surgical lesion. Seventy-two per cent. of my patients were operated on.

670 Brandeis Theater Building.

Changes in the Endometrium.—Much research is now being devoted to the attempt to correlate the changes in the uterus with those in the ovary—a matter of very considerable difficulty when you consider the paucity of available human material in regard to which a sufficiently accurate history can be obtained. The series of changes in the lining endometrium of the uterus has been very fully worked out, and may now be said to be definitely established. There are four stages each month. There is first the stage of premenstrual congestion, followed in the second place by the stage of menstruation proper when bleeding takes place from the surface of the endometrium. This is succeeded thirdly by the postmenstrual stage of involution or repair, and that in turn gradually subsides into a fourth short quiescent or resting stage. Another premenstrual congestion then begins, and so on the cycle goes. The life history of the corpus luteum has also been mapped out into four stages, but not yet with quite the same degree of certainty. According to Fraenkel, Meyer and others, the stages are those of proliferation of the lutein cells, vascularization of the lutein layer, maturity of the corpus luteum, and lastly retrogression.—Johnstone, *Edinburgh M. J.*, May, 1922.

SO-CALLED TRAUMATIC DISPLACEMENTS OF THE UTERUS *

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The medical profession has been closely associated with the rapid industrial development of the United States during the last two decades—more closely than most physicians realize. Many great industries have awakened to the economic value of preserving their human machines. Formerly the human machine was used to the utmost, and, when broken, was thrown on the scrap heap; today, at least five states, as well as the federal government, have passed rehabilitation laws, with a view to salvaging the disabled employee and replacing him in industry as a productive unit of society. Forty-two states have passed employees' compensation laws; many of them are still inadequate, but all are for the purpose of paying the just claims of men disabled by their work. Thus the industrial world is filled with great medico-economic and medicolegal problems, whose solution depends primarily on the assistance of the leaders in the medical profession.

Industrial compensation commissions, state insurance commissions and the privately owned insurance companies responsible for the payment of claims against industrial and public utility corporations are all seeking the facts concerning many of the medicolegal controversies which in the past have been left for solution to the unscrupulous lawyer and to the even more unscrupulous profesional medical expert witness. All of us have decried the professional testifier to falsehood, but few of us have been willing to appear in court or before the industrial commissions to expose the falseness of his testimony.

This paper is presented in an endeavor: (1) to separate the true from the false claims for disability when uterine displacement is the alleged result of injury; (2) to point out the great responsibility assumed by a physician when he informs his patient that certain existing pathologic conditions are the result of injury, and (3) to attempt to clarify and simplify the facts concerning traumatic uterine displacements, with the hope that this section will take some action to inform the medical profession and the courts of the country concerning true and false claims.

There is a group of medicolegal entities which have occupied the attention of the courts in connection with accident cases during the last twenty-five years. Visceroptosis began to appear as a claim for damages in many personal injury suits, following Glénard's treatises on the subject twenty-five years ago; in time alleged visceroptosis was replaced by claims for damages due to so-called traumatic displacement of the kidney; this was followed in turn by coccygodynia. Most of these conditions gradually went out of fashion, and seldom appear today in declarations of injuries.

More recently, traumatic appendicitis, traumatic displacements of the uterus and traumatic hernia have been in vogue. The first two are beginning to show signs of going out of style; the last, traumatic hernia, bids fair to outlast all other claims of personal injury. New entities are appearing on the medicolegal horizon, and are rapidly increasing in popularity; for example, sacro-iliac separations and subluxations of the joints and spine. Anomalies due to the position when roentgenograms are taken and the various anomalies of the joints of the vertebrae, as well as lipping of the joint surfaces due to arthritis, furnish the pathologic background for many of these alleged claims.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

FREQUENCY OF SO-CALLED TRAUMATIC DISPLACEMENTS OF THE UTERUS IN PERSONAL INJURY CLAIMS

In regard to the problem of so-called traumatic displacements of the uterus, specifically to retroversion, retroflexion and prolapse (the lateral and ante displacements are never claimed), from the answers to questionnaires sent to industrial commissions, to chief surgeons of railroad and street railway corporations and to insurance companies, it would appear that so-called traumatic displacements of the uterus are made the basis of personal injury claims sufficiently often to deserve our consideration.

One of the largest city railway companies informed me that this is a frequent cause for claims of personal injury, although not as frequent as it was five years ago. Another large street railway company stated that it had 500 such claims; another company replied that during the last ten years there had been approximately 100 such claims. Several chief surgeons of railroads replied that this was a very frequent cause of personal injury action. The insurance companies consulted likewise stated that traumatic displacements of the uterus were frequently claimed, and were among their most difficult cases to handle.

It is worthy of note that the public utility corporations, which have the public accident cases, were subject to lawsuits much more frequently than the industrial corporations; the cases of the former are tried in the courts before juries, whereas the latter are practically all adjusted before the industrial commision. We received the report that from ten to fifteen cases of this nature have been filed before the industrial commission of Ohio, about five before the Indiana commission and an average of about ten a year before the Illinois commission. Other commissions replied that a few such cases came before them each year. One large insurance company has paid out approximately $20,000 during the last year in the settlement of five so-called traumatic uterine displacement cases. These figures are sufficient evidence that this is a medicolegal problem of far-reaching economic importance, worthy of our consideration.

EFFECT OF TRAUMA

Are displacements of the uterus ever due directly to trauma, the result of accidents, as distinguished from trauma of parturition and instrumentation?

First, let us consider the answer to this question from an anatomic standpoint. For our purpose it is sufficient to explain that the uterus is a small, pear-shaped organ, weighing from 1 to 1½ ounces normally, embedded in its cervical portion in the strong pelvic floor, the pelvic fascia and the levator ani muscles making up the chief strength of this pelvic diaphragm and the body of the uterus suspended in the pelvis by the uterosacral and broad ligaments, as a part of a suspension bridge arrangement, more or less freely movable. The uterus is protected in front by the bladder, and moves backward as the bladder becomes distended. It is protected above and below by the intestines. It is partially surrounded, and greatly protected by a strong, bony framework—the pelvis.

In the majority of women the uterus lies in an anteverted or slightly anteflexed position. However, as Graves has pointed out, 16 per cent. of the patients having retrodisplacements, examined at the Boston Free Hospital for Women, had developed mental displacements. These are the so-called congenital cases. Other authorities have pointed out that retroposed and retroverted uteri frequently are normal conditions in many women. Sufficient evidence has accumulated to demonstrate that not all retrodisplacements are pathologic, and that many retrodisplacements exist without the knowledge of the patient, furnishing no symptoms, and discovered only on examination for other conditions.

All of us have marveled at the readiness of this little organ to return to its normal position, after it has been pulled down so that the external os appears at the vulva, in order that the cervix might be dilated or some other operation performed. Webster and Findley taught us always to examine the patient after completing the curettage to ascertain whether the uterus was in proper position. Occasionally the cervix hung low in the vagina and the fundus was retroposed, but, as a rule, when the cervix was released, the uterus drew up normally into the pelvis.

In many cases, just prior to operation, I have purposely endeavored to pull the uterus down and push it backward before I entered the abdomen. When it was exposed, in the majority of cases, it was lying in a normal position. However, in the cases of existing retrodisplacements, even though the fundus is manually pushed forward just prior to operataion, on entering the abdomen one sees that the organ has returned to its retroposition.

In addition to the demonstrated tendency of the uterus to remain in a normal position, provided its supports and ligaments have not been damaged by previous disease or by childbirth, great weight must be given to the fact that it continues to remain in its normal position even in the presence of severe crushing injuries to its strong bony surroundings, the pelvis. In my traumatic surgery, I have seen cases of fractured pelvis in women. In some of these I have seen the bladder ruptured, but in none have I ever seen a displaced uterus.

Dr. A. E. Halstead of St. Luke's Hospital, Chicago, whose experience in traumatic surgery has been very extensive, and who has seen many cases of fractured pelvis, makes the same statement. Dr. F. L. Gourley of Waukegan, Ill., has told me of two cases of crushing injuries to the pelvis, in one of which seven fractures were sustained, including the horizontal ramus of the pubis, and in the other four fractures of the pelvis, including the pubis. He examined the uterus in both of these cases immediately after the accident, and has examined both several times since; in neither case was there a sign of displacement of the uterus. One patient gave birth to a child within a year and a half of the accident. Numerous similar case records can be collected to prove that severe crushing injuries do not cause displacements of the uterus.

If trauma is the cause of displacement, one would expect to find torn and bleeding ligaments, lacerated and bleeding pelvic floor, and the uterus lowered by gravity because of the loss of its normal supports. Search of the literature and wide inquiry have failed to reveal such a case. Trauma as a cause for tearing away the supports of the kidney, resulting in displacement of that organ, is seldom mentioned today; likewise, traumatic displacements of the sigmoid flexure, of the intestines, of the stomach or of the spleen are rarely, if ever, heard of. All of these organs have weaker anchorage than the uterus. Why, then, should trauma so frequently be claimed as a cause of uterine displacements?

From the foregoing facts we must conclude that, from an anatomic standpoint, traumatic displacements of the uterus practically never occur.

ANSWERS TO QUESTIONNAIRES

Considering the question from the standpoint of the experience of many physicians, from fifty replies to questionnaires, and from inquiries made directly to a large number of physicians and surgeons, three opinions are formed.

Most of the general practitioners or family physicians replied that they had seen one case, or a few cases, which they thought were due to trauma, such as falling down stairs, falling on the buttocks and lifting heavy bodies. When questioned as to the condition of the uterus prior to the accident, none could tell whether or not it was displaced. Most of the physicians obtained the history of an accident which had occurred some time previously, but believed that they could trace the symptoms back to the accident. A few general practitioners, who grasped the medicolegal significance of the question, stated that they knew of no case which they could definitely ascribe to trauma. One reported an acute temporary displacement, followed by permanent relief of the symptoms after replacement.

Several gynecologists were questioned; most of them stated that trauma per se seldom caused displacement. Some stated that falls on the buttocks, heavy straining when the bladder was full and blows directly over the lower abdomen might cause displacement of the uterus. Dr. N. Sproat Heaney replied:

> The cases of actual traumatic displacements of the uterus are extremely rare, but I have seen a few instances in my own patients, where I had examined the patient beforehand and subsequent to a fall, and found the uterus displaced. In all these instances the accident had occurred when the patient had a full bladder, and the trauma came when the uterus was halfway back, and it was easy to throw the uterus backward. In such instances it happens that if the patient is seen soon after the alleged accident, a simple replacement of the uterus is sufficient; other treatment is not required.

The cases of Dr. Heaney fall under the class which I will describe later as acute temporary displacements.

Many industrial surgeons, medical directors of casualty insurance companies, railway surgeons and surgical consultants of industrial compensation boards were questioned. All were emphatic in declaring that true traumatic displacements of the uterus never exist. One street railway surgeon said that he knew of many such claims, but of no veritable traumatic dislocation of the uterus.

Another surgeon replied that he had seen from eighty to 100 alleged cases, but none were actual traumatic displacements and, in a majority of cases, the person claiming the injury was a malingerer.

Dr. C. W. Hopkins stated that twelve patients had tried to put forth this claim, but none of the claims were authentic, and that in his entire experience he had seen no case of true traumatic displacement.

Dr. Samuel C. Plummer said:

> The majority of cases of claims against the railway company have been due to the rough handling of trains, either by setting of the emergency brake or as a result of collisions or derailments, in which cases the patient is generally thrown against the back of the seat in front of her, receiving some violence to the upper part of the body—the chest, head or arms, but not the abdomen or pelvis. The usual history is that no complaint is made of any pelvic trouble until some weeks afterward, when, as a result of a pelvic examination by a physician, a displacement of the uterus is found, without, however, any signs of acute injury. I believe that traumatic displacements of the uterus are very rare, and that when they do occur, they are accompanied by immediate violent symptoms, such as extreme pain, local swelling and tenderness. I believe that the vast majority of these cases which are noticed after violence to some distant part of the body are old cases whose previous existence is either unknown or denied.

Dr. T. R. Fletcher, chief medical examiner of the industrial commission of Ohio, replied:

> I wish to state that, so far as I am aware, the commission has never had a bona fide case, though from ten to fifteen claims have been filed with the commission in which it is alleged that displacements have occurred. Owing to the fact that before many juries lay testimony is accepted rather than medical testimony, and the additional fact that it is possible to secure medical testimony for almost any condition, the commission has been compelled to pay several claims.

Dr. C. M. Harpster replied that of approximately 500 such claims, he knew of no actual case of traumatic displacement of the uterus. Abnormal position in every case was due to other causes.

Dr. John J. Moorehead said:

> I have seen female patients with all kinds of injuries due to all sorts of trauma, and never saw or heard of one who received an injury producing displacement of the uterus, even in the presence of such a marked injury as fracture of the pelvis.

One of the best known railway surgeons in the country replied that in more than 25,000 accident cases, he had never seen a true displacement, retroflexion, retroversion or prolapse. He said, in part:

> Often when claimed, it does not exist. The claimant's physician too often makes the statement of displacement, and the fact is clung to by the individual and attorney. In one instance the claim of displacement was made and substantiated by three doctors. Between the time of the injury and the trial, the patient was taken with acute appendicitis, and admitted to my hospital service. At that time they did not know of my connection with the company, although I had a file on the case.
>
> An appendectomy was performed; three disinterested surgeons were called into the operating room; by enlarging the incision, a normal placement was demonstrated. The claimant and her attorney were later so advised. The case never came to trial, but the attorney was very bitter because of the claimant's carelessness in securing the company's chief surgeon to operate on her diseased appendix.

Medical men all too frequently attribute symptoms to displacements and ignore other existing pathologic conditions. The diversified opinions of the physicians consulted can be explained by the varied professional interests of the different groups. The outstanding fact is that no one was able to report a true permanent displacement of the uterus which could irrefutably be ascribed to accident as the etiologic factor. The general practitioner, who had never thought of the medicolegal aspects of the case, thought he could trace the condition, by the history of the symptoms, back to an alleged injury. Frequently the patient dated her trouble from a certain injury, but neither she nor the physician knew whether or not the displacement was present prior to that date.

The gynecologists had been empirically taught, and had taught many students, that trauma, such as a fall on the buttocks, was a cause of displacements. Few of those consulted had ever thought of the medicolegal aspect of the problem. Today, with our younger medical men being confronted more and more with the industrial medical problems, the teaching of trauma as a cause of uterine displacements must be qualified and amplified extensively. The surgeons working in the industrial, railroad and insurance fields may be accused by critics of a too dogmatic attitude in saying that trauma can never be a cause of displacements. The field is practically a new one in the medical world. They have been in a position to study these cases at the time of the accident and later when the claim for the alleged injury has been made. New medical facts, which deserve consideration, are being presented more and more to the profession from this new field of medical economics.

VIEWS OF AUTHORITIES

In considering the subject, most authorities on gynecologic subjects mention trauma as a cause of uterine displacements. Webster[1] states that retrodisplacements and prolapse may be caused by sudden strains or falls, but gives no proof or examples.

Kelly mentions injuries as a cause, and then describes cases of acute retrodisplacements induced by violent exertion, falls, lifting heavy objects or going too long with a full bladder, characterized at the outset by symptoms "never before experienced and demanding prompt relief." Kelly recommends manual correction by "pushing the fundus upward and forward and, at the same time, pushing the cervix backward toward the sacral hollow—under light anesthesia; rest in bed for two or three days." He states that reposition in recent cases practically always remains permanent. In old cases the displacement recurs shortly. Recurrence, therefore, speaks for previous existence of the condition.

Shoemaker describes two cases of acute or sudden retrodisplacement of the uterus, which remained below the promontory of the sacrum until released.

Hewitt[2] says that in fifty-eight cases of backward displacement in virgins, twenty-eight traced the symptoms back to a severe fall or strain, but he does not describe facts which prove the assertion. Hart and Barbour state that a sudden or violent blow may be a cause of retroversion, but that it would be a very difficult cause to establish.

Fleming[3] says, "Sudden increase of the intra-abdominal pressure as an actual cause is never responsible per se for uterine displacements."

Bacon[4] described three cases of sudden traumatic displacement of the uterus, two in virgins and one in a multipara, all due to falls with heavy blows over the lower abdomen, all developing immediate acute symptoms and all relieved by reposition of the organ by manual manipulation under anethesia and rest in bed for a few days.

Lewis[5] states that sudden increase in the intra-abdominal pressure because of injury, in a woman whose pelvic floor was already weakened, might cause the pelvic contents to be forced nearer to the pelvic outlet. Such a case of alleged traumatic displacement of the uterus would truly be a case of acute increase of a pelvic hernia.

Sims,[6] a pioneer in gynecology, describes a case of acute retrodisplacement of the uterus. In fact, he states that it was this case which first gave him the idea of ballooning the vagina with air in order to expose and operate on vesicovaginal fistula. The woman had fallen from a horse. She was in great agony at once, and Dr. Sims was called. The fundus of the uterus was retroverted and exceedingly tender. By placing the patient in the knee-chest position, he tried manipulation. Suddenly the fundus moved forward, the vagina became dilated so that he could plainly see within, and the patient said, "Why, Doctor, I am relieved."

It is evident that many authorities agree that acute sudden displacements due to trauma do occur, are easily relieved, and cause only a few days of disability; but none give definite reports of trauma causing permanent uterine displacement.

In my own experience, which includes seven years as an instructor in gynecology at Rush Medical College, nine years as chief surgeon of a large industry which had more than 6,000 female employees, and several years in general surgery with an extensive traumatic service, I have never seen a true case of traumatic displacement of the uterus. I have seen several alleged cases, but none of these could withstand careful investigation.

I recall a dispensary patient, a scrubwoman, who asserted that she had slipped and fallen while carrying a bucket of suds the night before. She had a partial prolapse and a history of several children, one to three days' postpartum rest in bed, and then early return to hard work. Examination revealed a relaxed abdominal wall, an old laceration of the perineum with a cystocele and rectocele, and a uterus which was enlarged, retroverted and partially prolapsed. The fall was not responsible for the condition. The patient was the victim of circumstances—poor, too many children and too hard work.

A woman, aged 18, who for months had frequently reported for various ailments, but never on account of menstrual disturbances, one day fell down stairs while at her place of employment. She suffered contusion of the buttock and a strained back. The patient was recovering when the family physician saw her, heard her history of backaches and, without an examination, said that she had a fallen uterus. From then on, I had great difficulty with the girl. She developed dysmenorrhea, severe backaches and headaches and, as her physician said, "all the cardinal symptoms of displacement." An examination under gas revealed a normal uterus, normally situated.

Another woman, aged 33, single, fell from a step-ladder when it broke under her. She was examined several weeks later by a woman physician who reported the diagnosis as dislocated coccyx and a retroversion "due to the fall." The physician secured a lawyer and brought suit for $10,000 against the firm which sold the step-ladder. The patient and the physician refused to allow an examination. Finally the legal adviser of the firm agreed to settle the case, provided an examination by the woman physician, myself and a third physician disclosed the alleged disability. Examination under gas anesthesia revealed that the uterus was in normal position; the coccyx seemed to be in normal position, and this was confirmed by roentgen-ray examination. The woman physician frankly admitted that she had not had the opportunity of examining the patient so well before and therefore was mistaken.

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[1] Webster, J. C.: Diseases of Women, Philadelphia, W. B. Saunders Company, 1907.

[2] Hewitt, quoted by Hart and Barbour: Manual of Gynecology, Chicago, Chicago Medical Book Company.

[3] Fleming, C. E.: Railway Surg. J., September, 1908.

[4] Bacon, M. W.: Railway Surg. J., September, 1908.

[5] Lewis, Henry: Railway Surg. J., 1909.

[6] Sims, J. Marion: The Story of My Life.

On the other hand, I have had one case of a girl who fell down stairs and who was immediately in great pain. When I reached her home she was lying on the bed, pale and covered with a clammy sweat, moaning and crying with severe pain located in the rectum and the perineum. Examination revealed a retroverted, swollen and very tender uterus impinged under the promontory of the sacrum. By manual manipulation, with the patient in the genupectoral position, the fundus of the uterus was replaced and immediately the patient was relieved. After a few days' rest in bed, she returned to work. I was in touch with the patient for several years, and never knew her to complain of a recurrence of the condition.

CAUSE OF UTERINE DISPLACEMENT

As stated before, most authorities now definitely agree that a certain percentage of women have retrodisplaced uteri without any symptoms, and that in them it is apparently a normal condition. Retrodisplacements of the uterus may occur at any period in a woman's life, especially in the parous woman. The cause may be some condition occurring in the normal supports of the uterus, in the uterus itself or around the uterus in the abdominal cavity, as follows:

1. In the supports:
   (*a*) Lacerations of the pelvic floor.
   (*b*) Relaxed broad or uterosacral ligaments.
   (*c*) Relaxed abdominal wall.
2. In the uterus:
   (*a*) Inflammatory changes, adding to the weight of the organ.
   (*b*) Tumors.
   (*c*) Subinvolution, following childbirth.
3. Surrounding the uterus:
   (*a*) Inflammatory adhesions.
   (*b*) Tumors or other pressure from surrounding organs.
   (*c*) Increase in the intra-abdominal pressure owing to new growth, lessening the size of the abdominal cavity.

Without going into the etiology, it is sufficient for my purposes to point out that trauma is not responsible for any of these conditions.

With these causes existing, often unrecognized and unknown to the woman, trauma may occur and may cause some exaggeration of the condition with subsequent symptoms. Or a careless physician may examine the patient who is complaining of symptoms following an injury and, when he finds a displacement, he may ascribe all the symptoms to that condition when they may be due to causes remote from the uterus. In every case a careful study will reveal the chief cause of the displacement to be one of the foregoing preexisting conditions.

The one exception is the acute temporary displacement of the uterus which occasionally follows trauma. In these cases, as already pointed out, symptoms occur immediately after the trauma, the symptoms are severe, "such as the woman never experienced before," and the uterus can be replaced and remains replaced with complete relief of symptoms. These acute cases are not the ones, however, which cause medicolegal controversies.

In the average case in which personal injury of this nature is claimed, the accident is not serious. The claim of injury or the symptoms develop a considerable time afterward, a physician, purposely or innocently, diagnoses the condition and the so-called cause, and a lawyer takes charge and enters suit. The insurance company or the corporation frequently considers it cheaper to settle the case rather than to enter an expensive legal fight, thus perpetuating these false claims. The woman herself is not necessarily a malingerer, but may sincerely believe her physician and her attorney and may think the condition exists.

The absurdity of many of these claims is illustrated by the following cases:

A crowded elevator fell 1 foot. One woman passenger alone claimed injury. A few weeks later her lawyer brought suit for retroversion of the uterus as the result of the injury. The insurance company settled for $2,500.

A colored woman, struck by an automobile, suffered multiple contusions. Some time later she was operated on for a large cyst of the ovary and a retroversion. Claim was afterward made by her lawyer and substantiated by her physician that the retrodisplacement was due to the accident, and that the ovarian cyst was made worse by it. Legal action was instituted, and the case was finally settled by the insurance company for $1,500.

A married woman, a multipara, working at a machine, had considerable hair torn out by catching it in the machine. A year later a hysterectomy was performed for prolapse. Suit for $10,000 was started against the company on the ground that the fright and nervousness from this accident had caused marked wasting of the patient and this wasting was responsible for the prolapse. The woman was awarded several thousand dollars.

Many other such cases could be cited which have been settled, or in which compensation was awarded by the courts, for varying amounts, the total running into a huge sum.

CONCLUSIONS

1. Acute temporary displacements of the uterus may follow trauma, but the symptoms are so severe that relief is secured immediately, and the disability is only of short duration.

2. Permanent uterine displacements are never due to trauma per se.

3. Trauma may cause some exaggeration of an existing, unrecognized displacement, but careful study will demonstrate that the chief etiologic factors are some combination of the preexisting conditions.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. STACY, FINDLEY AND MOCK

DR. GEORGE GELLHORN, St. Louis: The first point in Dr. Findley's paper was that an acquired and uncomplicated retrodisplacement never caused symptoms and therefore required no treatment. That view has been maintained by a number of German writers who claim that retroflexion hardly ever causes symptoms and that only the accompanying complications produce the symptoms complained of. I differ from that view. I believe every acquired retroflexion of an uncomplicated type—for the complicated retroflexion, of course, must produce symptoms—sooner or later produces symptoms that need not always appear to the casual observer; nor need they appear for many years, but eventually they will appear. If one visualize what happens in retroflexion when the architecture of the pelvis is disturbed, one will, perhaps, agree with me that symptoms may eventually be expected. When the uterus falls in retroflexion, there is impairment in the circulation of the uterus, tubes and ovaries. While the arterial blood supply is not materially interfered with, the veins are obstructed to a certain extent. Eventually this venous stasis within the uterus will lead to an increased activity of the glands of the mucosa and to an increased menstruation. It may lead to climacteric bleedings in women who for twenty years may not have shown other symptoms, and then it will suddenly explode in the form of dangerous hemorrhages. It will lead to an enlargement of the uterus, at first temporary and later permanent, which may, in turn, produce pressure and other symptoms. For that reason otherwise uncomplicated retroflexion is worthy of attention. The possible effect on conception and on the anatomy and function of the ovary need merely be mentioned. In order not to create a false and exaggerated attitude on the part of the patient, I am in the habit of keeping the knowledge of a retroflexion to myself; I replace the uterus and insert a pessary without letting the patient know about it, if possible. I believe, contrary to the usual opinion, that, in a certain number of uncomplicated acquired retroflexions, a pessary has not merely a palliative but a curative value. In regard to Dr. Mock's paper, I have been on the witness stand three or four times in damage suits in which women claimed to have retroflexion from a railroad wreck, and the like. In every instance I have emphatically stated that the accident had nothing to do with the retroflexion, yet, in every case, my side was defeated. The company had to pay. So these medicolegal questions are not always a matter of scientific knowledge but of the wisdom of the "twelve good men and true" who determine these things. But there are traumatic retroflexions, just the same. A young woman, an acrobat, during the performance suddenly experienced a sharp pain which immediately disabled her. I found an acute retroflexion. The uterus had been pushed down and squeezed in between the sacro-uterine ligaments. I lifted the uterus up, and she was immediately relieved. Will Dr. Mock tell us what he means by "temporary" displacement? A displacement of that sort will remain permanent unless the physician remedies it immediately.

Dr. P. B. Salatich, New Orleans: About four or five years ago, I made a study of the causes of pain below the umbilical line. I found more than twenty-two different reasons. Whenever we examine a patient complaining of pain in the back and find a retrodisplacement, for our own protection we ought to be careful in making a diagnois that the uterus is the sole cause of the pain in the back. Patients have had the uterus straightened out, and still they complain of pain in the back. I agree with Dr. Gellhorn as to disturbances in the circulation. One will find very few patients with a retrodisplacement, either in the young woman or the woman who has had children; but there is always some enlargement of the veins—varicosity of the veins of the broad ligaments and of the veins around the internal os. Why should there be pain in varicose veins of the legs and not pains in varicose veins of the pelvis? I believe that in many cases of retrodisplacement the pains are caused by the dilatation of the varicose veins of the pelvis. I have seen many fairly good sized blood vessels in the uterus, the broad ligament and behind the internal os. By merely turning the uterus around while doing other work, one will find that after five or ten minutes the veins have diminished materially. Now do some women suffer and others not? Probably some persons can stand pain better than others. It is a matter of temperament. Some women with retrodisplacement have all kinds of nervous manifestations. Correcting the malposition gives relief. Others will have the same condition and no nervous phenomena. Before operating for retrodisplacement with the hope of overcoming the pain in the back, we should insert a pessary. If the uterus remains in normal position, one has done what an operation would do. But if after two or three months the patient is complaining again of pain and the uterus is retroverted again, then one will cure the patient by operation.

Dr. Fred J. Taussig, St. Louis: Dr. Stacy's paper showed rather strikingly how difficult it is to ascribe any definite symptom or set of symptoms to uncomplicated retroversions. But Dr. Findley's figures show that few of these retroversions are uncomplicated. We should therefore consider the position of the uterus, not in itself as pathologic but as the producer and the predecessor, in a very high percentage of cases, of a pathologic condition, and consequently it is better to correct this condition than to wait until it has persisted too far, because the longer the patient has the misplacement, the denser the adhesions at the rectum and uterus; and the greater the pressure against the ovary, with the production of retention follicle cysts, the more pronounced do the symptoms become and the more difficult is it to obtain a satisfactory cure. I feel, therefore, that retroversion is potentially, even if it is not actually, a disease. What group of cases should be left untreated and what group should we treat? The congenital type, usually not an extreme retroverison but rather a slight bending backward of the uterus into the axis of the vagina, the type often found in a nullipara, should be left untreated, except when it has seemed to produce definite changes or is attended by definite changes in the ovary requiring surgical correction. The surgical treatment of retroversion in the virgin is virtually the only one seriously to be considered. The use of the pessary in the virgin is never justified. In women who have had children, however, and particularly in the months immediately following childbirth, the pessary is of the greatest value. I am daily astounded at the expression of the opinion that the pessary is a thing of the past. A frequent comment is that this was all right before the days of surgery; but now that one can operate and shorten the ligaments, why bother with these old fashioned methods? I think that the neurologist has taught us to be wary of too many surgical corrections of retroversions, and the pessary will, without operative shock, often effect a cure. The use of the pessary is not as simple as it sometimes appears. It would be well for us to train every student in the exact molding of the pessary, because the pessary, unless it is properly fitted, causes pressure on sensitive points and is going to be harmful rather than beneficial. If, on the other hand, it is carefully molded to fit the case, it will do the required work. In 60 or 70 per cent. of the cases it will permanently correct the retrodisplaced uterus.

Dr. Albert Goldspohn, Chicago: It is well for us to be reminded that sometimes apparently gynecologic symptoms arise from other sources. Retroversion of the uterus sometimes exists without having produced symptoms, but we are not warranted, for that reason, to call them not pathologic. Much depends on the structure, nervous organization and employment of a woman as to how soon such a retroversion will show its pathologic nature and require treatment. When complications have supervened, we term the retroversion pathologic and then we operate, both for the displacement and for the complications; while, logically, we may treat only the complications and not the displacement, if that is not pathologic per se. Such surgery would be so devoid of good results that it would not last long. How or why is real retroversion or flexion of the uterus pathologic? 1. Torsion and traction on the veins in the twisted broad ligaments induce a harmful trophic change in the uterus and the ovaries, analogous to that of varicose veins in a leg; and often a metritis or menorrhagia or leukorrhea that persists in spite of all other treatments, until the associated displacement is corrected, is an analogue of a varicose ulcer. 2. The retroverted uterus drags the ovaries down into the narrow part of the pelvic funnel, where they are traumatized by the variably filled ampulla of the rectum and the body of the uterus in every act of intra-abdominal pressure. This, together with the trophic evil mentioned, induces follicular cystic degeneration of the ovaries. 3. In retroversion, the more or less acute supporting angle which normally is formed by the long diameter of the uterus with the long diameter of the vagina, is lost. Closure of the vaginal lumen by normal impact of intra-abdominal pressure, transmitted through the anteverted uterus and the bladder, on the anterior vaginal wall, is lost; and there results the mechanism of a wedge sliding down a nearly parallel open tube. Pessaries will not actually cure retroversion in more than about 2 per cent. of ordinary cases, unless postpartum involution of the uterus and its supports is secured in a laborious course of treatment by large and gradually reduced pessaries, assisted by frequent and diligent use of the knee-chest posture, with close medical supervision, beginning from three to four weeks after labor. If the uterine supports are thus given an early and a continuous slack for about a year, the majority of such cases will be cured of displacement, in the absence of marked injury of the pelvic floor.

Dr. Hudson Talbott, St. Louis: Industrial conditions today are so materially different from what they were a few years ago that it behooves us to give careful study to the conditions which may be handled by the industrial commissions. Three choice diagnoses are assumed by the patient, the plaintiff and the lawyer. Those three are: traumatic hernia, retrodisplacement of the uterus, and sacro-iliac joint trouble. Perhaps the latter occupies the center of the field today. Nevertheless, retrodisplacement is a very frequent subject of complaint. Perhaps it never occurs. We are frequently confronted with the fact that women have a retrodisplacement and suddenly their symptoms develop. And if it happens to be at about the time they sustain an accident, the accident, of course, was in their minds its cause. But from the medicolegal standpoint we should be careful in making a diagnosis and report of examination. If the plaintiff's lawyer can get you to say that while in your judgment it is not due to the accident, it is possible for such a thing to occur, he has won his case. Therefore, we should be careful not to make such a statement unless we are thoroughly convinced. Be careful in your diagnosis and be positive in your statement.

Dr. Hugo Ehrenfest, St. Louis: I think that all the speakers very clearly brought out the point that a retroversion of the uterus is not the important gynecologic disease that most of the practitioners believe it to be, a misconception which, as Dr. Findley correctly stated, is to a certain degree due to false teaching in most of our textbooks. The authors may have gone a little too far in denying all importance to the problem. Dr. Gellhorn seemingly puts himself in opposition to their views, but if I understood him correctly, he spoke only of acquired retroflexion or retroversion, which is quite a different problem. Dr. Stacy considered only the congenital type encountered in 1,000 unmarried women. Dr. Findley, on the other hand, spoke of married women, which probably means both congenital and acquired cases. Comparing Dr. Stacy's and Dr. Findley's figures, we can conclude that the acquired uncomplicated group is not a very large one. That brings us to the question of what a complication is. Possibly some of the cases that at one time seemed uncomplicated gradually become complicated. It is very difficult, in actual practice, to say whether a certain freely movable retroversion is complicated or not. Symptoms are not the deciding factor in determining a coexisting complication. 'Some patients know whether their movable uterus is forward or backward. Others have learned that the knee-chest position will throw the organ forward. Thus, we might have occasionally symptoms even in the uncomplicated movable retroversion. A study of the reappearance of menstruation after childbirth left no doubt in my mind that the retroverted uterus will cause an earlier appearance of menstruation. This phenomenon can be explained only by pressure exerted on the ovary. This, then, is a symptom of an anomaly. But does it call for the treatment of the malposition? A similar uncertain symptom is backache. In some cases we are not sure whether it is rheumatic, static, or due to retroversion or to other causes. The pessary is of great value in solving this problem. If a backache or any other important symptom is relieved by a pessary, we know that permanent correction of the retroversion by operation is indicated. I disagree thoroughly with the advice not to tell the patient of the malposition. I consider it very important to inform her of its existence, but at the same time to impress her with the nonimportance of the anomaly and to encourage her to come back occasionally for reexamination. That will obviate the necessity of operating, as suggested by Dr. Goldspohn, as a preventive measure. An uncomplicated retroversion might thus be left uncorrected, or corrected temporarily with a pessary. At some later day, probably after she has had more children, an operation might be necessary. I do not think that a pessary should or could be slipped in without the knowledge of the patient, particularly since I agree with Dr. Taussig that it must be well fitted or it might cause symptoms in itself. There is a very large group of symptomless movable retroversions that can be and should be left alone at least until some symptoms appear. Very many of these cases will never require operation.

Dr. Otto H. Schwartz, St. Louis: That the symptoms produced by the acquired retroverted uterus have been greatly exaggerated is unquestionably true, but that there are uteri which are retroverted which cause symptoms is equally true. Therefore, in the case of the acquired uterine displacement the most important feature is the prevention of this condition. In the obstetric practice of any man who is definitely a specialist, it is undoubtedly the custom to examine patients at the end of six weeks postpartum, or thereabouts. Such private patients avail themselves of the best care and have the proper nursing, and therefore do not necessarily have to exert themselves in the first few weeks of the puerperium. Retroversion of the uterus under these circumstances is comparatively uncommon. On the other hand, in the clinical patients and the patient who is handled by the midwife and, perhaps, the general practitioner, which includes the great majority of obstetric cases, these patients, owing necessarily to their station in life, have to get about early and do considerable work early in the puerperium. That retroversion in this class of patients is a rather common complication of the puerperium is strikingly brought out by our recent experience in examining patients of this type as a routine about six weeks postpartum. We found that approximately one third of these women at this time present retroversions. If pessary treatment is of any value, it is of chief value at this particular time. This treatment not only corrects the retroversion, which in most instances is a permanent correction, but also definitely prevents chronic subinvolution. In my opinion this is one of the most frequent causes of subinvolution. It is the chronically subinvoluted uterus which causes much trouble near the menopause. The uteri of women near the menopause examined after hysterectomy, with no new growth, showed the picture of chronic subinvolution more than any other lesion.

Dr. A. N. Creadick, New Haven, Conn.: The puerperal uterus should be excluded from the discussion. A large puerperal uterus is particularly susceptible to retroversion, whether from trauma or from faulty posture. Obviously, slight degrees of trauma may overbalance and convert a peurperal uterus which is not yet wholly involuted into a retroverted uterus. The physics of uterine support are not yet settled. I think that there are just as many opinions in regard to the efficiency of the pelvic floor and its various ligaments, together with the hammock support of the base of the broad ligament, and there are just as many opinions as to what supports the uterus, as there are gynecologists investigating the subject. On the other hand, I want to concur with Dr. Findley so far as to say that uncomplicated and non-symptom-bearing retroversion during the child-bearing period should not be subjected to operative treatment. It is my teaching that women who are still in the child-bearing period who have non-symptom-bearing retroversions had best be let alone. As to how far one shall go in talking to the patients or in not referring to the condition one has discovered, I think that the social condition of the patient and one's relation to that patient have to be evaluated in each individual case. It is not safe to neglect to mention to the patient or some of her immediate family the fact that one has discovered a retroversion. On the other hand, in the case of a woman of good social standing, who can afford periods of recuperation, if necessary, and who keeps in touch with her physician, such a patient can safely be treated conservatively, undergoing operation when any symptoms supervene, particularly at the menopause.

Dr. Harry E. Mock, Chicago: By temporary acute displacements I mean those displacements described by Simms, Haney, Bacon, Plummer and many others, characterized by sudden severe pain in the pelvis, the symptoms different from any ever before experienced, which always require the services of a physician and which are readily corrected, making the disability only temporary. I want to thank Dr. Talbott for bringing out the very important point of being positive in one's statement if one is called as a medicolegal witness. If one believes that trauma caused the displacement, one should say so positively. If one knows that trauma did not cause the displacement, one should just as positively say that it did not.

Dr. Palmer Findley, Omaha: It is gratifying to find that the three authors agree on the one important feature of the discussion, that is, the clinical signficance of the uncomplicated retroversion. Although some disagree with us in regard to uncomplicated retroversions, really in point of fact I do not think that there is any wide difference. Only 4 per cent. of my cases are classified as uncomplicated. It is possible that as only two of these women were operated on—and I promise never to do it again—possibly some of the eighteen patients had some pathologic condition in the pelvis that I did not recognize. I thought I was reasonably sure that they were uncomplicated; so that it is not a large percentage that we can classify as uncomplicated. If I could bring myself to believe that the turning backward of the long axis of the uterus on an imaginary transverse axis will in some way or other distort the lumen of the veins as they course through the broad ligaments, I would gladly assent to all that Dr. Gellhorn and others have said, because I can understand that a passive congestion of the uterus and its appendages would lead to all manner of disturbances, such as leukorrheal discharges, excessive menstrual flow and dysmenorrhea, and eventually to sterility and backache. It is not convincing to me to demonstrate the emptying of the uterus and ovarian veins as one of the speakers has suggested he has done by placing the patient on the operating table, opening the abdomen and lifting up the uterus. Of course, they will empty themselves. They will do it in the Trendelenburg position whether one replaces the uterus or not. It is difficult, if not impossible, to get at the final causal factors in the development of varicose veins of the pelvis. One has to go a long ways away from the pelvis before one can rule out the remote causes for portal congestion and for circulatory disturbances far and wide in the body. The position which I have taken on the uncomplicated cases is not the position which I held years ago. And I do not know that I have any great responsibility in assuming this position today because I simply let my records speak for themselves.

Dr. Leda J. Stacy, Rochester, Minn.: I was glad to have Dr. Findley call attention, more emphatically than I did, to the condition which he aptly terms "pelvis squint." Many girls and young women of this type come to the clinic. They are tall and nonathletic, and they complain of backache, constipation and dysmenorrhea. They have been told of retroversion, and they attribute all their symptoms to this displacement. In the majority of these cases, if one begins a surgical program, the girl is started on her way to a state of chronic pelvic neurosis. One of the men, in discussion, made the statement that the pessary should not be used in a virgin. I am sure that we all agree with him in this. It seems to me that the only indication for the use of a pessary in treating retroversion is as a therapeutic test for a few days before operation. If the patient is relieved while the uterus is held in position by the pessary, then relief can be expected following an operation which permanently corrects the displacement. In most instances of uncomplicated retrodisplacement in young women it seems advisable not to mention the condition to the patient, but to explain the situation to the mother. I agree with Dr. Findley, regarding the significance of varicose veins of the broad ligament. During an abdominal operation the pelvis is usually examined and, while the surgeons at the Mayo Clinic occasionally note a varicosity of these veins, they believe that these varicosities seldom cause clinical symptoms.

Aspergillus Fumigatus.—Occasionally certain species of molds attack the lungs, most frequently that known as *Aspergillus fumigatus*. Usually it is a secondary invader in tuberculous cases, but as Hamman says it may affect the lungs primarily, causing ulcerative and suppurating lesions. *Aspergillus fumigatus* is widely distributed in the outer world and may be found on vegetables, grain bread, and other foodstuffs. It is presumed that infection follows inhalation of the spores. There is nothing characteristic in the clinical picture of aspergillosis, and a diagnosis can be made only by microscopic examination of the sputum. When the infection is primary, the symptoms are those of chronic tuberculosis. A bronchial form which runs the clinical course of a chronic bronchitis has been described.—*J. Lab & Clin Med.*, February, 1922.

PSYCHOSES ASSOCIATED WITH SYDENHAM'S CHOREA *

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The syndrome of chorea is usually classified under four main groups: (1) the infectious group, Sydenham's chorea and chorea gravidarum; (2) the psychogenic and hereditary group, comprising the spasmodic tics and Huntington's chorea; (3) the myokymia disorders, including symptomatic fibrillary twitchings and Friedreich's myoclonus multiplex, and (4) choreiform movements associated with organic conditions, occurring in hemiplegias, in the chronic choreas of childhood and in other structural brain disturbances, such as those associated with epidemic encephalitis. Many interesting clinical pictures have been reported, accompanying the recent epidemic of encephalitis. Bizarre muscular movements of almost every kind have been described.

In a series of 154 cases, I have observed choreiform movements eight times. In one of these, a diagnosis of Sydenham's chorea was made during the first week, after which the patient became lethargic, complained of diplopia and presented the usual picture of epidemic encephalitis. Another patient, during the third week of encephalitis, developed choreiform twitchings which gradually increased in severity until a typical Huntington's chorea was presented, and the patient died within six weeks. Unfortunately, no postmortem was permitted. A third patient developed definite choreic movements in the upper right extremity, secondary to a convulsive seizure, which occurred during the convalescent period of encephalitis. Three of these cases were further complicated by a definite psychosis. However, I have not included them in this paper, but confined myself entirely to Sydenham's chorea associated with mental symptoms.

Marquio [1] discusses the relation between epidemic encephalitis and chorea. He reports four cases, in three of which necropsy revealed a diffuse encephalitis.

In reviewing the literature on the insanities associated with this condition, one is impressed with the frequency of the statement that mental disturbances in some form are an essential manifestation. Bianchi [2] says that the choreic subject is always mentally affected. In the early stage, when the choreic movements are mistaken for childish restlessness, the character is already markedly altered. These youngsters are inattentive, indifferent, less courageous than usual, have great difficulty in committing tasks to memory, and may show direct perversion of family affection. As the disease progresses and the choreiform movements become marked, mental disturbances, not only from the sphere of the sentiments and the will, but also from that of thought, become pronounced. The associated processes are often interrupted. Frequently, distressing hallucinations develop, and the muscular agitation of chorea may be complicated by a true psychomotor agitation of hallucinatory origin. Jordan [3] is in accord with this and states that, in every case of chorea, mental functions are more or less impaired.

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[1] Marquio, L.: Abstr. Arch. espan de ped. 5:84 (Feb.) 1921.

[2] Bianchi: Textbook of Psychiatry, 1907, p. 750.

[3] Jordan, W. R.: Midland M. J., February, 1913.

Kraepelin,[4] in his "Lectures on Clinical Psychiatry," describes a psychosis particularly diagnostic of the type of insanity observed in chorea. The outstanding features are senselessness and bewilderment, with choreic movements, occasional hallucinations, a morbidly cheerful mood, and great restlessness with rapid physical sinking. However, in his textbook on psychiatry,[5] he groups this syndrome under the head of delirium due to infections, without any special diagnostic import. Burr,[6] on the other hand, believes that there is no definite type of psychosis associated with chorea and that the same combination of mental symptoms may, and does, occur in and after acute infectious fevers, and sometimes primarily. It simply means the inability of the patient to withstand the additional strain of an infection. He objects to calling chorea insaniens a disease, for, in his opinion, these various psychoses happen to occur in the course of the chorea.

Harding[7] reports six cases which he classifies as chorea insaniens. The important features in this type of Sydenham's chorea are the rather sudden onset and the severe motor disturbances and pronounced mental symptoms, associated with fleeting but distressing delusions and hallucinations, accompanied by maniacal activity, fever, delirium, paralysis and coma.

I have included two cases illustrative of this type: one will be reported in detail as Case 5; the second case was that of a nurse, aged 20, in which there was the usual course of a Sydenham's chorea. During the period of convalescence, a double lobar pneumonia developed, complicated by this acute mental picture. This condition continued for about ten days, after which the patient made an uneventful recovery. Both of these patients, aside from the choreiform movements, presented a psychosis differing in no respect from the ordinary mental disturbance occurring in a severe infection. In the foregoing case, evidence of a definite psychosis did not develop in the course of the chorea, but only after the additional strain from the toxins of the pneumonia occurred.

Portens[8] reports a fatal case of chorea insaniens of eight days' duration, and calls attention to the fact that only seven cases were reported in the *Journal of Mental Science* in twenty-two years, from 1890 to 1912.

Thayer,[9] in a study of 799 cases, reports four fatalities due to chorea insaniens, two with postmortem findings. His article deals mainly with the cardiovascular manifestations, and very little reference is made to the complicating psychosis. Abt and Levinson,[10] in a study of 226 cases, state that some patients manifested difficulty in speech and mental symptoms and that a few patients developed melancholia or mania. In one case the child was very maniacal, even after the abatement of the choreic symptoms, the acute excitement later on changing to a melancholia, which continued for several weeks.

Kleist,[11] in an article on psychic disturbances in chorea minor, bases his observations on 154 cases. In twenty-one cases no mental symptoms were observed; in ninety-two cases a definite, though mild, psychosis was manifested, and in forty-one cases serious mental disturbances were present. In the ninety-two with a mild psychosis, sixty-three patients showed mental symptoms of anxious, frightened and tearful irritability; four patients manifested outbursts of anger; two showed childish sauciness and disobedience, and twenty-three manifested diminished spontaneity. In the forty-one cases of marked psychosis with a mortality rate of 20 per cent., no uniform mental picture predominated.

I have had an opportunity to observe eighty-eight cases of Sydenham's chorea in the private practice of Dr. Riggs, Dr. Hengstler and myself, and in my neurologic service at the City and County Hospital of St. Paul. Eighteen patients, or about 20 per cent., manifested definite symptoms of a psychosis. There was no uniformity in the mental picture except that frequently distressing hallucinatory ideas were present. These cases usually ran a shorter course than the manic-depressive or dementia praecox groups, and the mental improvement, once begun, led to rapid complete recovery. This is very suggestive of a toxic or infectious origin. A large majority of the other patients showed peevishness, irritability, marked selfishness, mild emotional disturbances and some lack of concentration; but during the entire course of the chorea, no mental symptoms of sufficient import manifested themselves to warrant the diagnosis of an insanity.

Case 1 suggests the possibility that a definite psychosis in an unstable individual can be precipitated by an attack of Sydenham's chorea:

Case 1.—A moral deliquent, aged 9, seen at the City and County Hospital, Feb. 2, 1922, whose family history was negative, had an excellent school record, was studious and obedient, and was in the third grade at the time of admission to the hospital, Dec. 7, 1921. She frequently played truant. Away from school she manifested a vicious disposition, was quarrelsome, would lie, would teach other youngsters to masturbate, and would obtain money under false pretenses. She developed a mild Sydenham's chorea in September, 1921, which had become quite marked by December and from which she recovered in February, 1922. During her stay at the hospital she appeared normal in every way until her father came to take her home. When she saw him she became very excited and terrified, hid under the bed, and refused to go with him. Later in the day she told the nurse that her father had come to murder her, and that he would choke her, and that she saw the hilt of a sword in his pocket. In the course of a week, she expressed other persecutory ideas: that she would have her intestines cut out; that she saw men coming through the window to murder her; that she would be burned to death; that she saw dead people whom God had killed in the yard, and that she heard a patient in the ward say that she had burned her child to death. Aside from these ideas, she was a bright and excellent helper around the ward, assisting the other little bed patients. Her delusional ideas have continued to the present time. She was discharged from the hospital, March 4, 1922, without any mental improvement. Seldom one sees so marked a persecutory picture in so young a child. Undoubtedly, the cerebral irritation, or the toxemia due to the chorea, brought a latent dementia praecox to the surface.

Mental symptoms may occur at any stage in the course of Sydenham's chorea. In patients with marked muscular twitchings, the psychosis often runs a course parallel with the severity of the choreiform movements. Case 2 is illustrative of this:

Case 2.—A factory girl, aged 18, was admitted to the City and County Hospital, Sept. 22, 1921, with an acute endocarditis. In about three weeks, October 11, she developed a Sydenham's chorea and I saw her at that time. Her choreiform movements were very pronounced for eight weeks, and then gradually subsided. October 14, three days after the onset of the chorea, she had periods when she became terrified, was afraid to be alone, especially in the dark, had hallucinations of sight, saw mice and moving objects in her room, saw a man climbing through the window, and she would scream with fear. For ten days she had to be tube-fed because she thought the food was poisoned; she became very resistive and stubborn and refused to talk to any one; she had times when she was unduly emotional and would cry all the afternoon. With the subsidence of the chorea in December, her mental picture improved rapidly and she was able to leave the hospital within four weeks. This patient was markedly substandard. Although 18 years old, she weighed only 84 pounds (38 kg.), was 4 feet, 9 inches (145 cm.) in height, and looked like a child of 12 years, facts suggestive of some endocrine disturbance. Her menstrual functions, however, were regular; blood tests were negative and a roentgen-ray examination of the skull revealed nothing abnormal.

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[4] Kraepelin, E.: Lectures on Clinical Psychiatry, 1904, p. 135.

[5] Kraepelin, E.: Psychiatrie, Ed. 8, **2**: 250.

[6] Burr, C. W.: J. Nerv. & Ment. Dis., June, 1908; ibid. **45**: 237 (March) 1917; Pennsylvania M. J. **21**: 163 (Dec.) 1917.

[7] Harding, G. T., Jr.: Ohio State M. J. **13**: 320 (May) 1917.

[8] Portens, C. A.: Am. J. Insan., 1913-1914, p. 945.

[9] Thayer, W. S.: Chorea, with Special Reference to Cardiovascular Manifestations, J. A. M. A. **47**: 1352 (Oct. 27) 1906.

[10] Abt, I. A., and Levinson, Abraham: Chorea, J. A. M. A. **67**: 1342 (Nov. 4) 1916.

[11] Kleist, K.: Allg. Ztschr. f. Psychiat., 1907, No. 5, p. 769.

Heredity is usually given a prominent place among the etiologic factors in Sydenham's chorea. Many writers, however, are at variance with this. Burr[6] believes that direct inheritance plays practically no part. Furthermore, the occurrence of chorea is only slightly more frequent in the so-called nervous child than in others. Only a very small percentage of the major hysterias and psychoses in later life give a history of a previous attack of chorea minor. Of the hundreds of patients treated at the Orthopedic Hospital and Infirmary for Nervous Diseases at Philadelphia in thirty years, less than 1 per cent. gave a direct hereditary history in either parent.

Wallenberg found that among 539 cases, 2 per cent. had had chorea in one parent.

In Kleist's series, more than 30 per cent. showed an hereditary taint. Burr reports one family in whom seven cases occurred in three generations. I was unable to find a similar record in the literature. A study of the family histories in many of our cases was so unsatisfactory that no reliable deductions could be made.

Patient 3 presented a very unstable family history. He had had previous attack of chorea, and a very marked psychosis complicated the second attack.

Case 3.—A girl, aged 17, a high school student, seen June 10, 1921, whose father died at 40 from an acute mental disturbance, and whose mother developed an involutional melancholia during the climacteric, had a maternal aunt who had been suffering from an involutional psychosis associated with persecutory ideas since 1918, and a maternal uncle who had always been queer and seclusive. The personal history was negative except for an attack of acute articular rheumatism at 12, followed by Sydenham's chorea of six weeks' duration without any definite mental symptoms. The present illness began early in March, 1921, with an attack of acute articular rheumatism. The patient recovered within one month and remained well till the latter part of April, when she developed a typical Sydenham's chorea of the hemiplegic type, which continued until the first week in July and then completely subsided. In June, 1921, she became unduly irritable and emotional. About one month later, she became depressed, and had frequent crying spells and periods of acute excitement during which she became very noisy and terrified. She developed persecutory ideas, said that she would be tortured, that the milk was poisoned and that the bedclothes were filthy, and she refused to sleep in them. She developed hallucinations, saw bugs and strange people, and complained of smelling gas in her room. She frequently expressed a desire to die because of the distressing surroundings, but gradually improved during September and within two weeks made a complete recovery.

Patient 4 presented an unusual number of complications, and had a most violent course both physically and mentally, but ultimately made a satisfactory recovery.

Case 4.—A woman, aged 21, a stenographer, whose family and personal history was negative, began, May 20, 1921, to have periods of depression, crying spells and fear of death. June 1, she developed a Sydenham's chorea which continued for one month. With the onset of the chorea, she became acutely disturbed and excited; she would tear her clothes and threaten suicide. She refused to eat because the food was doped, saying the potatoes were filled with fecal material, and for three weeks she had to be tube-fed. During July she had periods during which she saw snakes and bugs in her bed, which would terrify her. From June 7 to August 15 the temperature varied between 100 and 103.4 F. June 13, she developed an acute endocarditis and, July 16, a phlebitis of the right leg. Soon after she developed ulcerative areas on the buttocks, on the top of the head, on the outer surface of the left leg and on the right ankle. She began to improve about August 20, and during the first week in September her mental picture cleared up. She made an uneventful recovery and was discharged from the hospital, October 14. Aside from a leukocytosis averaging 12,700, the blood picture was normal. The spinal fluid was negative.

Patient 5 presented the usual characteristics of a chorea insaniens.

Case 5.—A girl, aged 13, a high school student, seen March 13, 1915, began to have chorea, February 12, which was of undue severity for about five weeks. During this time the temperature was about 103 F., and she developed multiple friction sores on her chin, elbows, knuckles, buttocks, knees and ankles. March 4, she became unduly emotional, had terrifying hallucinations of sight and hearing, and March 14, she became semiconscious and delirious for about two weeks, during which time she had to be tube-fed. She gradually improved, made an uneventful, rapid recovery and left the hospital, May 20. During the summer the tonsils were removed. The following spring she had another mild attack of Sydenham's chorea without any definite mental symptoms. She has been well since that time.

Case 6 has been included among the cases of Sydenham's chorea because of the onset early in life. It might be classified with the chronic choreas of childhood but, because of a definite history of Huntington's chorea in three previous generations, it properly belongs in this group.

Case 6.—A boy, aged 11, was admitted to my neurologic service at the City and County Hospital, July 29, 1915. The father developed Huntington's chorea at 26, and committed suicide at 34 by taking rat poison. A paternal uncle developed a similar condition at 27, and also committed suicide. A paternal grandaunt and a great-grandmother were similarly affected. The mother, one brother and three sisters were living and well. The present illness began at 5 years of age with slight irregular twitchings of the hand muscles, progressively increasing. When 9 years old, the patient was in the third grade, but made no progress during the following two years. He had to discontinue school at 11 because of the chorea and mental impairment. On admission to the hospital he presented the usual picture of chorea. However, his expression was blank, his speech hesitant, he had some memory impairment, and he was unable to perform simple mathematical tests. The neurologic examination was negative. The blood and spinal fluid were normal. The choreiform movements gradually increased, and the mental deterioration became more pronounced. The patient died from a carbuncle in December, 1918, at the Faribault Institute for Mental Defectives.

CONCLUSIONS

In this series of eighty-eight cases of Sydenham's chorea, psychoses have not occurred so frequently as is commonly reported. A large percentage during their entire illness presented no definite evidence of a psychosis.

Mental symptoms observed during the course of this disease have not been sufficiently characteristic to enable one to make a diagnosis of chorea from the psychosis alone. Hallucinations of a distressing character have been a frequent manifestation. The mental picture conforms to that observed in toxic psychosis.

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ABSTRACT OF DISCUSSION

Dr. Frank R. Fry, St. Louis: Neurologists should begin disseminating their modern interpretation of chorea. We can now reduce our conception of chorea to the equation of an encephalitis, or to encephalitic reactions. All cases that present a fairly good picture of so-called Sydenham's chorea are not necessarily due to the same infectious process, but are due to an exudative reaction, an encephalitis that is substantially the same clinically in many cases. From this standpoint, the choreic psychoses, being a part of such reaction, may vary. Their percentage in a list or group of cases of chorea does not help us in defining the entity of the syndrome. They vary with the character and distribution of the exudative reaction. Familial chorea, so-called Huntington's chorea, has no important relation to juvenile or ordinary chorea. In these hereditary cases, there is simply some general cerebral degenerative process in the course of which the choreic movements are an incident.

Dr. Tom A. Williams, Washington, D. C.: This paper has drawn attention to a formulation which I think is impressed on neurologists at least, implicitly, but which is sadly forgotten by the rest of the profession; that is, that we should not diagnose the psychoneuroses by the process of exclusion. An eminent physician said that the psychoneuroses must be diagnosed only when one can exclude diffuse inflammatory reactions of mild nature. An eminent neurologist denied the possibility of the occurrence of a psychogenic disorder. We all do diagnose the psychoneuroses, not by exclusion, but by the discovery of methods of induction, and of their removal by a formula very similar to that of Babinski: that, if it can be induced or removed by suggestion, it is not an organic disease. The other day, Dr. Patrick spoke of a case of alleged epilepsy in which those methods were indicated and which the revelation of the psychogen demonstrated hysteria and disproved epilepsy. A few moments ago Dr. Timme cited a similar case. But I think that neurologists should keep on formulating the fact that it is not by exclusion that psychoneuroses are diagnosed. In fact, if we fail to find situational, inducive factors in a condition which seems like a psychoneurosis, and if we fail to modify the patient's attitude by psychotherapy, we must then infer that we are dealing with some kind of physical disorder, a lesional condition of the brain such as encephalitis or chorea, or a chemical disturbance of the organism, as in endocrine disorders and infections. I recall an instance of apparently psychic disturbance consisting merely of lacrimosity, without the feeling of sadness, in which, not believing in unconscious mechanisms, I did not subject the patient to a prolonged so-called psychanalysis, but in which, by exclusion, not discovering any psychogenic factor and not modifying the reaction by psychotherapeutic methods, I concluded that there existed a lesion of the brain of postencephalitic character. Its effects cleared up spontaneously. Cannot we say to other physicians that we demand that a diagnosis of psychoneurosis be not loosely made by exclusion, but that it be made only by psychiatrists and neurologists, and only by them when they are able to determine the factor which has induced the maladjustment?

Dr. L. G. Lowrey, Iowa City: At the Boston Psychopathic Hospital, during a period of three and one-half years, we had only about six cases of psychosis associated with Sydenham's chorea or due to it. These were, in general, the ordinary types of delirium. They were not subjected to any special study because, it seemed to us, they did not show any special points that demanded it. They were liable to be the type manifesting very violent choreic movements, possibly the type formerly referred to as chorea insaniens; but as I never saw a case in which the differentiation of chorea insaniens was clearly made, I do not know exactly what is meant by that term. Then, early in 1919, some months after the crest of the wave of admissions of cases of psychoses associated with influenza had been passed, we began to receive a series of cases of what we, at that time, termed violent chorea in adults. In virtually all cases, the clinical picture was very much the same as that of the violent choreas we had in the younger children. It was not until a French report came out recording the occurrence of a choreiform type of epidemic encephalitis that we recognized the condition with which we were dealing. We thought it was an obscure sort of influenzal brain disorder. We had about twelve of these cases, all told. There is another group, perhaps of greater importance, in which a persisting conduct disorder seems to begin with the onset of an acute chorea at or about puberty. We deal with the same general types of conduct disorder that are common in the psychopathic personalities, but I doubt very much whether that is a proper designation for the group. Then, of course, there are some cases in which one might vaguely suspect that an antecedent chorea had something to do with the psychosis developing much later. But, in general, I am glad to hear Dr. Hammes say that very few chorea cases are directly associated with the psychoses.

Dr. Groves B. Smith, St. Louis: During the last two years, a study of a series of about seventy-five cases of chorea was made, with a view to determining just what influence chorea had in the development of a psychosis. Of this series, there were only two patients who had a definite psychosis. However, each of the patients studied had an abnormal mental state, sometimes obscure, which varied according to the amount of treatment, the temperature, and the degree of choreic manifestations noted. Many of the patients seen in the stage were reexamined later at the neurologic clinic. It was found that, primarily, the condition in this group was the same as that ordinarily found among nervous children, many with abnormal conduct disorders; that is, essentially, an unstable nervous system. About 75 per cent. of the patients were of superior intelligence when tested after the acute stage, while during the acute stage they were often inferior. One girl, when examined in the ward, gave evidence of psychosis, although perfectly oriented as to time and place. She said that her mother had died and that her father had been killed in France. In reality, her parents had visited her the day before, and were living and well. When the patient was seen four months later, this mental state had cleared and she was a bright child with superior intelligence. Nervous children often have a vivid imagination, and in chorea, with possibly a toxic delirium, these symptoms are merely added to the clinical picture. With the frequent hospitalization, the nervous child picks up a variety of hospital complaints, which are also added to the clinical picture. These patients have abnormal behavior reactions, not the result of the chorea but the underlying personality defects; but the chorea gets the blame and too often this is called a psychosis, when in reality it is a toxic delirium. In studying these patients, if one observes the underlying personality in acute attacks, and, again, in the free interval, each one presents the picture of a nervous child; but a psychotic state, if the acute toxic delirium seen also in the other acute exanthemas is not so classified, is exceedingly rare.

Tuberculosis in Scandinavia.—At the recent international antituberculosis conference, it was reported that the mortality from this disease had decreased to a great extent in Norway in the last seventeen years. The decrease is confined almost entirely to the first five years of life. The same thing has been observed in Sweden and Denmark. Pirquet tests have demonstrated that the denser the population the greater the percentage of positive reactions. In the free schools of Christiania, 80 per cent. of the children, 7 and 8 years of age, gave positive reactions; and in the country the percentage was from 30 to 40 per cent. In the most remote districts, not a single child under 15 reacted positively.

THE RESULTS IN FOOD ANAPHYLAXIS OBTAINED BY CUTANEOUS AND INTRACUTANEOUS METHODS

THE INFLUENCE OF ARSENICAL PREPARATIONS ON THE ANAPHYLACTIC FOOD REACTIONS

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Although hypersensibility to foods and its resultant pathologic states has been conjectured for many years, the diagnosis of this idiosyncrasy has not rested on scientific grounds until very recently. In the past, the inference that this or that food substance may in whole or in part be responsible for a diseased state rested on the observation of the patient or the physician or on both, or was made by a process of exclusion. Of recent years, more scientific and accurate methods of diagnosing food hypersensibility have been introduced.

The cutaneous method consists in abrading a very small area of the skin with either a needle or a Pirquet borer. Then a small amount of the food protein is rubbed into the abraded surface. A positive reaction is indicated by the development of a well defined urticarial wheal, surrounded by a zone of erythema. This reaction usually appears within from five to ten minutes, and lasts from twenty to forty minutes. In every instance in this work a control test was made, tenth-normal sodium hydroxid being used, for this chemical substance was utilized in the performance of this type of test.

The other method of performing the anaphylactic food tests is the intracutaneous or endermic method. This consists in injecting endermically a sterile standardized solution of various food proteins. In our work the amount injected was 0.1 c.c. In every instance the control solution was also injected. The result of the test was read forty-eight hours after its performance. This was done so as to obviate the danger of reading false or traumatic positive results. A positive result is indicated by the development of a papule and a surrounding erythema, the degree of the result being indicated by the intensity of the reaction. It is admitted that the endermic method is the more reliable method and the more delicate; it is also the more difficult method to do and is almost impossible to accomplish in the case of small children. In adults, however, it is our belief that it is the method of choice.

In a contribution relative to the histologic picture of positive endermic food tests, I[1] have shown that it appears highly probable that protein materials call forth a mononuclear cell reaction on the part of the tissues. If this fact is proved, it goes a long way to establish the specificity of the positive endermic food reactions.

This study had for its purpose a comparison of results obtained by the cutaneous and intracutaneous methods. With this object in view, the patients were selected at random with no idea as to whether or not foods may or may not be an etiologic factor. The tests were made on fifty-eight patients. In thirty-six instances wheat, egg white, cow casein, beef, pork and lamb were used both by the cutaneous and intracutaneous method; in twelve instances, only oysters, wheat and egg white were employed. In a few instances herring and potato proteins were also utilized. In every instance of this comparative study, the same food products were utilized in the cutaneous and the intracutaneous method.

A study of our records discloses that out of this series of fifty-eight tests there were only ten instances, or 17 per cent., in which there were discrepancies between the cutaneous and the intracutaneous method of performing food anaphylaxis. Out of these ten, there were nine instances in which the intracutaneous method was positive and the cutaneous negative, and one instance in which the reverse was true. A further study of our records shows that in nine out of these ten instances, there was a discrepancy in only one food protein; and out of these ten instances, four were only suggestive or very weak positive results, and in five instances the varying food protein was cow casein. In another contribution I emphasized the fact that, while weak or suggestive reactions obtained with food proteins should be taken into account, too much emphasis should not be placed on them.

In my own work, while I correct the diet, utilizing also the weak reactions, I lay no emphasis from the point of view of prognosis on results obtained by making the food tests, unless the reactions are markedly positive. Studying the results, therefore, from the standpoint of eliminating the suggestive positive results, only six varying results, or 10 per cent., were noted. In only one instance was a difference noted in more than one food protein, and in that particular instance there was a discrepancy in three food proteins. In twelve instances the food anaphylactic tests were repeated two or three times so as to determine whether any difference in results could be noted. While this series is rather small to yield any dogmatic results, the impressions are that the repetition of these tests, whether by the cutaneous or the intracutaneus method, does not materially influence the findings, and the results are almost constant.

The effects of the arsenical preparations on the anaphylactic food reactions were also studied. In one group of nine patients, all of whom were bedfast, the endermic food tests were performed, cow casein, egg yellow and rice being used. After the results had been noted these patients were placed on liquor potasii arsenitis (Fowler's solution), 10 drops (0.5 c.c.) three times a day for a period of ten days. These endermic food tests, utilizing the same food proteins, were again performed.

Our study shows that, taking the results as a whole, we may state that arsenic by mouth does not materially influence the endermic food reactions. In six instances, the results were identical. While a difference was noted in two instances, it was rather one of degree. In the case of one patient there were weak reactions to cow casein and egg before the administration of the arsenicals, and negative response to these foods after the administration of the same remedy.

The intravenous injection of arsphenamin does not materially influence the endermic food tests. In a series of twelve patients to whom from three to seven injections of arsphenamin were administered and on whom endermic food tests were performed both before and after this treatment, no appreciable differences in the endermic food reactions could be noted. It would appear from this study that the arsenicals, whether given orally or intravenously, do not materially influence the endermic food reactions.

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[1] Strickler, Albert: A Histopathologic Study of Positive Cutaneous Tests, J. A. M. A. 78:1287 (April 29) 1922.

CONCLUSIONS

1. It would appear from this study that there is little difference between the results obtained in food anaphylaxis whether the cutaneous or intracutaneous methods are employed.

2. Considering that we utilized fifty-eight subjects, on each of whom approximately six different proteins were utilized, the differences noted were very slight.

3. Stress must be placed on the fact that practically in no instance were the differences noted of a high degree of positiveness.

4. As shown in a previous communication, great stress cannot be laid upon weak or suggestive food reactions, whether obtained by the cutaneous or the intracutaneous method.

5. The repetition of the food tests by either method does not materially influence the results of food anaphylaxis.

6. It seems suggestive that the arsenical preparations, whether administered by mouth or intravenously, do not materially influence the endermic food tests.

327 South Sixteenth Street.

HODGKIN'S DISEASE FOLLOWING DYSENTERY

RECOVERY OF PARASITES FROM STOOL AND IMPROVEMENT WITH ANTIPARASITIC TREATMENT

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Little help of a very definite nature as to the cause of Hodgkin's disease has been at hand other than its suspected infectious origin. With opinions as to cause varying between tuberculosis, malignancy and the more common bacterial infections, one wonders why there has not been more expression in favor of parasitic origin. Recently Kofoid [1] has called attention to the frequency of intestinal parasites in patients with Hodgkin's disease, and asserts that he has observed cell bodies which resemble amebas in the glands. This may be an important source of investigation, and might be the means of eliminating one more type of glandular enlargement from the group of Sternberg's disease, lymphosarcoma and malignant lymphogranuloma, of which too little of the etiology is known. It is quite possible, as Coplin [2] has recently stated, that any irritative effect on glands might produce, according to stage, an inflammatory or malignant picture.

A case is reported in hope that it will encourage more consideration of the parasitic origin of Hodgkin's disease. It is also hoped that intestinal symptoms will be given more attention, and stools examined, for I feel that there is a dysenterical prelude in a large number of cases of Hodgkin's disease. This opinion is shared by others.

REPORT OF CASE

Mr. C., aged 30, complained of throbbing in the epigastric region after meals and shortly after retiring. This had been noticed for about a week. For the same length of time some soreness and stiffness was present in the right lumbar region. His past history is of interest and indicates sources of investigation as an explanation of his complaints. Previous to 1920 he had always been well, and resided in the southern part of Ohio. During the summer of 1919 he left this part of the country and went to Isle of Pines. About six months after taking up his residence there he was taken sick with dengue fever, and was in bed for three days. He never recovered completely, and in the course of the next two months contracted dysentery. After the acute symptoms subsided he was in a run-down condition, with bowels either loose or constipated, with flatus. With the next four months his condition grew worse, and small, glandular enlargements were noted in the right side of the neck. Some fever was present, and a tuberculous infection of the glands was suspected. From this time until Jan. 3, 1921, a tuberculous regimen was carried out. On this date a surgeon removed a section from a brawny swelling involving the right side of the neck above the clavicle. This section had all the appearance to justify the diagnosis of Hodgkin's disease. After this the mass was treated with roentgen ray and gradually disappeared, the fever left, and strength returned. He finally came to Cleveland the latter part of the year, and came under my observation, Jan. 4, 1922.

The patient was intelligent, fairly well nourished, pale, of dark complexion, of moderate height, and of good development. There was no tuberculous history in the family, and he denied venereal infection, and repeated Wassermann tests had been made with negative results. His skin was tanned over the neck and chest from roentgen-ray treatments. The sclera of the eyes was muddy in appearance. The throat walls were catarrhal. The tonsils were removed. The neck glands were not palpable. There was a scar of operation on the right side of the neck. Some of the axillary glands on the right side were enlarged to the size of an almond, and tender. There was one dead bicuspid, and one suspicious molar, with no areas of infection. There was impaired resonance, and there were high pitched breath sounds in the right upper lobe. Roentgen-ray examination of the chest revealed two rather large glands at the root of the right lung, and one smaller gland close to the trachea in the mediastinum. Some resistance to palpation was noted in the right hypochrondium, and a probable mass was palpable in the region of the lesser peritoneal glands. Epigastric pulsation was present, but no thrill. The blood pressure was 110 systolic and 70 diastolic. The urine showed a slight reaction to a test for bile. Blood examination revealed: red blood cells, 4,960,000 per cubic millimeter; white blood cells, 5,000; hemoglobin, 90 per cent.; differential cell count: polymorphonuclears, 86 per cent.; small mononuclears, 8 per cent.; large mononuculears, 6 per cent. There was nothing abnormal in the appearance of the cells. The temperature was 99.5. Only positive physical and important laboratory findings are noted.

Roentgen-ray treatments at regular intervals over a period of four months were only partially successful, judged by failure in improvement in general health, return of glandular enlargement again on the right side of the neck, and the disappearance of only the smaller gland in the chest. The glands on the right side of the neck, however, disappeared by more vigorous roentgen-ray treatments.

Sometime in February a series of stools was sent to C. A. Kofoid and his associates at the University of California, who found *Endameba dysenteriae* and two flagellates, *Chilomastix* and *Trichomonas.* Neo-arsphenamin in 0.9 gm. doses was given intravenously, emetin hydrochlorid, ½ grain (0.03 gm.) hypodermically twice daily, daily cleansing enemas for bowels, and ipecac by mouth in properly covered pills. After one week of such treatment the temperature never rose above normal, and a gain in 4 pounds (1.8 kg.) in weight resulted, with return of strength. In the second week a similar gain in weight was made, with gain in strength, and disappearance of pain in the back. The glands in the right side of the neck diminished further, but it is not fair to judge glandular appearance, as roentgen-ray treatments may have a delayed effect. The patient continues to gain and is about to leave my care to go to South America, and it will be interesting to hear of the subsequent course, and the results of a stool examination.

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[1] Kofoid, C. A.; Swezy, Olive, and Boyers, L. M.: The Coexistence of Hodgkin's Disease and Amebiasis, J. A. M. A. **78**: 532 (Feb. 18) 1922. Kofoid, C. A., and Swezy, Olive: Amebiasis of the Bones, ibid. **78**: 1602 (May 27) 1922. Kofoid, C. A.; Boyers, L. M., and Swezy, Olive: Occurrence of Endameba Dysenteriae in the Lesions of Hodgkin's Disease, ibid. **78**: 1604 (May 27) 1922.

[2] Coplin, W. M. L.: A Basis for the Prevention of Cancer, J. A. M. A. **78**: 1527 (May 20) 1922.

SUMMARY

In this case, Hodgkin's disease followed dysentery. The onset of malignant lymphogranuloma was four months after the intestinal infection, with involvement of the glands of the right side of the neck. The clinical course of the disease was of the nature of other similar cases, with progressive enlargement of the glands in the neck, mediastinum and axilla, fever, anemia and weakness. A section of gland had the appearance of Hodgkin's disease. Six years after infection amebas and two flagellates were recovered. Significant prompt improvement followed remedies directed toward amebiasis.

628 Union Building.

THE RAT AS A DISSEMINATOR OF THE RELAPSING FEVER OF PANAMA

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Attention should be directed to the probable rôle of the rat as a disseminating agent of the relapsing fever of Panama and presumably of Central America, Mexico, Colombia and Venezuela.

In a set of very convincing experiments, Bates, Dunn and St. John [1] have recently demonstrated by human experimentation that the tick *Ornithodorus talaje* Guérin, 1849 is the natural transmitting agent of the relapsing fever of Panama.

Epidemiologic testimony and the argument from analogy with *O. moubata* and *Spirochaeta duttoni* had been presented [2] some time before the actual demonstration of the tick *O. talaje* as the definitive host and carrier of the spirochete had been made.

My own observations on *O. talaje* date back to 1905, when nymphs of this species were first taken from rats (*Mus rattus*) caught in buildings on Ancon Hospital grounds. Adults of the species were collected in August, 1910, in the Panaman village of La Chorerra, and at the village of Arraijan in 1912 and 1913.

Attempts to incriminate the species as the transmitting agent of relapsing fever were made in 1913, but were unsuccessful; the circumstantial evidence was so strong, however, against this tick that in 1917 I [2] published an illustration of *O. talaje* as the probable carrier of the disease. The importance of the earlier observations on the relation of the rat to the tick, however, is now manifest; for the tick has been positively incriminated.

Pino-Pou [2] and Iturbe record the demonstration of *Ornithodorus* as the transmitting agent of infection to animals in Venezuela by Tejera and Pino-Pou.

It is quite clear that the house rat *Mus rattus*, and very likely the field rats, as well as the sewer rat *Mus norvegicus*, are capable of disseminating infection because of their relation to the tick and to the spirochete (*Spirochaeta novyi*).

The evidence for this is based on: (1) the infectiousness of the spirochete for wild rats; (2) the host relationships between man, the tick *O. talaje* and the rat; (3) the habits of house rats and of field rats in visiting habitations, and (4) the probable infectiveness at all stages of the tick, as in *O. moubata*.

With regard to the first, it was demonstrated [3] in 1908 that the house rat *Mus rattus*, as well as the albino variety of *Mus norvegicus*, was susceptible to infection by *Spirochaeta novyi*, the spirochete of the relapsing fever of Panama. Animals inoculated disclosed a single paroxysm, as had been observed by Novy, Carlisle and their colleagues. The type of infection in rats and other animals served to differentiate the spirochete from *Spirochaeta duttoni*, *S. recurrentis* and *S. carteri*.

EVIDENCE OF HOST RELATIONSHIP BETWEEN ORNITHODORUS TALAJE, MAN AND RAT

The evidence on the host relationship between the tick *O. talaje*, man and the rat is based on the occurrence of this tick in human habitations in native villages, and on its habits and its occurrence on the rat.

Relationship with Man.—My attention was first called to this, Aug. 23, 1910, during a sanitary survey of the Panaman village of La Chorerra in company with the late General Gorgas. The villagers complained of the bite of a tick, which attacked the children at night and caused severe pain as well as inflammation and ulceration.

The tick was described as having habits like the bedbug, living in beds and walls and coming out after dark to feed. A child suffering from tick bites on the neck and shoulders was brought to our party for examination. Ticks were caught in the house where the child lived. They were called by the native Panamans "cinche mamone" and are known in Colombia under the name of "cherivico," "berrinche" and "Cuesca." They had the characters of *Ornithodorus* and were identified by Professor Nuttall as *O. tajale*, and he later [2] expressed the opinion that they might play a part in connection with relapsing fever of Central America and Mexico.

Observations on the tick were carried out later in 1912 and in 1913 when I visited the village of Arraijan. A supply was obtained from beds constructed of bamboo. The villagers knew from the description just what was wanted, and they quickly obtained a number by removing the bamboo slats of their beds, knocking them on the ground, and thus dislodging the ticks, which were easily captured. This seemed to be the native method of deticking their beds.

It is worth noting here that bamboo, which lends itself so readily in many ways to domestic architecture in the construction of houses and furniture in tropical countries, is the bugbear of the sanitary officer because of the facility with which vermin of several kinds find security within its joints.

This lot of ticks was carried to the laboratory at Ancon and was used in a number of experiments. Adult females oviposited after several days, and the minute seed ticks were permitted to feed several times on my forearm. They fed eagerly and increased several times in size, becoming red, leaving a tiny petechial hemorrhagic spot on the skin of the forearm, and causing an intolerable itching sensation.

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[1] Bates, Dunn and St. John: The Relapsing Fever in Panama, Am. J. Trop. Med. 1, No. 4, 1921.

[2] Nuttall: Spirochetoses, Bull. Johns Hopkins Hosp., February, 1913. Darling, S. T.: Relapsing Fever, in A Reference Handbook of the Medical Sciences, New York, William Wood & Co. 7: 508, 1917. Pino-Pou, La Fiebre Recurrente en General y Particularmente en Venezuela, Caracas, 1921. Franco, Toro and Martinez: Fiebre Amarilla y Fiebre Espiroquital, Tr. Acad. Nat. de Med. 1: 169, 1911.

[3] Darling, S. T.: Proc. Canal Zone M. A., 1908.

Further observations and experiments were carried out on these ticks, from which it was apparent that larvae would feed readily on human blood. Adults, of course, had been incriminated by the natives, and we had ample evidence of this.

It might appear that we possessed evidence sufficient to incriminate the tick as an obligate parasite of man, and for believing that whatever infection might be derived from man would be passed back to him alone either by adults or by larvae. But we know that certain ticks possess peculiar host relationships, passing part of their time on one host and part on an alternate host. This seems to be particularly true of the nymphal stage, and, of course, not only serves to transmit a disease to another host, but the dispersal of the tick itself in the nymphal stage is furthered by this passive transfer from one place to another.

Relationship with the Rat.—Nymphs of *O. talaje* were frequently taken by me during the examinations of rats for plague and *Trypanosoma lewisi* made in 1905, and subsequently. Nymphs on rats taken in the hospital grounds were found to contain living trypanosomes. Many of the rats doubtless had migrated from the adjoining ward of the city of Panama. Later in 1911 and 1912, during an investigation of the rat fleas of the Canal Zone and the cities of Colon and Panama with the late A. L. Jennings, we frequently encountered nymphs of *O. talaje* in the rats caught daily in the city of Panama. These nymphs were identified by Banks, who stated that larvae and nymphs spend a portion of their life on the house rat.

It is evident from these findings that the nymphal stage of *O. talaje* is spent on the house rat, and that the rat serves as a means of carriage or transfer of the tick from place to place.

Dispersal of Tick by Rats.—From the habits of different species of rats it must be concluded that several species of rats may be concerned in this dispersal of the tick and the spread of the disease.

Not only are the habits of the rats of interest from a zoological and economic point of view, but a wider and more minute knowledge of their habits and movements is essential to the control of the diseases spread by them.

The Indian Plague Commission has shown how plague is passed on from *Mus norvegicus* to *Mus rattus,* and from this species to man, through the agency of the flea. In Panama, I observed that when gray and black rats were confined together the black rats gradually disappeared, having been killed and eaten by the larger and fiercer fighter, *Mus norvegicus.* In the interior villages of Panama and on the outskirts of the city of Panama, *Mus rattus* predominated; while in the city, particularly near the water front, we found that *Mus norvegicus* had ousted the gentler, more definitely house-frequenting and house-living black species. This struggle for survival constantly going on between *Mus norvegicus,* on the one hand, and the weaker species, such as *Mus rattus, Mus alexandrinus* and field species, on the other, tends to increase or widen the dispersal of the latter and leads to the distribution of the tick *O. talaje* and the spirochete (*S. novyi*) in places where they formerly did not exist. Changes in the original distribution of *Mus rattus* were quite apparent in Panama in 1905.

In the villages and on the outskirts of the city, particularly near the sabanas and where the bush adjoins the houses, where *Mus norveigicus* is usually absent, and where I found *Mus rattus* infested with *O. talaje,* it is possible occasionally to trap in houses specimens of field species of rats, such as *Diplomys darlingi* and *Sigmodon hispidus* and probably other species, showing that they do enter habitations, possibly when in the dry season their customary food is scarce.

The possibility of species other than *Mus rattus* acting as vectors and disseminators of the tick must not be overlooked.

Transmission to Man.—While we possess no positive evidence as yet that the spirochete can be transmitted by *O. talaje* to man in all stages—larva, nymph and adult—it is quite likely that it can be transmitted; for this is the case with *Spirochaeta duttoni* and *Ornithodorus moubata,* even to the third generation.

Mollers, in 1907, found that *Spirochaeta duttoni* retained evidences of infectability in the third generation, although the parents had not been permitted to feed on infected animals.

We may assume from these observations and from the experiment of Bates, Dunn and St. John, in which they infected a monkey with first stage nymphs which had been fed as larvae on an infected rat, that nymphs are infective for rats, and the infection may be disseminated by means of rats in this way; that is, by rats infecting other nymphs, and these in turn infecting man.

We must assume that all rats that visit habitations in an endemic region may acquire an infestation with nymphs infected with *Spirochaeta novyi,* and that they may act as disseminators of the disease, not only from house to house, but also from village to village. From an epidemiologic study of thirty-nine cases of the disease in Panama in 1907, I concluded that there were grounds for believing that the infected men acquired their infection by visiting native villages where the disease might be endemic. The predominance of the disease in Colon and Gatun and the smaller number of these cases occurring near the Pacific in 1906-1907 indicated also that the disease might have been introduced possibly from Colombia, where it was known to exist in endemic form.

We have reason to believe, then, that the disease can be introduced into a community by means of rats infested with infected nymphs of *O. talaje* as well as by infected persons.

SUMMARY

While the tick *Ornithodorus talaje,* the transmitting agent of the relapsing fever of Panama, may feed on man in all three stages of its development as larva, nymph and adult, it spends naturally a portion of its life on the house rat and probably on other rats which visit habitations.

The rat is susceptible to infection from the cause of the relapsing fever of Panama (*Spirochaeta novyi*). Nymphs are capable of transmitting infection from animal to animal. Rats, therefore, may and do play a part in the dispersal of the ticks and presumably of the infective agent (*Spirochaeta novyi*) of the relapsing fever of Panama. The dispersal of *Mus rattus* into suburban and rural and interior districts as a result of the struggle for survival now going on between *Mus rattus* and *Mus norvegicus,* a struggle which has been in progress and plainly apparent in Panama in recent years, will lead inevitably to the dissemination of the transmitting agent (*Ornithodorus talaje*) of the cause of relapsing fever into places where it does not now exist.

In instituting control measures against the relapsing fever of Panama and Tropical America, cognizance must be taken of these facts, and efforts must be made toward the elimination of the tick not only in habitations, but also on the rat, and elimination of the rat as well. For it will be impossible to control an outbreak of the disease if one of the important agencies in its dissemination is disregarded through failure to attack the tick in the nymphal stage on the rat.

International Health Board.

SPOROTRICHOSIS *

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Sporotrichosis is more frequently encountered than any of the other dermatomycoses. The disease is so constantly confined to the cutaneous and subcutaneous tissues that we seem not to have sufficiently acquainted ourselves with its protean character. It may attack many other tissues of the body, and manifest itself in a manner so far removed from the usual clinical picture that it is only by the most careful observation, with the aid of thorough laboratory investigation, that we are able to cope with it.

It is because of encountering a case, which clinically was simple enough, yet which presented some of these important though rare involvements, that I make this report. At the same time, I would like to call attention to the variable manifestations that may appear, with the hope of stimulating the profession to a more thorough investigation of some of these infections, which do not seem to fit any particular entity, yet may have *Sporotrichum schencki* for an etiologic factor.

Sporotrichosis has been recognized as an entity for the last twenty-four years, or since Schenck first described the malady, and discovered and, with the aid of Erwin F. Smith, classified the causative organism. Dr. A. W. Brayton of Indianapolis reported the second case. Following closely came the work of Hektoen and Perkins, Hyde and Davis in America, de Beurmann and his associates in France, Arndt in Germany, Kren and Schramick in Austria, and Adamson and Walker in England. These reports, which were published during a period of about ten years following Schenck's contribution, served to establish sporotrichosis in the medical literature. Since that time, or during the second decade in the life of the disease as a recognized entity, many interesting contributions have been made, especially to the American literature, by Mewborn, Sutton, Meyer, Blaisdell, Shelmire, Trimble and Shaw, Hamburger, Raney and Carey, Stelwagon, Newman, Ravogli, Soloman, Ormsby and Lane. In addition, reports that have found their way into the literature indicate that the disease is encountered all over the world.

The clinical picture of sporotrichosis is very constant—so constant that it has had for its effect the dimming of our vision as to its protean nature. The textbooks make only a mild mention of it, and those making contributions to the American literature do not seem to have encountered it except in very few instances. It would seem that what we know of its variable manifestations we owe, in the main at least, to the French. It is because the American literature contains little or nothing concerning the involvement of tendon sheaths, periosteum and bone that I am desirous of bringing this case to attention.

Usually, there is a trivial trauma. After a time, it is discovered, the injured part has not responded normally, but becomes swollen, livid or bluish in appearance, takes on a shape in keeping with the nature of the injury, and is found discharging a syrup-like secretion, which may be tinged with pus and blood. The appearance of this initial lesion, or chancre as it is termed by some, may be expected to have been influenced by the application of various domestic remedies, consisting of everything from poultices to caustics. It may be encountered anywhere on the body, but most frequently on the hands, for the reason that the hands are most exposed to injury. By the time the stubborn nature of the sore has caused alarm to the host, the secondary lesions will have begun to appear. A nodule, usually in a direction toward the trunk, is observed, located deep in the subcutaneous tissues; it imparts a firm feeling to the touch, and may be expected to be moderately tender. If a still greater time has elapsed, other lesions may have developed, the newer ones following in a direction toward the trunk, until there may be observed many nodular swellings, extending up the arm in chainlike formation, and presenting different stages of progression or regression. There may be observed firm hard nodules covered by a pinkish skin, others which have softened, and others which are discharging their contents, consisting of a syrupy fluid, as before mentioned. My observations have been that there are usually from four to six such lesions, extending from the injury on the hand to the elbow. The patients experience a feeling of well being, remain ambulatory, have little or no elevation of temperature, and, aside from the inconvenience and apprehension, appear quite well. Such may be said to be a fair description of a typical case of sporotrichosis, reports of which, as has been mentioned, have been voluminous.

The disease may affect parent and child, one such case coming under my own observation; it has been reported to have affected as many as three children in one family.

It may suggest a latent syphilis, as it almost always does, to those who are not especially familiar with skin lesions; or, at the site of the initial lesion, or chancre, it may present the clinical appearance of a tuberculosis verrucosa cutis or of a blastomycosis or of both, as it did in my case.

The disease may attack the tendon sheaths, periosteum and bone. In my case, there is a history of a fracture involving these structures, occurring about fourteen years previous to this infection. I have the feeling that changes in the course of the lymph stream, incidental to the fracture and repair, may have directed the infection into the deeper structures, and thereby caused the involvement of tendon sheaths, periosteum and bone, which otherwise might not have occurred.

Sporotrichosis may also infect the blood stream and produce a septicemia and a generalized gummatous process of the skin, together with gummatous lesions of the liver and other viscera, and *Sporotrichum* may be recovered from the blood stream.

It may be associated with tuberculosis, and may attack structures such as the pharynx, larynx, trachea and mucous membrane of the mouth, along with tuberculosis.

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* Read before the Section on Dermatology and Syphilology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

It would seem, experimentally at least, that when infection has found its way directly into the blood stream, dissemination may be so rapid that the host is overcome before Nature has had time to organize a defense. Too, it is probable that when the sporothrix has found lodgment in a person suffering from tuberculosis of much moment, the body defense has been so exhausted by the tuberculous infection that it is unable to put up a strong fight against *Sporotrichum.*

In the type of infection usually encountered, namely, the subcutaneous lymph space variety, the infection has slow progress, which gives the normal body defense an opportunity to organize for resistance. This would seem to suggest itself as a result of the power of the patient's blood to agglutinate the spores of *Sporotrichum.*

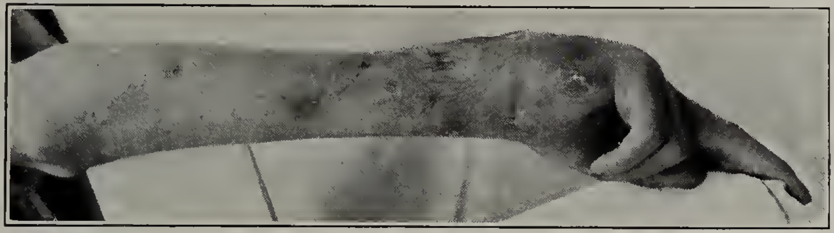

Fig. 1.—Appearance of arm in case reported, in which tendon sheaths, periosteum and bone were involved, with thickening of tissues about the hand and wrist.

Experimentally, sporotrichosis has been produced by feeding animals on infected foods, and has been produced in the offspring by infecting mothers in the pregnant state. By blood stream inoculations, it has produced a rapid dissemination, metastasis and death. At postmortem examination, the thoracic and abdominal viscera have been found involved in a tuberculoid and syphiloid granulomatous inflammatory process. It may interfere with development, by producing dystrophies and arthropathies; nevertheless, the animals have remained mentally normal.

The difference in *Sporotrichum* as discovered by Schenck in 1898, and as later described by de Beurmann and his associates, would seem not greater than that of any vegetation growing in changed climatic environment, and, in my judgment, should not concern us.

The organism grows readily on the simpler mediums; for the most part, however, in the presence of secondary infection it may not, as it did not in my case and in another case of a similar character. It may be found microscopically in the pus, as it was in my case. But it would seem, from the experience of others, that this is rarely true. In the other case mentioned, which was of a similar character, the culture growth failed, and the diagnosis was made by the agglutination test. The diagnosis later was further confirmed by successfully cultivating *Sporotrichum* from the secretions, after sufficient time had elapsed to clear out the secondary infection.

We did not have growing, at this time, any cultures of *Sporotrichum,* so the agglutination test was not employed. As the clinical diagnosis had been amply confirmed by finding the organism in the pus, I felt quite content to proceed with the treatment.

The histopathology presents a lymph connective tissue, or the so-called syphiloid zone, and an epithelioid or tuberculoid one, with a suppurative area. With the means now at our command, the diagnosis of sporotrichosis has been rendered simple. In the cases usually observed, the clinical picture is quite sufficient. I feel sure, however, that if we study our obscure cases carefully, especially with the view of ruling out sporotrichosis, we shall encounter it more frequently. Examination of the secretions for *Sporotrichum,* cultivating the organism, and the application of the agglutination test of Widal and Abrami, would serve to rule it out. This agglutination test is not specific as against some of the other mycoses, except as to dilutions and time; while the spores agglutinate, the myecelia do not. It has been found positive one year after cure, and has been found negative five years after a cure.

The prognosis in the uncomplicated cases is very good.

The treatment by iodids internally, and the application locally of dilute iodin potassium iodid solution are specific. There seems to be no potential danger of disseminating the organism by absorbing the granulomatous tissues.

REPORT OF CASE

History.—F. T., a man, aged 33, American, married, teamster, referred to me by Dr. John H. Oliver of Indianapolis, Jan. 24, 1921, complained of boils and swelling of the right hand and forearm for the last fourteen months. The patient was the father of three healthy children. He had had measles, whooping cough, scarlet fever and pneumonia, with good recovery. He had suffered a fracture of the right wrist fourteen years previous to this time, and had been a patient in an institution for the insane, where he had been regarded as having dementia praecox of the paranoid form. He escaped from the institution, and, as he seemed to be adjusting himself fairly well on the outside, he had not been disturbed. There had been an abscess on the ring finger of the right hand, which had healed without treatment.

During November, 1920, or fourteen months previous to this time, he had scraped the skin on the back of his right hand while working as a teamster. This injury had refused to heal, and discrete swellings had appeared along the ulnar side of the arm, which had broken down and discharged, leaving contracted scars. The hand became swollen. The ring and little fingers began to draw down, and the use of the hand was gradually lost.

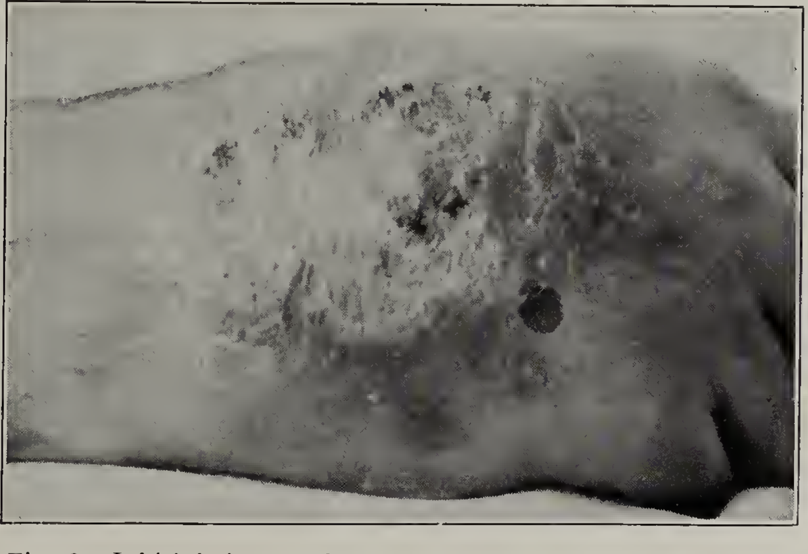

Fig. 2.—Initial lesion on dorsal surface of hand and arm, showing resemblance to blastomycosis and to tuberculosis verrucosa cutis.

The family history was negative, with the exception that a distant cousin had had bone tuberculosis.

Physical Examination.—The patient was well built. He was poorly developed mentally. The abdomen, chest and nerve reflexes were normal. There were 13,500 leukocytes. The Pirquet reaction was positive. The ring and little fingers on the right hand were drawn down and fixed so that any extension was impossible. The wrist and body of the right hand were swollen and thickened. There were four contracted scars along the ulnar side of the hand. There was a similar, but larger, lesion on the flexor surface of the radial side of the wrist. On the dorsal surface of the same hand there was an irregular eroded surface, about 8 by 5 cm., composed of sinus openings, pus pockets, and verrucose formations.

This lesion had the appearance of blastomycosis and of tuberculosis verrucosa cutis. A probe pressed into the sinus openings passed deeply into the tissues of the hand.

In the laboratory, culture tubes were inoculated, smears examined and histopathologic studies made by Dr. V. H. Moon of the department of pathology of the Indiana University School of Medicine. In the pus smears, stained with methylene blue, were found pus cells, débris and a number of bacterial species, among which were cocci, and diphtheroid and other bacilli, such as are found as saphrophytes in open skin lesions.

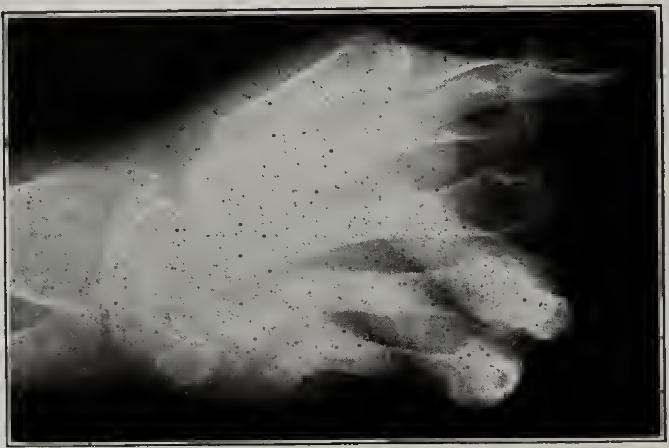

Fig. 3.—Destruction of head of fourth carpal, and erosive, destructive process involving metacarpal bones.

Smears stained with carbolfuchsin contained no acid-fast bacilli.

Pus examined under coverslips after digestion with 10 per cent. potassium hydroxid contained clear, refractile, oval forms, elongated sausage-like forms, and navicular and short filamentous forms. These were from 3 to 4 microns in diameter, and from 5 to 7 microns in length. The diagnosis from examination of the pus was sporotrichosis. Cultures from the pus were abundantly overgrown by the bacterial species present. No pure culture of *Sporothrix* was obtained.

Histopathology.—The epithelium and papillary processes of the corium were not altered; except at the margin of the ulcer, the epithelial cells were moderately edematous. The dermis was markedly infiltrated with large mononuclear cells, plasma cells and lymphocytes. Very few polymorphonuclear cells were seen. The cellular infiltration was particularly abundant about the sweat glands and about the vascular structures. There was an evidence of a proliferation of fibrous tissues. The sides and floor of the ulcer consisted of a granulomatous proliferation of a tuberculoid character, densely infiltrated with cells. Large epithelioid cells having two or more nuclei were seen in this area, and a few were found having eight or more nuclei. These giant cells were not so large as those found in tuberculosis, nor were their nuclei placed peripherally. Distinct, small, round, granulomatous areas were present, which resembled miliary tuberculosis somewhat, but these consisted entirely of newly formed fibrous tissue and large mononuclear and multinuclear cells. None of these had caseous or necrotic centers.

Roentgen-ray examination by Dr. Ralph L. Locery of the Indianapolis City Hospital revealed periosteal involvement of the head of the radius and ulna, all of the carpal and metacarpal bones, and a destructive osteitis involving the third and the fourth metacarpal, and some of the carpal bones.

We failed to get a satisfactory culture growth, our mistake being in taking pus from a discharging sinus. I feel sure that had we inoculated our mediums from the contents of the lesion, which was located on the flexor surface of the wrist over the head of the radius, we would have had better success.

Treatment and Result.—Iodids were given internally, and iodin potassium iodid solutions were applied locally. The patient's heart rate was 165 when the dose had been increased to 45 grains (3 gm.) of the iodids, and it returned to normal when the dose was reduced to 30 grains (2 gm.).

The man left the hospital, March 23, fifty-eight days after he was admitted, with all lesions healed.

725 Hume-Mansur Building.

ABSTRACT OF DISCUSSION

Dr. Richard L. Sutton, Kansas City, Mo.: Sporotrichosis is undoubtedly a fairly common disorder in the Middle West, and in late years many cases are being recognized that formerly escaped detection. I have seen probably thirty cases during the last twelve years. Virtually all of my cases have been of the type shown by Dr. Cregor in his first three, with the earliest lesion on the hand or foot, the abscesses extending upward, along the limb. In none of our cases did we succeed in recovering the organism from the lesion, although, as a rule, our cultures were positive. The disease is one of the agricultural districts, the organism being a not uncommon one in straw and dry vegetable matter. Dr. Cregor's last case was particularly interesting, as the tubercular and gummatous types, while far from rare in France, are seldom encountered in this country. I can recall but one case, that reported by Eisenstaedt. I must agree with Dr. Cregor that after an exhausive study of the organism I hold the same view as Castellani, and Meyer and Aird, that many, if not all, of the numerous French varieties belong in the same category, that it is both useless and confusing to endeavor to separate them into forty-nine different classes. The disease usually responds promptly to iodin medication, possibly supplemented by roentgen rays, and, as a rule, operative intervention is contraindicated.

Dr. J. M. King, Nashville, Tenn.: I enjoyed the paper very much and consider it a straightforward statement of the case. For several years I have been looking for cases of sporotrichosis, and I think that last week I was rewarded with one. A man of about 70 stuck a splinter in his hand last November. He removed the splinter, and to his surprise nodules developed up his arm subcutaneously to within 3 inches of the axilla. His physician treated him with antiseptic applications without any success. The patient was referred to me by Dr. Sayers of Nashville. When I first looked at him I said: "There is a case of sporotrichosis." All of these lesions had been opened, and they contained sinuses opening from one to the other. Dr. Spitz made the cultures for me. He found the mycelium in the smear. I opened the other lesions and got out the typical fluid for other cultures, from which we may get more positive results. Since this case was reported, Dr. Spitz has found the sporothrix in the cultures.

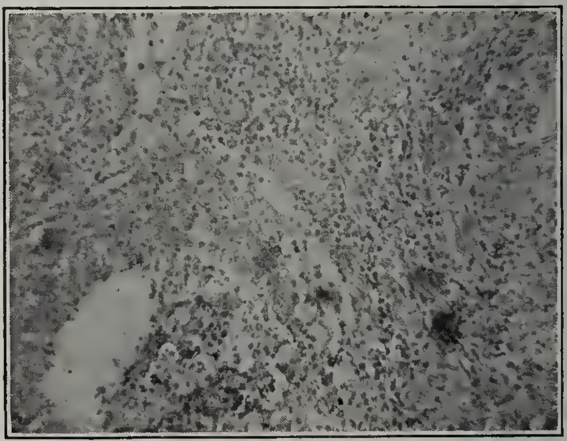

Fig. 4.—Syphiloid outer zone of gumma.

Dr. Everett S. Lain, Oklahoma City: I do not know whether this disease is more common with us, but we certainly see more in our section of the country. I think that the reason, perhaps, Dr. Sutton is not seeing so many cases nowadays is that the disease has been so well described by himself and others that the general practitioners are recognizing it and do not need a dermatologist to make the diagnosis. Even hospital interns now recognize sporotrichosis almost on first sight. It usually yields rapidly to iodid treatment. However, one of my patients came back one year later with a recurrence in the original site. He had been given the iodids but no roentgen therapy. Our previous patients had been given both roentgen rays and iodids.

DR. JOHN H. KING, Nashville, Tenn.: I, like Dr. Lain, think that there are many more cases of sporotrichosis in our section of the country than are reported. One point that Meyer noted was that it could be contracted from an equine strain, and he himself contracted the disease from an equine strain, working in his own laboratory. That was particularly so in Pennsylvania, where 150 cases were reported within a few years, yet only two cases occurred among veterinarians and others working on these animals. Another point is the combination of potassium iodid and roentgen rays. While we all feel that potassium iodid is a specific in sporotrichosis, I feel that these advanced or deep cases, such as Dr. Cregor has reported, may be greatly benefited by the roentgen rays. For the superficial treatment I feel that we should use a ray with very slight filtration, while for the deeper lesions we should use a heavier ray with a more or less massive dose. In the case of a boy last year, I feel that his recovery was greatly hastened by the roentgen rays.

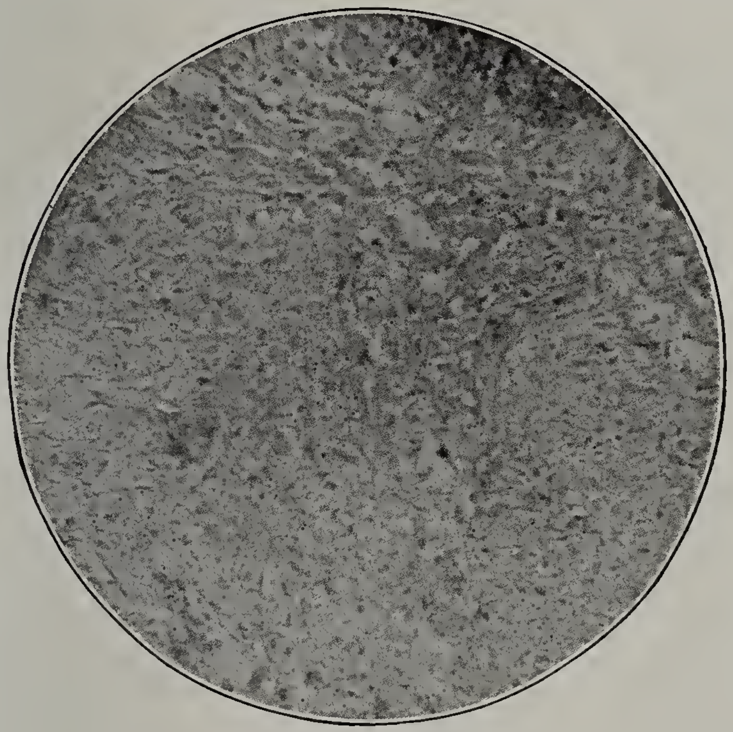

Fig. 5.—Tuberculoid inner zone of gumma.

DR. FRANK W. CREGOR, Indianapolis: In the treatment of the mother and the boy, we attempted to investigate these particular conditions. Dr. Obershimer concluded that the cases developed during the harvesting of the buckwheat, and he offers this as being something that has a tendency to harbor this organism. I cannot see the efficacy of the employment of the roentgen ray in these cases. There is evidently some symbiosis between this organism and others that "live in the shadow," which seemed to succumb when the organisms are destroyed, as they are destroyed by the iodids. In the cases that I have had I have not employed the roentgen ray, and I have never felt the need of it.

Epidemic Due to Repatriation.—The health situation in Poland became more serious during the winter of 1921-1922, as a result of repatriation. In 1921, Poland received 468,000 repatriated persons. As a result, the typhus epidemic, which had been declining since 1920, made alarming progress. There were ten times as many cases (8,600) in January, 1922, as there were (860) in September, 1921. Relapsing fever also spread rapidly, there being 8,100 cases in January, 1922, as against 680 in September, 1920.—*Bulletin No. 3, Health Section, League of Nations,* June, 1922.

ULCERATING GRANULOMA (GRANULOMA INGUINALE) *

HERMAN GOODMAN, B.S., M.D.
NEW YORK

Ulcerating granuloma is also known as granuloma inguinale, ulcerating granuloma of the pudenda, sclerotisizing or sclerosing granuloma of the pudenda, serpiginous ulcerations of the genitalia, granuloma inguinale tropicum, granuloma venerum, groin ulceration, chronic venereal sores and granulomatosis. It is a skin and mucous membrane disease found in the tropic, subtropic and temperate zones. It is an infectious, chronic, indurated, cicatrizing growth on or near the genitals of males and females, with no tendency to glandular involvement or serious impairment of the general health. The majority of the patients are in the period of sexual maturity. Women are said to be more frequently affected than men. The colored races have been thought to have a predisposition to this disease, but a large number of white patients have also been reported.

I have had the opportunity of studying cases of granuloma inguinale in Porto Rico and other islands of the West Indies, and in Panama.[1] Since my return from the tropics, I have also had the opportunity of studying cases of this disease at Bellevue Hospital and at the New York Skin and Cancer Hospital. It was thought that a review of personal experience, both in the tropics and in New York, would be of interest.

TROPICAL CASES

The first case of ulcerating granuloma of the pudenda was in a prostitute, aged 22, who had had the disease for nine years. When first seen, lesions of condylomata lata of syphilis surrounded the areas of the granuloma. Antisyphilitic treatment cleared the manifestations of syphilis, but left the other masses unaltered. The lesions occupied the regions in and about the vulva, perineum and anus. They extended into the vagina and into the rectum. The individual lesions were small papillary tumors about the size of a pea. The odor was very offensive. Bacteriologic investigations of material from this patient's lesions (Fig. 1) disclosed a spirochete which corresponded closely to that described by Wise, and later named *Spirochaeta aboriginalis.* This spiral organism varies very much in form and number of turns. As far as I was able to determine, no other organism, especially *Calimatobacterium granulomatis,* was present in smears from tissue of the lesions in this case.

The second patient was a mulatto, aged 32, who had had the lesions for about three years. The process included the anal mucosa, as well as the skin of the femoroscrotal junction, and extended back to encircle the anus. Several individual lesions were present as satellites to the main masses. The appearance of the lesions in this patient compared favorably with those first described by Conyers and Daniels as "lupoid form of so-called groin ulceration."

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* This article is abbreviated in THE JOURNAL by the omission of a bibliography, which appears in the Transactions of the Section and in the author's reprints.

* Read before the Section on Dermatology and Syphilology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Goodman, Herman: Ulcerating Granuloma of the Pudenda: A Review of the Literature with a Bibliography and Some Observations of the Disease as Seen in Porto Rico, Arch. Dermat. & Syph. **1**: 151 (Feb.) 1920.

My third patient was a mulatto girl, aged 17, who had had the lesions for about two years. She showed a series of lesions which involved the posterior fourchette, the posterior vaginal wall and the perineal space. The vagina was involved, and felt distinctly hard. There was a marked lymph stasis. The glans clitoridis was as large as an adult glans penis.

The fourth patient was a discharged white soldier who, several years previously, had been operated on for a small papule on the intergluteal fold. He developed a mild mental disturbance and was placed in a mental hospital for a time. When I first saw him, he presented massive, bright red granulations from the tip of the coccyx to the scrotoperineal junction. The opposing anal folds were affected. The border was raised and made up of closely grouped papules covered by a thin grayish membrane and exuding a serous fluid.

Three other patients were seen at Charlotta Amelia, St. Thomas, Virgin Islands.

A patient at the Santo Tomas Hospital, Panama City, was seen after an operation for supposed epithelioma of the penis. The youth of the patient, 23, and the history of the case led me to venture a diagnosis of granuloma inguinale. Dr. Gehringer kindly gave me the only section he had (Fig. 2), and one (Fig. 3) from the extirpated glands. The histopathology corresponded to that of the other cases.

Clinically, the cases seen in the tropics were typical cases as far as tropical experience of others is concerned, for South American authors picture cases which are almost counterparts of them.

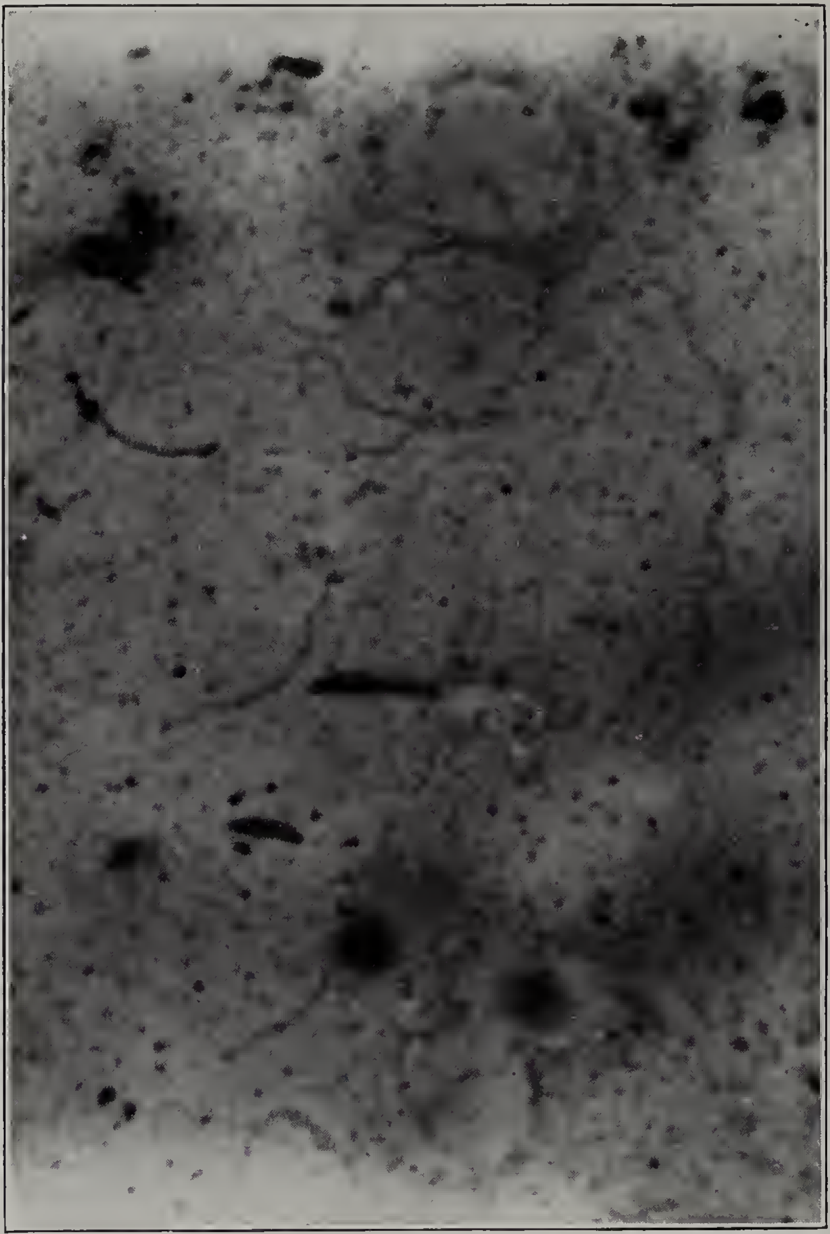

Fig. 1.—Spirochaeta aboriginalis.

NEW YORK CITY CASES

It did not surprise me to encounter cases of granuloma inguinale in New York City. In my first paper, I had written: "The increasing migrations between continental United States and Porto Rico, with the possibility of transferring the infection, is deemed of sufficient importance to warrant the reporting of the first cases diagnosed on our insular possessions." Further in the paper, I stated: "Quarantine measures should certainly be introduced to prevent the transfer of the infection to our southern ports, either from Porto Rico or from South American countries." Once a source of infection has reached the community, it does not take long for numerous cases to arise, especially as there is a certain predilection for the colored race. It has not been thought worthy of any special note that some of the patients had never left the district of their birth.

I recognized my first New York City case at the New York Skin and Cancer Hospital. Dr. Clifton had the case, which for a time was considered oriental sore of the penis, but which, clinically, bacteriologically and therapeutically, was an undoubted granuloma inguinale lesion. Other cases have appeared at this hospital and at Bellevue Hospital.

The penis was the site of the affection in one of our Bellevue Hospital cases, in the service of Dr. Parounagian, and a colored man showed this disease localized to the penis. A colored woman was another patient, and she presented the primary lesion of the disease on the clitoris and prepuce. Another colored woman reported with a large mass in the groin (Fig. 4). It is this type of lesion which warrants more than the others the appellation of granuloma inguinale. Our most recent case is that of a light mulatto girl, aged 19, who came to the clinic with a malodorous crusted saddle-like mass about the clitoris, and a serpiginous papillomatous lesion over the buttock, with a large scar between. She had been operated on at another city institution some years previously. The significant item regarding these two last cases in females was that clinical examination of the present husband in each case disclosed no clinical manifestations of the disease on their genitals. The patient presenting the granuloma inguinale mass had been living with her present spouse for two years. The last girl had been married to her present husband only eight months, and had been pregnant about three months.

The most interesting case of granuloma inguinale I have met is the following:[2]

A man, white, an American, aged 32, presented a mass of hypertrophic, foul smelling, discharging, red papules and nodules, involving the region of the groins, across the pubes, along the femoroscrotal clefts circumscribing the anus and in the depression between the buttocks and the legs. In this region, the clinical appearance was identical with that pictured by De Souza Arauja[3] in a South American case. But in addition, the patient (who had never left New York City) presented similar lesions of the lips and the side of the neck. As far as I know, this is the second case of labial involvement of this disease. The first was reported by Sequeira,[4] in whose patient a genital lesion of ulcerating granuloma was also present. The tongue of my patient presented a smooth atrophy, such as only occurs in syphilis, and the serologic course justified a diagnosis of syphilitic glossitis.

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[2] This case has already been reported by Parounagian, M. B., and Goodman, Herman: Ulcerating Granuloma (Granuloma Inguinale): A Report of a Rare Example of This Disease in a Syphilitic Patient, Arch. Dermat. & Syph. **5**: 597 (May) 1922.

[3] De Souza Arauja: Granuloma Venereo, Trabalho di Instituto Oswaldo Cruz, printed privately in Portuguese, 1917.

[4] Sequeira: Ulcerating Granuloma of the Pudenda, Brit. J. Dermat. & Syph. **20**: 91, 1908; Proc. Roy. Soc. Med., Dermat. Sec. **1**: 57, 92, 1908.

HISTOLOGIC AND BACTERIOLOGIC SUMMARY

Histopathologic studies of cases seen in the tropics or in New York City have disclosed no specific change, but the elongated papillae and interpapillary processes have been present, as would be expected from the clinical appearance of the lesions, with collections of fibroblasts, polymorphonuclear leukocytes, and round cells. There is nothing present to indicate the presence of epithelioma, tuberculosis or syphilis. It would as a general thing be impossible to make a diagnosis from the appearance of the section alone, although it might be suggested.

In the tropical cases and in those seen in New York City, tissue smears were made. In my experience, it is important to get material for bacteriologic study from tissue not contaminated by surface organisms. Under a local anesthetic, a portion of the active margin is well cleansed and removed. The portion is then trimmed so that only deep tissue is made available. This is washed in saline solution, and smears are made by expressing tissue juice from the block.

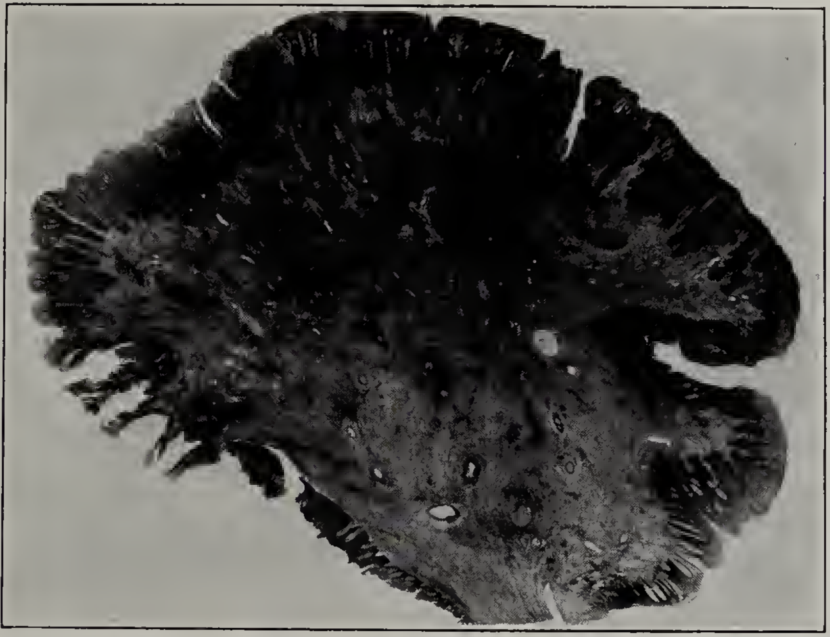

Fig. 2.—Granuloma inguinale: section from patient at Saint Tomas Hospital, Panama Republic.

In each of the cases except the first and the last, organisms of the *Calimatobacterium granulomatis* type were disclosed. The organisms were within large mononuclear cells grouped about one side of the nucleus. Each germ was inside a capsule. I have also seen extracellular organisms which are assumed by some to be immature forms. It has been difficult to get satisfactory pure cultures, and, in my experience, it has seemed unlikely that the true organism, as seen within the large mononuclear cell, is the organism cultivated. It has been claimed, for example, that the cultural characteristics of the organism of granuloma inguinale place it in the Friedländer or *Bacillus mucosus-capsulatus* group. However, every attempt at cross agglutination or cross precipitation with known Friedländer organisms has failed.

It has been impossible from cultures of the organism grown from granuloma inguinale cases always to secure positive animal inoculations. Although some authors have found the organism grown from their cases to be pathogenic on intraperitoneal injection, mice so injected have also been unaffected, in my experience.

Attempts at experimental autoinoculation have failed in my own experience and in that of others.

The original conception that the organism named *Calimatobacterium granulomatis* (Fig. 5) was a Leishman-Donovan body has assumed less importance with time. Still, one cannot be certain, and until absolute proof is forthcoming to the contrary one may consider such a conception as a possible one. In this connection, it is interesting to speculate as to the method of transference of the disease. Although in Porto Rico I had the opportunity of examining more than 1,100 active prostitutes, but two examples of this disease were encountered among them. No soldier among the 18,000 trained at Camp Las Casas, Porto Rico, had the disease, the two male patients being a civilian and a discharged soldier of the peace time Porto Rican regiment, respectively. As mentioned earlier, two recent women patients with this disease were both married, yet examinations of the respective husbands revealed no lesions. The possibility of an intermediate host must also be borne in mind, especially in the light of the existence of such an intermediate host in other protozoan diseases. From its location, should there be an intermediate animal host for granuloma inguinale, *Pediculus pubis* would be most likely, yet I must report that the diagnosis of pediculosis pubis was made in only twenty-four cases among three regiments of Porto Rican soldiers.

RHINOSCLEROMA AND GRANULOMA INGUINALE

Although clinically and pathologically very dissimilar, rhinoscleroma and granuloma inguinale have been thought to be somewhat related by reason of the morphologic resemblance of the organisms encountered in some cases of each. Rhinoscleroma is supposedly due to a bacillus, gram-negative, easily grown, and of the Friedländer or *B. mucosus-capsulatus* group. This is the link between the two diseases, and is the only link, and a weak one. Rhinoscleroma has a predilection for the respiratory tract; its histology is pathognomonic and is characterized by the presence of three essentials: (1) the foam cells, or nucleated dropsical cells of Mikulicz; (2) the von Frisch bacilli, and (3) the hyalinized cells of Unna. All of these are lacking in granuloma inguinale, for it is admittedly difficult, if not impossible, to demonstrate the organisms in the tissue of granuloma inguinale. A more complete analysis of these two diseases will be published at another time.

LEISHMANIASIS AND GRANULOMA INGUINALE

It has already been mentioned that there is some resemblance between granuloma inguinale and oriental sore in the morphology of the organisms, but certainly in no other way. The biology of these morphologically similar organisms must be very different, as can readily be recognized if one recalls the ease of contagion in oriental sore and the nature of the contagion in granuloma inguinale. Morphologic resemblance must be also admitted with the organisms of tropical ulcer, and to kala-azar. Espundia, or naso-oral leishmaniasis, and gangosa are other tropical diseases which seem to fit in between granuloma inguinale and rhinoscleroma.

SYPHILIS AND GRANULOMA INGUINALE

Clinically, a number of diseases may require differentiation from granuloma inguinale. Ordinary condylomas of syphilis may simulate the condylomatous type of granuloma inguinale. Elephantiasis vulvae of syphilis may assume the appearance of the lymphatic stasis type of the other disease. Gummatous destructions of the external genitalia are not so likely to be confusing, since, despite the name of ulcerating granuloma, this disease is not so destructive as might be implied.

There are, however, many exceptions to the conception that granuloma inguinale is syphilitic or the result of a syphilitic infection, although it is admitted that the two diseases may be concomitant. As mentioned earlier, my first patient had lesions of condylomata lata of syphilis about the area of granuloma inguinale, and other patients had positive Wassermann reactions with no clinical manifestations of syphilis. Intensive and persistent treatment with arsphenamin and mercury made no therapeutic impression on the lesions of granuloma inguinale. In other cases, equally extensive, there had been repeated negative Wassermann reactions. Although spirochetes have been found in a number of cases of granuloma inguinale, the organism has not been found in every case, as might be expected if it were causative. The histology of the lesion is not that of syphilis. Contagion is a much more remote possibility, although it must be conceded that, if comparison in this respect with the gumma lesion of syphilis is insisted on, this feature cannot be used in differentiating the two diseases. However, it is not logical to consider granuloma inguinale a tertiary manifestation, when it is found concomitantly with secondary manifestations in some patients.

Fig. 3.—Section of gland removed from patient. The reaction was only that of chronic inflammation. There was no specific change.

YAWS AND GRANULOMA INGUINALE

I can find no weight of evidence that granuloma inguinale is a tertiary yaw lesion, although I have had some tropical experience with frambesia tropica. Practically the same objections to the theory that there is a relationship would hold true in the case of yaws and granuloma inguinale, as in syphilis and granuloma inguinale.

NEW GROWTH (NEOPLASM)

Epithelioma and carcinoma of the regions ordinarily affected by granuloma inguinale may look like it, and indeed one of the patients had had the growth excised under the diagnosis of malignant growth. Another patient was thought, under clinical examination, to have granuloma inguinale, but pathologic examination definitely established the diagnosis of epithelioma. This patient, in addition, on bacteriologic examination, showed organisms similar to those of Vincent's angina. Some cases of dermatitis vegetans might be confused with granuloma inguinale.

TREATMENT

The treatment of granuloma inguinale with antimony and potassium tartrate, or tartar emetic, has given uniformly good results wherever tried. Intravenously, it is ordinarily given in dilution of 1 : 100. I have always had the solution prepared in distilled or double distilled water, cold, as it appeared that heat decomposed the tartar emetic immediately. Other workers have sterilized their solution by autoclave without ill effects. The dose is 5 c.c. of the 1 : 100 solution every other day, increased by 1 or 2 c.c., until 12 c.c. every other day is injected. Recurrences are common unless treatment is carried on long after the lesions have disappeared.

15 Central Park West.

ABSTRACT OF DISCUSSION

Dr. Joseph Grindon, St. Louis: In 1913, I reported three cases showing some of the features described by Dr. Goodman. In one case neither Donovan bodies nor spirochetes were found, although I felt that there must be a specific organism. Crocker considered it a chronic pus infection, thus ranging it with granuloma pyogenicum. This theory I cannot accept, on account of the rarity of the condition. If it were due to a frequently encountered cause, the result would be frequent. Here, on the contrary, are rare cases, which at the same time show a close adherence to type, a "pattern disease," a terse expression often used by Dr. Hardaway. My researches, cultural and animal, yielded negative results. I believe that, in the minds of some of those who have not seen the disease, there lurks a suspicion of syphilis or chancroids, or something else. Those of us who practice in large cities see extensive chancroids, often in old syphilitics, extending over the groins and down into the perineum. In these cases, the leading feature is ulceration; but not so in inguinal granuloma, and that is why the term "ulcerating granuloma of the pudenda" is objectionable. The disease follows closely Manson's original description. A little nodule in the groin grows slowly, and ultimately becomes a superficial ulceration. It spreads peripherally, and also forms new lesions by auto-infection, through apposition. As it extends, there forms and progresses a peculiar cicatrix, dense, hard to the touch, with the appearance of a hypertrophied scar or keloid, and at the periphery a spreading mass of nodules, with occasional island lesions. The leading features are the nodules, the superficial ulceration and the cicatrization. There is a false appearance of deep ulceration in the folds between the thighs and the scrotum. There you find a deep cleft running along a low ridge, simulating a deep ulcer by the infolding of the affected surface. At the top, the ridge is sharply cut down toward the fold, but in the opposite direction it gradually slopes down toward the border of the diseased area. The disease possesses clinical characters entirely distinct from those of syphilis, chancroid, lupus or epithelioma.

Dr. A. J. Markley, Denver: I should like to place on record a typical case of granuloma inguinale seen in Hawaii, where I think no other cases have been reported. This case was in a negro soldier. It was a penile lesion, which for many months defied diagnosis and treatment, and not until there came to my notice a report of the work on granuloma inguinale done by some South American authors did I have any conception of the character of the disease. Then smears gave the typical picture of granuloma inguinale, and the intravenous use of tartar emetic resulted in absolute cure. There had never been a case of this sort reported in Hawaii.

Dr. Jeffrey C. Michael, Houston, Texas: This disease is seen not infrequently in Houston, where there is a rather large negro attendance at the clinic. Four cases of chronic ulcers of the leg have been of interest. Three of the patients were negroes; the other, a white boy. The oldest patient was 24 years of age, the youngest 16. The duration varied from six months to seven years. All cases followed traumatism, slowly spreading until in the case of longest duration a large part of the cutaneous surface of the right leg was involved. The cause could not be determined, and the lesions were resistant to treatment of all sorts, including antisyphilitic treatment. All the patients had negative Wassermann reactions. About this time Lynch reported two cases of chronic ulceration in which Donovan's bodies could not be found, but which responded well to tartar emetic given intravenously. We used this treatment in two of the cases, and they cleared up in a manner which suggested that tartar emetic had something to do with it. The effect of treatment in these patients indicates a probable etiologic connection with granuloma inguinale.

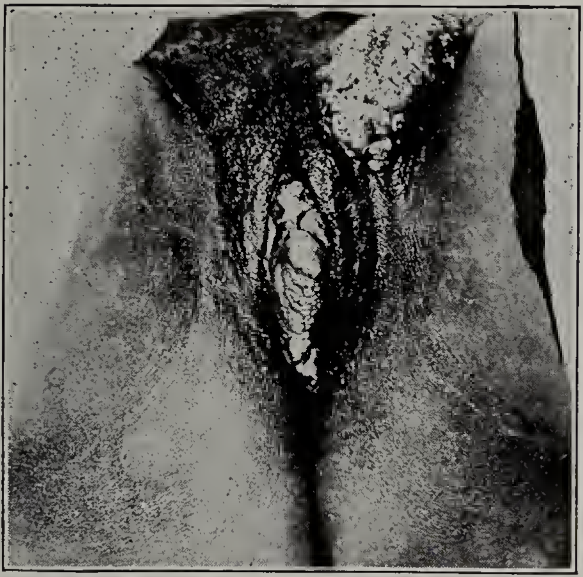
Fig. 4.—Granuloma inguinale: lesions in a colored woman.

Dr. William Litterer, Nashville, Tenn.: This condition is not so rare as we are led to believe. A similar condition prevails among the negroes in the South, especially in females. Within the past year, I have seen five cases in the Vanderbilt Hospital and the Nashville City Hospital. Three of these cases are now under observation. The Donovan bodies have been demonstrated and treatment by tartar emetic intravenously has brought wonderful results. All of these cases have been associated with some venereal infection. Practically all of them have had either a syphilitic or a gonorrheal infection. Three patients gave a four plus Wassermann reaction. Antisyphilitic treatment was given until a negative Wassermann reaction was obtained, but the condition did not yield until tartar emetic was administered, and then the lesions cleared up promptly.

Dr. Jesse B. Shelmire, Dallas, Texas: I can recall seeing several cases with similar conditions in the Charity Hospital of New Orleans during 1881-1883, in which various treatments were given, but few, if any, patients were cured. In those days, these cases were diagnosed as chronic chancroids, but I believe now that most, if not all, were cases of granuloma inguinale. Three years ago, I referred a case to one of our surgeons. He tried various methods of treatment without success, after which the patient drifted to Hot Springs. He returned to Dallas last December with this condition involving the inner surfaces of the thighs, the entire penis and the abdomen half way to the umbilicus. The lower lip was involved, beginning six months before. The affection began as a papule on the penis seven years ago, some time after a visit to South America. We were then able to make the correct diagnosis, finding the Donovan bodies. He was placed on the tartar emetic treatment and at present is practically well.

Dr. Harold N. Cole, Cleveland: In the eight cases of this disease that I have seen we were not able to make the diagnosis with the microscope in all. I think there was no question about the clinical diagnosis, and we went ahead and treated them. If you have one of these cases which does not react to other treatment, you may be sure that it is of this type. The action of the drug is almost immediate. One word of caution, however: we found that the kidneys must be watched very carefully. In one case we set up quite a high degree of nephritis.

Dr. Earl D. Crutchfield, Galveston, Texas: This disease has a more protean character than the cases we have seen reported in the literature in the last four or five years. The first case I saw was that of the patient whose picture appeared in Dr. Sutton's textbook. We regarded that as a type of granuloma and were considering typical granuloma inguinale. Four or five cases had been seen in Galveston in the past three or four years which were very similar to those seen in the last few months. We have been able to demonstrate Donovan bodies in ulcers which had existed three or four years. One case was that of an orderly in the University Hospital, which we had diagnosed as chronic chancroid; but we were able to demonstrate the Donovan bodies two or three months ago, and it cleared up very rapidly with tartar emetic. In all of these cases, I have demonstrated the organism of Donovan.

Dr. Herman Goodman, New York: Tartar emetic has been mentioned as a specific, but few men have attempted to dilate on the preparation of the drug for intravenous injection. It was suggested to me that in order to have the tartar emetic act specifically, the solution must be prepared in the cold, using doubly distilled water and chemically pure antimony potassium tartrate. At a symposium in New York, I was surprised to hear mentioned the use of the autoclave or boiling of the solution before use and no untoward results. It had been my impression that such preparation would break up the double salt, and that there would be a reaction. The drug is ordinarily given in doses of 2 c.c. of the 1:100 solution, increasing the dose to 10 or 12 c.c. by adding 2 c.c. to each preceding dose. If the dose is given too rapidly, the patient complains of pain which may extend to the shoulder of the arm used for injection. The pain is so marked after a dosage of 10 or 12 c.c. is reached that the patient often discontinues the treatment. One should keep in mind also that if one does not persist in the treatment, the lesions of the disease will recur. If one finds that ten or twelve doses have cleared the lesions, the patient should be urged to have another course of this number of treatments. With insufficient treatment, recurrences may be repeated a number of times, because the type of patient afflicted with this disease ordinarily is difficult to keep under treatment after the symptoms have disappeared. I should like to suggest the use of a complement fixation test with tissue from patients as the source of the antigen. There is no fixed clinical type of granuloma inguinale. Individual cases fit in because we find the organism said to cause the disease, although the free use of the term "Donovan body" is certainly not justified without reservations.

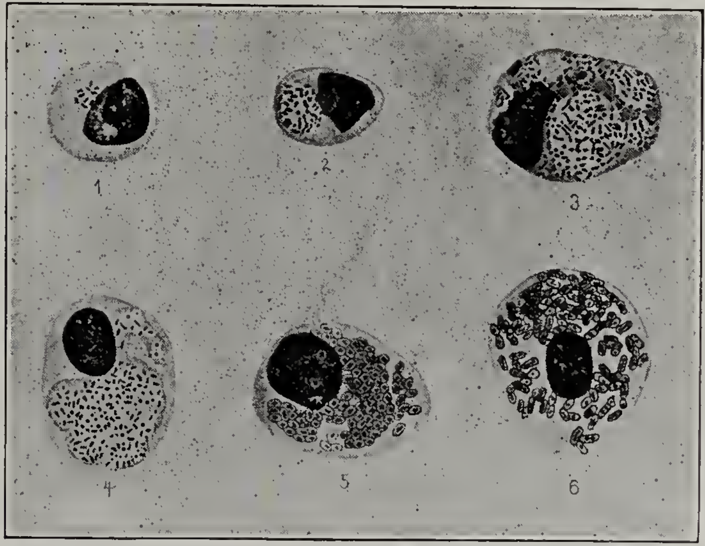

Fig. 5.—Calimatobacterium granulomatis: development of organism (from colored plate of De Souza Arauja).

LOCAL BLASTOMYCOSIS

REPORT OF CASE *

MARCUS HAASE, M.D.
E. R. HALL, M.D.
AND
C. H. MARSHALL, M.D.
MEMPHIS, TENN.

Since the first description of blastomycetic dermatitis, in 1894, a great number of dermal and systemic cases have been reported, so that the condition is now generally recognized, and further reports of such cases would be mere repetition and scarcely warranted. However, in reviewing the literature, we could find but few cases in which the disease was localized in some viscera or bony structure. In 1907, Brewer and Wood [1] reported a case of blastomycosis of the spine, in the region of the third dorsal vertebra, without any other manifestation of the disease. Campbell,[2] in 1909, studied a case of blastomycotic osteomyelitis of the right tibia, following a lesion on the skin of the ankle, but having no symptoms referable to the lungs or other organs. Denis,[3] in 1918, reported a case of primary blastomycosis of the larynx, which remained localized for several months, but did not respond to treatment, the lungs, later, becoming involved. Although we have searched the literature carefully, we have not found any other cases of local blastomycosis other than of the skin. However, we feel that there are many more such cases, which have either not been reported or not recognized.

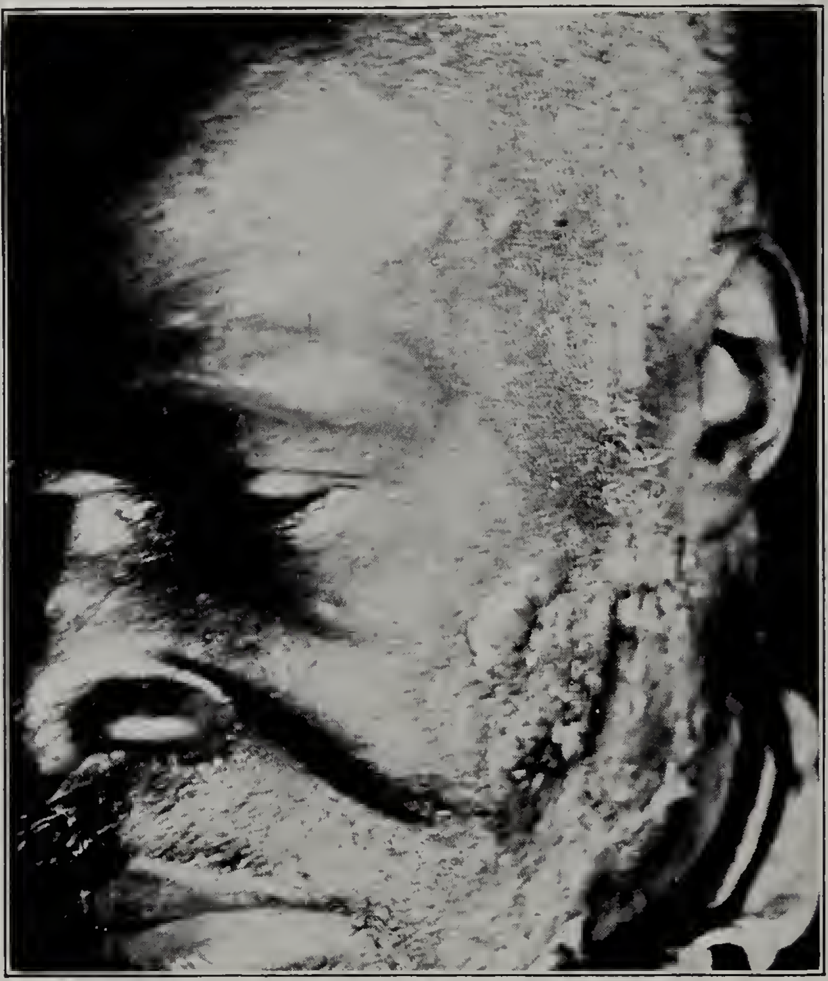

Fig. 1.—Lesion on left cheek.

REPORT OF CASE

A negro man, aged 78, who, previous to September, 1921, had been under the observation of one of us (M. H.) for seven years, with blastomycosis of the neck and face, stated that the skin condition had been present five years before he sought aid. Under potassium iodid therapy, the lesions healed; but during frequent long absences from observation, new lesions appeared about the old scars. However, the patient remained in apparent good health and the skin condition seemed to cause him but little discomfort.

In September, 1921, he came to the university clinic because of a swollen left testicle. The swelling had developed about three weeks previously; and the mass in the left scrotum was three or four times the normal size of the testicle and epididymis. It was impossible to outline the testicle and epididymis, owing to the thickened scrotum and the inflammatory process about the mass. The lower portion of the mass was adherent to the scrotal wall. There was some fluctuation posteriorly, but very little pain on pressure. The vas deferens was large but not nodular. On consultation with the surgeons, it was thought advisable to remove the organ, they believing it to be malignant or tuberculous. On removal, the testicle itself was about normal size and consistency, although the tunica vaginalis was thickened. The epididymis, on the other hand, was several times the normal size, soft, and joined to the scrotum by thick adhesions.

Microscopically, no pathologic condition was found in the body of the testicle, although grossly the tissue had a peculiar, yellowish-brown discoloration. On cutting into the epididymus, a considerable amount of yellow pus was found. Cultures of this material grew typical colonies of blastomycetes. Microscopically, the tissue was invaded by granulomatous tissue containing many plasma cells and leukocytes, mostly polymorphonuclear and giant cells of the Langhans type. Typical miliary abscesses were present, in and about which the blastomycetes were found. These organisms were also found in the giant cells.

The patient made an uneventful recovery from the operation. There was no other positive evidence of the disease in other viscera.

During the seven years that the patient was under observation, he entered the hospital four times. Twice, he was admitted for surgical removal of skin lesions, and at each of these times the physical and laboratory findings were entirely negative. He was admitted the third time for the removal of the testicle, and has been admitted once since for observation. At each of these visits to the hospital, a systematic search was made for any other pathologic condition in the body. Again, the physical and laboratory findings were normal. Roentgenograms of the chest revealed some peribronchial and interstitial fibrosis; but there was no cough, expectoration or other symptoms referable to the lungs. The second roentgenograms did not differ from the first, and apparently the process was inactive and of long standing. At the present time, the patient is well nourished, strong, and very active for a man of his age.

COMMENT

Metastasis to the epididymis is seemingly an extremely rare finding in blastomycosis, as only two or three cases have been reported, and these in patients showing metastases in practically every other organ of the body. That our patient should have the disease for twelve years, and then suddenly develop a metastatic growth in probably the least often involved organ of the body, seems a most striking feature in this case.

That the organism can attack any single viscera or bony structure of the body we feel certain, in view of the cases we have mentioned and our own. No doubt a number of cases are never recognized. As in Brewer and Wood's [1] and Campbell's [2] cases, a diagnosis of tuberculous osteomyelitis was made, but was changed to blastomycosis when cultures were studied. Even microscopically, the true nature of the process can be

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* Read before the Section on Dermatology and Syphilology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Brewer, G. E., and Wood, F. C.: Ann. Surg. 48: 889, 1908.

[2] Campbell, J. L.: Atlanta J.-Rec. Med. 12: 308, 1909.

[3] Denis, F. L.: Ann. Otol., Rhinol. & Laryngol. 27: 572, 1918.

misdiagnosed, as in our own case the pathologist reported the condition to be tuberculous until he was asked to search for the blastomycetes.

The most probable entrance for the organism is through the skin, although some cases, no doubt, begin in the throat and lungs. In our opinion, the mode of spread is by the blood stream, although blood cultures have failed in most instances. However, Stober [4] and Busse and Buschke [5] reported positive blastomycetic cultures from the blood, and, in a recent systemic case, we obtained a positive growth from blood cultures.

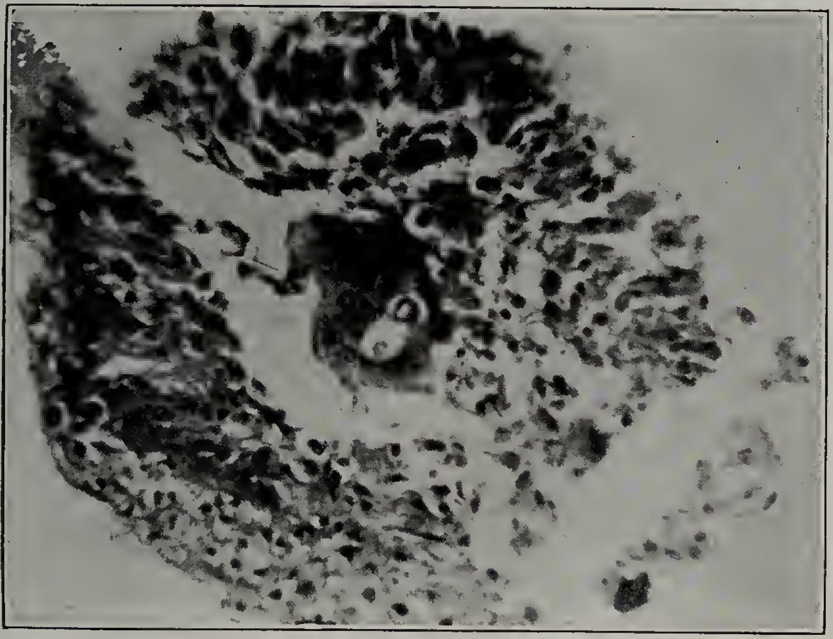

Fig. 2.—Organism in giant cell in tissue of epididymis.

CONCLUSIONS

1. There are cases of local blastomycosis other than dermal.
2. The organism may attack any organ or the bony framework.
3. The organism is probably spread through the blood stream.

ABSTRACT OF DISCUSSION

Dr. Francis E. Senear, Chicago: This paper is of great interest, reporting a case in which an isolated visceral lesion appeared some time after cutaneous lesions were under control. I do not think the profession looks on blastomycosis as a disease that is often complicated by visceral lesions. Many physicians do not attempt to understand any dermatoses, particularly the recently discovered types; and they regard blastomycosis as involving the skin alone. I have no doubt that many cases have escaped detection because the visceral picture was taken for something else. In 1913, I saw a patient with involvement of the face, hands and arms. At that time, there was a cough, with thick, bloody sputum; and chills, fever and night sweats. Under treatment, the skin lesions involuted in two months, and the patient felt like a new man. A month later he developed a cystitis of blastomycetic origin. Later, he had a prostatitis and, following this, an epididymitis of the left side, which subsided in about a month. In June, 1915, he developed a swelling in the left testicle. With this development, he became impotent. In October, 1915, the changes in the lung again became severe and the patient showed symptoms like those of tuberculosis. In a few months, he had a recurrence of the left epididymitis, and the testicle was involved at that time also. Within two months, an abscess was opened and drained. In May, 1916, he developed a nodule and abscess in the bursa of the left elbow. This disappeared under most intensive potassium iodid therapy, and radium applied locally. It was considered an abscess of blastomycetic origin, without the actual demonstration of the organism. One thing I would like to ask the essayists: In their case the left epididymis was involved as in our case, and I should like to know whether they noticed that the epididymitis was constant. I think it is generally understood that the involvement is more frequent on the left because of the anatomic structure, and it would be interesting to see whether it was true in all cases.

Dr. Louis E. Schmidt, Chicago: In one case which I had under observation, practically the same methods of examination were used for excluding all other conditions. It was originally a skin blastomycosis, treated for a long time, and finally a distinct involvement in the left epididymis took place. There were some blastomycosis lesions on the back and many on the scrotum. The epididymis was removed and the man made a satisfactory recovery. Most of the lesions on the scrotum healed. He disappeared from view for some time but reported later, when the opposite epididymis was involved, and this was also removed. After operating on this side, I referred him to the late Dr. Fred Harris, and I do not know the end-result.

Dr. J. M. King, Nashville, Tenn.: We have had several cases of blastomycosis and one was internally infected. In one elderly man, the neck and left side of the face were covered with lesions that extended onto his lip. Under treatment, most of the lesions healed. Later, they developed in the larynx, and the patient was operated on by a local man at Hopkinsville, Ky. He died a short time afterward. He had had a cough with heavy expectoration.

Dr. Earl D. Crutchfield, Galveston, Texas: We along the Gulf probably see more blastomycetic conditions than do men in other sections of the country. We have come to regard all of these lesions as points of origin for systemic invasion. In the last year, three cases have come under my observation which seem to be cases of systemic blastomycosis with local lesions, one on the hands, another on the elbow and one beginning on the toe. The one involving the hand showed roentgenographically lesions very similar to those of blastomycosis. The man subsequently developed malaise and had a temperature as high as 104 F.; but we were unable to demonstrate the presence of blastomyces in the blood stream. Clinically, however, we felt sure that this represented systemic invasion. The same thing occurred in a girl with a lesion on the elbow which we considered at first to be tuberculous because the roentgenogram showed bone involvement. After the blastomyces were demonstrated, the lesions in the skin healed very readily, only to break down later from an old infection in the bone. This condition, I think, in warm

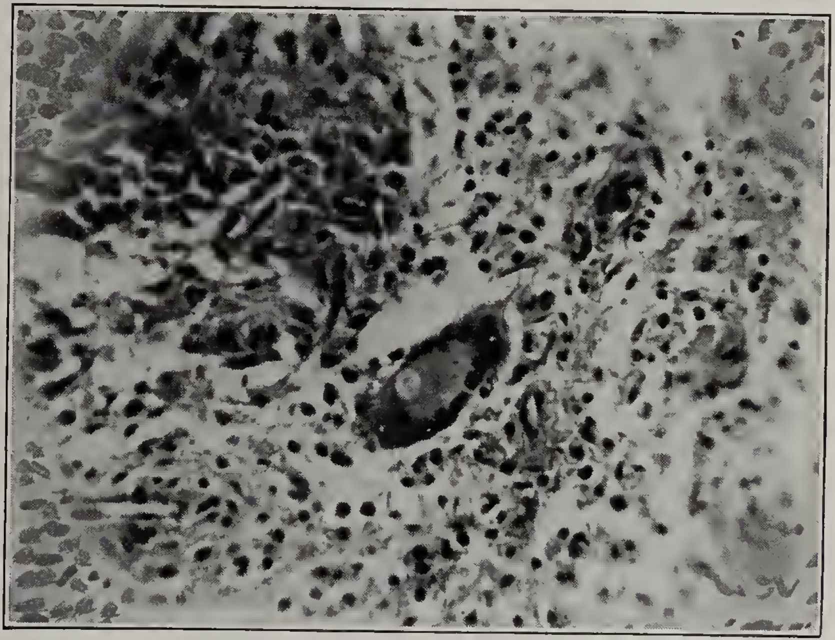

Fig. 3.—Organism in giant cell in tissue of epididymis.

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[4] Stober, A. M.: Systemic Blastomycosis, Arch. Int. Med. **13**: 509 (April) 1914.

[5] Busse and Buschke, quoted by Montgomery, F. H., and Ormsby, O. S.: Arch. Int. Med. **2**: 1 (Aug.) 1908.

climates is liable to become a systemic disease, and any organ of the body may become involved.

Dr. Harold N. Cole, Cleveland: We have all seen cases of blastomycosis which did not seem to respond to any of the remedies recommended: arsphenamin, copper sulphate or any of those things. We have tried foreign proteins in some cases and the results are striking, accruing within twenty-four hours. I have seen the cutaneous picture change over night after an injection of 75,000,000 bacilli; in five days we give another dose of 125,000,000, and in another five days we give 150,000,000. A very severe reaction results, the local picture changes, and the condition seems to react more easily to other remedies after this treatment has been given. We have used the typhoid bacillus in this work.

Dr. Clement R. Marshall, Memphis, Tenn.: I am very glad to have heard these reports of cases, especially those with involvement of the epididymis, because in the literature it is very rare to find cases in which the epididymis was involved. One case was reported by Riley in 1903, in which both sides were involved, and another was reported by Hill, in which the right side was involved; so whether the left side is more liable to be affected or not, I cannot say. In the cases spoken of today, there was not the local involvement as in our case, but an invasion of every organ; so I think that our case is unique, in that it went along for years, and then suddenly involved the epididymis without other visceral metastases. Dr. Cole's treatment with foreign protein should be tried out thoroughly. The treatment with potassium iodid has not been very satisfactory in the systemic cases.

Clinical Notes, Suggestions, and New Instruments

IMPROVED METHOD OF TREATING OBLIQUE FRACTURE OF THE TIBIA

Edgar D. Oppenheimer, M.D., New York

The problem in treating oblique fractures of the tibia is in maintaining the reduction of the fragments—in other words, traction. The physiologic position is that in which the desiderata are most easily maintained and the objectionable muscle action is best avoided. Sixty degrees' flexion of the knee and 90 degrees of ankle is the position of choice. It is impossible to hold the foot by hand in the correct position while applying plaster.

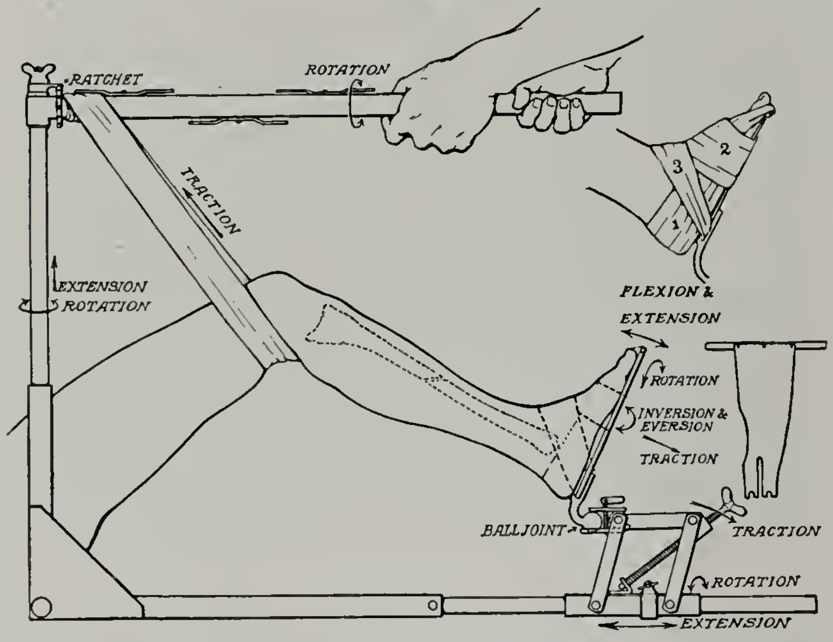

Fig. 1.—Details of apparatus for use in treating oblique fracture of the tibia.

There is at present no apparatus that offers the following requirements: With flexion of the knee and dorsiflexion of the ankle, (1) to overcome overriding from muscle pull; (2) to obtain countertraction as well as traction; (3) to prevent rotation of the lower fragments; (4) to control eversion and inversion of the foot; (5) to control angulation and lateral displacements, and (6) to permit free application of plaster on obtaining all these corrections and to maintain the corrections in the plaster.

I have therefore found it necessary to devise a fracture frame as in Figure 1. This frame is portable because it is readily assembled. It holds the thigh flexed at hip and knee. A large upper sling around the thigh wound on a steel tube turning on a ratchet allows take-up after partial stretching. A foot piece to which the foot is firmly bandaged permits all motions: rotation, inversion, eversion and traction. The foot is fastened to a sole plate by a muslin bandage, as in Figure 1. Two hands alone are required. The first tour of the bandage passes from the top of the plate behind the heel and back again, supporting the foot, and preventing it from becoming displaced posteriorly. The second tour is around the foot and plate; the third, to and fro across the ankle, fastening in the grooves cut in the plate posteriorly. By cutting the first turn at the top, one may remove the plate entirely from the finished cast and apparatus, freeing the foot from all constricting bandages, as each tour of the bandage also encircles the plate. The plate is held in a slide attached to a ball. The ball and socket joint at the heel, allowing all foot positions, is readily and firmly fastened by one screw.

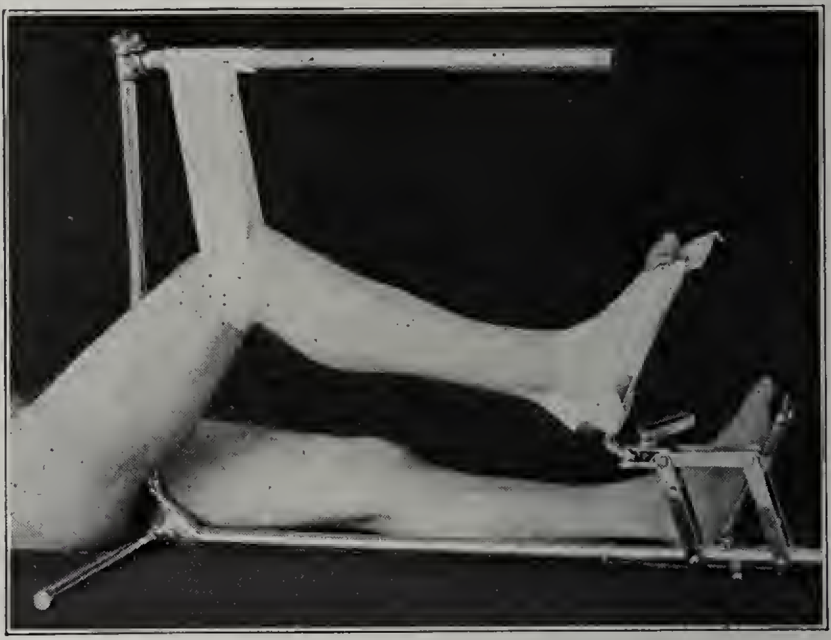

Fig. 2.—Apparatus in use.

Traction at the fracture site can be gradually increased without disturbing the arrangement at either end. Anteroposterior and lateral pulls at any level can be added. The limb is held free to allow application of the splint without disturbing the patient. When completed and hardened, the thigh sling is removed from the frame and the foot plate from the lower part. The upper sling temporarily causes pressure on the artery and inhibits circulation. This apparently has an anesthetic effect, and no objectionable sequences have been observed. Any amount of pull can be obtained in the frame, but I consider from 5 to 10 pounds enough in the cast. One should allow from ten to fifteen minutes to overcome the muscle spasm and accomplish the stretching, and during this time gradually take up on the adjustments before beginning the application of the plaster bandage, which should include the thigh and entire foot. Anesthesia is unnecessary in setting these fractures. No undue pain is caused in handling patients; in fact, relief from pain is experienced.

While the parts are thus securely held in traction, the patient will relax his muscle spasm, and the hands of the operator are free to manipulate the fragments. It is simple to determine when the position is satisfactory without waiting for the roentgen ray. The bones are palpable subcutaneously. There is a tendency to posterior displacement of the lower fragment, owing to the quadriceps action above and the ankle flexors below, which must be guarded against. The entire dorsum of the foot presents a surface large enough to stand from 5 to 10 pounds pressure when held securely. The posterior surface of the thigh is adequate for countertraction. These surfaces are at right angles to the pull, and the parts cannot slide by and cause relaxation. The large surfaces used distribute the tension.

Compound fractures, which are so frequent at this site, can be treated in the same way. Nor does the presence of secondary traumatic lesions, such as multiple or comminuted fractures, lacerations, infections or nerve lesions, give a contrary indication.

I have used this apparatus for five years, and am encouraged by my results and those of others with it to present it.

261 Central Park West.

A NEW HEAD REST FOR SUBOCCIPITAL CRANIOTOMY AND CERVICAL LAMINECTOMY

Byron Stookey, A.M., M.D., New York

Flexion of the head with obliteration of the folds usually found in the occipital and cervical regions is essential in order to obtain the best exposure in either suboccipital craniotomy or cervical laminectomy. We have sometimes found that sufficient flexion is not produced by the head rest, and traction by an assistant has been necessary. If a retractor is used it is usually applied in the region of the external occipital protuberance where only a scant purchase is possible, and if the retractor slips the tissues are likely to be stripped from the cranium or torn. Such traumatism where the corners of the incision come together is unfortunate, since it is the weakest part of the wound and, unless the tissues at this point are brought together accurately, leakage of cerebrospinal fluid may be favored. In order to obtain flexion and better exposure of the suboccipital region without additional traction, and also free an assistant, the head rest here described was devised.

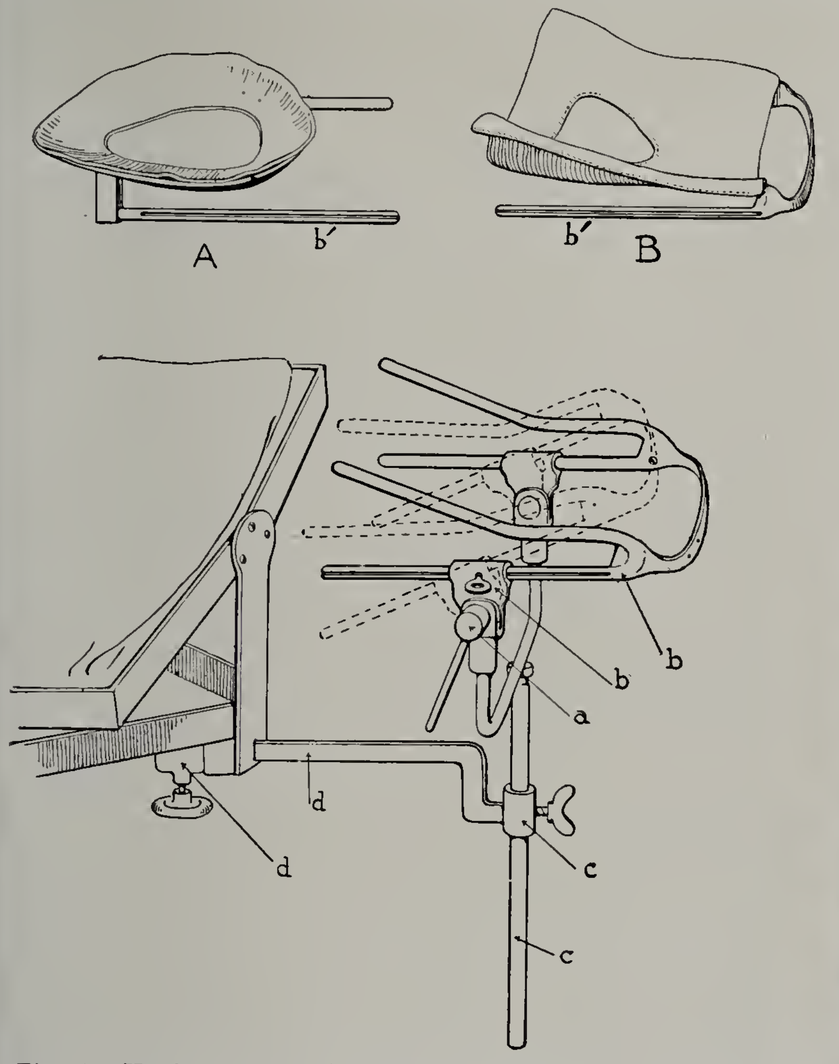

Fig. 1.—Head rest for suboccipital craniotomy and cervical laminectomy, as shown here attached to table. By means of piece *a*, any degree of flexion or extension needed may be obtained. By sliding *b′* through *b*, the head piece may be moved backward or forward; similarly, by sliding *c′* through *c*, the head piece as a whole may be lowered or raised. *A*, metal, and *B*, canvas head piece, either of which may be used by sliding *b′* through *b*.

A principle is used which is generally avoided in any anesthesia, namely, forcing the chin backward. By forcing the chin back, flexion of the head is obtained, the folds of the neck are obliterated, and an excellent exposure of the suboccipital region is gained. With the face down position this procedure does not cause any embarrassment to breathing or any other untoward sign.

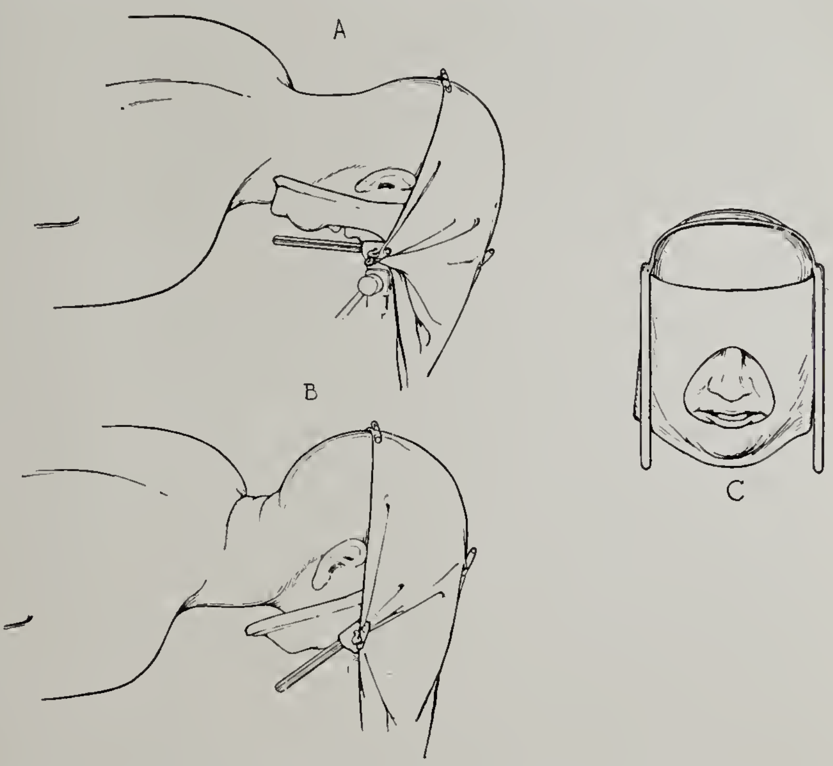

Fig. 2.—*A*, position of patient ready for suboccipital craniotomy or cervical laminectomy: obliteration of folds of neck and exposure of suboccipital region. A sterile towel is pinned through the scalp and to head piece, thus walling off all of head and making position of head more secure. *B*, position to permit approximation of wound in suboccipital craniotomy. *C*, canvas head piece, and position of face as seen from below.

A head piece should fit any facial and cranial configuration; this is not as practicable in a solid metal head piece as in a more pliable material. To meet this, a canvas face piece is attached to the head piece. Canvas is self conforming, adapting itself to any shape of head, pressure is evenly distributed, and no special soreness has been noted, even

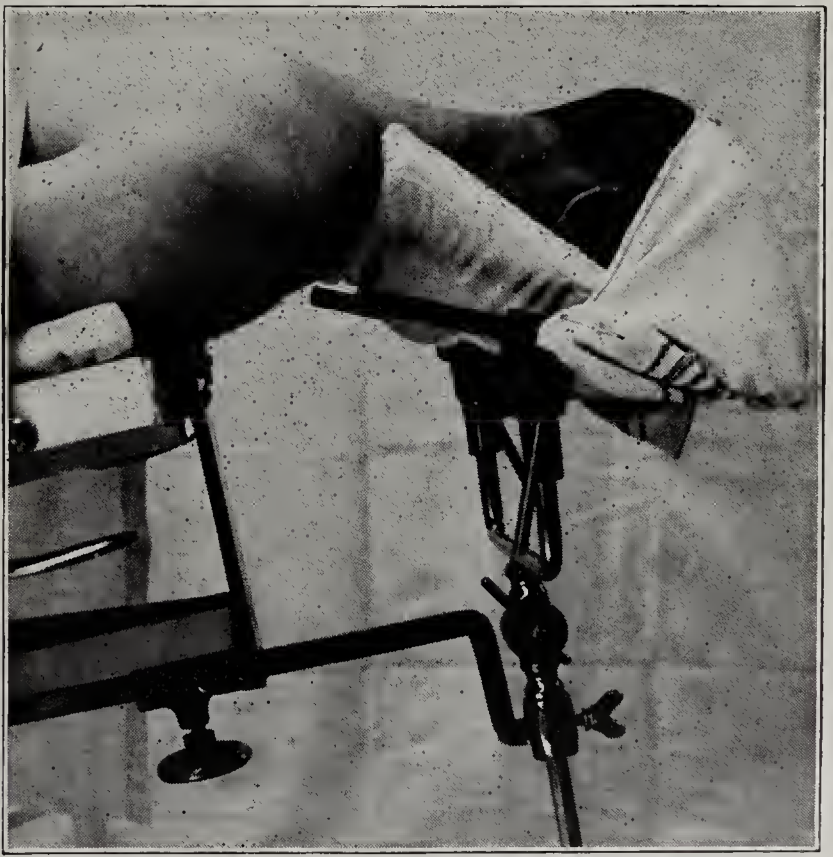

Fig. 3.—Position obtained with head rest: obliteration of the folds in the cervical and suboccipital region.

when the anterior edge of the canvas chin piece rested in the open mouth during a prolonged suboccipital craniotomy. An objection may be found in that the canvas piece (Fig. 1 *B* and Fig. 2 *C*) covers the eyes, preventing examination of them during the anesthetic. We have not found this a disadvantage; but if this is found undesirable, a metal piece (Fig. 1 *A*) may be inserted into the head rest at *b* and the same range of movements and adjustments obtained, or additional holes for the eyes may be cut in the canvas.

The head piece permits of two movements, flexion or extension at the joint, *a*, and a backward or forward movement by sliding the face piece through *b*. The relative height of the head piece to the table may be altered by sliding *c'* through *c*.

In order to obtain the proper degree of flexion, the backward and forward movement is essential, since the head in relation to the trunk varies with each angle of flexion, and proper adjustment of this variation must be made. As the head piece is attached to the table, the position of the table may be changed without altering the head piece.

When closure of the incision is desired, the tissues may be brought together and suture facilitated by reversing the position of the head from flexion to extension (Fig. 2 *B*). This may be done by loosening the joint, *a*. The large handle to this joint makes this a very simple procedure, which may be done without deranging the operative field.

I felt that before offering this head rest it should be given a thorough trial. It was designed more than a year ago, and has been in constant use during the last ten months at the New York Neurological Institute, for all cervical laminectomies and suboccipital craniotomies, with such complete satisfaction that it has replaced the other types of head rests previously used. The head rest may be procured from the Hospital Supply Company, 155 East Twenty-Third Street, New York.

515 Park Avenue.

MEASURING END-RESULTS AFTER INJURY: A SUGGESTED PERCENTAGE BASIS *

John J. Moorhead, M.D., New York

To appraise the outcome of a given injury we are in the habit of using some such descriptive prefix as "good," "fair," "poor" or "bad," and in other surgical or medical conditions we often make use of the terms "improved" or "unimproved," having an anatomic or surgical cure in mind.

Any such nomenclature is, of course, very confusing; it is not wholly descriptive nor is it reasonably accurate, as in no instance is there any verbal or other accepted standard of rating. This indicates that the present scheme of classifying end-results depends wholly on the personal equation of the examiner. One examiner may rate the outcome as "good"; another, equally competent, may rate the end-result in the same case as "fair." Obviously, both examiners cannot be right, and they differ because each has an arbitrary standard to which they have not mutually subscribed.

It is conceded that it is impossible to set an absolutely exact standard by which to measure end-results; but it should be possible to determine a relatively exact standard on which mathematically to measure the final outcome of a given injury. It will be admitted that for this purpose the use of words is inferior to the use of numerals; hence, for the purpose of attempting to attain to reasonable accuracy, a percentage basis has been chosen. We have a universal standard for weight measurement, for blood counting, for temperature recording and for many other purposes; if, now, we can agree on certain elements common to all injuries, we can with reasonable accuracy obtain some acceptable standard of measurement for end-results. In arithmetic, many problems can be solved by finding a common denominator; in the problem of solving an end-result after an injury, are there any common denominators of admitted value?

FUNCTION, UNION AND CONTOUR

For some three years in my private and hospital cases I have made use of a simple plan based on three main elements, common denominators, to determine by a percentage basis the outcome of injuries. It should be conceded that the aim of treatment in any surgical or medical condition is restoration of function; hence function is the first element to be rated.

Next in importance is the state of repair of the injured part, and this is denoted by the term union.

The last element is the appearance of the injured part, and this is denoted by the term contour.

These three words or inclusive terms, function, union and contour, are chosen arbitrarily, and other descriptive words or terms can be made to serve equally well; but the gist of the whole matter is that we should agree on certain prevailing factors and allot to each a numerical value in terms of percentage.

There will be little controversy in according function the maximum rating in this arbitrary classification of 100 points for a perfect end-result. Hence 60 per cent. of the total is allotted to the element function. Now comes the difficulty in rating the other elements, whatever they may be named. It is well to remember in this connection that after some injuries, function is practically perfect despite a most imperfect anatomic or surgical result. Witness the good flexion in an untreated wrist injury that indisputably was a Colles' fracture. Likewise a fracture of the clavicle with fibrous nonunion and a visible knobbing when the fragments overlap. Yet the "function" in both instances may be perfect; how can we rate such a result, unless we use some such inclusive terms as "union" and "contour"?

Accordingly, we arbitrarily allow a rating of 20 per cent. to each of these elements, and thus our percentage formula now becomes: function, 60 per cent; union, 20 per cent; contour, 20 per cent. = 100 per cent. for a perfect result.

Function denotes the capacity to perform.

Union denotes the state of repair.

Contour denotes the external appearance.

In other words, we rate our result on "actions" (function) and "looks" (union and contour). The appraised value of an automobile is based on the same elements of "actions" and "looks," irrespective of the make or the model. There are, of course, many accessory factors to take into account in judging the value of an animate or inanimate piece of machinery; but, after all, in each instance actions speak louder than looks.

APPLICATION OF THE STANDARD

Given, then, a standard of end-result values based on some such classification as the preceding, how are we to apply it?

So far as the closed cavities of the body are concerned (cerebral, spinal, thoracic, abdominal), the problem is not particularly difficult because a damaged brain, spinal cord or thoracic or abdominal viscus will register in a fairly accurate and routine manner, irrespective of such factors as sex, age, occupation or nationality. The chief difficulty pertains to the extremities, and this, after all, will become clearer if we reflect for a moment on the essential function of each extremity.

The upper extremity is primarily related to such coordinated acts as the function ("sense") of grasp, of pull, of push, of touch; and their relative importance is in the order listed for the majority of human beings. An artist, for example, is much concerned over the loss of the "sense" of grasp and touch. A workman, on the contrary, will become almost a derelict from the loss of the "sense" of grasp.

The lower extremity is primarily related to such coordinated acts as the function ("sense") of locomotion and equilibrium. These factors in combination enable us to walk, run or climb, and their hypofunction or hyperfunction is again determined in part by such components as age, sex and occupation.

Now, perfect function is the mutual accord between bodily hard and soft parts; in other words, the sum of skeletal

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* From the Department of Traumatic Surgery, New York Post-Graduate Medical School and Hospital.

(bone), joint, muscle, tendon, vascular, neural and glandular tone.

If we would measure the loss of or damage to any of these, we must assign to all of them certain common denominators possessed by all. It is submitted that function, union and contour are terms sufficiently broad for standardizing purposes on a percentage basis, at least much better than the former practice of using words like "good," "fair," "poor" or "bad."

It is understood that perfect function is accorded 60 per cent., perfect union 20 per cent. and perfect contour 20 per cent., a sum of 100 per cent. for a perfect score in each element. Now, if for example function is three-fourths perfect we allow three fourths of 60, or 45; if union is one-half perfect we allow one half of 20, or 10; if contour is one-fourth perfect we allow one fourth of 20, or 5. So our result is the sum of 45 + 10 + 5 = 60 per cent. result. If we wish to bring these descriptive numerical terms in line with our former use of words, we can say that a result of 80 + is good; 60 + is fair; 40 + is poor; 20 + is bad.

Further, we may say, for example, that a 75 per cent. end-result is the equivalent of a 25 per cent. deduction from a perfect outcome; in other words, in this example, we may by this method mathematically infer that the injured person has suffered to the extent of 25 per cent., based on a former capacity of 100 per cent., taking all three elements into account. Further analysis will show just how much of this loss is allotted to function, how much to union and how much to contour.

PRETREATMENT ESTIMATE

Again, this plan permits us to make a pretreatment as well as a posttreatment estimate of the condition, and, of course, gives valuable data for the successive follow-up observations.

For example, in a recent case of fracture of the left scapula, double fracture of the left humerus (upper zone compounded) and left radius, the patient being a bicycle police officer, aged 36, the pretreatment estimate was: F (function), 20; U (union) 0; C (contour) 5 = 25 per cent. In other words, untreated, the upper extremity showed a 75 per cent. loss; it might have been greater in an older person with another occupation; at his age, while he never could resume his work as a bicycle policeman, he could do clerical work, and his grasp power in that hand would not have been much impaired even for certain manual types of work.

However, three months later all the fractures had united, and the end-result was in terms of inability fully to raise the shoulder and supinate the forearm, and there was also a slight bowing of the latter. Hence the rating was F, 50; U, 15; C, 18 = 83 per cent end-result, or 17 per cent. loss. His F would probably increase later to 55 per cent., and thus it can be reasonably predicted that the final result here will be 88 per cent.

A man of 62 had a compound supracondyloid infected fracture of the right femur six months before coming into my service. A previous operation had been performed. The lower limb was bowed markedly; it was 4 inches short; the knee was stiff, and there was an adherent transverse scar over the insertion of the quadriceps. There was a sinus and exposed bone over the external condyle of the femur. The pretreatment estimate was: F, 20; U, 5; C, 5 = total 30 per cent., or 70 per cent. loss in the limb before treatment. After operation and before the plaster cast had been removed we were able to determine that the shortening had been reduced to 2 inches, the limb was straight, and the dead bone had been removed.

Then the provisional rating could be estimated as F, 40; U, 10; C, 10 = 60 per cent., or 40 per cent. loss, compared with a former estimate of 70 per cent., based on exactly the same factors.

Comparing this degree of accuracy with any other form in which such terms might be used as "improved," "benefited" or "fair result," we can with reason claim greater exactitude of expression.

A MEANS OF AVOIDING CONTROVERSY

Surgeons are often called on to determine the end-result of a given injury so that legal, compensation or insurance phases may become a matter of record or a subject of review by constituted authorities.

It is submitted that a plan of this sort avoids much confusion and controversy. It should not be difficult to agree on what constitutes restoration of the three elements, function, union and contour. Having thus agreed, the relative value of each can also be determined with reasonable accuracy. The problem is qualitative first and then quantitative.

A further advantage is that the element function is rated as three times more valuable than union or contour. This is as it should be, and the profession at large does not yet fully appreciate that the functional end-result is the main object of treatment. But it is apparent that the laity generally regards union and contour as the main elements, and often a surgeon is unjustly blamed because these factors more than function are emphasized. Suits for malpractice are frequently the outcome when such an interpretation of an end-result prevails, notably in fractures in which unjustly the roentgenologic takes precedence over the clinical or functional result. Finally, such a method of rating can be applied to many surgical or medical conditions, and thus this suggested percentage basis has wide applicability.

115 East Sixty-Fourth Street.

DEATH FROM FOOD POISONING DUE TO BACILLUS BOTULINUS

JAMES B. CUTTER, M.D., SAN FRANCISCO

P. A. A. and T. P., two men, ate tomato-onion-chili sauce at noon, June 16, taken from the last of twelve bottles, home made, that had been used during the winter. While acrid and hot, its taste was not much different from that eaten previously. Slight gastro-enteric symptoms followed within a few hours, not sufficient to cause alarm. When I saw them next noon the patients complained of slight dizziness, vertigo and dryness of the throat, which was attributed to cider that they had drunk. When I was called the following morning, further inquiry elicited the information that the men had eaten the sauce described and that the housewife, thinking it "smelled too strong," had thrown it out. The symptoms at this time were diplopia, weakness, loss of accommodation, ptosis, dryness of the mouth and pharynx, constriction of the throat with difficulty in speaking and swallowing, and still slight gastro-intestinal symptoms. In spite of all efforts at treatment, one patient died on the 18th at 5 a. m. from failure of respiration, and the other patient on the 19 at 11:30 a. m. from failure of respiration and great exhaustion. Extracts made from a specimen of the tomato-onion-chili sauce by representatives of the California State Board of Health, and by Dr. Meyer of the Hooper Foundation Laboratory at San Francisco, revealed *Bacillus botulinus* in virulent type. Injection into mice caused death within sixteen hours. Further study is still being made.

The sauce provided an acid medium, the first instance recorded in which *Bacillus botulinus* had developed under these conditions.

Children's Hospital.

Thinking.—The chief function of the mind is thinking, and it is doubtful whether an organ can retain its maximal health if its function is not adequately exercised. But exercise must be guided and trained, especially in the young, if it is to attain its object. A game of cricket in which the participants are ignorant of the rules and uninspired by any keenness is worse, as an educational exercise, than no game at all. Is thinking a function that needs no practice, no training? Hughlings Jackson, whose contributions to psychopathology, in advance of his time like most of his work, have been revived and admirably presented to us by Dr. Maurice Nicoll in a recent article on regression, was in the habit of exhorting his house physicians to set aside some portion of the day or night for thinking.—Buzzard, *Mental Hygiene,* July, 1922.

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SATURDAY, SEPTEMBER 2, 1922

THE DANGER OF DOGMATISM IN SCIENTIFIC FIELDS

Nothing can be more helpful to the coming generations of physicians than a wholesome realization of the futility and occasional danger of dogmatism in their fields of endeavor. The development of a reasonably critical attitude of mind may not be compatible with the inertia of intellectual contentment; it is usually far easier to accept the traditional statement and act in accordance with it than it is to modify one's performance in the light of diligent inquiry. Nevertheless, it requires a mind open to radical changes for participation in that which is designated as progress. New discoveries and constructive thinking lead to evolution of knowledge and revolutionary practices. Advancement in professional fields means the abandonment of much that is old and the avoidance of unpromising avenues. Since practice, in medicine, is often based on dogmatic pronouncements, it is likely to fail in its objects when the premises become unstable.

For generations it has been assumed that patients with chronic interstitial nephritis must be poisoned by their own wastes. It was a further natural, though by no means logical, assumption to conclude that urea is the offending toxic agent; hence urea production must be decreased and its elimination increased. But, as Folin[1] has remarked, the enormous quantities of urea which can accumulate before the uremic patient finally dies indicate clearly that urea is not toxic, a fact also suggested by the extraordinary urea content found normally in the blood of certain species. The textbooks and other dogmatizers have hailed suprarenal secretion as the effective agent in controlling blood pressure; yet Hoskins[2] has shown clearly that the evidence as a whole militates against the supposition that blood pressure is ordinarily maintained by the stimulating influence of small quantities of epinephrin continuously secreted.

Cholesterol, being a conspicuous and easily recognized component of the bile, both under normal conditions and in the form of biliary concretions, has furnished the theme for unending speculation which has all too often been accepted by the uncritical as fact. It is suggested by various writers that cholesterol results from secretion of the biliary tract epithelium, from liver parenchyma degeneration, from red cell disintegration, from general tissue wear and tear, from food cholesterol, and from the suprarenals and other glands of internal secretion. Nobody, Whipple[3] naively adds, has as yet suggested that cholesterol is derived from the wear and tear of the cerebral cortex under the stress of environmental conditions.

In recent years the microchemistry of the blood has furnished numerous data to arouse the interest of the physician. Too often, however, he has stretched the significance of the findings beyond the limits of dependable deduction. Thus, Ambard's coefficient and similar mathematical expressions have been endowed with a reality soon to be shattered by subsequent developments. Folin[1] has admitted that for the present the question of the ammonia content of the blood can have no bearing on any clinical problems; while Behre and Benedict's[4] studies of creatinin in the blood have raised doubt as to the very existence of this much estimated constituent.[5] At any rate, the foregoing illustrations should suffice to indicate the desirability of keeping an open mind in science and its applications.

THE RELATION OF AUTOLYSIS TO ATROPHY

Atrophy is a phenomenon that is ordinarily regarded as pathologic in character, although this is by no means always the case. It may be questioned, at any rate, whether the disappearance of certain bodily tissues with disuse or diminished function—for example, the atrophy of the mammary gland at the end of lactation—is not in reality a physiologic reaction. After Salkowski's pioneer studies in this field in 1889, the relation of autolysis to atrophy began to receive considerable attention.[6] There followed a decade or more during which only occasional reference to the subject was made. Recently, however, with increasing knowledge of the importance of hydrogen ion concentration in many physiologic and biochemical reactions, the possible rôle of autolysis in the bodily processes has come into new prominence.[7]

It seems to be well established that the long-known "autodigestion" of most tissues kept under suitable conditions postmortem is due to enzymatic changes, not to bacterial influences alone. The possibility of both aseptic and antiseptic autolysis has been demonstrated for many glandular tissues in particular. Muscle tissue will also autolyze to some extent, but not so readily as epithelial structures. Thus, when a piece of liver is allowed to remain uncontaminated by bacteria, its proteins are gradually disintegrated with the production of typical products of alimentary digestion of the same substrates. Connective tissues are resistant to such autolytic changes. The rate of autolysis and its extent are profoundly influenced by the reaction of the tissue mixtures. When the latter are alkaline or neutral, the hydrolytic change is limited or entirely suppressed; in an acid medium the self-digestion proceeds much more vigorously, there being an optimal concentration of acid at which a maximal result is attained. Bradley[7] has summarized our present knowledge of the possible relation of autolysis to the various normal and pathologic atrophies by pointing out that the normal tissue cell is maintained at the reaction of the blood, or p_H 7.4. So long as its metabolic processes remain in equilibrium with its blood and lymph supply, there is no accumulation of carbon dioxid, sulphuric acid, phosphoric acid, or acids arising in intermediary metabolism. Neutralization of these acids, further oxidation of some of them, diffusion out of acid ions and diffusion in of basic ions go on at such rates that the resultant reaction remains constant. On the other hand, as Bradley points out, any prolonged increase of metabolism within the cell without compensatory increase of the circulation about it would lead to an acidotic shift within the cell. If acid production exceeds the capacity of the mechanisms to dispose of it, autolysis and atrophic changes of mass are likely to ensue.

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[1] Folin, Otto: Nonprotein Nitrogen of Blood in Health and Disease, Physiol. Rev. **2**: 460 (July) 1922.

[2] Hoskins, R. G.: The Relation of the Adrenals to the Circulation, Physiol. Rev. **2**: 343 (July) 1922.

[3] Whipple, G. H.: The Origin and Significance of the Constituents of the Bile, Physiol. Rev. **2**: 440 (July) 1922.

[4] Behre, J. A., and Benedict, S. R.: J. Biol. Chem. **52**: 11 (May) 1922.

[5] Does the Blood Contain Creatinin? Current Comment, J. A. M. A. **79**: 220 (July 15) 1922.

[6] Levene, P. A.: The Harvey Lectures **1**: 73, 1905-1906.

[7] A timely review is given by Bradley, H. C.: Autolysis and Atrophy, Phys. Rev. **2**: 415 (July) 1922.

This explanation has long been applied to such conditions as liver atrophy. Various circumstances, such as poisoning and altered circulation, render the hepatic cells acidotic, whereupon they die and autolyze rapidly, often leaving only a vestige of connective tissue supports. In various forms of war gas poisoning, the alveolar cells of the lungs die and autolyze rapidly on account of the high acidity first developed by the chemicals used. Bradley has interpreted the atrophy of the mammary gland after lactation as a typical physiologic example of autolysis resulting from diminution of the blood supply. The latter is assumed to result from the pressure of stagnating milk in the distended glands. On this hypothesis the bandaging of the breast to avoid overproduction of milk initiates pressure stasis and asphyxial cell acidosis. Likewise, the postpartum resolution of the uterus is regarded as an autolytic atrophy initiated by the contractions which must greatly diminish the blood and lymph supply of this muscular organ. The slow generalized atrophies of advancing age may be related, on such a theory, to a blood supply growing gradually less efficient. The softening of overgrowths and neoplasms is regarded by Bradley as an added example of autolysis induced by alteration in the blood flow. This may be caused, he adds, by the contractions of freshly formed fibrous tissue, so that capillary tufts are pinched off and their dependent tissues autolyzed. The resistance of the brain and heart to autolysis may be ascribed to the unusually adequate blood supply which protects them from lack of oxygen and consequent acid-forming conditions. If atrophy is a consequence of limited circulation, it seems likely that growth will require an abundance of blood supply and a mechanism that maintains neutrality. This is doubtless true not only of normal growth but also of pathologic neoplasms.

LIGHT AS A THERAPEUTIC AGENT

That sunlight is beneficial to those forms of living matter represented by green plants is an every-day observation. Through the intermediation of chlorophyl, light energy is stored under conditions most advantageous to mankind. There is a widespread conviction that sunlight is health-giving to man as well as to vegetation; but proof of this traditional belief is not so easily secured. Sunlight is only one of numerous environmental factors to which the human organism is subject, and they cannot readily be dissociated so that each can be charged with its specific responsibility for well being or the reverse, as the case may be. The physics of radiation, including the phenomena of light rays, has progressed to a stage, however, at which it may be expected that the behavior of light to living matter in the animal as well as the plant kingdom will become elucidated. A recent writer[1] has pointed out that although the physiologic effect of sunlight seems at first sight indefinite and of dubious importance, the action of far ultraviolet light on normal tissue, and the action of near ultraviolet light under certain pathologic conditions, have been investigated enough to show that there are well defined effects due to light, closely related to the physiologic results of exposure to radium and the roentgen rays.

It would be manifestly unfair to say that heliotherapy is an entirely unexplored field; but it will scarcely be denied that its present claims and its accomplishment are essentially based on empiricism. To admit this is not derogatory to the possibilities of medical treatment through the agency of light rays, but rather a challenge to promote the scientific aspect of the subject. The latest studies of the sunlight treatment of rickets, notably those of A. F. Hess and others in this country, should give a marked impetus to the investigation of the physical factors as well as the clinical results. Recently Kramer, Casparis and Howland[2] have again demonstrated the healing of the rachitic process in the bones of rachitic children through systematic exposure to the rays from the mercury vapor quartz lamp. So far as could be judged, the healing of the bones following irradiation occurred at about the same time that it does after the administration of cod liver oil. The changes in the phosphorus concentration of the blood serum were identical with those observed after treatment with cod liver oil.

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[1] Clark, Janet H.: The Physiological Action of Light, Physiol. Rev. **2**: 277 (April) 1922.

[2] Kramer, B.; Casparis, H., and Howland, J.: Ultraviolet Radiation in Rickets, Am. J. Dis. Child. **24**: 20 (July) 1922.

The instance cited is a notable one for heliotherapy. In a review which can be commended to physicians, Clark[1] has suggested other fields in which the already evident possibilities of light therapy deserve experimental consideration from a clinical standpoint. The pioneer work of Finsen in the treatment of lupus vulgaris emphasizes the importance of considering a diversity of forms of radiant energy in skin affections. The relative safety of treatment with ultraviolet rays over roentgen-ray exposure should add to the desirability of careful consideration of the respective merits. In tuberculosis, especially surgical tuberculosis, heliotherapy has long had advocates. The observations made have warranted the suspicion that light of short wave lengths, which is known to have marked bactericidal effects, may not be without salutary influence in the treatment of wounds.[3] Other suggestions might be cited, while the familiar inflammatory reaction known as sunburn, erythema solare, is an omnipresent reminder of the potency of absorbed ultraviolet light. It should be remembered that the potent rays of shorter wave length do not penetrate glass. The shorter the wave length, the smaller the layer of skin that will absorb the rays. Artificial lights, if glass covered, are therefore harmless and therapeutically weak. Sunlight rarely contains enough far ultraviolet rays to produce injury. Consequently, heliotherapy that demands highly potent effects must look to artificial sources of radiation. The quartz mercury arc and bare metallic arcs are known to belong in the potent class, and, as has often been warned, may be extremely injurious, so that the eyes should be protected from them. With the newer physics, physiology and pathology of light rays, a better therapy is likely to develop.

ANOTHER PLEA FOR CONSERVATISM IN INTRAVENOUS MEDICATION

Considered from a purely theoretical standpoint, it is not surprising that the possibilities of intravenous therapy have made a strong appeal to the medical profession. The circulation of the blood affords the shortest route for the transmission of drugs to diseased or disordered tissues, except in the instances in which superficial defects may occur. Even in the case of the skin, effective medication, like adequate nutrition, may in most instances be secured best through the medium of the blood supply, the use of local applications being limited for the most part to the relief of external physical conditions or the destruction of parasitic organisms that have invaded the outer layers. Furthermore. intravascular medication brings drugs into contact with micro-organisms that may inhabit the blood stream and the cells that belong in it. Little wonder, then, in view of such appealing therapeutic prospects, that propagandists for a mode of using drugs scarcely thought of before Baccelli's[1] introduction in 1890 of the intravenous injection of quinin for the treatment of malaria, should have secured a sympathetic audience in recent years.

As has frequently been pointed out in The Journal, however, there are serious limitations to intravenous medication which are likely to be forgotten or overlooked in the enthusiasm for a promising procedure. They involve both disappointments and dangers, many of which were summarized with judicial frankness in the chairman's address[2] before the Section on Pharmacology and Therapeutics at the St. Louis session of the American Medical Association. Not the least in importance are the difficulties of technic which form a stumbling block for all too many physicians. An unbiased, erudite observer must often be astounded at the crudeness—let it be admitted—which characterizes the routine manipulative technic of persons supposedly versed in the anatomy, physiology, pharmacology and psychology of man. It sometimes seems as if the keeping of case records, versatility in conversation, and blind faith in traditional office routine had usurped the place of intelligent ingenuity in the conduct of some of the simplest and most fundamental operations of medicine. Sometimes more attention is given to the preparation of elegant vehicles for simple drugs than to common procedures of examination and instrumentation. Yet both features may involve the sense organs of the patient as well as the outcome of his malady.

Even if the word "faulty" could be discarded in referring to current technic, if asepsis were inevitable, if subcutaneous, intramuscular and intravenous injections were made painless and perfect rather than bungling, there are hazards in intravenous routes that Voegtlin[2] has clearly emphasized. The blood is not an indifferent fluid; it is a nicely "balanced" solution. As Voegtlin points out, we know today that the chemical composition of the blood and its physicochemical properties, such as osmotic pressure, hydrogen-ion concentration and colloidal state, are maintained with remarkable constancy and appear to be essential to physiologic well being. A sudden change in reaction, the production of precipitates and subsequent thrombosis in vital organs, the overwhelming of sensitive tissues, such as the cardiac and nervous structures, with high concentration of potent drugs—these are a few illustrations of the untoward possibilities in a process that often means "more haste and less speed" in its outcome. These are not hypothetic musings; they have been ascertained to occur all too frequently. The need of rational conservatism has not yet passed for intravenous medication.

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[3] Brieger: Strahlentherapie 8: 657, 1918.

[1] Baccelli, G.: Tr. Tenth Internat. Med. Cong. 2: 138, Part 5, 1890.

[2] Voegtlin, Carl: The Limitations of Intravenous Medication, J. A. M. A. 79: 421 (Aug. 5) 1922.

Current Comment

DOCTOR STEPHEN SMITH

In 1850, Stephen Smith took up the study of medicine at Columbia University "as a preventive measure against the recurrence of a form of indigestion" from which he had suffered since childhood. Last week he died at the age of almost 100 years. Perhaps he was correct in attributing his longevity to his knowledge and to his ability in applying his knowledge of medicine. However, not every man is a Stephen Smith. His career was marked throughout by a fiery enthusiasm for cleanliness and sanitation. He was among the first to realize the importance of the health department in the scheme of municipal organization. In fact, he drew up, with Mr. D. B. Eaton, an attorney, the health bill which created the modern New York health department, a most important feature of the bill being its establishment of the police powers of health departments. In 1871, the American Public Health Association was organized, and Stephen Smith became its first president. It was especially fitting that the fiftieth anniversary celebration of this organization should have given to him such great honor as was accorded him at the last annual session. To the very last, Stephen Smith was an interested, active observer of the health progress of our country. His life witnessed a change from the uninformed misery, disease and death of one century to the enlightened sanitary, hygienic living of the next. Few men have been privileged, as was this pioneer physician, to see the development of a complete health civilization.

ORIGIN OF THE CEREBROSPINAL FLUID

Nearly a century has elapsed since Magendie,[1] in 1825, first clearly described the physical properties of the cerebrospinal fluid. Always a body fluid of scientific interest, it has in comparatively recent times acquired a new sort of importance because of the diagnostic and prognostic indications that can often be derived from its chemical, bacteriologic and serologic aspects. Consequently, it seems strange that after these many decades of study devoted to the cerebrospinal fluid some of the most fundamental questions with regard to its origin and function remain unanswered or in dispute. Although most of the modern investigations on the source of the fluid have been based on the hypothesis that the choroid plexuses elaborate the greater portion of it, this view has been challenged by Becht.[2] In an elaborate review of the subject, Weed [3] has attempted to reconcile the conflicting opinions and the alleged confirmatory evidence. Dandy [4] has been able to produce unilateral internal hydrocephalus by obstructing one foramen of Monro; extirpation of the choroid plexus in such an obstructed lateral ventricle prevented the development of an internal hydrocephalus. This experiment Weed regards as the strongest single substantiation of the hypothesis that the origin of the cerebrospinal fluid is associated with the plexus. Nevertheless, in spite of the corroboratory favorable histologic structure of the choroid plexuses, and the substantiating effect of pharmacologic agents in harmony with a secretory function, as well as anatomic and embryologic indications, Weed now believes that these plexuses cannot be the sole sources of the fluid. In fact, there is some anatomic evidence that the perivascular spaces also pour a certain amount of fluid into the subarachnoid space, where it mixes with the liquids produced in the cerebral ventricles.[5] Such an addition, Weed concludes—significantly for the diagnostician—probably accounts for the reported differences between subarachnoid and ventricular fluids on serologic and chemical analysis. The ependymal cells lining the cerebral ventricles and the central canal of the spinal cord may also contribute a minimal addition to the intraventricular cerebrospinal fluid. With the precise source, mode of production, amount and migration of the latter still partly undetermined, the resourcefulness of the investigator is challenged to afford an answer.

THE ARTIFICIAL SYNTHESIS OF UREA

Nearly a century has elapsed since the synthesis of urea, or carbamid, was accomplished by F. Wöhler, in 1828. The accomplishment was one of no small significance, since it represented the first success in the production of a substance organic in character and found as a natural component of the living body. The synthesis of urea dispelled, once for all, the idea that some special "vital force" is required to evolve the organic constituents of plant and animal tissues. The demonstration of what the chemical laboratory, directed by human ingenuity, can accomplish in imitation of nature promptly emboldened scientists to attempt the artificial production of numerous other naturally occurring substances, with a degree of success attested by many of the accomplishments of modern organic chemistry. The original synthesis of urea involved the molecular rearrangement of ammonium cyanate. This cannot be analogous to the genesis of urea in animals. In them it now seems most likely that ammonia and carbon dioxid represent the immediate precursors of the end-product of nitrogenous metabolism. It was not until 1882, however, that Mixter [6] succeeded in synthesizing urea from ammonia and carbon dioxid by passing the mixed gases through a hot tube at atmospheric pressure. Quite recently, Krase and Gaddy [7] of the Fixed Nitrogen Research Laboratory of the American University, Washington, have succeeded in perfecting this synthesis to a point at which it promises to be applicable on a large scale for industrial uses. An intermediate product is ammonium carbamate, which likewise was much discussed in the textbooks of a few years ago as a likely antecedent of urea in the body and was charged with responsibility for some of the toxic symptoms observed under conditions of disturbed liver function in which a deficient conversion of nitrogenous catabolites to urea was alleged to occur. It seems likely, therefore, that the centennial of the first artificial synthesis of a body constituent of organic character may be celebrated by the production on an elaborate factory scale of the same product, urea, in ways not widely divergent from those through which the same compound arises in the living organism.

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[1] Magendie: Recherches sur le liquide céphalo-rachidien, Paris, 1825.

[2] Becht, F. C.: Am. J. Physiol. **51**: 1 (Feb.) 1920.

[3] Weed, L. H.: The Cerebrospinal Fluid, Physiol. Rev. **2**: 171 (April) 1922.

[4] Dandy, W. E.: Tr. Am. S. A. **37**: 397, 1919.

[5] Weed, L. H.: J. M. Res. **31**: 93, 1914.

[6] Mixter, W. G.: Am. Chem. J. **4**: 35, 1882-1883.

[7] Krase, N. W., and Gaddy, V. L.: Synthesis of Urea from Ammonia and Carbon Dioxide, J. Indust. & Engin. Chem. **14**: 611 (July) 1922.

THE AMERICAN MEDICAL DIRECTORY

The Biographical Department of the Association is now actively engaged in compiling and revising the material for the Eighth Edition of the American Medical Directory. The directory is one of the altruistic efforts of the Association in the interest of the medical profession as a scientific organization, which means, ultimately, in the interest of the public. It is a book in which are found dependable data concerning every physician licensed to practice medicine in the United States and Canada, all being treated alike. This note is inserted to ask the cooperation of those readers of The Journal who have changed their residence, or their office, since the previous revision, two years ago. If there is any change to be made in the data appearing in connection with your name, communicate at once with the Biographical Department of the American Medical Association.

CHRONIC STARVATION AS A DISEASE

Prolonged undernutrition is a condition that occurs in a variety of disorders. In its clinical aspects it is usually an indirect consequence of conditions which for some reason or other interfere with adequate food intake, so that the phenomena of chronic starvation are often complicated by the effects of the concomitant disease. Dietary restriction rarely occurs in healthy persons of normal weight except for purely experimental purposes. Occasionally, however, prolonged deprivation of food is enforced by untoward circumstances such as intervene during war. The effects of siege conditions with food scarcity have been described in connection with many campaigns, and recently for the siege of Kut, lasting 148 days, by Major General Sir Patrick Hehir.[1] It is estimated that toward the end of this period the daily rations yielded not more than from 1,100 to 1,800 calories for one man each day, an allowance obviously far below even the basal resting requirement. The average loss of body weight was from 10 to 15 per cent. The muscles decreased in size, and about 80 per cent. of the usual adipose tissue disappeared. Under these conditions, the metabolism was evidently lowered, as is indicated by the decidedly slower pulse rate and the lowering of body temperature, both of which have been noted in experimental underfeeding. Serious intestinal conditions resembling dysentery were widespread, but Hehir is inclined to put them to a large extent into a category somewhat different from the diarrheas of bacterial origin. He believes that degenerative changes in the digestive organs ensue in prolonged starvation, leading to failure to assimilate food properly. It is this feature, perhaps, which explains the often described inability to return at once to a normal diet after chronic undernourishment. The great caution necessary may be due to the temporary incapacity of the alimentary organs, which restorative changes can only slowly repair. What applies in such conditions may perhaps deserve emphasis in the dietotherapy following clinical forms of severe undernourishment.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Hospital News.—Bids have been opened for the U. S. Public Health Service hospital to be erected at Tuskegee, Ala., for which an appropriation of $2,500,000 has been made. This hospital will have 270 beds for nervous and mental cases, and 230 beds for tuberculosis cases.

CALIFORNIA

Chiropractor Fined.—It is reported that C. A. Anderson, Turlock, chiropractor, was convicted of practicing medicine without a license and fined $250.

License Revoked.—It is reported that the license of Dr. Amos J. Landis of Chico was revoked by the state board of medical examiners, following the arrest of Dr. Landis on a charge of procuring an abortion.

Campaign for Funds Includes Medical School.—The campaign for $10,000,000 for the University of Southern California, now in progress, includes plans for a large medical school and teaching hospital, to cost approximately $3,500,000.

Clinic for Children Dedicated.—The Anita M. Baldwin Clinic for Children, Los Angeles, was dedicated August 13. The clinic is a complete hospital for children under 13 years of age, and was made possible by the gifts of Mrs. Baldwin and F. L. Clark.

Pasadena Preventorium to Be Erected.—Work will start soon on the Pasadena Preventorium, which will cost about $35,000. The preventorium, which will be incorporated under the state laws, will be conducted under the same management as the Pasadena Dispensary.

Chiropractors Serve Jail Sentences.—The following item appeared in the Banning (Calif.) *Record*, June 8, 1922: "Doctors A. C. Foy of Anaheim and Philip Dudley of Orange, chiropractors, recently convicted upon technical charges of violation of the Medical Practice Act, are now serving 100 days in the county jail at Santa Ana. There are five other chiropractic practitioners in jail at the present time, three at Stockton, one at Red Bluff, and one at Visalia."

COLORADO

Personal.—Dr. Otis F. Adams of Trinidad has succeeded Dr. John R. Espey as medical examiner for the U. S. Veterans' Bureau in that district.——Dr. Charles W. Thompson has purchased the Woodcroft Hospital, Pueblo, from Dr. Hubert Work.——Dr. Emory J. Brady, superintendent of the Myron Stratton Home, Colorado Springs, has resigned to become associated with Dr. Charles W. Thompson at the

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[1] Hehir, Patrick: Effects of Chronic Starvation During the Siege of Kut, Brit. M. J. 1: 865 (June 3) 1922.

Woodcroft Hospital, Pueblo.——Dr. Giovanni Perilli, Denver, left September 1, for Italy, where he may resume residence permanently, it is announced.——Dr. Melville Black, Denver, has recently returned from Europe.——Dr. Jack W. Brown, Las Animas, is convalescing from an operation for hernia at St. Joseph's Hospital, Denver.

DISTRICT OF COLUMBIA

Howard University Endowment Drive.—A hard drive is now being made by Howard University to raise $250,000 for the medical school in order to meet the conditional offer of the general education board of the same sum.

GEORGIA

Personal.—Dr. Victor H. Bassett, director of the municipal hygienic laboratory, Savannah, has terminated his contract with the city, after fourteen years in that position.——Dr. Frederick Morris has been appointed a member of the board of health of Atlanta.

IDAHO

Idaho State Medical Association.—At the thirtieth annual meeting of the association held in Wallace, recently, under the presidency of Dr. Max T. Smith, the following officers were elected for the ensuing year: president, Dr. John R. Gray, St. Anthony; vice president, Dr. Fred A. Pittenger, Boise, and secretary-treasurer, Dr. Ernest E. Laubaugh, Boise. The next meeting will be held at Idaho Falls.

ILLINOIS

Hospital News.—Plans have been drawn for a $150,000 addition to the Highland Park Hospital near the Exmoor Country Club, work on which will start in the fall.

Chinese Medical Society Conference.—The first annual conference of the Chinese Medical Society will be held at Northwestern University, Evanston, September 11-14. American visitors are welcome. Several Chicago physicians will address the conference.

Personal.—Dr. Lawrence A. Ryan was appointed city physician of East St. Louis, August 7.——Dr. Ulysses G. Darling has resigned as medical superintendent of the Lake Geneva Sanatorium, Lake Geneva, Wis., to take up practice in nervous and mental diseases in Chicago.——Dr. Lowell S. Goin, director of the roentgen-ray laboratory, Peoria, has returned from Germany where he attended a course in deep roentgen-ray therapy at the University of Frankfurt.——Dr. Joseph T. Woodward, Lincoln, has been appointed full-time medical examiner in the U. S. Veterans' Bureau, Chicago.

Chicago

Personal.—Dr. Irving Browning, physician for the C. M. & St. P. railroad, who mysteriously disappeared, August 8, was returned to his home in a dazed condition, August 20, by a taxicab driver, who also disappeared after ringing the doorbell at the Browning residence. Railroad officials indicated their belief that Dr. Browning, who had been engaged in treating nonunion workers since the shopmen's strike, had been kidnaped and that his release was due to the active police investigation of his disappearance.——Dr. Julian H. Lewis has been appointed assistant professor of pathology at the University of Chicago.

INDIANA

Physician's License Revoked.—It is reported that the license of Dr. Frederick J. Freshley of Evansville, now serving sentence in federal prison for violation of the Harrison Narcotic Law, has been revoked.

State Medical Association.—The Indiana State Medical Association will meet in Muncie, September 27-28. Convention headquarters will be at the Roberts Hotel. Prominent among speakers on the program are Dr. Charles H. Frazier, Philadelphia, and Drs. Charles M. Mix and William A. Evans of Chicago.

Hospital News.—The Protestant Deaconess Hospital of Indianapolis, which has been operated by a receiver since March 31, will be continued on its present basis until such time as a favorable offer for the hospital, for the purpose of continuing it as a hospital, is made.——Clark Memorial Hospital, Jeffersonville, is fitting up an adjoining building for use as a nurses' home.——Work on the annex to Epworth Hospital, South Bend, to cost $276,000 will start, October 1.

IOWA

Personal.—Dr. George E. Vincent, president of the Rockefeller Foundation, and Dr. Richard M. Pearce, director of the division on medical education, visited Creston recently to confer with Dr. Frank E. Sampson concerning the latter's greater community plan.——Dr. Milton D. Jewell of Decorah was seriously injured recently when his car overturned while he was answering a call in the country.

University News.—Dr. William G. Vandesteeg, resident physician in the department of gynecology and obstetrics, Iowa State University, has accepted a position as mining surgeon in Biwaki, Minn.——Dr. Arthur Steindler, professor of orthopedic surgery at Iowa University, has sailed for Europe, where he will spend three months at his old home in Vienna, Austria.——Dr. Gideon J. Ferreira, hospital chemist at Iowa State University, has gone into private practice at Aurora, Minn.——Dr. Harry W. Dahl, lecturer in clinical microscopy, department of internal medicine, Iowa State University, has accepted a position in the Hospital of the Rockefeller Institute for Medical Research, New York.

KANSAS

Hospital News.—The new St. Rose Hospital at Great Bend was dedicated, August 17. The hospital, which has a capacity of seventy-five beds, is owned and controlled by the Dominican sisters.

Personal.—Dr. Clarence H. Kinnaman of Junction City will become state epidemiologist and director of rural sanitation of the state department of health, September 1, succeeding Dr. Andrew J. Warren, who will go to the state board of health of Oregon.

MASSACHUSETTS

Personal.—Col. George E. Bushnell, U. S. Army, retired, has been selected by the Surgeon-General as lecturer on military medicine at Harvard University Medical School.

Physician's License Revoked.—It is reported that the state board of registration has revoked the license of Dr. Joseph A. Levek of Lawrence. Dr. Levek was charged with having performed an illegal operation.

Fund for Health Units.—It has been announced that the interest from the George White fund, which was left to the city of Boston for public welfare purposes, will be devoted to extending and developing health units.

MICHIGAN

Personal.—Dr. William K. West of Trimountain and Painesdale has been appointed consulting surgeon for institutional work in the upper peninsula. He was elected president of the Upper Peninsula Medical Society at the annual convention recently held at Houghton.

MINNESOTA

Assistant to Health Officer Appointed.—Dr. Arthur E. Nichols, St. Paul, has been appointed assistant to the chief health officer of the city, to succeed Dr. John S. Abbott, whose resignation was announced, August 10.

Physician's License Revoked.—It is announced by the state board of medical examiners that the license of Dr. Thomas Arneson, Climax, has been revoked, because he has been sentenced to serve thirty years in the penitentiary on a charge of rape.

Double Shift in Medical College Suggested.—At a recent meeting of the board of regents of the University of Minnesorta, it was pointed out that only about eight of 250 premedical students would be permitted to enter the medical school this fall. To overcome the difficulty, it was suggested that the medical school adopt a double shift in order to handle additional students. The board ordered that a survey be made of conditions relative to admissions to the medical school and to any needed reorganization of the medical curriculum to provide for the double shift.

MONTANA

Personal.—Dr. Thomas B. Marquis, formerly of Whitehall, has been appointed government physician for the Cheyenne Indian Reservation, with offices at Lame Deer.

Maternal and Infant Clinics Established.—In order to reduce the maternal and infant death rate, which, it is reported, is the highest among the states, the state public health association is cooperating with county commissioners and county boards of health in establishing maternal and infant clinics in various communities.

Public Health News.—The expense of the city and county health office of Great Falls under a full-time health officer for 1921 was $2,000 less than the expenses of the preceding year under the part-time method. It was expected that the full-time plan would be more expensive, and therefore $22,000 was appropriated because the cost of the work for the previous year had been $17,000. The cost was $15,000, which is $7,000 less than the appropriation and $2,000 less than the cost of less efficient service. This system will be continued for another year, it was resolved at the recent meeting of the board of county commissioners. The county and city share equally in the annual expense, the government paying a part of the salary of Dr. George A. Fuson, the full-time city and county health officer, who has been reappointed for another year.

NEW HAMPSHIRE

Hospital News.—The new city hospital at Charles was dedicated, July 26. The hospital, which is up-to-date in design and equipment, has twenty-four beds.

NEW JERSEY

Must Vaccinate Children.—The state board of education has dismissed the appeal of George Ware, James Adams, Jr., and Luke Bates from the action of the Berlin Board of Education in ordering their children to be vaccinated before entering school. The state board justifies the action of the Berlin school authorities in excluding the children because they were not vaccinated. It is averred by the state board that the law gives authority to local boards of education to exclude from any school a teacher or pupil who has not been successfully vaccinated, unless a certificate is furnished that one not so vaccinated is an unfit subject for that operation.

NEW MEXICO

Personal.—Dr. George P. Paul, of the International Health Board, has been appointed chief of the division of county health work on the staff of the New Mexico Bureau of Public Health.

NEW YORK

New York City

Reconstruction Hospital Plans Annex.—So great has been the growth of the Reconstruction Hospital that plans have been made to build an eleven-story addition. Patients from more than thirty states and from almost every trade are being made fit to return to work. Since January 1, 903 patients suffering from industrial injuries have been cared for, almost as many as were cared for during the whole year of 1921. The success of the Reconstruction Hospital has been such that government officials are advocating the establishment of similar institutions in other large industrial centers.

National Standard Health Exhibition.—The first National Standardized Health Exhibition will be held in the Twenty-Third Regiment Armory, Brooklyn, the week of October 7. The National Health Council, the Kings County Medical Society Health Committee, the Brooklyn Chamber of Commerce Health Committee, the New York City Health Department and the Safety Institute of America are cooperating in the management of the exhibition, which will mark the beginning of an attack on the century old belief that the medical profession wishes to keep from the public the knowledge of how to prevent and cure ills.

Milbank Millions to Fight Tuberculosis.—The technical board of the Milbank memorial fund met at Paul Smith, N. Y., August 21, to consider measures preliminary to actual use of this fund, which totals approximately $10,000,000, and is the gift of the late Mrs. Elizabeth Milbank Anderson. Mr. John A. Kingsbury, secretary of the fund, stated that no new hospitals would be built, but that the fund will be used to aid work already established, especially in counties in New York State, where deserving work is handicapped through lack of money. Among the members of the technical board are Dr. Livingston Farrand, Dr. Hermann M. Biggs, Dr. Donald B. Armstrong and Dr. Otto R. Eichel.

Wood Alcohol as a Cause of Death and Blindness.—Figures published by the National Committee for the Prevention of Blindness show that, during the first half of 1922, wood alcohol caused 130 deaths and twenty-two cases of blindness. These figures, however, do not by any means cover the total loss of life or sight through the drinking of bootlegger's whisky, since this cause of death is frequently concealed by relatives and friends of the victim. More than one half of the fatal cases of wood alcohol poisoning brought to the attention of the committee during the first six months of 1922 occurred in New York, New Jersey and Pennsylvania. Five deaths were reported in Texas and four each in Connecticut, Massachusetts, Ohio and Missouri. Only three or four deaths per year from wood alcohol poisoning were reported in New York State prior to 1919, while more than eighty deaths from this cause have been reported within the last three years.

Personal.—Dr. H. F. Pierce, who has been in the department of pathology, University of Oxford, for three and a half years, engaged in research for the British Medical Research Council, has been appointed associate in physiology at the College of Physicians and Surgeons, Columbia University.——Dr. David Lazarus and Drs. Henry O. Reik and Andrew J. N. Reik, Baltimore, sailed for Europe, August 17. Dr. Abraham A. Brill, Dr. Louis Hauswirth and Dr. Oswald S. Lowsley sailed for Europe, August 19.——Dr. Samuel Kahn returned from Europe on the *Majestic,* August 22.——Dr. Herbert E. Stein sailed, August 15, on the *Mauretania,* to visit England, Germany, France, Austria and Holland.——Dr. Clarence O. Cheney has been appointed assistant superintendent of the Utica State Hospital, and will assume charge of the Marcy Division within a few weeks.——Dr. William T. M. Liccione, Mount Vernon, has tendered his resignation as a member of the board of health.

NORTH CAROLINA

Hospital News.—Contracts have been let for the Shelby Hospital, which will cost about $52,000 and have thirty-four beds.

OHIO

Personal.—Dr. J. C. Shafer, Norwood, has been appointed medical inspector of the Norwood schools, to succeed Dr. Edgar Snyder.

Health Commissioners' Conference.—The third annual conference of health commissioners of Ohio will be held at Columbus, September 5-8. Attendance at the conference is compulsory. Dr. George E. Vincent of the International Health Board, Dr. W. H. Park, professor of hygiene, Bellevue Hospital Medical College, and Dr. W. S. Rankin, state health officer of North Carolina, will be among the speakers at the session.

Court Decision Regarding Personal Attendance on Patients.—In a prosecution for violation of the Harrison Narcotic Law, the evidence showed that the defendant, a physician, had dispensed morphin at his office. In reversing the judgment of conviction and granting a new trial, the U. S. Circuit Court of Appeals, eighth circuit, said: "The power of the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, to make all needful rules and regulations for carrying the provisions of the Harrison Narcotic Law into effect, did not confer the power to say that a physician could not personally attend a patient at his office. The enforcement of the act did not require any such rule, and it is contrary to the language of the act itself, which is plain and unambiguous and says nothing about where the patient shall be when personally attended. . . . If Congress had intended to exclude personal attendance at office, it would have said so. . . . The fact of omission is strong evidence that it did not intend to say so.

PENNSYLVANIA

Personal.—Drs. Harry A. Spangler and Edward R. Plank have been chosen by the Carlisle school board as medical inspectors.

Philadelphia

Tuberculosis Survey.—Dr. Murray P. Horwood, instructor in bacteriology and public health, Massachusetts Institute of Technology, is conducting a tuberculosis survey for the Philadelphia Health Council and Tuberculosis Committee.

Drug Pedler Arrests Fewer in Police Drive.—Result of determined efforts by the police to break up the traffic in narcotic drugs was shown, August 23, when not one arrest was made in the city, and reports from all police stations indicated that the traffic is at a standstill. In every district infested by the drug pedlers, there were plain clothes policemen closely watching for offenders.

Fines in Food Law Cases.—Fines aggregating $750 were imposed on twenty-five persons brought before Magistrate Beaten on charges of violating the pure food laws. The charges were brought by Robert M. Simmers, general agent of the state department. In addition, four persons were held for court.

SOUTH DAKOTA

Personal.—Dr. Clara E. Hayes of Illinois has been appointed head of the division of child hygiene of the state of South Dakota.

TEXAS

Physician's License Revoked. — A recent communication from the state board of medical examiners of Texas states that the board has recently revoked the license of Dr. Charles M. McMillan, formerly of Waco, who, Nov. 19, 1920, was indicted for unlawfully selling morphin and, November 24, was found guilty and sentenced to two years in the penitentiary. The limited authority of the Texas State Board of Medical Examiners makes it necessary that this revocation be legalized by court action.

VIRGINIA

Reappointments on State Board of Health.—The governor has reappointed on the state board of health, Dr. William F. Drewry, Petersburg, and Dr. William M. Smith, Alexandria.

Physician Sentenced.—It is reported that Dr. Neilson H. Turner, Richmond, was sentenced to serve six months and to pay a fine of $300 for contributing to the moral delinquency of a 17-year-old girl. Dr. Turner entered an appeal.

WASHINGTON

Hospital News.—The Sumner Hospital was vacated, August 15, it is reported, and the patients were transferred to the new Puyallup Hospital, recently opened. Mrs. Cora B. Stone, who was manager at the Sumner Hospital, will hold the same position at the Puyallup Hospital.

CANADA

Medical Association News.—The British Columbia Medical Association held its annual meeting in Kelowna, B. C., recently. Osborne Morris was elected president for the coming year. The next meeting will be held in Kamloops, October 4.

University News.—Eighteen candidates received the degree of doctor of medicine at the convocation exercises, Western University, London, Ont. J. H. Lewis, London, won the J. B. Campbell memorial scholarship in medicine. Sixteen of the graduating class passed the licensing examination of the Ontario College of Physicians and Surgeons, and one member passed the Dominion Medical Council examination.

GENERAL

Registration Certificate Lost.—It is reported that Dr. Heman Augustus Tyler, Bridgeport, Conn., left his certificate of registration on a table at the Hotel Bancroft, Worcester, Mass., and has since been unable to find it. The number of the license was 11,846.

Outpatient Services Abroad to Be Investigated.—Dr. Evarts A. Graham, St. Louis, and Dr. Daniel L. Edsall, Boston, will sail for England, September 23, to investigate the outpatient services of the British hospitals and medical schools for the Rockefeller Foundation.

Cadaver Alcohol Stolen.—It is reported that bootleggers obtained about 2,000 gallons of alcohol from medical college vats, shortly after they closed down for the summer. Most of the alcohol was redistilled in Minnesota, and distributed by booze runners in Iowa, Minnesota, Nebraska, Kansas and the Dakotas.

Medical Play to Be Filmed.—It is announce that the Famous Players-Lasky Corporation will produce a film version of André Pascal's medical play "The Caducée" (The Caduceus), which has been so much discussed in London and Paris, the physicians of England complaining that it traduced their profession.

Association of Anesthetists to Be Organized.—The Southern Association of Anesthetists is being organized and will hold its first meeting in conjunction with the Southern Medical Association at Chattanooga, Tenn., in November. Those interested are requested to communicate with Dr. William Hamilton Long, 1911 Duker Avenue, Louisville, Ky., organization secretary.

Proposed Law to Reward Discoveries in Medicine.—A reward of $1,000,000 is to be offered by the United States government for a successful cure of tuberculosis, cancer, paralysis, epilepsy or dementia praecox, should the bill introduced by Representative Sproul of Illinois be enacted by a law. The provisions of the measure call for the payment of the reward in ten annual installments to be made by a board consisting of the surgeon generals of the Army, Navy and U. S. Public Health Service, who would be called upon to investigate claims for any such discovery. The Sproul bill stipulates that no payment will be made until authorized by this board.

Deplorable Conditions in Russia.—American physicians who have just returned to Moscow after a sanitary inspection trip to districts where no relief had been extended, report that the gauze furnished by the American Relief Administration was the first seen in four years at the city hospital of Saransk. The sanitary conditions in that city were so deplorable that it was necessary to demand a general cleaning campaign before extending relief of any kind. Since the famine has been checked, a strenuous campaign throughout Russia is now being waged against filth and disease, by the American Relief Administration. Among other things, 10,000,000 people are being vaccinated against smallpox, typhoid, paratyphoid and cholera.

Consultation by Radio.—The United Fruit Company has established a radio medical service whereby their ships at sea without physicians may obtain advice by radio concerning the treatment of their sick. The company maintains hospitals and radio stations in Panama, Costa Rica, Colombia, Guatemala and Honduras, and all of its passenger steamships carry physicians. In addition, radio stations are maintained at New Orleans and Burwood, La., Fort Morgan, Ala., and Swan Island in the Caribbean Sea. While the service was established primarily for ships without physicians, it is at the disposal of vessels whose medical officers desire to consult other physicians. The messages are to take precedence over all but S. O. S. calls.

Use of Fish in Malaria Control.—It is announced by the Rockefeller Foundation that in the southern states fish are being used extensively to control the breeding of the malaria mosquito. In practically all the towns in which there have been demonstrations of malaria control by antimosquito measures, they have been an important auxiliary to drainage and oiling, and in many instances the chief or even sole reliance. In a group of five counties in Alabama, practically every farmer has convenient access to a minnow hatchery, from which he is able to stock breeding places with fish, as occasion arises. The city of Richmond, Va., has stocked all its fountains, reservoirs and lakes with top minnows, and has established hatcheries to furnish the fish free of charge to any communities in the state that want them.

Hospital Conferences. — The first annual meeting of the Protestant Hospital Association will be held at West Baden, Ind., September 12, under the presidency of Pliny O. Clark, superintendent of the Presbyterian Hospital, Denver.——All hospitals which participated in National Hospital Day, May 12, or are interested in the movement, are invited to attend a conference at the Hotel Sherman, Chicago, September 10. Methods of making hospital day more beneficial to each hospital will be discussed. Dr. Lewis A. Sexton, superintendent of the Hartford Hospital, Hartford, Conn., is chairman of the National Hospital Day Committee.——The annual meeting of the American Hospital Association will be held at West Baden, Ind., September 12-16, and the American Conference on Hospital Service will hold its session at West Baden, September 15.

Life Tables for States and Cities.—The department of commerce announces that abridged life tables based on the 1920 census will soon be issued. These tables cover 74 per cent. of the total population of the United States, or twenty-four states, including fourteen large cities. They show for this area as a whole that the expectation of life at birth for white males is 55.23 years, and for white females 57.41 years. Kansans, according to the table, are the longest lived people in the United States. Their expectation of life at birth is 59.73 years for white males, and 60.89 years for white females. Wisconsin ranks next, with 58.77 years for white males, and 60.70 years for white females. Washington, D. C., outranks all other of the fourteen cities, with 53.63 years for white males and 59.83 years for white females as the expectation of life. Pittsburgh is at the foot of the list with 47.16 and 50.42 years, respectively. While the various mortality conditions show that the chances of living are much more favorable among white persons than among negroes, the improvement among negroes between 1910 and 1920 was slightly greater than among white people.

Colored Physicians Hold National Meeting.—About 700 delegates attended the annual convention of the Colored National Medical Association held at Washington, D. C., this week. They came from every state, from Canada and from the West Indies. The work of the convention included discussions and clinics by the medical and surgical sections; a joint public meeting at the Smithsonian Institution, under the direction of Dr. Roscoe C. Brown, of the U. S. Public Health Service, and chairman of the general health committee of the association; an address on public health by Dr. Aldrich R. Burton; a discussion on venereal diseases and remedies and a recommendation for the requirement of health certificates before marriage, and the usual program. The following officers were elected: president, J. Edward Perry, Kansas City, Mo.; president-elect, John O. Plummer, Raleigh, N. C.; vice presidents, H. R. Smith, Chicago, L. Marion Lawrence, Philadelphia, C. E. LeBranch, New Orleans; general secretary, W. G. Alexander, Orange, N. J.; assistant secretary, G. H. Francis, Norfolk, Va. The convention next year will be held at St. Louis, from August 22 to 24.

LATIN AMERICA

Cuban Branch of the International Surgical Association.—A branch of the International Surgical Association has been organized in Cuba. The president is Dr. José A. Presno y Bastiony, editor of the *Revista de Medicina y Cirugia* of Havana.

Brazilian Medical Society.—Officers of the Medical Society of the Hospitals of Bahia were appointed as follows: president, Dr. J. Adeodatos; vice president, Dr. Martagao Gesteira; secretary general, Dr. Aristides Novis; secretary, Dr. Aff. de Carvalho; subsecretary, Dr. Galdino Ribeiro; treasurer, Dr. Canna Brazil.

Memorial to Oswaldo Cruz.—A movement is on foot in Brazil to erect an imposing memorial to Oswaldo Cruz or organize an Oswaldo Cruz foundation. On the recent anniversary of his birthday, his tomb and the busts in the Instituto at Manguinhos and in the offices of the national public health service were decorated.

Election of Officers.—The newly elected board of the Sociedad de Obstetricia y Ginecología of Buenos Aires recently elected for the next two year term, Dr. J. C. Llames Massini, president; Dr. A. J. Bengolea, vice president; Dr. M. L. Pérez, secretary general; Dr. J. C. Ahumada, recording secretary, and Dr. A. Villar, treasurer.

Public Health in Venezuela.—According to the last report of the director of public health of Venezuela, during the year 1921, the public health department turned into the treasury, 420,596.67 bolivars (about $42,000), compared with 376,850.23 bolivars in 1920. This was collected for disinfection and laboratory service. During the year, smallpox prevailed in several places. Several cases of anthrax were discovered in animals. An antityphoid campaign has begun, typhoid vaccine, which is offered free of charge, being employed.

Sixth Latin American Medical Congress.—A total of eighteen subjects will be discussed at the Sixth Latin American Congress, to be held at Havana: metabolism of cancers; antidiphtheria immunity and vaccination; *Leptospira icteroides* and yellow fever; inheritance and eugenics; tests in liver disease; pernicious anemia; eradication of yellow fever and smallpox from Latin America; standard classification of digestive disturbances of infants; treatment of puerperal infections; surgical indications in chronic ulcer of the stomach; convenience of a Latin American pharmacopeia; history of medicine in America, and related subjects.

Personal.—The *Brazil-Medico* relates that Dr. M. de Medeiros has been appointed assistant professor of general pathology at the University of Rio de Janeiro. He has been prosector for ten years in both the faculty of medicine and the veterinary college.——Prof. Abrami of Paris has been lecturing at Rio de Janeiro on "Anaphylactic Phenomena" and "The New Orientation of Medicine." He has been a collaborator of Widal in his research on the hemoclasis test of liver functioning, and on desensitization.——Prof. J. L. Faure, also of Paris, spoke on "Uterine Cancer" at a special meeting of the medical faculty of Rio de Janeiro in honor of the two French visitors.——The *Brazil-Medico* mentions further that Prof. Carlos de Mello of the Lisbon faculty of medicine is visiting Brazil on an official mission to study the organization of the surgical clinics and especially the ear, nose and throat clinics. He spoke on "Plastic Operations on the Nose" at a recent meeting of the Sociedade de Medicina e Cirurgia.——The name of Afranio Peixoto has been given to the new dispensary for neurosyphilis which was recently inaugurated in the grounds of the Hospital Nacional de Alienados at Rio. The dispensary is in charge of Dr. G. de Moura Costa. Prof. Juliano Moreira is director general of the care of nervous and mental diseases in the province. Prof. Afranio Peixoto is on the editorial staff of the *Brazil-Medico* and is director of the medicolegal institute. ——Prof. Moraes Frias of the medical faculty of Oporto, Portugal, addressed the Academia de Medicina at Rio on "Gastric Surgery," and was invited to perform some operations in Professor Magalhães' service.

FOREIGN

Prize to Mourgue.—The Dagnan prize offered by the Académie des sciences morales et politiques at Paris has been awarded to Dr. M. R. Mourgue, physician in chief of the asylum at Auxerre. It is the second time that he has won this prize.

Eye Quacks.—The *Medicina Ibera* publishes an appeal from Dr. Manuel Márquez of Madrid asking for data in regard to the work of charlatans claiming to treat eye disease. He is to deliver an address on quackery, especially from the oculist's standpoint, at the next Spanish ophthalmologic congress, and he appeals for ideas and experiences to aid him in this task. No address is given, but the address of the Madrid Facultad de Medicina is Calle de Atocha 104, Madrid, where Dr. Márquez has the chair of ophthalmology.

Better Control of "Patent Medicines" in Japan.—Owing to various conditions following the revision of the Japanese pharmacopeia, the department of home affairs has decided to control the "patent medicine" business more thoroughly. Exaggerated advertising matter will be suppressed, and thirty additional inspectors will be appointed to visit "patent medicine" factories to see that the drugs used possess the character and quality specified in the pharmacopeia, or as the samples presented in conformity with regulations.

More Than 2,500,000 Die in Russian Province.—Reports to the health section of the League of Nations show that before the situation was relieved by American help, of the 3,125,277 inhabitants of the Tartar republic, 2,500,000 died from starvation from January to March, 1922. There were 392,390 cases of infectious disease. In the Kharlov district, people were dying at the rate of 40,000 each month, or a mortality of 600 in every 1,000 population. Between March 1 and March 20, in the Kharlov district alone, 125,000 persons died of starvation.

Personal.—The medical faculty of the University of Bordeaux has founded a chair of therapeutic hydrology and climatology, and Professor Sellier is to be the first incumbent. He has been chief of the physiology laboratory for ten years and lectured on hydrology, and is an officer of the "Tourisme" Society.——Dr. T. Madsen of Copenhagen has been elected associate member of the Belgian Société des sciences médicales et naturelles at Brussels. He has also been decorated with the Italian Order of the Crown.——The French government has appointed among those who are to represent France at the festivities at Rio de Janeiro in honor of the centennial of the independence of Brazil, Dr. P. Janet, Dr. Borel, Dr. Dumas, professor at the Sorbonne, and Dr. Chiray of the Paris medical faculty.——At the ceremonies attendant on the retirement of Professor Kraepelin from the chair of psychiatry at Munich, he spoke on the duty of being healthy as the foremost duty of the young physician as he is to be the leader of the people in times of need.——Dr. R. H. Jaffe has recently been admitted as privatdozent for general and experimental pathology at the University of Vienna. He has just arrived in this country and expects to visit the principal hospitals of the United States before he enters on his duties.——Prof. H. Mygind of Copenhagen has been elected to honorary membership in the Scottish Otolaryngologic Society.

Suggestions of the Official Swiss Goiter Commission.—With the director of the national public health service presiding, the Swiss goiter commission held its important meeting recently at Bern to hear the reports of the committee that has been collecting data and studying ways and means for prophylaxis of goiter. After long and thorough discussion on all the reports and suggestions, it was voted to propose to the authorities of the different cantons the introduction of prophylactic measures against endemic goiter in either of two ways suggested: (1) By general prophylactic treatment with iodin by the use of kitchen salt in which a certain proportion of iodin is incorporated. The amount to be used is tentatively suggested as from 0.25 to 0.5 gm. to 100 kg. of cooking salt. This amount, it was stated, would exert a preventive action on goiter, while it could not be injurious. Besides this iodized salt, the public should also have ordinary salt available without iodin. This iodized salt has already been in use in the Wallis and Appenzell cantons for some time. (2) School prophylaxis. This consists in giving once a week to the schoolchildren a tablet containing a certain amount of iodin. This method has already been introduced in a number of places. The commission adopted a further resolution in regard to calling the attention of the canton authorities to the dire effects which are liable to follow the unrestricted sale of iodin preparations to the lay public. Iodin is a drug which in any amount always requires medical supervision when it is being taken. The present unrestricted sale of iodin preparations, which is being pushed with extensive advertising, can lead to serious injury. The commission therefore appealed to the authorities to have iodin preparations—except a few in general use, such as the tincture of iodin—listed with the drugs which can be dispensed in the pharmacies only on a physician's prescription. The same appeal was made further to the commission in charge of the revision of the pharmacopeia, which work is soon to be started. The goiter commission decided further to systematize the data collected on the prevalence of goiter in Switzerland, so that the outcome of the various prophylactic measures can be estimated as the years pass, and steps were taken to insure the starting of work in this line. The *Schweizerische medizinische Wochenschrift* gives the foregoing details of the conference, but mentions no names except that of Dr. Carrière, chief of the national public health service.

Deaths in Other Countries

Dr. **James Francis Agbew**, principal medical officer of the department of repatriation, Australia, while on a visit to Scotland.——Dr. **P. Cesetti** of Rome.——Dr. **F. Hofmeister**, professor of medical chemistry and pharmacology at Prague, Strasbourg and Würzburg, noted for his discoveries in physiologic chemistry, especially the crystallization of albumin, aged 72.——Dr. **P. Esquerdo**, a prominent internist of Barcelona, Spain. The death is also reported from Barcelona of Dr. **P. Umbert**, a dermatologist and syphilologist.——Dr. **F. E. G. Persson**, physician in chief of the Esbønderup Hospital in Denmark.——The *Semana Médica* mentions the death of Dr. **Ricardo Piérola** of Buenos Aires, from food poisoning, and the death of Dr. **M. F. Saubidet**, who practiced at Mercedes, aged 56.

Government Services

Proposes Increase in Officer Personnel

Convinced that Congress has made a serious error when it ordered a radical reduction in the officer personnel of the Army, Representative Charles F. Curry of California has announced his intention to introduce a bill in Congress to stop the elimination of some 2,000 or more army officers, many of whom are in the Medical Corps.

McCoy to Attend International Conference

Dr. George W. McCoy, director of the hygiene laboratory of the U. S. Public Health Service, will represent the United States at an international conference at Geneva on medical problems. The conference will be held September 25, 26 and 27, it was announced by Surgeon General Cumming of the U. S. Public Health Service. Principal among the problems to be considered by the international conference will be the proposed standardization of antitoxins and serums. Owing to the great advance made by preventive medicine, the international trade in antitoxins and serums has heavily increased, with the result that both in imports and exports the leading nations have a great multiplicity and some confusion in such supplies. Standardization is said to be needed and will be the principal object of the international conference.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 13, 1922.

Public Health

Sir George Newman, chief medical officer to the ministry of health, has presented an encouraging report on public health in 1921 in England and Wales. The birth rate was 22.4 per thousand, a decline of 3.1 on that for 1920. The death rate was 12.1 as against 12.4 in the previous year, and the lowest on record. Infant mortality declined to 83 per thousand births, and for the quinquennial 1917-1921 was 88. Longevity has been increased. The principal factor in this is reduction in the mortality of early life. Of 100,000 male children reaching the age of 5 years, 2,132 would die within the 5 years following, according to the mortality of 1891-1900, and only 1,678 according to that of 1910-1912. At 15, the corresponding figures are 1,864 and 1,392; and at 25, 2,947 and 2,116. According to the English life tables, the average lifetime of a population which died at the rates experienced between 1838 and 1854 would be nearly forty years for males and just under forty-two for females. According to the mortality of 1910-1912, the average lifetime for males was increased to 51.5 years and for females to 53.3. The result is that, on the average, a baby born now will live twelve years longer than his grandfather.

Sir George Newman does not consider his results entirely satisfactory. Though the mortality at young ages has greatly decreased, mortality at adult ages is discreditable to us. We have failed to keep pace with some nations. The discreditable mortality affects particularly the centers of our most important industries, such as Lancashire and the West Riding of Yorkshire. There is no very close relation between the excessive mortality and the ordinary statistical evidence of poverty, nor is there reason to attribute the whole of the excess to industrial hazards or climatologic conditions beyond human control. The length of life of adult men is much less than it should be.

The Physical Education of Girls

A committee formed under the chairmanship of the pediatrician Dr. G. F. Still, and consisting of representatives of the College of Physicians and Surgeons, the British Medical Association, Medical Women's Federation, British Association for Physical Training, Ling Association, National Union of Women Teachers and other associations of teachers, was formed, in October, 1921, to consider the effects of physical education on girls. A questionnaire was sent to persons having a special knowledge of the subject, including physicans, school principals and women students, medical and otherwise. A report has now been made on the basis of the replies. Among the school principals there was a consensus that games and physical exercises have a beneficial effect on disposition and character. On the question whether gymnastics with apparatus is suitable for girls, 66 per cent. of the replies were favorable, but about half of these stated that careful supervision was necessary. Among the women students, 80 per cent. were in favor of the use of apparatus, but some thought that gymnastics conduced to muscular strength without gracefulness. As to games, tennis and net ball received general approval. Hockey, though approved by the majority of teachers and students, was regarded by some as suitable only for the older and stronger girls. Cricket was generally approved, but some doubted its utility. Lacrosse was approved by almost all who offered information about it. Football was generally disapproved as entailing too much strain. Swimming was generally approved, but moderation was enjoined. Racing in rowing was condemned, and ill effects were recorded. Bicycling in moderation was approved.

The physicians considered that physical education, including games and sports, was as generally beneficial to girls as to boys, but discrimination was necessary with regard to individuals. Swimming, rowing, riding and bicycling were all considered good. Of the games, only football was considered unsuitable. Gymnastics under expert direction were valuable in promoting harmonious development of the muscles. To what degree should exercises be restricted during menstruation? Abstention has been generally recommended, but in recent years evidence has been brought forward that this is harmful rather than beneficial. The physicians could not pronounce any final judgment, but considered that a more extensive trial of voluntary exercise (swimming excepted) was justified. As to the suggestion that the increased muscular and bone development from exercise might make parturition more difficult, no proof of this was found.

The Cultivation of Medicinal Plants

At the annual conference of the British Pharmaceutical Society, Prof. H. G. Greenish, dean of the School of Pharmacy of Great Britain, delivered an address in which he urged the necessity of establishing an experiment station for medicinal plant research. He pleaded for investigations with regard to the influence of selection, breeding and manuring, in increasing the amount of active principles in plants. A particularly important subject for investigation was the part played by alkaloids in the metabolism of the plant. At present, the opinion was gaining ground that alkaloids formed a means by which plants disposed of the excess of nitrogen resulting from the breaking down of complex nitrogenous substances. Until more light was thrown on this, it was difficult to see how rational experiments could be conducted to produce larger quantities of such alkaloids. While the synthetic production of quinin might be a triumph for organic chemistry, the more economical production might lie in the utilization of the countless millions of natural laboratories that every plant possessed in its cells. A station on the lines proposed was established in Wisconsin. The British dominions must possess an untold wealth of plants, some of which might be superior for medicinal, dietetic or technical purposes to those now generally used.

Fracture of the Skull in a Nasal Operation

An inquest was held at the Royal Naval Hospital, Chatham, on a lieutenant who was operated on by a surgeon-commander of the navy for an obstruction of the nose. In removing some spongy bone, the hammer and chisel were used. The patient suddenly stopped breathing, but artificial respiration proved successful and the operation was completed. The patient was put to bed, but died eleven hours later. The necropsy revealed a fracture of the base of the skull above the nose, which was attributed to the jarring of the hammering or to the chisel penetrating the skull, which was abnormally thin. The jury returned a verdict of death by misadventure, without attributing any blame.

A Village Settlement for Consumptives

The first village settlement for consumptives has been opened at Papworth in Cambridgeshire. The colony was visited by the minister of health, Sir Alfred Mond, who opened thirty-one new cottages, two hostels and a nurses' home. The Right Hon. Sir Clifford Allbutt, president of the colony, said that all consumptives were admitted, no matter in what state, and practically all could have their families with them for their comfort and solace, as more cottages were provided. The patients gained self-respect, as they gradually began to earn their living. The workshops brought in considerable revenue. Sir Alfred Mond said that the colony was unique and the most complete which existed in the world, combining in one sanatorium, hospital, village settlement and industry. He was glad that there was a market for the products and that these workshops were sound, self-sustaining enterprises, without the need of charitable assistance, in either the purchase or the manufacture of goods. He hoped that more of these settlements would be established. Tuberculosis was declining: the death rate was 2,000 per million in 1877, 1,000 in 1907 and 840 in 1920. These results were encouraging, and there seemed no reason why we should not be able to stamp out tuberculosis in the way that smallpox and typhoid had been stamped out.

The Legitimation of Illegitimate Children

The home secretary has brought in a bill to legitimatize illegitimate children on the subsequent marriage of their parents, whether the marriage takes place before or after the passing of the bill. But the bill does not enable a legitimatized person to succeed to or transmit titles or dignities. If either of the parents of the illegitimate person has been married to another person, any children who by virtue of the second marriage become legitimatized shall, as between themselves and the children of the previous marriage, be deemed younger than the children of the previous marriage, in determining succession to property.

BELGIUM

(From Our Regular Correspondent)

Aug. 4, 1922.

International League Against Tuberculosis

The third congress of the Union internationale contre la tuberculose was held at Brussels in July. At the first session, Dr. L. Bernard discussed the prophylaxis of tuberculosis in children under school age, and subsequently the conference passed the following resolution:

> The third international conference against tuberculosis, recording the experimental and clinical facts which show that contagion is alone responsible for tuberculous infection in children and that heredity plays no part, requests the cooperation of public and private agencies in a united effort to bring about a prophylaxis against tuberculosis, at the different ages of childhood, by developing the various means given us to establish such a prophylaxis, including the placing in a preventorium of children already infected with the disease; the placing of the healthy children of tuberculous families by methods of the type of the Oeuvre Grancher for the older children and in centers for younger children where the tuberculous may be sifted out (*centres de triage*); education of the public through the dispensaries and visiting nurses; medical inspection of schools.

Next came a report by Dr. Sand and Miss C. Olmsted, the latter being the director of the division of visiting nurses of the League of the Red Cross Societies. At the close of the report the following resolution was passed:

> The third conference of the Union internationale contre la tuberculose proclaims the paramount importance of the collaboration of the visiting nurse in the campaign against tuberculosis. It recommends that measures be adopted at once by the public authorities with a view to assuring to visiting nurses a proper financial status (a minimum salary, financial assistance during the prosecution of the course of study, sick benefits, allowance of disability claims, and pensions). Visiting nurses should be carefully trained for their triple duties, as nurses, educators and diagnosticians. The visiting nurses should be considered as an élite formation, both as regards their selection and the exercise of their profession.

The third question dealt with sanatorium treatment and the character of work that the tuberculous may be permitted to perform. The work done by the tuberculous should be supervised, and carefully graduated to the needs of the patient. No work at all should be permitted during the active and febrile periods of the disease. The patient ought to be allowed to become interested in some form of light work that will not overtax his powers of resistance. It was the general opinion of the congress that in every section of the large cities there should be an industrial plant in which there would be equipment for every kind of trade, in order that the tuberculous might work there together under the direction of the chief of the dispensary in which they were registered.

Penitentiary Reforms

M. Heger Gilbert presented recently a report to the Academy of Medicine on the organization of the new anthropometric services in the prisons. He also spoke of the work performed by the prisoners and emphasized the important part that work played in bringing about a moral regeneration of the inmates. A large proportion of those confined have not learned a trade. It is especially this class of delinquents for whom the regenerative power of work should be tried. As far as possible, such delinquents should use the time they spend in prison in learning some trade that would enable them to earn an honorable living when they get out. If they do not do so, they will soon find themselves in the same condition that caused them to commit the first crime or misdemeanor, for which reason they almost inevitably become recidivists. By the application of anthropologic tests it is possible to determine which persons are capable of learning a trade and which ones would be unable to do so, for the reason that age, lack of physical capacity or moral insufficiency would make it impossible for them to acquire the knowledge that the application of a trade necessitates.

Radium Therapy and Cancer of the Tongue

Bayet and Sluys have reported most excellent results from radium therapy in the treatment of cancer of the tongue. They declare that the introduction of radium therapy marks a wonderful progress in the treatment of this affection and one that was scarcely hoped for, since the poor results with other methods did not allow us to anticipate it. As for the question of recurrences, only the future can decide that. In any event, the situation can scarcely be worse with radium therapy than it has been with surgery. But radium therapy is just in its beginnings and is a method that is being perfected day by day, whereas surgery has already given us about all we can expect from this mode of intervention.

The Bad Housing Conditions

Basing his statements on the annual statistical report of Belgium, Monsieur Velghe published recently an interesting study on housing conditions. Comparing the periods from 1880-1890, 1890-1900 and 1900-1910, and taking into account the proportional increase in the number of households and the number of houses erected in the different periods, he concludes that there is a deficit of 50,000 houses. Allowing 30.000 for the number of homes destroyed in the devastated regions, we arrive at a total of 80,000 houses, to build which would require the expenditure of two billion francs. When this deficit shall have been made up, the task of the public authorities will not be ended, for then an earnest campaign against overcrowded tenements must be begun, which of necessity has been suspended under the present conditions.

Rejection of Proposed Reciprocity with England in the Matter of Medical Licensure

The Academy of Medicine was invited by the government to give its opinion on the question of establishing reciprocity with England and allowing English physicians to practice in Belgium. A commission was appointed to inquire into the problem. The chairman, Monsieur Hertoghe, visited London in order to inform himself in regard to the organization of medical studies in England.

From his report it appears that the organization of medical education in England is of a character to give full guaranty as regards professional studies, examinations and the mode of bestowing diplomas. In spite of this fact, it is evident that between the various classes of physicians practicing medicine in England there are such widespread differences that the situation there is quite different from what it is in Belgium, where no one is permitted to practice medicine unless he is the holder of the academic degree of doctor of medicine, surgery and obstetrics conferred by a university recognized by the state. In England, the General Medical Council grants the right of practicing the art of healing to practitioners of widely different training. Holders of the degree of doctor of medicine (M.D.) constitute a small minority (about 20 per cent.) of the practitioners, and they therefore enjoy such great prestige among the clientele that it is not likely that any of them would think it advisable to leave England. The project that was submitted to the academy would therefore have no interest for this class. It was accordingly thought best that the academy should not recommend the establishment of medical reciprocity between England and Belgium.

Society for the Protection of Children

The Association internationale de la protection de l'enfance has just held its first regular session at Brussels. Twelve governments were officially represented, and delegations were sent by the various national committees. During the twelve months previous to the holding of this session, an exceedingly active propaganda has been undertaken throughout the entire world with a view to bringing about effective cooperation as regards the efforts that are being put forth in various countries for the protection of children.

STANDARDIZATION OF STATISTICS

With a view to bringing about greater uniformity in the gathering of statistics, various resolutions were drawn up. It was deemed especially desirable that statistics on infant mortality should follow a uniform plan, in order that comparative deductions could be made. It was also proposed that a list of all societies in all countries of the globe having directly or even somewhat remotely to do with the protection of children should be prepared and filed with the general secretary. An endeavor should also be made to ascertain the exact scope of each society or federation, in order that information would be on hand to show just what society should be addressed in a given case.

PARIS

(From Our Regular Correspondent)

Aug. 11, 1922.

International Cooperation in Intellectual Fields

The commission selected for the study of questions pertaining to international cooperation in intellectual fields held a meeting recently at Geneva. In previous letters (The Journal, June 10, 1922, p. 1828, and July 29, 1922, p. 492) I have indicated the origin and the make-up of the commission. Professor Bergson (France) and Professor G. A. Murray (England) were chosen president and vice president, respectively. One question taken up was the feasibility of an inquiry into the state of intellectual life in various countries. Another question dealt with the means of bringing immediate aid to nations in which the intellectual life is threatened with imminent disaster. The commission requested the council of the League of Nations to institute an inquiry on the situation in various countries as regards intellectual work and the economic conditions under which it is being performed. The commission declared its readiness to supply all necessary information on the subject, and to serve as intermediary in the application of any measures in which it could be of assistance. In this connection, the commission empowered Monsieur Gonzague de Reynold, of the University of Bern, and Madame Curie, of the University of Paris, to inquire into the situation in Austria and Poland and to prepare a report on the means that should be employed to bring about an improvement.

The question of organizing on an international basis bibliographic records and a system of exchange of publications was also discussed. The commission appointed a subcommittee composed of Mlle. Bonnevie (Norway), Madame Curie, Monsieur Destrée (Belgium) and Monsieur de Reynold, under the chairmanship of Monsieur Bergson. This subcommittee will also study the need of a legally constituted international depository of scientific works, and the establishment of one or more international libraries as the outgrowth of such a depository.

American Welfare Work in the Region of Soissons

During its trip through the devasted regions the Good Will Delegation attended at Soissons the ceremonies connected with the laying of the cornerstone of the new dispensary of the Goutte de lait. Among those present were Mrs. Dike, Miss Anne Morgan, Mgr. Binet (bishop of Soissons), Senator Hermant and André Tardieu, of the chamber of deputies. The various speakers referred to the welfare work of the American committee, in the region of Soissons, since 1917. This committee has given aid to 127 villages, furnishing provisions and helping in the reconstruction work. Dr. Bonnenfant, general secretary of the Goutte de lait, told the delegates that, up to June 1, 1922, this child welfare society had succored 12,000 children and made 72,000 calls. In the department of Aisne, infant mortality, which amounts to 100 per thousand for France as a whole, is only 97 per thousand, while the city of Soissons has the much lower record of 34 per thousand.

School Nurses

The general council of the department of the Seine will consider a project for the organization, instruction, recruitment and remuneration of school nurses or assistants in school hygiene.

The Crisis in Pharmaceutic Specialties

For some time, the manufacturers of pharmaceutic specialties have been complaining bitterly of the crisis that is affecting their industry. Some of them have suffered serious losses, while all have had to face a more or less marked falling off in sales. What are the causes leading up to this state of affairs? In the first place, during recent years, many foreign countries (the United States, Argentina, Canada, Spain, etc.) have imposed certain restrictions on the sale of these products, consisting of more or less severe supervision, obligation of published analyses, custom duties, etc. Also in France, the medical profession is beginning to react against the ever increasing flood of specialties. Being constantly importuned by the promoters of rival products, physicians are growing weary and are seeking a means of escape.

To the extent that the foreign market becomes closed to their products, the manufacturers of specialties concentrate their efforts at publicity on France and Belgium. Recently a specialty house had an advertisement in a medical journal in which a physician who possessed "a persuasive style" was sought as a collaborator. It would not seem that the firm succeeded in finding the man desired; for, soon afterward, such commonplaces as "Buccal 'vaccination' is given per mouth" (*se fait par la bouche*) could be noted in the literature sent out by this house.

At the present time, it is in the field of vaccinotherapy and organotherapy that propaganda is especially wild and fierce, assuming the proportions of a veritable plague. Every manufacturer proclaims that his vaccines are atoxic and the most efficacious, but, as a rule, he is very guarded about giving any precise statements as to the mode of preparation. In organotherapy also, the manufacturers imagine the most profound polyglandular associations.

The League of Nations and the Opium Question

The commission of the League of Nations, which is charged with deciding what measures shall be taken in the application of the opium convention, has specially requested the committee on hygiene of the league to secure an approximate estimate of the average amount of certain dangerous narcotics that can be considered necessary, in different countries, for the needs of medicine and for other legitimate purposes. The committee on hygiene decided that the most useful preliminary measures to be taken would be the institution of an inquiry in countries in which the population is relatively sparse, where there is no manufacture or exportation of narcotics, and where there is good reason to believe that there is no manifest abuse. By proceeding thus it was thought that a sort of standard of comparison could be secured for the countries in which the population presents the same character. Australia and New Zealand were suggested as best likely to fulfil these conditions, since it would be possible for the minister of public hygiene and the minister of commerce to obtain approximate estimates without necessitating much detailed research. It would be particularly instructive to compare the estimates established in Australia and New Zealand with the analogous results secured, if possible, in Denmark, in the other Scandinavian countries, in Switzerland and in Belgium.

Below will be found the results of the inquiries instituted by the ministers of hygiene of Sweden and Denmark, relative to the consumption of opium, morphin, cocain and diacetylmorphin in their respective countries:

CONSUMPTION OF NARCOTICS

	Sweden (1920)*		Denmark (1917)†	
	Total	Per Inhabitant	Total	Per Inhabitant
Opium	1,600 kg.	0.27 gm.	467.40 kg.	0.16 gm.
Morphin	120 kg.	0.02 gm.	98 kg.	0.033 gm.
Cocain	150 kg.	0.0254 gm.	48 kg.	0.016 gm.
Diacetyl-morphin (heroin)	2 kg.			

* Population (1920), 5,903,762 inhabitants; mortality, 13.29 per thousand.

† Population (1917), 2,960,000 inhabitants; mortality, 13.3 per thousand.

Creation of a Seaside Hospital for Children

The municipal council of Paris has decided to establish a seaside hospital at San Salvador, department of Var, on the ground acquired by the city of Paris. This hospital will be provided with 220 beds and will admit rachitic children and those suffering from tuberculosis other than pulmonary. It will be administered by the Assistance publique de Paris and will be subject to the same control as its other establishments. For furnishings and equipment the society has been granted an appropriation of a million francs.

Personal

Dr. Jeannin has been appointed professor of clinical obstetrics (Faculté de médecine, Paris) in place of Professor Bar, who has retired.

An International Congress of Universities

After discussing the proper means of promoting interuniversity relations, the commission on intellectual cooperations has decided that it would be advantageous, as soon as circumstances permit, to call an international congress of all the universities of the world (those under private as well as those under state control), in order to consult with those interested on the possibilities of intellectual cooperation. A subcommittee has been appointed to prepare the way for such a congress.

BUDAPEST

(From Our Regular Correspondent)

Aug. 7, 1922.

Professor Kolle on Syphilis and Arsphenamin

The Budapest Scientific University, the name of which has been changed recently from Budapest Royal Hungarian Scientific University to Pazmany Scientific University, invited Professor Kolle, successor of Professor Ehrlich, the inventor of arsphenamin, to deliver the Markusovsky address. Markusovsky was a member of the revolutionary ministry in 1848 (Hungarian revolution for liberty), as chief military surgeon of the home defense army. In recognition of his services in public sanitation, as well as in politics, the medical faculty of the university presents a lecture entitled the Markusovsky address once in every five years, on the anniversary of his death.

Professor Kolle's subject was "Arsphenamin and Neo-Arsphenamin." The lecture was attended by a large number of physicians. Professor Kolle opened his address by mentioning the war friendship of Germany with Hungary, a friendship now based on common scientific work. He spoke of the researches which are carried on in his institute aiming at the further improvement of arsphenamin. His lecture was accompanied by stereopticon and cinematograph pictures illustrating the extensive research work for newer remedies. They have inoculated thousands of rabbits, and have found that, besides human syphilis, there is a special syphilis of rabbits and guinea-pigs, which spreads with incredible rapidity among them.

Professor Kolle, in closing, recalled Professor Ehrlich's statement, now proved by the latest researches, that we have to administer in the initial stage of syphilis the largest possible doses in order to fight the organisms producing the disease.

The New Law Relating to Alcohol Consumption Among Juveniles

The government has promulgated the new law relating to the sale of liquors to juveniles. According to this order, it is forbidden to serve liquors containing more than 0.5 per cent. of alcohol to juveniles under 16 years of age. Wine and beer can be served only to boys over 16, and the other alcoholic beverages can be served only to those 18 years or over. In case of doubt, the lads are obliged to certify their age. At concerts and balls and in dancing schools, only wine and beer may be sold to juveniles. Inn keepers and restaurant owners are obliged to instruct their staff as to this order, and must put a board containing the prohibition order in a striking place on their premises. This notice must list also the punishments fixed for violators. Execution of the order is the duty of the police.

Summer Vacation of Vienna Children in the Hungarian Lowlands

A few days ago, a special train brought to Csongrád the first group of children on vacation from Vienna. As the Vienna authorities had made arrangements for 400 children, provisions as to board were inadequate when 200 additional children arrived. Luckily, Csongrád is a wealthy community; within three hours all the children were under shelter, and there was even a keen competition for getting a "Viennese." The children on arrival were emaciated, shabby and pale-faced for the most part, and when they saw the tempting white bread and roast chicken prepared for 400, but enough for a thousand, at the railway station, on a vast table, some shed tears, and on being questioned, answered that they would be happy if they could have brought their brothers and sisters and parents. The medical examination showed that all the children were healthy. They were weighed on arrival and will be weighed again after a fortnight. The children were accompanied by five woman teachers, and one physician.

A Whole Country Threatened with Blindness

A Hungarian physician, recently returned from Armenia, where he worked with the American Relief Commission, says that the famine and terror stricken country, Armenia, is threatened by a new peril, trachoma, which is spreading so that all the population of Armenia is endangered. There are villages in which almost all the inhabitants are suffering from trachoma. Medical men are scarce, and medicines are to be had only in towns, which in some cases are hundreds of miles away. The position is desperate. The people have been undernourished for several years, and therefore their resistance is lowered. According to Dr. Uhls, if more assistance does not come, in a few years' time all the population of Armenia will become blind. "Instead of the Greek tragedy writers, Life is writing the darkened tragedies here," Dr. Uhls concluded in his report.

Proposed Notification of Abortion

Several municipal boards of sanitation in Hungary intend to issue orders which will make it obligatory to notify cases of miscarriage. At a meeting of physicians convened to discuss the matter in a large provincial town, the majority held that compulsory notification of abortion would have only one advantage; namely, that prosecution in case of criminal abortion would thereby be facilitated, although malpractice could not be suppressed in this manner. Women would be driven into the hands of unauthorized midwives, and the number of deaths would thus be increased. Consideration of the difficulty of insuring secrecy in the working of a system of notification, and the serious injustice which might arise therefrom, resulted in rejection of the plan.

VIENNA

(From Our Regular Correspondent)

July 29, 1922.

Report of First Aid Corps for 1921

The Vienna Rettungsgesellschaft, a private society which provides first aid in all public and private accidents, has just published its report for 1921. When this corps was founded, forty years ago, it was intended to serve as a rebuke to the criminal negligence of those then in authority, who were responsible for the loss of several hundreds of lives in a fire that destroyed the city theater. Supported by voluntary contributions, it has organized first aid so that, in many cities on the continent, as well as in distant countries, its working rules have been copied. Regular courses, given to the police, to the foremen of factories, to adolescents and also to numerous women, have been conducted during these forty years and have served to spread the knowledge of first aid throughout the population, to the benefit of many a sufferer. In 1921, no less than 15,018 calls, comprising all sorts of accidents, were answered, and 10,635 persons were transported to hospitals—an average of about eighty calls a day. Of these, no less than 20 per cent. were attempts at self-destruction, 45 per cent. were accidents due to traffic or work in the streets, and nearly 30 per cent. comprised injuries sustained indoors, in workshops, factories and railway stations. The outfit of the rescue parties is considered to be the best obtainable; yet this necessary and useful charitable institution is in desperate need of funds. It had to appeal to the government and the municipality for substantial grants, as otherwise it would have to discontinue its work.

Influx of American Physicians

A number of practitioners from the United States are at present working in the clinics and outpatient departments of the Vienna hospitals. It may safely be stated that they find here at least the same favorable teaching conditions that were in vogue before 1914. The present organization seems even better than previously. As far as possible, the physicians are accommodated in the clinics in groups which belong together, and the classes are conducted in a way which suits the needs of the newcomers admirably. There are classes for beginning specialists and for advanced work, as well as for routine work and surgery. The exchange rate of the dollar is a great advantage, living expenses being much lower here than at home. The teaching is about as expensive as it was before the war, but even at that, less than in the United States.

The Fresh Milk Supply for Vienna

The average monthly supply of fresh milk amounted to more than 27,000,000 liters (quarts) in 1913 for Vienna alone, but in October, 1918, this quantity had decreased by 89 per cent. to only 4,500,000, or 150,000 daily. When, however, owing to the peace treaty, the chief pasture grounds were cast off from Austria, no more than 90,000 liters each day arrived in Vienna in 1919, although the average minimal requirement of milk for infants' hospitals and the severely sick amounted to more than 750,000 liters a day. In the summer months of 1919 and 1920, conditions went from bad to worse, because a large proportion of the fresh milk turned sour before it reached the city, as there were no refrigerators or ice-cooled vans available for transport. Out of 113,256 liters coming to Vienna daily in August, 1921, 40 per cent. became sour and thus unfit for infant feeding. Before the war the per capita quantity each day was 0.41 liter (a little less than a pint); in November, 1918, it went down to 10 per cent. of this quantity; in July, 1920, it dropped further to half of that quantity (0.02 liter); in July, 1921, it was 0.04 liter again, and it remained approximately the same until the end of the year, so that only one tenth of the peace ratio was available. In the Alpine districts, the conditions were also far from satisfactory, for there too the present quantity of milk available is no more than from one fifth to one third of that deemed as a minimum in 1913. These figures explain the most distressing spread of rickets and underdevelopment of infants during the last few years, and it is not likely that a radical change will take place within reasonable time. The rural population in Austria has turned from the milk industry and pays more attention to slaughtering animals and to the crops, because these pay much better; on the other side, the former milk districts no longer belong to this country, and the import of the milk to Vienna is, at the present exchange rate, quite impossible.

Attempts to Improve the Situation of the Ministry of Health

The Union of the Officers of the Boards of Health has presented an appeal to the national assembly and the government, in which it explains that the present situation of the so-called ministry of health requires a radical change, in order to make its existence a real factor of public welfare. As it is now, the Volksgesundheits-amt (board of public health) is only regarded as a ministry of public health, but it lacks the one item which is a chief feature of a ministry, independence. The "amt," or board, is only a section of the ministry for social welfare, and is controlled not by a medical man, as it ought to be, but by a minister, who as a rule is a politician or a lawyer or at best a capable official, but not an expert in medical matters. But at present the interests of the population require that in all matters pertaining to public health no other points of view than medical should be paramount, and no other man than a medical expert is capable of judging what is best in this way of looking at things. While in 1918, when the new constitution for Austria was created, all leading men were unanimous that the importance of public health demanded a separate ministry for these affairs, gradually the political parties succeeded in pushing this ministry to the wall, and after Professor Tandler, who managed to maintain some independence for this office as long as he was at the head of this section, had tendered his resignation, the board was simply annexed by the ministry of social welfare, and now is responsible to and also handicapped in many instances by this ministry. Step by step, the efficiency of the board of health is being narrowed down systematically. All the "welfare actions" pertaining to the care for children and adolescents have been taken away from the board, and its independence is even responsible for absolutely unjustified attacks against it in the national assembly. The appeal goes on to say that the present situation is bound to produce most undesirable friction, and demands a perfect separation of the two ministries, so as to restore the original independence of the ministry of health, and unite all matters pertaining to public health, to medicine or to prophylaxis, in one separate body controlled only by a medical minister who is coordinated with the other ministers in the government.

BERLIN

(From Our Regular Correspondent)

Aug. 4, 1922.

Housing Conditions Among Berlin Workmen

As mentioned in former letters, the executive committee of the Allgemeine Ortskrankenkasse (health insurance society) of the city of Berlin, in which most of the working men are insured under the *Reichsversicherungsordnung* (Germany's health insurance law,) published, a few years ago, a report on the housing conditions of its insured, and the facts brought out awakened widespread interest. During the war, and for some time thereafter, no statistical reports of the kind were published, but now a report covering the years 1919 and 1920 has appeared. Among the interesting statements brought out by the report is the fact that the number of ill working men living in houses and apartments fronting the street has decreased, while the number of those living in the cheaper rear dwellings and apartments has increased. In 1918, 52.14 per cent. of ill employees were living in rear dwellings; in 1919 the number had increased to 53.46 per cent., and in 1920 to 55.89 per cent. More than 5 per cent. of the patients were lodged in rooms with less than 10 square meters floor space. More than one third were obliged to share their dwelling rooms with other persons. Even in rooms with only 6 square meters were found patients living with other persons. Approximately 5 per cent. of the patients lived in rooms the ceilings of which were less than 2.5 meters high; the number of such patients having increased from 929 in 1919 to 1,494 in 1920. Of these dwellings, 39.96 per cent. were in cellars or basements, while 41.83 per cent. were in attics, which is especially significant in view of the fact that before the war the use of basements and attics was, for hygienic reasons, prohibited. In 1920, 13.46 per cent. of all patients were obliged to share their lodging with other persons (as compared with 8.07 per cent. in 1918). Twenty per cent. of these patients had some pulmonary affection.

Alcohol and Heredity

A woman physician of Berlin, Dr. Agnes Bluhm, who has published some noteworthy articles in the field of industrial hygiene and the science of heredity, reported recently the results of her researches on white mice, which throw some light on the effect of the immoderate use of alcoholics on hereditary transmission. When heavy doses of 20 per cent. ethyl alcohol are injected into males, and these are then allowed to mate, about 50 per cent. of the matings prove sterile. Similar injections given to females lower the percentage of offspring even more. As the size of the litters is also decreased, the few embryos in the uterus that survive can be better nourished, which would explain the fact that some of the single births and unusually strong specimens. It is also stated that alcohol exerts a marked effect on the proportion of males and females in the progeny, for if alcohol injections are given the male progenitors, the proportion of males to females among the offspring is considerably increased. The results of former researches on guinea-pigs, chickens and rats are in harmony with these observations on mice. In the case of the former, more congenital defects of the limbs, the eyes and the intelligence were noted than were observed in the mice. If a single animal is given injections of alcohol, a distinctly recognizable damage to the germ cells may be noted down through the fourth generation, even though the injected animal and its progeny are mated with healthy animals.

Personal

F. Holmeister, the Würzburg professor of physiologic chemistry, died, August 1, at the age of 72. In 1879 he became instructor in physiologic chemistry in Prague, and in 1881 went over to pharmacology. He later worked under Schmiedeberg in Strasbourg. In 1884 he became head professor in Prague, and in 1896 he was called to Strasbourg to succeed Hoppe-Seyler. When, after the war, the German professors were obliged to sever their connection with the University of Strasbourg, he moved to Würzburg, where he was given an honorary professorship. He is the author of many important works in the field of physiologic chemistry, which treat especially such subjects as amido-acids, lactosuria, collagen, peptone, formation of urea, and demonstration of crystallized egg albumin.

MEXICO

(From Our Regular Correspondent)

Aug. 13, 1922.

Women Complete Bacteriologic Courses

Fourteen young women who took a year's course in laboratory diagnosis, after receiving fellowships from the public health department, have completed their courses and have been granted their diplomas. These young women will be employed in several branches of the public health department. In view of the success of this course, which was in charge of Dr. Perrín, a similar one will be offered next year.

New Public Health Journal

The department of public health has begun the publication and free distribution of a public health fortnightly entitled *Mensajero de Salud*. The editors are Drs. Pruneda and Ochoa, two veterans in public health propaganda.

Proceedings of the Sixth Medical Congress

The second and last volume of the transactions of the Sixth Medical Congress, held at Toluca in 1920, is just out. The book has been published through a subsidy of the government secured by the action of President Obregon. The publication has been in charge of Dr. Everardo Landa, reporter of the congress, to whom requests for the book should be addressed, 4/a. Calle del Perú, No. 130.

Personal

In a journal published by medical students, Dr. Santiago Ramírez presents an article in which he claims priority in the treatment of leprosy with tartar emetic injections.——Dr. Servando Osornio is one of the members of the special embassy sent by Mexico to Brazil, apropos of the centennial celebration. Dr. Osornio has just graduated from the Army Medical School, and his thesis dealt with personal experiences in treatment of syphilis with the Linser mixed method.

Marriages

Karl William Wahlberg, Moline, Ill., to Miss Blanche Mildred Carpenter of Rock Island, Ill., July 15.

Charles A. Wallbillich, New Orleans, to Miss Emma Laura Sullivan of Tullahoma, Tenn., June 8.

Leland Sterling McKittrick, Boston, to Miss Addie Moore Davidson of Norfolk, Va., August 5.

John Swope Davis Chambers to Miss Helen Jones, both of Chicago, August 10, at Davenport, Ia.

John Russell Carty, New York City, to Miss Mary Pierce of Andover, Mass., July 27.

William Kidwell Turner to Dr. Frederica Ann Phillips, both of Seattle, July 1.

John D. Young to Miss Helen Jansen, both of Covington, La., June 17.

Deaths

Stephen Smith, New York, died at the home of his daughter, in Montour Falls, N. Y., August 26, aged 99 years and 6 months. Dr. Smith began the study of medicine at Geneva Medical College, Geneva, N. Y., in 1848; in 1849 and 1850, he was a resident student in the hospital of the Sisters of Charity, Buffalo, and in 1850 entered the College of Physicians and Surgeons, New York, where he was graduated in 1851. Following graduation, he spent two years as intern at Bellevue Hospital. He was a teacher at Bellevue Hospital from 1854 to 1891; professor of surgery at the Bellevue Hospital Medical School from 1861 to 1865, and professor of anatomy from 1865 to 1874; he was also consulting surgeon at Bellevue, St. Vincent's and Columbus hospitals. Dr. Smith was joint editor of the *New York Journal of Medicine* from 1853 to 1857, and editor from 1857 to 1860; editor of the *American Medical Times*, 1860 to 1863. He was the author of "Handbook of Surgical Operations," published during the Civil War; "Principles and Practice of Operative Surgery," 1887; "Civil Obligations of the Surgeon," 1908; "Who Is Insane?" 1916, and "The City That Was," 1911. In 1864, Dr. Smith became a member of the Council of Hygiene of New York City, the investigations and report of which led to the creation of the Metropolitan Board of Health. He was for six years New York State commissioner of lunacy, serving from 1882 to 1888. He introduced new and more humane methods in caring for the insane, and his plans for this work led to "The State Care Act," which became a law in 1890. Dr. Smith was appointed a member of the state board of charities in 1893 and continued a member until 1918, when he resigned at the age of 95. It is said that of the last 100 meetings of the board of charities Dr. Smith was present at ninety-six. In 1870, he called together a conference of the health officers of the principal cities to form an association for the improvement of public health, and thus began the American Public Health Association, of which he was the first president. In 1878 Dr. Smith prepared the bill creating the National Board of Health, which name was changed to the Marine Hospital Service in 1881. He was United States commissioner to the Ninth International Sanitary Conference at Paris, 1894, and assisted in drafting a sanitary code to avert the danger of epidemics attendant on the annual pilgrimages to Mekka. At its semicentennial, the American Public Health Association presented Dr. Smith with a bronze medal bearing his own portrait. Had he lived less than six months longer, Dr. Smith would have been 100 years old.

Philip Adolphus, Chicago; University of Maryland School of Medicine, Baltimore, 1858; member of the Illinois State Medical Society; emeritus professor of clinical gynecology at Rush Medical College, Chicago; Civil War veteran; for thirty-three years superintendent of the Central Free Dispensary; consulting physician to the Presbyterian Hospital; member of the Chicago Gynecological Society and of the Society of Medical History; died, August 26, aged 94, from bronchial pneumonia.

James Spottiswood Taylor ⊕ Philadelphia; commander, M. C., U. S. Navy; University of Virginia Department of Medicine, Charlottesville, Va., 1894; for several years in

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⊕ Indicates "Fellow" of the American Medical Association.

charge of the division of publications, of the bureau of medicine and surgery, U. S. Navy, and editor of the *United States Naval Medical Bulletin,* to which he contributed many articles, particularly on medical history; died, August 27, aged 52.

Walter Howard Ross, Brooklyn; Bellevue Hospital Medical College, New York, 1898; member of the Medical Society of the State of New York; on the staff of the Bethany Deaconess, and the Harbor hospitals; died, August 15, aged 51, at the Post Graduate Hospital of New York, from adenocarcinoma.

Lafayette J. Wilson, Sebastopol, Calif.; Hahnemann Medical College of the Pacific, San Francisco, 1915; member of the Medical Society of the State of California; died, August 15, aged 38, at the Hahnemann Hospital of the University of California, San Francisco, from cerebral hemorrhage.

Preston B. Loftin, Beaufort, N. C.; University of Maryland School of Medicine, Baltimore, 1888; member of the Medical Society of the State of North Carolina; died recently, aged 60, from carcinoma of the stomach.

Frank Neeler Mandeville, Newark, N. J.; Columbia University College of Physicians and Surgeons, New York, 1909; member of the Medical Society of New Jersey; died, August 6, aged 39, from lobar pneumonia.

Rufus B. West, Fort Worth, Texas; Vanderbilt University Medical Department, Nashville, Tenn., 1882; member of the State Medical Association of Texas; died suddenly, August 9, aged 64, from heart disease.

Henry Herbert Baker, Albany, Ohio; Ohio Medical University, Columbus, 1902; member of the Ohio State Medical Association; died, August 18, aged 48, at the Mercy Hospital, Columbus, from pleurisy.

Adolphus George Meyersburg, Brooklyn; Medical Department of the University of the City of New York, 1875; member of the Medical Society of the State of New York; died, August 19, aged 74.

Harry Nelson Cross ⊕ Stockton, Calif.; Cooper Medical College, San Francisco, 1889; aged 55; was found dead in a hotel, August 18, with a bullet wound in his head, presumably self-inflicted.

Maurice Hill Krebs ⊕ Huntington, Ind.; Columbia University College of Physicians and Surgeons, New York, 1900; died suddenly, August 17, at Fort Wayne, aged 44, from heart disease.

Charles Albert, Rockville, Md.; University of Maryland School of Medicine, Baltimore, 1872; died, July 23, aged 69, at the Montgomery County General Hospital, Olney, from heart disease.

Thomas C. Washburn, Spencer, N. Y.; Albany Medical College, Albany, N. Y., 1889; member of the Medical Society of New York; died, July 12, aged 61, from acute cardiac dilatation.

Alan Lewis Diefenderfer, Slatington, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1908; member of the Medical Society of Pennsylvania; died, August 8, aged 40.

Pettus Gray Ellesor, Newberry, S. C.; Medical College of the State of South Carolina, Charleston, S. C., 1894; member of the South Carolina Medical Association; died, August 14, aged 53.

Bertram Hensel Gilmer, Cape Charles, Va.; University College of Medicine, Richmond, Va., 1903; member of the Iowa State Medical Society; died, July 21, aged 48, from paresis.

Amos Mead Ritch, Brooklyn; New York Homeopathic Medical College, New York City, 1886; on the staff of Cumberland Street Hospital; died, August 13, from carcinoma of the throat.

Robert James Greer, Parnassus, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1894; member of the Medical Society of the State of Pennsylvania; died, July 31, aged 53.

Michael Frederick Hannelly, Mount Ayr, Iowa; College of Physicians and Surgeons, Keokuk, Iowa., 1894; member of the Iowa State Medical Society; died, August 14, aged 48.

Calvin Oliver Prince ⊕ Plymouth, Mass.; American Medical Missionary College, Chicago, 1899; on the staff of the Jordan Hospital; died, July 28, aged 49, from myocarditis.

William Stephen McDonald ⊕ Fort Scott, Kan.; Jefferson Medical College, Philadelphia, 1888; on the staff of the Mercy Hospital; died, July 23, aged 68, from angina pectoris.

John J. Eklund ⊕ Duluth, Minn.; Minnesota Hospital College, Minneapolis, 1885; formerly county coroner; aged 61; was shot and killed, August 12, by an insane patient.

Nicholas McCabe ⊕ North Platte, Neb.; University of Buffalo, Department of Medicine, 1886; served for two terms as mayor of North Platte; died, August 8, aged 67.

Reese B. Kash, Frenchburg, Ky.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, Ky., 1898; died recently, aged 51.

William Francis Varcoe, New York City; Medical Department of the University of the City of New York, 1891; died, August 10, aged 66, from pernicious anemia.

George William Holley, Hinton, W. Va.; Howard University School of Medicine, Washington, D. C., 1892; died, August 8, aged 54, from chronic nephritis.

William Turell Learned ⊕ Fall River, Mass.; University of Pennsylvania School of Medicine, Philadelphia, 1885; died, August 14, aged 61, from heart disease.

Florence M. Seward, Wilmington, Del.; Southern Homeopathic Medical College, Baltimore, 1905; died suddenly, August 12, aged 42, from heart disease.

John C. Salmon, Pinconning, Mich.; University of Michigan Medical School, Ann Arbor, 1878; died in July, at Bay City, aged 76, from cerebral paralysis.

Charles Machant Roberts ⊕ Hot Springs National Park, Ark.; Vanderbilt University Medical Department, Nashville, Tenn., 1892; died, August 4, aged 55.

Herschel Isaac Fisher, Lebanon, Ohio; Miami Medical College, Cincinnati, 1886; member of the Ohio State Medical Association; died, August 5, aged 64.

Charles E. Whitfield, Woodstock, Ga.; College of Eclectic Medicine and Surgery, Atlanta, Ga., 1890; died recently, from chronic interstitial nephritis.

Warren D. Scott, Gary, Ind.; Hahnemann Medical College and Hospital of Chicago, 1882; aged 70; died, August 3, at the St. Mary's Mercy Hospital.

Philmer Bruce Green, Fort Payne, Ala.; Vanderbilt University Medical Department, Nashville, 1875; died, July 10, aged 70, from chronic nephritis.

Eleanor Lawney, Denver; Denver College of Medicine, Denver, 1887; member of the State Medical Society of Colorado; died, August 9, aged 71.

Willard Gerhard Benawa, Gladstone, Ore.; John A. Creighton Medical College, Omaha, 1907; died, July 9, aged 44, from pernicious anemia.

Arthur H. Sykes, Junction City, Ark.; University of Arkansas Medical Department, Little Rock, Ark., 1895; died, August 11, aged 61.

Eugene B. Clark, Bethany Beach, Del.; Georgetown University School of Medicine, 1872; died, August 3, aged 73, from heart disease.

M. S. Carpenter, Chateaugay, N. Y.; Toledo Medical College, Toledo, Ohio, 1885; died, August 9, from carcinoma of the pharynx.

Milton C. Hunter, Champion, Pa.; College of Physicians and Surgeons, Baltimore, 1882; died, August 4, aged 72, from pneumonia.

Jefferson LaFayette Wylie, Ripley, Ohio; Bellevue Hospital Medical College, New York, 1871; died, August 15, aged 77.

William Elias Chamberlin, Lincoln, Neb.; Rush Medical College, Chicago, 1865; died, August 7, aged 81, from senility.

James Farrar Stone, Philadelphia; Bellevue Hospital Medical College, New York, 1866; died, August 15, aged 82.

W. R. McLaren, Galesburg, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; died, August 6, aged 72.

Solomon Franklin Jowers, Equality, Ala.; Atlanta Medical College, Atlanta, Ga., 1885; died, July 15, from paresis.

Charles Daniel Dennis ⊕ Columbus, Ohio; Ohio Medical University, Columbus, 1896; died, August 14, aged 52.

Stephen M. Bennett, New Goshen, Ind.; Eclectic Medical Institute, Cincinnati, 1873; died, August 10, aged 75.

Nancy Annie Fleming, Des Moines, Iowa; Iowa Medical College, Des Moines, 1883; died, July 29, aged 77.

Michael E. Hurd ⊕ Mahaffey, Pa.; Jefferson Medical College, Philadelphia, 1883; died, June 12, aged 70.

Frederick A. Knights ⊕ Pequot, Minn.; Chicago Medical College, 1890; died, August 18, aged 61.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

THE INDIANAPOLIS CANCER HOSPITAL

The Evolution of the Cancer Cure of Leon T. Leach

A week seldom passes that does not bring an inquiry regarding the "Indianapolis Cancer Hospital," conducted by C. C. Root and C. A. McNeill. Here is a typical one received from a physician in the state of Washington:

> "I am enclosing a letter which was sent to a patient of mine. . . . We are at a loss to know how these people got hold of her name and her exact condition."

A physician in Ohio writes:

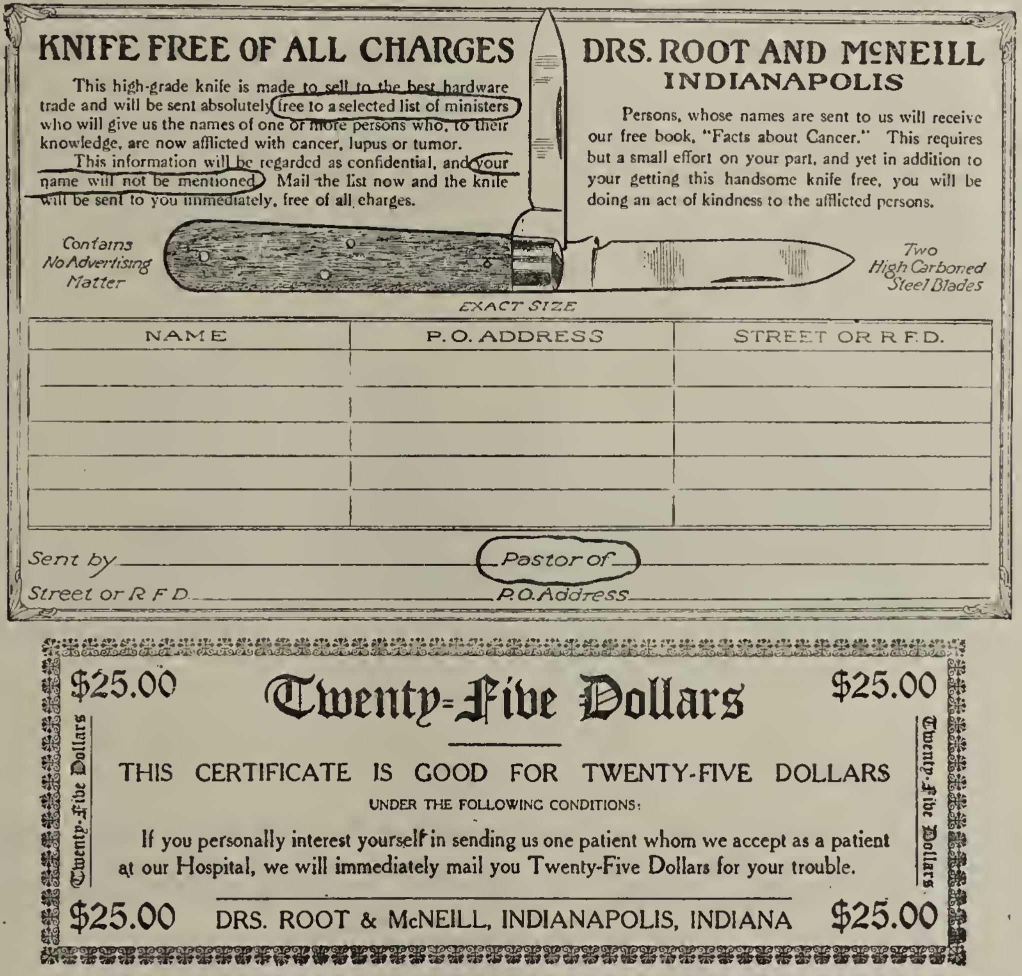
> "The enclosed letter was handed me by a patient who has an epithelioma of the face. He claims he does not know where they could have obtained his address; he brought the enclosed to me for information. What can you tell me about them?"

And this from a physician in a New York city:

> "I am enclosing a letter handed me by a patient that is practically self-explanatory. One of the mysteries in connection with this letter is how these people got his name."

While, from Nebraska:

> "I have a friend who is struggling to take care of an only sister who has been pronounced by several good men as being incurably affected with carcinoma of the breast. Recently on her own initiative she has gone to a cancer hospital in Indianapolis, Ind., conducted by Drs. Root & McNeill. They are charging her a big price and giving her lots of encouragement. In fact I have just told her that they do not think she has cancer at all, but tuberculosis of the breasts instead. They tell her that in about six months they ought to get her in pretty good shape. Now the brother is willing to mortgage his home or do anything else to help her out if there is any chance of relief, but he feels that things are not quite straight somewhere. Could you give me an idea of what kind of a place this 'cancer hospital' is?"



KNIFE FREE OF ALL CHARGES

This high-grade knife is made to sell to the best hardware trade and will be sent absolutely free to a selected list of ministers who will give us the names of one or more persons who, to their knowledge, are now afflicted with cancer, lupus or tumor.

This information will be regarded as confidential, and your name will not be mentioned. Mail the list now and the knife will be sent to you immediately, free of all charges.

DRS. ROOT AND McNEILL
INDIANAPOLIS

Persons, whose names are sent to us will receive our free book, "Facts about Cancer." This requires but a small effort on your part, and yet in addition to your getting this handsome knife free, you will be doing an act of kindness to the afflicted persons.

Contains No Advertising Matter
Two High Carboned Steel Blades
EXACT SIZE

NAME	P. O. ADDRESS	STREET OR R F D.

Sent by ________ Pastor of ________

Street or R F D ________ P. O. Address ________

$25.00 **Twenty-Five Dollars** $25.00

Twenty-Five Dollars

THIS CERTIFICATE IS GOOD FOR TWENTY-FIVE DOLLARS

UNDER THE FOLLOWING CONDITIONS:

If you personally interest yourself in sending us one patient whom we accept as a patient at our Hospital, we will immediately mail you Twenty-Five Dollars for your trouble.

$25.00 DRS. ROOT & McNEILL, INDIANAPOLIS, INDIANA $25.00

Photographic reproductions of the offers of Root and McNeill to clergymen. For the *names* of sufferers from cancer, the clergymen will receive a pocket knife; for a *"patient"* that will go to Root and McNeill, he will receive $25.00—and the victim will know nothing about it!

EVOLUTION OF LEACH'S CANCER CURE

The "Indianapolis Cancer Hospital" is the latest name for what was originally known as the "Parkview Sanatorium," and later called the "Leach Sanatorium." This business was started by Leon T. Leach mainly as a mail-order "cure" for cancer; in 1910, after Leach's business had been declared a fraud and debarred from the mails, the name was changed to "Leach Sanatorium." In 1913 the concern was incorporated with L. T. Leach as president and principal factor, his wife, secretary and treasurer, and Charles A. McNeill, vice president. In 1916 the name was again changed to its present style and McNeill became president and Charles C. Root, treasurer. Root had been in the employ of Leach for some years.

Leach, in the original conduct of his "cancer cure" did business chiefly through the United States mails, but did have a few patients go to Indianapolis for "treatment." About 90 per cent., however, of his "patients" were treated by mail. Leach got his training in cancer cure fakery as manager for his father-in-law, Quack D. M. Bye, who for years exploited the "Combination Oil Cure" for cancer and "founded a little church in Indianapolis with the money extracted from his dupes." Finally, the long arm of the United States Post Office Department reached out for Leach, analyzed his worthless cure, declared it a fraud and, in June, 1909, debarred his business from the use of the United States mails. After the issuance of the fraud order Leach changed his method of doing business and required his patients to go to Indianapolis. This permitted him to claim that he diagnosed his cases after personal examination.

The two men at present conducting the Indianapolis Cancer Hospital, Charles C. Root and Charles A. McNeill, are classmates of Leach, all three being graduated by the Medical College of Indiana, Indianapolis, in 1901. Root practiced at Fowlerton, Indiana, for some time before he settled in Indianapolis. McNeill seems to have practiced for some years in Dallas, Texas, and Sedalia, Missouri. In this connection it is worth noting that some years ago Leon T. Leach, although listed in the medical directories at Indianapolis, also exploited his "cancer cure" from Dallas, Texas. From that place he solicited physicians and asked them to refer to him cases of cancer. In so doing Leach made this offer:

> "My custom is to divide my fee with the local physician under whose supervision the case may be. In addition to this, the local physician will get his ordinary fee from the patient for waiting on the case. I get $25.00 for a month's home treatment [This was before Leach was debarred from the use of the U. S. mails.—ED.] or, if the patient comes to my establishment, I charge $100 for five weeks' treatment. I allow the physician referring the case one-third of the amount paid."

GETTING A MAILING LIST

Root and McNeill obtain the names of those who suffer from cancer, or who are supposed to be suffering from cancer, by a method that arouses as much contempt for certain members of the ministry as it does for the men themselves. They mail to clergymen a small booklet entitled "Helping Humanity," on the front cover of which appears an imposing looking church. The booklet contains a batch of testimonials of the usual "cancer cure" type with illustrations (before and after); all are alleged to be from ministers. The booklet declares that "the ministers whose photographs and testimonials follow know the merit of our treatment. . . ." It is worth noting in passing that at least one of the reverend gentlemen, whose picture and testimonial adorn the pages of this booklet, claims to have taken the treatment in 1903.

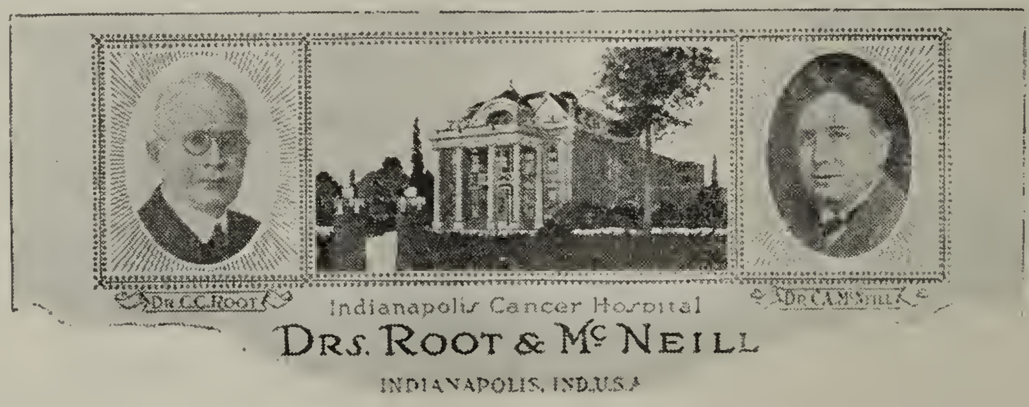
Accompanying the booklet is an offer that is an insult to the decent members of the ministry. The minister to whom it is made is asked to send in the names of any persons known to be suffering from "cancer, lupus, or tumor." Those who send in such names will receive a pocket knife, a pair of cuff buttons, a watch fob, a fountain pen, a clothes brush or some other trinket! A few years ago the New York *Tribune* referred to the premium phase of this outfit after the matter had been brought to its attention by Cyrus Townsend Brady. At that time a clothes brush was the paltry mess of pottage offered to those ministers of the gospel who would furnish material for this concern's mailing list. The *Tribune,* in commenting on the subject, said in part:

> "If any clergyman could be found so mean as to fill in this blank he would deserve to be unfrocked and publicly disgraced. A deacon who robbed the collection plate would be an aureoled saint compared to a minister who would lend his assistance to so contemptible a scheme for the sake of a cheap clothes brush."

It appears, too, that clergymen with itching palms and elastic consciences can obtain from Root and McNeill even a larger return. "Certificates" that are "good for $25.00" are sent to ministers; all that is necessary is for the minister to interest himself personally in sending a "patient" to Root and McNeill. He, the minister, then fills out the reverse side of the "certificate" giving the name and address of the individual that he has persuaded to go to the "Indianapolis Cancer Hospital" and stating when the victim will arrive in Indianapolis. "My name is not to be mentioned. This is strictly confidential." A nice business, truly!

THE LEACH "CURE"

Needless to say Root and McNeill give no hint as to the nature of their alleged cure for cancer. They do, however, publish a list of those whom they claim to have successfully treated. As many of the names published in 1922 by these men appeared in Leach's old testimonial literature, detailing "cures" going back as far as 1903, one is justified in assuming that Root and McNeill use the Leach method. At the time the federal authorities interfered with Leach's fraudulent business an analysis was made by the government chemists of the "cure." Here, in effect, is what was reported:


Dr. C. C. Root
Indianapolis Cancer Hospital
Dr. C. A. McNeill
DRS. ROOT & McNEILL
INDIANAPOLIS, IND. U.S.A.

Photographic reproduction of the letterhead used by Root and McNeill.

"Cancerol Blood Renovator." — This preparation was labeled, in part: "A Compound of Essential Oils for the Treatment of Malignant Diseases. Predigested Oils for internal administration." The federal chemists reported that the stuff contained 10 per cent. of alcohol, a little more than 16 per cent. of total solids, almost wholly sugars, no alkaloids and no oils. It had an odor resembling sarsaparilla and senega. It was not a "compound of essential oils," neither were there any "predigested oils" present.

"Cancerol."—This was nothing but cottonseed oil.

"Special Germ Killer and Disinfectant."—This was a disinfectant of the creosol type and was to be used by diluting one teaspoonful in three pints of hot water. Bacteriologic tests showed that the solution, when diluted as prescribed, had little, if any, germicidal value.

Pills.—These were colored red and sugar-coated; they were found to consist essentially of baking soda, iron (ferrous) sulphate, a small amount of red pepper and glucose.

The above comprised the "treatment" for "internal" cancer; for "external" cancer the victims received the "Cancerol Blood Renovator" and the "Pills" as described above and, in addition:

"Night Oil."—This, like "Cancerol," was found to be a small bottle of cottonseed oil.

"Day Oil."—This was a half-ounce bottle of ichthyol.

"Prescription 16."—Found to be an alcoholic preparation containing opium.

"Healing Salve."—This, according to the federal chemists, was vaseline in which were incorporated boracic acid and bismuth salts.

"De Vit-Ol."—This was a caustic paste—invariably used by the "cancer cure" quacks—and contained 34 per cent. of arsenic.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PHENOBARBITAL ("LUMINAL") MEDICATION

To the Editor:—Please answer the following questions regarding the drug phenobarbital ("luminal," phenyl-ethyl barbituric acid):

1. What is the average adult dose?
2. What are the symptoms of toxicity from the drug?
3. What are the contraindications to its use?
4. To what extent, if any, is it habit forming?
5. Is there any contraindication to its use in pregnancy complicated by epilepsy?
6. Can it be used continuously in epileptics whose convulsions are entirely controlled by comparatively small doses (1 grain three times daily)?

Richard D. Anderson, M.D., Burlington, N. J.

Answer.—1. According to New and Nonofficial Remedies, 1922, the dosage is from 0.05 to 0.3 gm., increased if necessary to 0.8 gm. The average dose is 0.1 gm. (1½ grains). A maximum dose of 0.8 gm. should not be exceeded.

2. Symptoms of phenobarbital poisoning as reported by Phillips (The Journal, April 22, 1922, p. 1199) are seve skin rashes, gastro-intestinal symptoms, and nephritis. "It has a sedative action on respiration, lessening the frequency of breathing, although the volume of each respiration is increased. It kills by respiratory paralysis" (New and Nonofficial Remedies, 1922, p. 60). It has many toxic symptoms common to barbital; its circulatory depression is more severe. Under the use of large doses (0.3 gm. or more), drowsiness may persist on the following day, while occasionally vertigo, hebetude, headache, and nausea have been noted. More marked sequelae, such as delirium, mental impairment, circulatory derangements and ataxia, have been attributed to the continuous use of large amounts.

3. It has been stated that in cases of great debility, arteriosclerosis or marked pulmonary and cardiac disease, phenobarbital should be employed only with considerable caution; it is contraindicated in nephritis.

4. "The danger of habit formation should be equivalent to that which has been attributed to barbital (veronal)" (The Journal, May 21, 1921, p. 1420). Since the foregoing was published, however, Grinker (The Journal, this issue, p. 788), says: "Phenobarbital, when taken over many years, neither causes damage to the viscera nor results in habit formation."

5. No.

6. Yes, dependent on the judgment of the physician in the individual case.

BLOCH METHOD OF DISCOVERING HEMOPHILIA

To the Editor:—Please give the Bloch method for discovering the presence of hemophilia.

E. B. Sullivan, M.D., Mount Vernon, N. Y.

Answer.—The blood is received in a titrated solution of sodium citrate (1 c.c. of blood in 4 c.c. of sodium citrate at 1:400). The dilution and calcic inactivation nullify interference from foreign substances, which is the cause of so many errors in direct observation of blood coagulation. Equal parts (0.2 c.c.) of this citrated blood are put into a series of tubes containing increasing doses of calcium chlorid (of from 0.00005 to 0.0005 gm. diluted in 4 c.c. of water until the content is isotonic with the blood). In a few hours, these tubes present shadows of coagulation, incomplete at first in the tubes containing little calcium, then more and more complete as the necessary dose of calcium for total coagulation is reached. The tube in which coagulation has begun—the threshold of coagulation—and the one in which coagulation is complete are examined. The proportion of sodium citrate and calcium chlorid contained in these tubes constitutes the "signs of coagulability." These signs are remarkably invariable in normal blood (sign 2 at the threshold, 1 at complete coagulation). The higher the coagulability the higher the signs, and inversely. Moreover, each one of the small clots in the tubes presents with minuteness the aspect of normal retractility, hyperretractility and hyporetractility, and irretractility. With this technic, Bloch asserts that he has been able to ferret out experimental and pathologic variations when other methods were unsuccessful.

ULTRAVIOLET LIGHT

To the Editor:—What is ultraviolet light and in what respect is it comparable to sunlight for therapeutic purposes?

X, New York.

Answer.—The expression ultraviolet *light* is somewhat of a misnomer in that it refers to rays beyond the range of direct visibility of the ordinary solar spectrum. These rays have a shorter and shorter wave length as one proceeds farther and farther beyond the visible violet at one end of the spectrum, whereas in the direction of the infra-red region of the spectrum the rays have longer wave lengths. The spectrum of sunlight reaches only to 290 millimicrons in the utraviolet region. The shortest wave lengths known are those of the gamma rays of radium. Such studies as have been made of the physiologic effects of rays of different wave lengths and the same energy indicate that the potency, for example, the lethal effect on micro-organisms, increases with the shorter wave lengths. Light greater than 300 millimicrons being our normal environment, it is obvious that any organism ordinarily exposed to this light and easily injured by it would have perished long ago. Light less than 300 millimicrons in wave length is an unnatural environment and produces in living cells marked and often very harmful reactions. As the effect of light is probably due to the photochemical reactions produced when light energy is absorbed, it is not surprising to find that various constituents of protoplasm begin to absorb light strongly in the neighborhood of 300 millimicrons. It is the cold invisible ultraviolet rays rather than the heat waves that produce sunburn, erythema solare; and it is by virtue of their reactivity toward cells that they acquire therapeutic potency (Oliver, E. L.: Quartz Light Therapy in Skin Diseases, The Journal, Aug. 19, 1922, p. 625). The effects secured with the chemical rays of sunlight have led to the trial of other more potent sources of ultraviolet rays, such as are produced by the iron arc and other bare metallic arcs and by the mercury vacuum tubes. The latter in particular are rich in rays of short wave lengths, but these are absorbed by the glass through which the rays suitable for illumination readily pass. Since quartz does not thus filter out the ultraviolet rays, the quartz mercury arc lamps have become an effective source of the latter for therapeutic use. The essential difference between true heliotherapy (with the sun's rays) and the therapy with special sources of ultraviolet rays, such as the quartz lamp, lies in the relatively greater potency and availability of the latter. Quartz "light" can be given in larger dosage than sunlight can, and at any time. It should be recalled, further, that window glass acts as a filter for the ultraviolet rays of sunlight.

For a review of the physiologic actions of light, the reader is referred to:

Clark, Janet H.: The Physiological Action of Light, *Physiol. Rev.* **2**: 277 (April) 1922.

Light as a Therapeutic Agent, editorial, The Journal, this issue, p. 827.

SIR RONALD ROSS

To the Editor:—Please advise me whether Major Ronald Ross, of malarial fame, is an Englishman or an American.

W. H. Bell, M.D., Decatur, Ill.

Answer.—Sir Ronald Ross of the Indian Medical Service is an Englishman. For his work, which led to effective prevention of malarial fever, he received the Nobel Prize in 1902.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, Sept. 5. Sec., Dr. Harry C. DeVighne, Juneau.

District of Columbia: Washington, Oct. 10. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

Florida: Tallahassee, Oct. 10-11. Sec., Dr. W. M. Rowlett, Tampa.

Georgia: Atlanta, Oct. 10-12. Sec., Dr. C. T. Nolan, Marietta.

Hawaii: Honolulu, Oct. 9-12. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

Idaho: Boise, Oct. 3. Director, Mr. Paul Davis, Boise.

Illinois: Chicago, Oct. 10-12. Supt. of Registration, Mr. V. C. Michels, Springfield.

Kansas: Topeka, Oct. 10. Sec., Dr. A. S. Ross, Sabetha.

Massachusetts: Boston, Sept. 12-14. Sec., Dr. Samuel H. Calderwood, State House, Boston.

Michigan: Lansing, Oct. 10-12. Sec., Dr. Beverly D. Harison, 504 Washington Arcade, Detroit.

Minnesota: Minneapolis, Oct. 3-5. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

Montana: Helena, Oct. 3. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

New Hampshire: Concord, Sept. 7-8. Sec., Dr. Charles Duncan, Concord.

New Jersey: Trenton, Oct. 17-18. Sec., Dr. Alexander MacAlister, State House, Trenton.

New Mexico: Santa Fe, Oct. 9-10. Sec., Dr. R. E. McBride, Las Cruces.

New York: Albany, Buffalo, New York and Syracuse, Sept. 25-28. Ass't, Professional Examinations, Mr. Herbert J. Hamilton, State Education, Albany.

Oklahoma: Oklahoma City, Oct. 10-11. Sec., Dr. J. M. Byrum, Shawnee.

Porto Rico: San Juan, Oct. 3. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.

West Virginia: Huntington, Oct. 10. State Health Commissioner, Dr. W. T. Henshaw, Charleston.

Minnesota June Examination

Dr. Thomas S. McDavitt, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, June 6-8, 1922. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 46 candidates examined, 45 passed and 1 failed. Fifteen candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Illinois	(1922)*	88.3
University of Minnesota	(1918) 87.3, (1921) 87.2, (1922)†	79.7, 80.6, 80.8, 83.2, 83.8, 83.9, 84.3, 84.3, 84.3, 84.6, 84.7, 85, 85.2, 85.6, 86, 86, 86.1, 86.2, 86.2, 86.2, 86.2, 86.4, 86.7, 86.9, 87.2, 87.3, 87.8, 87.9, 88, 88.3, 88.3, 88.8, 88.9, 88.9, 89.3, 90.1, 90.1, 90.8, 90.8, 91.7
Jefferson Medical College	(1921)	81.7
University of Pennsylvania	(1920)	87.1
FAILED		
Georgetown University	(1903)	69.9

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College	(1903) North Dakota, (1921)	Illinois
University of Illinois	(1920, 2)	Illinois
Drake University	(1913)	Iowa
Baltimore Medical College	(1893)	Iowa
College of Physicians and Surgeons, Baltimore	(1900)	Penna.
University of Michigan Medical School	(1920), (1921)	Michigan
St. Louis College of Physicians and Surgeons	(1905)	Illinois
Washington University	(1921)	Missouri
John A. Creighton Medical College	(1911)	S. Dakota
University of Nebraska	(1919)	Missouri
Western Reserve University	(1916)	Ohio
University of Manitoba	(1915)	N. Dakota

* This candidate has finished the medical course, and will obtain the M.D. degree after he has completed a year's internship in a hospital.

† These candidates have finished the medical course and received their M.B. degrees, and will obtain the M.D. degree after they have completed a year's internship in a hospital.

Florida June Examination

Dr. W. M. Rowlett, secretary, Florida State Board of Medical Examiners, reports the written examination held at Tampa, June 12-13, 1922. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 39 candidates examined, 25 passed and 14 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Alabama	(1913)	81.1
Howard University	(1918)	77.2
Atlanta College of Physicians and Surgeons	(1906)	78.9

Atlanta Medical College	(1916)	79.1
Emory University	(1921) 83.4, 85.6, (1922)	75.8, 87.2
University of Georgia	(1914) 77.2, (1921)	86.3
Indiana University	(1916)	84
Tulane University	(1913) 82.1, (1919) 83.5, 84, (1921)	88.6
University of Maryland	(1918)	83
Harvard University	(1921)	76.3
College of Phys. and Surgs. in the City of New York	(1895)	75.5
Jefferson Medical College	(1902)	85.2
University of Pennsylvania	(1918)	81.3
Medical Coll. of the State of South Carolina	(1912) 83, (1917)	83.2
University of Tennessee	(1916)	86.6
University of Toronto	(1916)	77.9
University of Central Spain, Madrid	(1915)*	75
FAILED		
University of Arkansas	(1911)	67.3
Atlanta College of Physicians and Surgeons	(1905)	73.1
Atlanta Medical College	(1893)	13.3
Atlanta School of Medicine	(1909)	72.3
University of Georgia	(1891) 73.7, (1911)	66.6, 71.6
Northwestern University	(1873)	74.1
College of Physicians and Surgeons, Baltimore	(1884)	60.6
Harvard University	(1894)	67.4
Dartmouth Medical School	(1893)	63.4
Long Island College Hospital	(1889)	73.4
University College of Medicine, Richmond	(1901)	64.1
University of Santo Tomas Faculty of Medicine	(1910)	68.1

* Graduation not verified.

Miscellany

ELEMENTS DETERMINING THE VALUE OF MEDICAL SERVICES: AN ENGLISH JUDGE'S VIEWS

A statement of facts and findings in a recent suit by a London physician for the recovery of the value of professional services rendered a wealthy patient appeared recently in the London letter (The Journal, July 29, p. 390). Aside from the facts and findings, however, the case is of particular interest because of the implied recognition by the presiding judge of the justice of charging persons of wealth more for professional services than is ordinarily charged patients in moderate or poor circumstances and because of his clear statement of some of the elements that may properly be considered in determining what a physician's services are worth in any particular case.

The defendant, who was sued for fees that he had refused to pay, did not dispute the plaintiff's skill and care, and the only question put in issue was whether the physician's charges were excessive. The defendant was a man of wealth, and his refusal to pay was said by the presiding judge to represent "a protest by business wealth against the theory that a rich man should pay unusual fees." After stating that he was fully satisfied that no express agreement was made between the physician and his patient as to the amount of fees, and that the physician was therefore entitled to recover only what his services were justly worth, and after commenting on the fact that the physician-plaintiff in the case "generously fulfilled the beneficent and widely exercised privilege of a doctor in charging low fees to poor patients," the presiding judge, Mr. Justice McCardie, thus analyzed the situation:

> "In these circumstances, what is the plaintiff entitled to charge? There is no rule of the profession which prescribes a standard. There is nothing in the medical profession which is equivalent to the scale of fees existing among architects, solicitors, or other professional men. Medical fees may be high or low. They vary greatly. They depend on locality, the status of the patient, the professional position and popularity of the medical man, and the general circumstances of the case. The General Medical Council has established no rule on the matter, nor has it indicated any requirement whatever as to the duty of a practitioner with regard to remuneration (*Pratt* v. *the British Medical Association*, 35 the *Times* L. R. 14 [1919] 1 K. B. 244). If the fees are not agreed on, then the requirement of the law is that the charge shall be reasonable.
>
> "On what does reasonableness depend? To a large extent the matter must be determined by considering the amounts which by general custom are paid in normal circumstances. In its substance the question is sociological. The status of the medical man and his relation to society as a whole is one of deep importance. If his social status is to be high, his fees must not be unduly low. No one will dispute that a great profession should receive an adequate remuneration. On the other hand, the scale of fees demanded may outrun the financial resources of the general public and lead to well-based protest. It happens that the defendant here is, in fact, rich. But it seems to be the practice to presume a man's obligation for fees (within, of course, limits which should not be exceeded) not so much by his actual monetary resources as by the social position that he adopts. His house rent can be estimated. His bank-book is rarely seen. He who employs the apparatus of wealth may be fixed with the presumption of wealth. Perhaps this method is not on the whole an unjust one. The vast amount of work, moreover, which is done by the medical profession, not only without reward but also with generous self-sacrifice, must not be overlooked. The high cost of living imposed on one who practices his profession in a fashionable district is also to be considered, and the long and costly education of a medical man is a factor of serious weight. I must apply these considerations to the case and the body of evidence laid before me."

The case, although apparently unimportant in itself so far as the medical profession generally is concerned, was deemed sufficiently important to be made the subject of an editorial in the London *Times* (July 5, 1922), which referred to the decision as being "eminently fair to the parties and of great practical value to the profession and to the public."

The details of English law differ from those in force in our several states, but conditions of medical practice and of judicial logic are more or less similar, and the circumstances stated by the presiding judge in explanation of the method by which he arrived at his decision in this case, doubtless may have a persuasive influence in similar cases in the United States.

DEAFNESS IN THE UNITED STATES

A census of the causes of deafness in the United States for the year 1920, taken by the Census Bureau, shows that there are 44,885 deaf-mutes in the country. Schedules mailed to this number by the bureau brought responses from 35,026, of whom 32,592 reported the cause of their deafness; of these, 13,513, or 41.5 per cent., reported that they were born deaf. Causes of deafness were grouped in the census according to the part of the ear chiefly affected. Of those for whom the cause of deafness was reported, 8,290, or about one fourth, reported causes which affect the middle ear. This group included 6,682, or 20.5 per cent., reported as due to diseases which produce ulceration of the ear, while 1,589, or 4.9 per cent., were stated to be due to diseases which do not cause ulceration. Nearly one fifth, 6,429, or 19.6 per cent., were reported as deaf from causes which affect the internal ear. Those comprise chiefly 5,976, or 18.3 per cent., who were stated to be deaf from causes which affect the hearing nerve, and 272, or 0.8 per cent., deaf from diseases which affect the labyrinth of the ear. Of the specific diseases reported as causing deafness, scarlet fever accounted for 3,346, or 10.3 per cent.; meningitis, together with "brain fever," was reported by 4,551, or 14 per cent.; typhoid fever accounted for deafness in 642 cases, or 2 per cent.; measles was reported by 1,083, or 3.3 per cent., and whooping cough by 636, or 2 per cent. of those reporting cases. Infantile paralysis, which was reported by only 0.2 per cent. for 1910, was the stated cause of deafness for 236, or 0.7 per cent. of those reporting. This notable increase was due to the severe epidemics of this disease that have occurred in recent years.

CHILDREN IN INDUSTRY

The total number of children from 10 to 15 years of age engaged in gainful occupations in the United States as of Jan. 1, 1920, was 1,060,858, comprising 714,248 boys and 346,610 girls, according to the Census Bureau. The boys reported as gainfully occupied constituted 11.3 per cent. of the total of 6,294,985 boys aged from 10 to 15 years, and the girls reported as gainfully occupied represented 5.6 per cent. of the 6,207,597 girls within the same age limits. The total number of children gainfully occupied was only slightly more than half as large in 1920 as in 1910, the decrease being 46.7 per cent. The gainfully occupied children reported as engaged in agriculture, forestry and animal husbandry number 647,309, and those employed in manufacturing and mechanical industries, 185,337. These two groups constituted

61 and 17.5 per cent., respectively, and together embraced nearly four fifths of the total number of gainfully occupied children. The textile industries employed 54,649 children, or nearly three tenths of the total number reported for manufacturing and mechanical industries generally.

Book Notices

A TEXTBOOK OF CLINICAL PERIODONTIA. A Study of the Causes and Pathology of Periodontal Disease and a Consideration of Its Treatment. By Paul R. Stillman, D.D.S., Instructor in Periodontia, Columbia University, and John Oppie McCall, A. B., D.D.S., Instructor in Periodontia, Columbia University. Cloth. Price, $3.50. Pp. 240, with 79 illustrations. New York: The Macmillan Company, 1922.

This book consists of six parts, on relation to the basic sciences, the causes of periodontoclasia, the therapeutics of periodontia, the diagnosis of periodontal disease, types of periodontoclasia, and technical procedures. Though one may not feel ready to accept all its teachings, the authors must be given credit for much thought, study and originality in its production. The writers do not assume credit for all of the new nomenclature proposed, giving credit in the greater part for this to a committee on nomenclature composed of members of the American Academy of Periodontology. Many new words have been coined to supplant certain ones in common use. The terms pyorrhea alveolaris and Riggs' disease have never been satisfactory to the student, and efforts have been made by writers to better the nomenclature of pericemental diseases; but as yet none has been entirely accepted by the profession at large. We may be pardoned for expressing doubt that the new names offered in this book will be more satisfactory than those offered by some other writers. While credit must be given for the attempt to establish a better nomenclature, still the authors must not take it too much to heart if the profession does not accept such terms as "periodontoclasia" as a name for the disease under consideration, or "apoxemena" for the deposits on the roots of teeth, and "apoxesis" for the mechanical removal of such deposits, and polishing the roots of teeth. "Ulatrophia," "alveoloclasia" and "pericementoclasia" are some of the other terms used. In Barker's book, "Endocrinology and Metabolism," Hoskins says (page 4): "A fairly complex terminology has been developed in the field of endocrinology and one which, to the casual reader, is likely to give a false sense of security regarding the fundamental data to which it pertains. That the nomenclature has become relatively over-extensive has been deplored by Gley and others." This is equally true in the dental field.

Under the heading "The Cell and the Tissues," much is given that could well be deleted, since the facts are well known to those who would read such a book. In the chapter on anatomy it is stated that mesial drifting of molars due to loss of approximal support usually causes the distal cusp to elongate. Of course the authors do not mean to convey the idea that the cusps of teeth grow after they are completely formed. Colloquially this may answer, but in a scientific book greater accuracy of expression is expected. The author defines traumatic occlusion as an occlusal relation which is supposed to produce a pathologic condition in the peridental membrane. The term would seem to be open to criticism, as the adjective "traumatic" does not relate to the occlusion but to the peridental membrane. From the term itself a traumatic occlusion might be supposed to mean an occlusal relation of the teeth that had been modified by trauma, rather than an occlusal relation capable of producing injury to some other tissue. It is probable that any occlusal relation may produce injuries if abnormally used.

The positive statement made in the book that the dental pulp supplies a part of the nourishment to the cellular portion of the cementum has not as yet been accepted by some of the best histologists. No mention is made of the lymphatics in the pericementum. Noyes has definitely shown their existence. *Serumal* calculus is changed to *serumnal* calculus. The statement that gum recession which follows the placing of a crown is due to "traumatic occlusion" rather than to the irritation caused as a result of a badly fitted crown, cannot be accepted. That poor occlusion plays a part in absorption is doubtless true; but poorly fitting crowns which afford food traps must be an important factor in pocket formation, since such pockets eventually lead to gum and pericemental absorption.

While gutta percha is tolerated in the jaws when removed from the oral flora, it is of doubtful value when placed, as recommended by the authors, in the treatment of "pericementoclasia" in the bifurcations between the roots of molar teeth, the roots of which have been exposed by destruction of the gums, pericementum and alveolar process.

In speaking of the investigations of Miller, Black, Talbot and others, it is stated that while their work is important, their "lack of sufficient comprehension of etiology has influenced their attitude as regards the possibility of repair!"—that is, the repair of the pericemental tissues.

In the recommendations for treatment one finds little other than the scraping and polishing of the roots of affected teeth, correction of "traumatic occlusion" and correct brushing by the patient.

Those having had much experience can cheerfully acquiesce in the statement made by the authors that diagnosis based on roentgenograms alone is unsafe.

The sequences of the chapters might be improved. The illustrations are good and the diagrammatic drawings accompanying the pictures made from photomicrographs are helpful.

GEOGRAFIA MEDICA DE LA ISLA DE MARGARITA. Por el Dr. Andres Sánchez, Doctor en Medicina y Cirujia de la Universidad Central de Venezuela. Con un Prólogo de Francisco A. Rísquez, Director y Profesor de la Escuela de Medicina de Caracas. Paper. Pp. 71, with 10 illustrations. Caracas: Tip. Americana, 1921.

This study in medical geography is one of the best recent efforts in the great field which Drake raised to such a height in this country. Margarita, or Paraguachoa, to give its Indian name, is a little island of 440 square miles, off the north coast of Venezuela, with a population of about 60,000 Indians, Spaniards and half castes with a touch of negro and Syrian blood. Its chief industry is pearl fishing, which amounts to millions of dollars each year, other industries being goat raising, fishing, and magnesite mining by an American firm. In the first part of the book, dealing with geography, history, ethnology and climatology, the author has sketched a vivid picture of the mild climate, beautiful beaches, tasty tropical fruits, varied fishes and turtles, man-eating sharks, brief storms, arid soil, the peculiar phosphorescent "Turbio" and natural healthfulness, which have gained for Margarita its nickname of "natural sanatorium." In the second part, devoted to nosography, he dwells on the diseases mostly prevalent, such as typhoid fever, tuberculosis, harelip, "Macanao fever" and tetanus neonatorum, and points out the remedy. Americans who travel all the way to Gauguin's southern seas might do much worse than take an eight-day sail to Venezuela to see Dr. Sánchez' paradise.

HYGIENE OF WOMEN AND CHILDREN. By Janet E. Lane-Claypon, M.D., D.Sc., Dean and Lecturer on Hygiene in the Household and Social Department, King's College for Women. Cloth. Price, $5. Pp. 354, with 71 illustrations. New York: Oxford University Press, 1921.

This book considers the hygiene of women and children and is intended for nurses and helpers, though the authoress hopes that it will be of assistance to all who are interested in health. It discusses a variety of subjects of interest to the people of the British Isles, though the rules of hygiene are of universal application and are modified in civilized countries only by social and economic conditions. The chapter on the home contains many wholesome suggestions, and is interestingly written. The chapters on food should be of special help to nurses and dietitians. Extensive tables which give the percentage composition of foodstuffs and the approximate cost for each thousand calories are included. The volume adds nothing new to scientific knowledge, but it will serve as a practical guide and a reference book containing many useful facts in relation to the hygiene of women and children.

Medicolegal

Validity of License Tax on Physicians

(City of Redding v. Dozier (Calif.), 206 Pac. R. 465)

The District Court of Appeal of California, Third District, in affirming a judgment in favor of the plaintiff city for $10, which was alleged to be due as a license tax imposed under an ordinance adopted by the city, says that the defendant was a physician and surgeon residing and practicing in the city and having his office at his place of residence. The city is one of the sixth class. The ordinance was entitled "An ordinance to license various classes of business, shows, exhibitions and games within the city of Redding for the purpose of revenue and regulation, and fixing the rates of license tax upon the same and providing for the collection of the same by suit or otherwise." Section 1 provided that every person, firm, etc., who had a fixed place of business, and engaged in, carried on, or conducted any business, exhibitions or games described in this ordinance, within the city, should pay a license therefor in the amount thereinafter specified. Section 2 provided that the licenses to be paid, the persons who should be required to pay the same and the business on which the same were to be paid were, besides others, "(29) Lawyers, doctors and dentists, $5 per quarter." The principal question raised was whether the city had authority to impose the tax. The court thinks that it had, under the statutes of the state. In *Ex parte Johnson* (Calif. App.), 190 Pac. 852, it was held that a city may impose a license tax for carrying on the business of a lawyer at a fixed place of business. In *Ex parte Galusha,* 184 Calif. 697, 195 Pac. 406, the Supreme Court of California reached the same conclusion. It must be held that the same rule applies to a physician and surgeon.

The complaint in the present case alleged that the "defendant was and now is a doctor practicing medicine and having his office and principal place of business in the city of Redding." The defendant argued that the allegation as to place of business was not the equivalent of a "fixed place of business." The court deems the criticism hypercritical. The defendant testified that he had a large practice; that he received patients at his residence and performed operations there; that he regularly kept patients at his residence for treatment when they required close observation; that there was no room in his residence designated as an office, but that he treated his patients in the living room; and that he treated most of his patients at their homes. The foregoing evidence, coming from the defendant, the court thinks showed conclusively that he had a fixed place of business and that the alleged defect in the complaint, if conceded to be a defect, could not have prejudiced his rights.

Hearing was denied by the Supreme Court of California.

When Is One Rendered Not in "Good Health" by Influenza or Precedent Conditions?

(Fleckenstein v. Provident Insurance Co. (N. D.), 186 N. W. R. 91)

The Supreme Court of North Dakota, in affirming a judgment in favor of the plaintiff on a policy of life insurance, says that her husband, a farmer, aged 24, was apparently in perfect health when he signed the application for insurance, Oct. 21, 1918, and when the policy was issued, October 30, and so continued until the evening of November 8, when the policy was delivered, except that he complained of a headache in the evening of November 6 and during the day of November 7. During the evening of November 8, he developed a fever; the following day he had a high fever and was confined in bed a part of the time. On the afternoon of November 10, he died of bronchopneumonia, following an attack of influenza. In the application for insurance, there was a stipulation that the policy should not take effect unless it was delivered to and received by the insured while in good health. All of the evidence concerning his good health subsequent to the issuance of the policy and until his death was dependent solely on lay testimony, unaided by that of medical science.

On the record, when was the insured not in good health? When does an attack of influenza, or the existence of bodily conditions precedent thereto, render one not in good health? Apparently, if the court were to speak from statistics and the visual and mental knowledge forcibly brought to its attention during the epidemic of influenza in 1918, the disease was no respecter of persons. It attacked those apparently physically well and strong as readily as those otherwise. It attacked the young and vigorous in perhaps even greater numbers than the old, the weak. One might be apparently perfectly well today, and on the morrow, attacked by the disease, nigh unto death. Does a headache render one not in good health? Nature's signals concerning one's bodily conditions are constantly being given. Perhaps, speaking out of experience and medical lore, not yet too definitely nor exactly known concerning influenza, the court would readily say as a matter of fact, that the insured must have been necessarily in poor health on November 8, because then the disease was at work, and he died on the tenth. If the matter was to be determined on the record and by lay testimony, was not the question made one of fact for the jury, a question on which the minds of reasonable men might differ? On this record the court so believes and determines.

Cost of Tours to Regain Health Not Recoverable

(San Antonio Machine & Supply Co. v. McKinley (Texas), 239 S. W. R. 340)

The Court of Civil Appeals of Texas, in reversing a judgment that plaintiff McKinley obtained for damages for personal injuries alleged to have been caused by the negligence of the defendant company, very briefly says that the railroad fare paid by plaintiff to Del Rio from San Antonio should not have been considered as a part of the damages. Damages cannot be measured by amount paid out for tours to regain health.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Minneapolis, Sept. 19-23. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Sec'y.
American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Albany, N. Y., Sept. 19-21. Dr. James E. Davis, 11 Josephine Ave., Detroit, Secretary.
American Association of Railway Surgeons, Chicago, Oct. 18-20.
American Child Hygiene Association, Wasbington, D. C., Oct. 12-14. Miss G. B. Knipp, 111 Cathedral St., Baltimore, Md., Secretary.
American Electro-Therapeutic Association, New York, Sept. 19-22. Dr. Richard Kovacs, 223 E. 68th St., New York, Registrar.
American Public Health Association, Cleveland, Ohio, Oct. 16-19.
American Roentgen Ray Society, Los Angeles, Sept. 12-16. Dr. H. E. Potter, 122 S. Michigan Ave., Chicago, Secretary.
Association of Military Surgeons of the United States, Washington, D. C., Oct. 12-14. Col. James Robb Church, M. C., U. S. Army, Medical Museum and Library, Washington, D. C., Secretary.
Colorado State Medical Society, Colorado Springs, Oct. 3-5. Dr. F. B. Stephenson, Metropolitan Bldg., Denver, Secretary.
Delaware State Medical Society, Dover, Oct. 10. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.
Indiana State Medical Association, Muncie, Sept. 27-29. Dr. Charles N. Combs, Terre Haute, Secretary.
Kentucky State Medical Association, Paducah, Oct. 16-19. Dr. J. A. McCormack, 532 W. Main St., Louisville, Secretary.
Medical Association of the Southwest, Hot Springs, Ark., Oct. 4-6. Dr. W. H. Bailey, 115 West 21st Street, Oklahoma City, Okla., Sec'y.
Minnesota State Medical Association, Minneapolis, Oct. 12-13. Dr. Carl B. Drake, Central Bank Building, St. Paul, Secretary.
Mississippi Valley Medical Association, Rochester, Minn., Oct. 10-12. Dr. Henry Enos Tuley, 244 Francis Bldg., Louisville, Ky., Secretary.
Missouri Valley, Medical Society of the, St. Joseph, Mo., Sept. 21-22. Dr. Charles W. Fassett, 115 E. 31st St., Kansas City, Mo., Secretary.
Nevada State Medical Association, Reno, Oct. 6-7. Dr. Horace J. Brown, Goldfield, Secretary.
Pacific Coast Oto-Ophthalmological Society, Salt Lake City, Sept. 14-16. Dr. Edward D. LeCompte, Boston Bldg., Salt Lake City, Utah, Sec'y.
Pennsylvania, Medical Society of the State of, Scranton, Oct. 2-5. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.
Vermont State Medical Society, Burlington, Oct. 12-13. Dr. W. G. Ricker, St. Johnsbury, Secretary.
Washington State Medical Association, Tacoma, Sept. 5-6. Dr. C. H. Thomson, 508 Cobb Bldg., Seattle, Secretary.
Wisconsin, State Medical Society of, Green Lake, Sept. 6-8. Dr. Rock Sleyster, Wauwatosa, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

August, 1922, **24**, No. 2

*Basal Metabolism of Prematurity. II. Relation of Basal Metabolism to Caloric Intake and Weight Curve. F. B. Talbot, W. R. Sisson, M. E. Moriarty and A. J. Dalrymple, Boston.—p. 95.
*Influenzal Meningitis. T. M. Rivers, Baltimore.—p. 102.
*Studies of Nephritis in Children. I. Nephrosis. H. Schwarz and J. L. Kohn, New York.—p. 125.
Oral Disorders in Pediatrics. S. A. Cohen, Boston.—p. 160.
Epidemic of Streptococcus Hemolyticus Septicemia. L. H. Smith, Portland, Ore.—p. 171.

Basal Metabolism of Prematurity.—The basal metabolism of seven of twenty-two premature infants studied by Talbot et al. in its relation to the caloric intake and the weight curves was strikingly low. They did not gain in weight until they were able to digest approximately 200 calories in the day. The only food completely assimilated to accomplish this was human milk. A relatively large proportion of the food intake goes to form new body tissue. The large excess of the caloric intake over the basal metabolism was necessary because of the relatively greater amount of growth essential for the normal development of these babies.

Influenzal Meningitis.—The records of 197 cases of influenzal meningitis are reviewed by Rivers and twenty-three new cases are reported. Seventy-nine per cent. of cases occurred in patients under 2 years of age. The mortality in 220 cases was 92 per cent. Of the seventeen patients who recovered twelve were 2 years of age or older. From the case records it is possible to say that the meningitis might have been primary in the majority of instances. The disease is produced by a group of influenza bacilli which are closely allied culturally and serologically. Treatments of various kinds have been used, but as far as can be determined none has accomplished much.

Nephritis in Children.—Schwarz and Kohn's treatment of these patients is to keep them in bed while they manifest edema, place them in the best hygienic surroundings, on an absolutely salt free diet, with a normal amount of fat and carbohydrate and an amount of protein somewhat in excess of the normal and a fluid intake almost that of the normal. If this does not suffice, they have added thyroid extract in increasing amounts. As far as a cure of the disease is concerned, the reduction of the albumin in the urine, the cholesterin and fat in the blood, this the authors have been unable to accomplish.

American Journal of Physiology, Baltimore

July, 1922, **61**, No. 2

*Effect of General Excitement and of Fighting on Some Ductless Glands of Male Albino Rats. T. Uno, Philadelphia.—p. 203.
Studies on Conditions of Activity in Endocrine Glands. XI. Further Evidence for Reflex and Asphyxial Secretion of Adrenin. W. B. Cannon and R. Carrasco-Formiguera, Boston.—p. 215.
"All-Or-None" Principle Applied to Mammalian Nerves and Reflex-Arcs. J. M. D. Olmsted and W. P. Warner, Toronto.—p. 228.
Studies on Alkaligenesis in Tissues. II. Ammonia Production in Muscle During Contraction. O. P. Lee and S. Tashiro, Cincinnati.—p. 244.
Production of Suprarenal Discharge by Piqûre. R. Carrasco-Formiguera, Boston.—p. 254.
Action of Ultraviolet Rays on Arbacia Eggs, Especially as Affecting Response to Hypertonic Sea Water. R. S. Lillie and M. L. Baskervill, Cleveland.—p. 272.
*Influence of Hydrogen Sulphid on Respiration. H. W. Haggard and Y. Henderson and T. J. Charlton, New Haven, Conn.—p. 289.
Effects of Prostate Substance on Metamorphosis of Intestine of Frog Tadpoles. R. W. Hegner, Baltimore.—p. 298.
Studies on Mechanism of Increased Metabolism in Hyperthyroidism. J. Aub, E. M. Bright and J. Urdil, Boston.—p. 300.
Relative Growth of Individual Boston School Boys. W. T. Porter, Boston.—p. 311.
*Effect of Suprarenalectomy on Total Metabolism of Cat. J. C. Aub, J. Forman and E. M. Bright, Boston.—p. 326.
Metabolic Effect of Suprarenalectomy on Urethanized Cat. J. C. Aub, E. M. Bright and J. Forman, Boston.—p. 349.
Preliminary Dilatation a Phase of Pupillary Light Reflex. J. Bryne, New York.—p. 369.
Calcium Phosphate Metabolism in Diagnosis of Rickets. J. F. McClendon, Minneapolis.—p. 373.
Alkaline Reserve of Blood of Fish in Relation to Environment. E. B. Powers, Lincoln, Neb.—p. 380.

Effect of Excitement on Ductless Glands.—Forty-one male albino rats, stimulated and fighting for from one to six hours, were examined by Uno to determine whether there was a modification in the weight, the water content and the action of the extracts of the thyroid, suprarenals and hypophysis. The results for the thyroid and the suprarenals were entirely negative. The results for the hypophysis were positive. After from three to six hours' stimulation and fighting, the hypophysis increased in weight, but no significant change in the percentage of water was found. The extracts of the test glands caused a contraction of the intestinal strip—the response characteristic for the glandular portion of the hypophysis—while that of the control glands gave the usual relaxation. This modification of the extract followed stimulation alone or fighting alone—but did not appear until after one hour of excitement. The rhythmic contractions of the intestine always persisted under the test extract.

Influence of Hydrogen Sulphid on Respiration.—Haggard et al. state that sodium sulphid (2 mg. per kilo) when injected intravenously liberates hydrogen sulphid in the blood and induces hyperpnea followed by apnea vera. This does not occur (with the exception among many experiments) after section of the vagi. Apparently, therefore, the stimulating action of sulphid on respiration is chiefly due to irritation of the afferent endings of the pulmonary vagi. On the respiratory center small amounts of sulphid are generally without perceptible effect. Larger amounts paralyze respiration.

Effect of Suprarenalectomy on Metabolism. — Forty-eight hours after the removal of both suprarenal glands in the cat, Aub et al. found a reduction of about 25 per cent. in the total metabolism without marked change in the relative percentages of foodstuffs burned. Control experiments on completely fasting and operated cats show a fall in metabolism less than half the magnitude of that seen after suprarenalectomy. Removal of one suprarenal causes a temporary fall, but a return to normal metabolism. Denervation of the remaining suprarenal is followed by a slow fall of the metabolic rate. The theory is suggested that whereas the thyroid is the slowly acting regulator of the metabolic mechanism, some quick changes of short duration may be controlled by variations in the secretion of the suprarenals.

American Journal of Tropical Medicine, Baltimore

July, 1922, **2**, No. 4

*Leukocyte Formula in Malaria. J. M. Swan, Rochester, N. Y.—p. 283.
*Effect of Quinin on Growth of Malaria Plasmodia in Vitro. C. C. Bass, New Orleans.—p. 289.
*Bacteriology of Leprosy; Diphtheroid in Leprosy. E. L. Walker, San Francisco.—p. 293.
Beriberi in Garrison at San Juan, Porto Rico. B. K. Ashford.—p. 305.
*Relation Between Syphilis and Yaws as Observed in American Samoa. J. C. Parham, Washington, D. C.—p. 341.
*Should Gangosa Be Removed from Nomenclature of Tropical Medicine? W. M. Kerr.—p. 353.
Sir Patrick Manson: Father of Tropical Medicine. E. J. Wood, Wilmington, N. C.—p. 361.

Leukocyte Formula in Malaria. — Sixty-eight differential counts in fifty-five cases were made by Swan: twenty-eight cases of benign tertian malaria; ten cases of estivo-autumnal malaria; three cases of quartan malaria; eleven cases of malaria in which parasites had disappeared from the peripheral blood; and three cases in which examinations were made before the occurrence of clinical malaria; during malarial paroxysms, and at varying periods after the paroxysms had ceased. Ten per cent. is accepted as the high normal percentage of large mononuclear leukocytes in the peripheral blood. On this basis there was an increase of the large mononuclear leukocytes in the peripheral blood in thirty out of forty-four counts in cases with malarial parasited in the blood, or 68.1 per cent. In cases without malarial parasites in the peripheral blood there were seven in which there was an increase of the large mononuclears, out of twelve counts, 58.3 per cent. In the cases in which counts were made before malarial paroxysms were observed, during malarial paroxysms, and after the paroxysms had ceased, twelve counts were made. There was a large mononuclear increase at the time of paroxysm in two; slight in one (11.6 per cent.); large in the other (33.2 per cent). In the third case there was no increase. This patient was also suffering from sprue. A large mononuclear increase, therefore, is constant in malaria neither in the acute stage of the disease nor in carriers. But if in a suspected case of malaria or of recent malaria there is an increase of the large mononuclear leukocytes, it seems reasonable to assume that the patient has or has had malaria.

Effect of Quinin on Growth of Malaria Plasmodium.—The results obtained by Bass show that quinin in therapeutic proportions prevents the growth of malaria plasmodia in vitro, and, in fact, kills them.

Bacteriology of Leprosy.—The pleomorphic, partly acid-fast diphtheroid of Bordoni-Uffreduzzi and other authors was cultivated by Walker more or less constantly from nasal and other open lesions of lepers, as well as from nonulcerating leprous lesions. This diphtheroid differs in its large size, extreme pleomorphism, peculiar colonies, carbohydrate fermentations and partial acid-fastness from all diphtheroids from other sources adequately described in the literature. A search for the possible saprophytic source of this diphtheroid from leprous lesions has disclosed that it is apparently identical with a diphtheroid cultivable from smegma praeputii, which is probably a cultural form of the pleomorphic and facultative acid-fast *Bacillus smegmatis.*

Relation Between Syphilis and Yaws.—No cases of syphilis were seen by Parham in native Samoans during a period of two and one-half years' service in a hospital which was the only source of medical treatment for a population of more than 7,000 people. Physical examination of more than 3,000 Samoans during a period of six weeks failed to disclose evidence of syphilis. It is believed that the facts cited justify the conclusion that the Samoan is not capable of infection by *Treponema pallidum,* at any rate by the strains of the treponeme that cause syphilis, as known in the Caucasian. Various authors refer to Charlouis' experiment of successfully inoculating a native suffering from typical yaws with syphilis and state there have been many instances of the development of yaws naturally and by inoculation in those affected with syphilis. Considering the great difficulty of differentially diagnosing syphilitic lesions of the skin, Parham submits that it is unscientific to attempt to differentially diagnose syphilitic and frambesial lesions which are alleged to have occurred in the same individual. In Parham's opinion, the lack of ancestral treatment, combined with the difference in personal habits, explains the clinical (frambesial) habitus of syphilis in these natives. When they take on European habits, clothing, and treatment, then tropical yaws begins to appear more and more as ordinary syphilis. Yaws may be defined, then, as "stone age syphilis." At any rate, in human beings it seems to immunize to syphilis, and if this observation is correct, the last differential point supporting the duality theory falls to the ground. If the natives do not have syphilis, then, why do they not have it? They must be immune to it. The only known protection against syphilitic infection is the actual presence of *Treponema pallidum* in the body at the time the infecting contact is made, and since contact between Samoans and Caucasians has existed for two hundred years, the conclusion is drawn that the Samoan is protected from syphilis by infection with *T. pertenue,* which is doubtless a strain of *T. pallidum.*

Gangosa Is Late Syphilis or Late Yaws.—Kerr urges the disuse of the term gangosa, and to place the ulcerations which the term was employed to describe into the category of late syphilis or late yaws.

Annals of Surgery, Philadelphia

July, 1922, **76**, No. 1

*Intramuscular Administration of Sodium Citrate, New Method for Control of Bleeding. H. Neuhof and S. Hirshfeld, New York.—p. 1.
*Factors Which Influence Longevity in Cancer. W. C. MacCarty, Rochester, Minn.—p. 9.
Fatal Outcome of Certain Cases of Staphylococcus Infections of Face and Lips. W. Martin, New York.—p. 13.
*Hemangiomas of Gastro-Intestinal Tract. E. S. Judd and F. W. Rankin, Rochester, Minn.—p. 28.
Modification of Kader Operation Based on Thirty-Two Gastrostomies. T. A. Shallow, Philadelphia.—p. 35.
Treatment of Acute Perforations of Stomach and Duodenum with Reference to Gastro-Enterostomy. A. O. Wilensky, New York.—p. 38.
Duodenal Diverticula: Report of Four Cases. W. A. Downes, New York.—p. 43.
*Tumors of Kidney in Infancy and Childhood. C. G. Mixter, Boston.—p. 52.
Intraperitoneal Rupture of Bladder: Report of Cases. T. T. Thomas, Philadelphia.—p. 64.
Bony Features of Posterior Congenital Dislocation of Shoulder. T. W. Todd, Cleveland.—p. 70.
Fractures of Capitellum and Trochlea: Three Cases. M. C. Lindem, Chicago.—p. 78.
Injury of Limbs Due to Back-Fire. A. H. Bizarro, London, Eng.—p. 83.
*Transplantation of Entire Fibula in Cases of Loss of Tibia from Osteomyelitis. W. R. MacAusland and A. F. Sargent, Boston.—p. 91.
Fibrous Tumors of Foot. M. Thorek, Chicago.—p. 101.
Surgical Treatment of Uterine Prolapse: End Result in Thirty Cases. J. M. Hundley and J. M. Hundley, Jr., Baltimore.—p. 106.
New Mechanics in Bone Injuries. H. C. Masland, Philadelphia.—p. 110.

Sodium Citrate Intramuscularly to Control Bleeding.—The administration of sodium citrate intramuscularly, intravenously, or subcutaneously, Neuhof and Hirschfeld noted, results in prompt and pronounced shortening of coagulation and bleeding time. This is a hitherto unrecognized pharmacologic action of the drug. The shortened coagulation time is of from two to three hours' duration, with gradual return to the normal within from twenty-four to forty-eight hours. The sodium citrate curve occurs not only in persons with normal coagulation and bleeding time, but also in those in whom there is pathologic prolongation, notably in jaundice. It does not occur in blood diseases characterized by blood platelet deficiency—hemophilia and purpura. These diseases appear to comprise the sole contraindication to the use of sodium citrate for the control of bleeding. The dose for intramuscular administration of sodium citrate is 9 gm. for adults. A 30 per cent. solution is used, 15 c.c. being injected into each buttock, preceded by procain. The intramuscular method is free from danger, no untoward results having been noted in 200 cases. Internal as well as surgical bleeding, hemorrhage not only in normal persons, but also in those with prolonged coagulation time are decisively controlled by sodium citrate injections in the great majority of cases. These are cases of oozing surfaces or hemorrhage from small vessels, for control of hemorrhage from large vessels cannot be expected with the dosage of the drug at present employed. The method is said to offer as well a large sphere of usefulness as a prophylactic measure against oozing at operation, especially in cases in which much bleeding is anticipated.

Factors Influencing Longevity in Cancer.—Specimens were studied by MacCarty to determine the frequency and possible influence of lymphocytic infiltration, fibrosis, hyalinization and cellular differentiation on postoperative longevity. An examination of the facts revealed that the average length of postoperative life is greater when the factors are present singly or in combination. Differentiation and hyalinization apparently play the greatest rôle in influencing the longevity.

Hemangiomas of Gastro-Intestinal Tract.—At the Mayo Clinic three patients with angioma of the stomach and one with angioma of the duodenum have been operated on in the past two years; two of the patients were young, and two were of cancer age. The advanced age of these two patients and the roentgen-ray findings, similar to those in malignancy, suggested inoperable malignant lesions. In all cases the tumor was removed and operation was followed by an excellent immediate and late result.

Tumors of Kidney in Children.—Mixter emphasizes the frequency of malignant tumor of the kidney region in infancy, the insidiousness of its onset, and the necessity of its early recognition, as the tendency to recurrence is so great that only by its early surgical removal can a cure be expected. He analyzes twenty-seven cases. In striking contrast to the adult, hematuria is rare, and there are no early symptoms. Hematuria occurred only twice in these cases, and microscopical evidence from the sediment was obtained only seven times. Listlessness, malaise, loss of weight, diarrhea or constipation, and sometimes vomiting is noted by the parents, but almost invariably the symptom that brings the child to the doctor is abdominal distention or the actual discovery of the tumor by the parents. In other words, there are no early symptoms. Pain or abdominal discomfort was present in 50 per cent. of the cases; usually it is dull and dragging and rarely sufficient to excite suspicion. A slight elevation of temperature of from 1 to 3 degrees is frequent. In nearly two-thirds of the cases, a month, and frequently much more, elapsed after the onset of symptoms which were manifestations of advanced disease, before the child was admitted to the surgical service. The children with one exception were all under 5 years of age, the average age of those with embryoma being 3½ years and those with neuroblastoma being 1¾ years. Twenty-three patients were operated on and four cases came to necropsy without surgical interference. Nephrectomy in fourteen cases gave an operative mortality of 35 per cent. Nine cases of simple exploration were followed by 44 per cent. mortality. Of the nine cases surviving nephrectomy, with one exception all showed rapid recurrence, death occurring in from four months to one and one-half years. It is interesting to note that the single exception differed in no way either clinically or pathologically from the other cases of embryoma. The tumor was of large size and no postoperative radiation or serum was given. The child is alive and well at the present time, three and one-half years following nephrectomy. Of the twenty-seven cases, no pathologic report was obtained in four, five were neuroblastomas, one was small spindle cell sarcoma and the rest were embryomas.

Transplantation of Entire Fibula.—MacAusland and Sargent report four cases and summarize the literature. The functional result was excellent in each of the authors' cases.

Boston Medical and Surgical Journal

Aug. 3, 1922, **187**, No. 5

Endocrine Therapy. W. B. Cannon, Boston.—p. 163.
Use and Abuse of Thyroid. J. H. Means, Boston.—p. 164.
Suprarenal Therapy. C. H. Lawrence, Boston.—p. 168.
Parathyroid Deficiency and Its Treatment. F. H. Lahey, Boston.—p. 170.
Pituitary Gland Therapy. W. R. Ohler, Boston.—p. 173.
Epidermophytosis. A. M. Greenwood, Boston.—p. 176.
*Automobile Exhaust Gas as Health Hazard. Y. Henderson, New Haven, Conn.—p. 180.
Rupture of Ovary with Massive Hemorrhage as Complication of Acute Appendicitis. H. S. Penn, Lawrence, Mass.—p. 183.

Aug. 10, 1922, **187**, No. 6

Use of Pathologic Material in Small Hospitals. J. F. Kenney, Pawtucket, R. I.—p. 195.
What Medical and Surgical Statistics Should Be Published in Annual Hospital Report? D. Cheever, Boston.—p. 199.
Place of Full Time and Part Time Physician in Modern Hospital. R. I. Lee, Cambridge, Mass.—p. 204.
Treatment of Asthma. F. M. Rackemann, Boston.—p. 211.
Violet Ray in Treatment of Variola. P. Romeo, Bridgeport, Conn.—p. 215.

Automobile Exhaust Gas as Health Hazard.—Carbon monoxid is practically the sole toxic constituent in exhaust gas when pure gasoline is burned. Gasoline, as sold in some places, is mixed with coal distillate, which contains benzol, and produces a correspondingly more toxic exhaust gas. Gasoline vapor itself has been found to have qualities somewhat like those of ethyl ether. It is an anesthetic, but the stage of excitement passes through a very narrow region of full anesthesia into convulsions ended by death. In the toxicity of exhaust gas unburned gasoline is not an appreciable factor. Workmen are, however, sometimes overcome when they go into a large tank in which gasoline has been stored. Benzol is much more toxic. Henderson's investigations have led on to the study of the treatment of carbon monoxid poisoning. Obviously, the first step must be the restoration of spontaneous breathing, if it has stopped. For this purpose the manual prone pressure method of artificial respiration is to be recommended above any apparatus, for it is as effective, or even more effective, than apparatus, and it can be applied instantly, while the bringing and adjustment of apparatus involves delay. A delay of even a few minutes may sometimes be fatal. The next step, after spontaneous breathing, must obviously be to accelerate the elimination of carbon monoxid from the blood. For this purpose the inhalation of oxygen has long been recognized as the specific procedure. But the difficulty arises that after a long exposure to an atmosphere containing carbon monoxid, respiration is very much depressed, and the inhalation of oxygen has no very stimulating effect on the volume of breathing. It occurred to Haggard and Henderson to utilize the stimulating action of carbon dioxid. A deeply asphyiated patient, who can be reached within one-half hour and who is then given inhalations of oxygen containing 5 per cent. carbon dioxid, can practically be freed from carbon monoxid within from thirty to forty minutes. Frequently also consciousness returns.

Journal of Parasitology, Urbana, Ill

Correlation of Life Cycle of Parasite with Metamorphosis of Host. N. Nowlin, Lawrence, Kan.—p. 153.
Development of Fasciolopsis Buski Lankester. K. Nakagawa, Taichu, Formosa.—p. 161.
Development of Heterakis Papillosa Bloch in Chicken. C. Uribe, Cambridge, Mass.—p. 167.
Escape of Cercariae from Their Snail Hosts. William W. Cort, Baltimore.—p. 177.

Kansas Medical Society Journal, Topeka

August, 1922, **22**, No. 8

Ophthalmic Therapeutics. J. W. May, Kansas City.—p. 229.
Treatment of Vernal Catarrh. J. R. Scott, Ottawa.—p. 234.
Blood Sugar Curves in High Blood Pressure Cases. D. R. Black.—p. 236.
Nonsurgical Drainage of Gallbladder. M. Hahn, Arkansas City.—p. 242.
Facial Expression and Its Psychology. A. A. Allen, Colby.—p. 244.

Laryngoscope, St. Louis

July, 1922, **32**, No. 7

Involuntary Nervous System of Nose, and Mechanism of Some Obscure Nasal Symptoms. L. Hubert, New York.—p. 493.
Sensitization in Vasomotor Rhinitis. H. M. Rich, Detroit.—p. 510.
Case of Posttonsillectomy Pulmonary Abscess. G. Fetterolf, Philadelphia.—p. 517.
Very Severe Tinnitus Aurium Associated with Marked Dental Infection. S. Tousey, New York.—p. 523.
Case of Sinus Thrombosis with Exploration of Jugular Bulb. J. L. Maybaum, New York.—p. 526.
Typical External Operation for Abscess Descending from Upper Air Passages and Base of Tongue. O. Glogau, New York.—p. 529.
Selfretaining Mastoid Retractor. M. M. Cullom, Nashville, Tenn.—p. 558.

Michigan State Medical Society Journal, Grand Rapids

August, 1922, **21**, No. 8

Profession of Michigan and University of Michigan. M. L. Burton, Ann Arbor.—p. 313.
Functions of Public Health Nurse. D. Littlejohn, Ispheming.—p. 317.
*Value of Whooping Cough Vaccine. H. S. Berman, Detroit.—p. 319.
Heel of Achilles. J. E. G. Waddington, Detroit.—p. 322.
Radiation in Treatment of Blood Diseases. L. D. Stern, Ann Arbor.—p. 324.

Value of Whooping Cough Vaccine.—Berman thinks it seems fair to draw the following conclusions from 1,140 cases observed and reported: There is no universal standard of doses for pertussis vaccine to date, except that larger doses than in the past are recommended. The doses in general use have been apparently too small. The course of the disease in most cases has not been much under six weeks. It is Berman's belief that the earlier the treatment is given the better the result. Conclusions drawn from the treatment of about 400 cases of pertussis with vaccines are that a certain number will respond favorably with commercial vaccine. The initial dose should be at least 2,000 million, increasing to 12,000 million.

Military Surgeon, Washington, D. C.

August, 1922, **50**, No. 2

Measures for Development of Organization and Extension of Usefulness of Medical Reserve Corps' Systems of Government. J. R. Kean.—p. 113.
Treatment of Fractures. T. S. Mebane.—p. 130.
Brief Summary of Vital Statistics of U. S. Army During World War. A. G. Love, Washington, D. C.—p. 139.
Employment of Zigzag Incisions in Covering Large Scalp and Skull Defects in War Surgery of Head. A. M. Hanson, Faribault, Minn.—p. 169.
Via Veneris. H. H. Rutherford.—p. 173.
Development of Venereal Battalion. C. M. Williams.—p. 177.
Vaccination Against Pneumonia. P. C. Field.—p. 187.
History of Military Medicine. F. H. Garrison.—p. 201.

Neurological Bulletin, New York

November-December, 1921, **3**, Nos. 11-12

Angiosarcoma of Left Superior Parietal Lobule with Cortical Anesthesia. H. A. Riley, New York.—p. 349.
Practice of Psycho-Analysis in Public Clinic. P. R. Lehrman, New York.—p. 362.
Value of Psychometric Examinations in Psychiatric Work. P. Blanchard, Red Bank, N. J.—p. 370.
Multiple Sclerosis in Children; Report of Three Cases. I. S. Wechsler, New York.—p. 379.
Case of Spinocerebellar Ataxia. L. H. Cornwall, New York.—p. 382.

New York Medical Journal and Medical Record

Aug. 2, 1922, **116**, No. 3

Eczema. H. B. Mills, Philadelphia.—p. 125.
Chronic Abdominal Conditions Encountered in Adults and Children. A. Bassler, New York.—p. 126.
Two Cases of Subdiaphragmatic Abscess Complicating Appendicitis. W. B. Dinlaw, Philadelphia.—p. 129.
*Congenital Diaphragmatic Hernia. L. Bllumenfeld, Brooklyn.—p. 131.
Acute Abdominal Conditions in Children. M. Behrend, Philadelphia.—p. 132.
Furuncles of Ear Canal. J. A. Glassburg, New York.—p. 135.
Acute Mastoiditis. C. H. Smith, New York.—p. 139.
Analysis of End Results of Tonsillectomy and Adenoidectomy. S. A. Blauner and S. Z. Orgel, New York.—p. 142.
Tonsillectomy in Children with Endocarditis and Frequent Tonsillar Infections. M. H. Kaiden, New York.—p. 145.
Early Effects of Combined Endocrine Therapy in Defective Children. L. V. Kear, Oyster Bay, N. Y.—p. 147.
Tuberculosis of Hip. B. F. Buzby, Philadelphia.—p. 150.
*Bees' Honey in Substitute Infant Feeding. P. Luttinger, New York.—p. 153.
Hemorrhagic Disease of New-Born. A. D. Kaiser, Rochester, N. Y.—p. 156.
*Cause of Whooping Cough. T. P. Hall, Vancouver, Can.—p. 158.
Some Diagnostic Points in Scarlet Fever. H. R. Mixsell, New York.—p. 159.
Medical Aspect of Carious Teeth in Infancy and Childhood. J. Marcus, Atlantic City, N. J.—p. 161.
Acute Intestinal Obstruction Due to Appendicitis. H. Apfel, Brooklyn.—p. 163.

Congenital Diaphragmatic Hernia.—Blumenfeld's patient, on being born, gave a little gasp and a faint cry and made a forced attempt at inspiration. With every attempt the intercostal and subcostal spaces would retract, the shoulders heaving upward, and the thighs and legs flexing on the abdomen. Behrend tried all of the described methods of artificial respiration, but none seemed to relieve the progressive and increasing asphyxia, the only result being the forced attempts at inspiration. The child was becoming quite cyanotic and oxygen inhalations were given. Soon after the administration of oxygen the cyanosis disappeared and the child assumed a healthy color in spite of the inefficient respirations. The tugging and labored efforts at inspiration persisted. As long as the child was kept in a basin of water at body temperature and supplied with oxygen the color remained good, but as soon as the oxygen was taken away the cyanosis returned. The point of greatest intensity of the heart sounds was in the right anterior axillary line at about the fifth interspace. The heart rate was about forty-five a minute. The efforts at inspiration gradually became weaker and less labored and the child died an hour and a half after birth. The only external physical defect present was a marked right talipes equinovarus and to a less degree a left talipes equinovarus. A premortem diagnosis of congenital atelectasis with transposition of the organs was made. On opening the abdomen, the liver was found much enlarged and filling the greater part of the abdominal cavity. The only other visible content of the abdomen was the sigmoid, which was well filled and distended with meconium. The descending colon disappeared through a slit in the diaphragm caused by the separation of the diaphragm from the posterior abdominal wall. The opening was about one quarter of an inch to the left of the aorta. On removing the anterior chest wall the thorax was found filled with small intestines right up to the neck. It also contained the whole stomach and the large intestines. The heart and lungs were not visible. On pushing aside the small intestines from the right side of the thoracic cavity the pericardium was exposed. The apex corresponded to the fifth interspace in the anterior axillary line. The lungs were rudimentary and occupied the posterior part of the thorax.

Honey for Infant Feeding.—Luttinger asserts that honey is indicated in any condition of the intestinal tract in which the assimilation of starch or the disaccharids is delayed and when prompt absorption of energy is desired. A solution of honey in water (one teaspoonful of honey to a glass of water) is almost as quickly absorbed as alcohol and its effect is more lasting. The largest part of the honey sugar is fructose (levulose), a levorotatory monosaccharid which seems to have a peculiar affinity for the body cells; thus it is rarely, if ever, found in the urine of diabetic patients. It is more rapidly absorbed than lactose and it has not the disadvantage of undergoing butyric acid fermentation like maltose; hence it does not produce acidosis. Its rapid absorption prevents it from undergoing alcoholic fermentation and infants fed on honey rarely show signs of flatulence. Another advantage of honey over sugar is its protein content, mainly derived from the pollen of plants. Fresh honey, especially virgin honey directly obtained from the honeycomb, has a decided laxative action which it loses on boiling. Luttinger uses honey as a routine component of all his formulas for substitute infant feeding. The results obtained in 419 cases studied so far lead Luttinger to plead for a more general use of honey. He also uses honey in marasmus, rickets, scurvy, malnutrition, and other conditions, in which he formerly prescribed the various sugars, cod liver oil or patent foods.

Lavage in Treatment of Whooping Cough.—In eight cases of whooping cough treated by Hall, lavage of the stomach has cured the disease in from three to six days. The relief is immediate. After the first day's treatment the spasms lose most of their intensity, and if the treatment is begun early three days is sufficient to end the cough. Lavage is given twice a day, before meals. Diet is restricted to food that is quickly digested, excluding milk, though malted milk may be given with advantage. For lavage Hall uses two quarts of water, at a temperature of 100 F., containing 20 minims of liquor cresolis compositus; and alternates this with water containing from 3 to 4 drams of sodium bicarbonate. The distress caused by the treatment is less than is caused by a spasm of the cough, and is quite negligible after the third treatment.

Pennsylvania Medical Journal, Harrisburg

July, 1922, **25**, No. 10

Importance of Weight Control in Maintenance of Health and in Management of Disease. L. Litchfield, Pittsburgh.—p. 675.
Pyelitis in Pregnancy. P. Titus, Pittsburgh.—p. 680.
Gastrojejunal Ulcer. J. J. Gilbride, Philadelphia.—p. 684.
Specific Instructions for Prevention of Recurrence Following Gastro-Enterostomy. H. M. Armitage, Chester.—p. 687.
Family Syphilis; Its Relation to Public Health. E. Hess, Erie.—p. 693.
Treatment After Operation on Stomach and Intestines When Unaccompanied by Serious Complications. L. J. Hammond, Philadelphia.—p. 696.
Present Status of Radical Mastoid Operation. S. M. Smith, Philadelphia.—p. 699.
Importance of Nursing Slowly. M. Ostheimer, Philadelphia.—p. 705.
Roentgen Ray and Radium in Superficial Lesions. B. H. Jackson, Scranton.—p. 707.
Use of Radium in Bleeding from Nonmalignant Uterus. R. T. Wall, Scranton.—p. 711.

Philippine Islands Medical Association Journal, Manila

November-December, 1921, **1**, No. 6

Case of Poliomyelitis (6) Admitted to Philippine General Hospital During 1921. J. A. Montes.—p. 215.
Case of Hydrops Renum Cysticum. J. Eduque and J. Estrada.—p. 218.
Conservative Treatment in Compression Fracture of Lumbar Vertebrae; Report of Case. C. Reyes.—p. 222.
*Treatment of Umbilical Cord Without Ligature. R. R. Llamas.—p. 224.
*Methods of Cultivating and Identifying Bacillus Acne. H. L. Begley.—p. 229.

Treating Umbilical Cord Without Ligature.—Llamas cuts the cord without ligature, disinfects it with tincture of iodin and cauterizes the stump with silver nitrate to produce a firm coagulum of the albuminous substance of Wharton's Jelly which acts as a hemostatic pad over the cut ends of the vessels. A sterile gauze pad and bandage are applied over the stump.

Identification of Acne Bacillus.—By means of anaerobic cultures made in Sabouraud's medium according to Wright's method Begley has devised a method of identifying the acne bacillus.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

July 29, 1922, **2**, No. 3213

*Brain Surgery. W. Macewen.—p. 155.
Industrial Diseases. J. Glaister.—p. 165.

Brain Surgery.—The main topic of Macewen's presidential address is the history and present postion of brain surgery. Almost all of modern knowledge of cerebral function has been built up within his lifetime. He sketches some of the outstanding advances which have been made. Chief among these is the recognition that different physiologic functions dwell in different parts of the brain. This discovery is paramount, because it was through it that surgical removal of pathologic products became possible.

Glasgow Medical Journal

July, 1922, **118**, No. 1

Middle Age. D. Williams.—p. 1.
Surgeon Invents First Electric Telegraph. C. R. Gibson.—p. 10.
Early Reminiscences. F. Fergus.—p. 21.
Consideration of Some of Claims of New Nancy School. J. I. Suttie and I. D. Suttie.—p. 36.
"Discourse" of Maister Peter Lowe: Extracts and Comments. G. H. Edington.—p. 43.
Medical MSS. and Books in Hunterian Library. M. Ferguson.—p. 51.

Indian Journal of Medical Research, Calcutta

June, 1922, **10**, Supplementary Number

Cercariae Indicae. R. B. S. Sewel.—p. 1.

Indian Medical Gazette, Calcutta

July, 1922, **57**, No. 7

Causation of Lathyrism in Man. H. W. Acton.—p. 241.
Therapeutics of Emetin. R. N. Chopra and B. N. Ghosh.—p. 248.
Extraction of Lens in Capsule. F. F. S. Smith.—p. 253.
*Value of Formol-Gel Test for Syphilis. S. Ramakrishnan.—p. 254.
Case of "Langri's Finger." G. G. Limaye.—p. 256.
Acute "Kodon" Poisoning. A. Swarup.—p. 257.
Removal of Tonsils. A. J. V. Betts.—p. 258.
*Intravenous Quinin in Malaria. R. M. Mukarji.—p. 258.
Case of Abnormal Labor: Hydrothorax and Ascites in Fetus. M. Alam.—p. 260.

Value of Formol-Gel Test for Syphilis.—Ramakrishnan's study of 120 cases shows that the Wassermann test was in agreement with the history in 112 cases and the formol-gel test in seventy-seven cases. The Wassermann positives were fifty-nine cases in agreement and two cases not. The formol-gel positives were forty-seven cases in agreement and twenty-four not.

Quinin Intravenously in Malaria.—Mukarji uses the bihydrochlorate of quinin in from 5 to 10 grain doses dissolved in 20 c.c. of sterile water. The injection is made into the median basilic vein. In cerebral malaria, in comatose, delirious and hyperpyrexial forms where no time should be lost in bringing the system quickly under the influence of quinin, Mukarji insists this should be the method of choice. It is not so risky an operation as it is supposed to be; it is far more safe and far less painful than the intramuscular injection of quinin while it gives the best results in the shortest possible time.

International Journal of Psycho-Analysis, London

June, 1922, **3**, No. 2

Analysis of Patient with Cramp of Spinal Accessory. J. Westerman-Holstijn.—p. 139.
Analysis of Dream of Doubt and Conflict. A. S. Strachey.—p. 154.
Symbolism of Bridge. S. Ferenczi.—p. 163.
Plato: A Forerunner of Psycho-Analysis. O. Pfister.—p. 169.
Disappointment in Love During Analysis. S. Pfeifer.—p. 175.
Psycho-Analysis and Folk Tale. A Rejoinder to a Recent Critic. G. Roeheim.—p. 180.
Child's Birth-Myth Story. S. Herbert.—p. 187.

Journal of Laryngology and Otology, Edinburgh

July, 1922, **37**, No. 7

Position of Laryngology and Otology in Medical Curriculum in Great Britain. A. L. Turner.—p. 317.
Oto-Laryngology in France. St. C. Thomson.—p. 328.
So-called Prolapse of Laryngeal Ventricle, and Eversion of Sacculus. I. Moore, Edinburgh.—p. 333.

Journal of State Medicine, London

July, 1922, **30**, No. 7

Progress of Public Health. D. L. Williams.—p. 293.
Importance of Training in Chemistry to the Bacteriologist. J. M. Beattie.—p. 300.
River Pollution from Milk Depots. W. G. Savage and D. R. Wood.—p. 307.

Lancet, London

July 29, 1922, **2**, No. 5161

*Brain Surgery. W. Macewen.—p. 213.
Relative Rôles of Compulsion and Education in Public Health Work. A. Newsholme.—p. 219.
Restriction of Birth in Relation to National Weal. J. Brownlee.—p. 223.
*Night Sweats: Their Significance and Prevention. M. Paterson.—p. 225.
Calcium and Inorganic Phosphorus Content of Maternal Blood During Pregnancy and Lactation. O. L. V. De Wesselow.—p. 227.
Primary Malignant Growth of Liver in Infants. C. B. Dansie.—p. 228.
Perforated Appendix Removed at Sea Under Exceptional Conditions. H. E. R. Stephens.—p. 229.

Brain Surgery.—Sensory localization, lesions in silent areas, tumors of the hypophysis, physics of the brain and meninges infection, prevention of postoperative adhesions, tubercle of the brain, and neoplasms of the cerebellum are the subjects discussed by Macewen in this lecture. He emphasizes the fact that the more one sees of the intricate, delicate structure of the brain, the greater the reverence one entertains for it, and the less one is inclined to disturb its arrangements or to interfere with its function. When it does require to be touched, it ought to be with the greatest gentleness, by an acutely sensitive finger, carefully trained and guided by the gift of memory of tactile sensations, to which each new impression may be quickly relegated, grouped, and correlated in ordered sequence. When neoplasms have to be removed therefrom the endeavor is to do so with minimal disturbance of brain tissue. It is for this reason that the impetus received from the intrinsic cerebral pulsations are utilized to aid the extrusion of blood clot or neoplasm through the incision in the brain once adhesions have been loosened, as, though this method takes more time, it does less damage. Cerebral surgery has been the means of adding to and confirming the knowledge of brain function in man, especially of the regions of the cerebral cortex other than motor, to which experimentation on the lower animals can with difficulty contribute. It has laid bare physical lesions in the cerebrum producing mental aberration, and, by the removal of the lesion and the restoration of cerebral function, has thereby proved that the presence of the lesion was the cause of the perversion of function. In a sense some of these lesions produced in the brain of man may be regarded as experiments carried out by nature with a delicacy, accuracy and refinement which no human experimenter could equal. Surgery of the brain has its limits, but these have not been reached.

Night Sweats.—Paterson urges that night sweats should be called slumber sweats, as they do not occur except when a person sleeps. In early stages of pulmonary tuberculosis, and in the absence of any other infection, they are often the one indication of active tuberculosis. Slumber sweats can in nearly all cases be prevented without drugs by sleeping on a grass mat over the mattress. Sleeping without a mattress on canvas will stop sweats. The sweats are due to the presence of bacterial products (toxin) in the blood in large quantities; they can, therefore, occur in any bacterial disease, and are not in any way diagnostic of pulmonary tuberculosis.

Primary Malignant Tumor of Liver in Infants.—In collecting reported cases of primary growth of the liver, Dansie confined himself to those occurring in infants up to $2\frac{1}{2}$ years. Altogether there are twenty-three cases. The age occurrence shows the greatest frequency in the first six months of life. He reports one case in which the tumor, a duct carcinoma, had doubtless originated in connection with the bile ducts, since the cells composing it nowhere resembled those of the liver parenchyma, nor was the growth of any green color suggesting that the cells of the tumor were functioning.

Ascaris in Appendix.—In Stephens' case a female *Ascaris lumbricoides* was found in the appendix and it was the cause of the perforation.

Medical Journal of Australia, Sydney

June 24, 1922, **1**, No. 25

Historical Notes from Records in Brisbane Hospital, 1825-1850. E. S. Jackson.—p. 685.
Industrial Hygiene with Particular Reference to Conditions in Australia. A. J. Lanza.—p. 691.
Flies on Sanitary Site and Typhoid in Boys' Home. J. Dale.—p. 694.

July 1, 1922, **2**, No. 1

Roentgen-Ray Treatment of Cancer. E. H. Molesworth.—p. 1.
*Rupture of Uterus. R. I. Furber.—p. 11.

July 8, 1922, **2**, No. 2

Prognosis in Surgery of Urinary System. B. Smeaton.—p. 27.
Simple Treatment for Tuberculosis (Autotherapy). O. Paget.—p. 28.
Radium Treatment of Carcinoma of Cervix Uteri at Women's Hospital, Melbourne. C. E. Dennis.—p. 32.
Preventive Medicine and Veterinary Science. J. H. L. Cumpston.—p. 34.

Rupture of Uterus During Labor.—After two days of severe pain Furber's patient sustained a rupture of the uterus. The ragged uterine tear ran obliquely across the right border of the lower uterine segment from below upward and backward. The fetus, making its exit through the bare area of the lower uterine segment, had apparently stripped the peritoneum off the side wall of the pelvis as far as the caput ceci, on which a vessel had to be tied, and had broken through the peritoneum anterior to the infundibulopelvic fold. Among the causes for the rupture were to be considered a fat multipara with pendulous, weak abdominal walls, a postmature fetus, a contracted pelvis, a cervix fibrous from child bearing, with a definite deep scar providing a weak spot to rupture, and, perhaps, the trauma from the application of forceps.

Medical Journal of South Africa, Johannesburg

June, 1922, **17**, No. 11

Tendon Transplantation. T. L. Sandes.—p. 217.
Report of Use of Graft. W. Welchman.—p. 224.
Disposal of Animal Manure and Garbage in Relation to Fly Breeding and Prevention of Enteric Fever and Other Intestinal Diseases. L. G. Haydon.—p. 228.

South African Medical Record, Cape Town

July 8, 1922, **20**, No. 13

Nelspoort Tuberculosis Farm Sanatorium Scheme and Tuberculosis Clinics. J. A. Mitchell.—p. 242.
Antimony Treatment in Some Tropical Diseases. F. G. Cawston.—p. 245.
Tendon Transplantation. T. L. Sandes.—p. 248.
Case of Acute Myelitis of Unknown Origin. C. Lundie.—p. 251.

Archives Franco-Belges de Chirurgie, Brussels

April, 1922, **25**, No. 7

*Flattening of Upper Epiphysis of Femur. A. Legg (Boston).—p. 585. Idem. J. Calvé.—p. 592. Idem. H. Waldenström.—p. 599.
*Osteochondritis of the Hip Joint in Children. G. Nové-Josserand.—p. 606. Idem. E. Sorrel.—p. 625.
*Idem in Adults. L. Tavernier.—p. 614. Idem. Rottenstein.—p. 633. Idem. P. Guibal.—p. 644.
Atypical Characters of Coxa Plana. J. Moreau.—p. 652.
Deformation of Hip Joint. M. van Neck.—p. 656.
Coxa Plana. E. Delcroix.—p. 659.
Case of Osteochondritis of Hip Joint. Delchef.—p. 669.

The Legg-Calvé-Waldenström Affection of the Hip Joint.—The twelve communications in this profusely illustrated issue of the *Archives* are on this subject, but some call the affection deforming juvenile osteochondritis, while others call it coxa plana. Legg opens the list, and uses the noncommittal heading "Affection characterized by flattening of the upper epiphysis of the femur." He does not attempt to operate. Calvé's title is "Coxa plana, erroneously styled osteochondritis." Waldenström first used the term coxa plana for it. All three discuss the final outcome as well as the origin. Nové-Josserand analyzes the various affections of the hip joint besides the three main types of osteochondritis, coxa vara and deforming arthritis in the young. He insists that there is usually osteochondritis along with the coxa plana. He describes a case of acetabular osteochondritis. This case demonstrates that the only difference between juvenile arthritis deformans and coxa plana is the location of the process. Each may entail destruction of tissue or complete regeneration as the case may be. The bone shadow shows decalcification, and the bone may bend like wax. But before long the bone tissue grows normal again and it may or may not regain its normal outline. According to the age and the site of the lesions, the result is an osteochondritis, arthritis deformans or coxa valga. The bone of these subjects seems to be abnormally susceptible to trauma and infection, and it reacts in a special way to influences that do not affect other persons.

Sorrel relates that in one of Waldenström's cases, one of Calvé's, and one of his own, the hip joint had been examined with the roentgen rays just before the affection developed, and in all three cases the shadow was absolutely normal. The immediate prognosis is good. In one or two years the child's gait is normal, and there does not seem to be anything left of the affection. But reexamination later, in the few cases in which several years have elapsed, shows characteristic changes in the hip: The epiphysis is flattened, and fits on the harder neck like a too large cap that rests on the ears; the acetabulum adapts itself to the deformity of the head, its cavity becoming deeper, its roof horizontal, and the pelvis resembles coxalgic pelvis. The joint was quite stiff in two of five cases ten and fourteen years later. In another case the gait is entirely normal thirteen years later.

Osteochondritis of the Hip Joint in Adults.—Tavernier refers to the condition left by osteochondritis in the upper end of the femur in childhood, with or without arthritis later. In a case reported by Rottenstein, the child of 8 began to limp nearly four years after successful correction of congenital dislocation of the left hip joint. Roentgenography confirmed the typical coxa plana, the *épiphyse en calotte,* as Calvé calls it. In a second case, there was a history of congenital partial luxation of the right hip joint, untreated. At the age of 6 coxa plana developed but subsided spontaneously under a few weeks' bed rest. There was no further trouble, except the old limp, until the age of 48, when chronic arthritis developed in that hip joint, with ankylosis. In a third case, coxa vara followed the coxa plana at the age of 10.

In Guibal's case the man stated that there had never been the slightest disturbance from either hip joint before the age of 17. Then the right leg seemed somewhat stiff for a year, but there was no pain or limping, and he served in the cavalry through the war. In 1920, at the age of 28, pains and difficulty in the use of the right leg were explained by roentgenographic findings suggesting the Legg-Calvé affection but differing from the latter by the fact of hypertrophy of the head of the femur. Guibal explains that the causal affection must have been in the epiphysial cartilage, instead of in the epiphysial center of ossification as in the true coxa plana.

Archives des Maladies du Cœur, Etc., Paris

June, 1922, **15**, No. 6

*Induced Dysfunction of Auriculoventricular Bundle. D. Daniélopolu and V. Danulesco.—p. 361.
Retrograde Conductivity. D. Daniélopolu and V. Danulesco.—p. 365.
*Auscultation of Heart Sounds. M. Philippson.—p. 375.
Significance of T Wave of Electrocardiogram. C. Pezzi.—p. 378.

Induced Disturbance in Conduction in Auriculoventricular Bundle.—The conducting function of this bundle was rendered abnormal in one healthy person by irritation of the vagus. The vagus was irritated by pressure on the eyeball, with or without preceding injection of atropin or epinephrin. The test was constantly negative in other healthy persons examined. Latent disease of one of the branches of the auriculoventricular bundle is readily revealed by this means, but it is exceptional to obtain a positive response in the healthy.

Auscultation of Heart Sounds.—Philippson expatiates on the instructive information to be obtained with the cardiophone amplifier. He describes it with illustrations.

Archives Médicales Belges, Liége

June, 1922, **75**, No. 6

Psychology and Physiology from Army Standpoint. Houdmont.—p. 497.
The Wassermann Reaction. A. Dulière.—p. 510.
*Experimental Septicemia. E. Delcourt-Bernard.—p. 520.

Elimination Under Peptone of Non-Virulent Microbes Injected in the Blood.—Delcourt-Bernard recalls that nonvirulent micro-organisms injected into the blood stream are rapidly eliminated as they collect in the capillaries where they are promptly incorporated by the phagocytes. He reports tests with dogs in this line, injecting nonvirulent micro-organisms and then injecting peptone. The shock produced by the peptone materially retarded this destruction of the micro-organisms and rendered it irregular and imperfect. He gives nine tables showing the details of the experiments and the findings every few minutes for one or two hours.

Bulletin de l'Académie de Médecine, Paris

July 4, 1922, **87**, No. 27

Necessity for Early Correction of Anomalies of the Prepuce in Infants. Rousseau-Saint-Philippe.—p. 10.
Malaria as Occupational Disease. E. Sari.—p. 14.
*Avicenna's Views on Tuberculosis. Dinguizli.—p. 15.

Avicenna on Tuberculosis. — Dinguizli has been studying the works of this great Arabian physician of the tenth century. He taught the contagiousness and the possible curability of pulmonary tuberculosis.

Bulletins de la Société Médicale des Hôpitaux, Paris

June 9, 1922, **46**, No. 20

*Acute Glanders in Man. Couréménos and T. Kéchissoglou.—p. 898.
*Differential Diagnosis of Exophthalmic Goiter. M. Labbé et al.—p. 902.
*Venous Tension in Asystolia. M. Villaret et al.—p. 911.
Possible Cortical Anovesical Center. Paulian and Topa.—p. 915.
Gangrene of Fingers Associated with Secondary Syphilitic Lesions. G. Guillain and C. Kudelski.—p. 917.

Acute Glanders in Man.—In the second of the two cases described the patient was a physician who had operated on the first case without gloves. The incubation period was only a few hours. The symptoms during the first week in both were merely those common to any grave general infection. The revealing phlegmon in the neck and the abscess in the popliteal region did not develop until the eighth and ninth days. The anthrax bacillus was cultivated from the blood about the fourteenth day. Both died in less than three weeks. The first patient was entirely covered with pustules, like a smallpox case.

The Basal Metabolism in Exophthalmic Goiter. — Labbé and his co-workers relate that their experience with eight cases of typical exophthalmic goiter, eleven with the incomplete clinical picture and seven of simple goiter, has confirmed the statements of the Americans in this line. Exophthalmic goiter seems to consist of two superposed sets of symptoms: those from hyperthyroidism, revealed by the exaggeration of the basal metabolism and the test hyperglycemia, and those from sympatheticotonia, revealed by the tachycardia, the exophthalmos, hot flashes, vasomotor disturbances, sweats, attacks of diarrhea and pigmentation—all of which can be realized in animals by irritation of the cervical sympathetic nerve. The association of the thyroid syndrome and the sympatheticotonic syndrome is easily understood on considering the physiologic relations between the thyroid and the sympathetic system. Each may act on the other, and set up a vicious circle, but each of the two syndromes can develop alone, as they show by some cases reported. In three of their cases tuberculosis seemed to be the primary factor. Labbé examines the basal metabolism by means of a war gas mask, with Tissot valve, spirometer and Laulanié's eudiometer. This combination, he says, allows greater precision than the Haldane apparatus. The hyperglycemia is tested with the Bang method.

Venous Tension in Asystolia.—The venous blood pressure was always found high in twenty-two cases of asystolia. The peripheral venous pressure begins to rise in the earliest stages of asystolia, and this may give the clue. The fluctuations in the pressure throw light on the effect of drugs and other measures and aid in the prognosis.

Encéphale, Paris

July, 1922, **17**, No. 7

Postencephalitis Bradykinesia. H. Verger and A. Hesnard.—p. 409.
Mental Sequelae of Epidemic Encephalitis. F. Naville.—p. 423. Conc'n.
Brain Disease in Relation to Precocious Puberty. K. H. Krabbe.—p. 437. Cont'n.
Senile Debility and Dementia. J. Vinchon.—p. 445.
The Balance Between Biologic Phenomena. H. and E. Biancani.—p. 449.

Journal d'Urologie, Paris

June, 1922, **13**, No. 6

Radiography of Urethral Strictures. H. Béclère and R. Henry.—p. 417.
*Resection for Hydronephrosis. R. H. Kummer.—p. 425.
*Cancer in Exstrophy of the Bladder. R. Dupont.—p. 433.
*Treatment of Gonorrhea. J. Janet.—p. 445.

Resection of Abnormal Vessel Responsible for Hydronephrosis.—Kummer's three cases confirm the advantage of removing the abnormal vessel, and only this. In all this group the pains subsided after the resection, and the kidney voided its contents more and more normally. He has found records of other cases in the literature bringing the total to fifty-six, and there was nothing to suggest necrosis of the kidney in any instance after the abdominal vessel had been severed. In three cases nephrectomy had to be done later as the kidney was found too much damaged to be left.

Cancer in Exstrophy of the Bladder.—Dupont's patient had worn an iron receptacle to collect the urine, and the cancer developed at the age of 38. He decided to exclude the rectum and make an artificial anus, and then excise the cancer and implant the ureters in the excluded rectum, but the man succumbed to intercurrent erysipelas and pneumonia. He has found twelve cases on record of cancer in exstrophy of the bladder, and only one died of the four given radical operative treatment but the ultimate outcome is not known in the others. These epitheliomas are slow growing and promise well for surgical treatment.

Local Treatment of Gonorrheal Urethritis.—Janet advises to refrain from exploring Morgagni's lacuna until the findings indicate that it is probably infected, the droplet of thick pus returning every day with gonococci numerous and lively as if they had escaped the action of the local measures. The urine of the first glass is clear, showing that the infection is localized. If there are filaments in the urine, they are free from gonococci. These three signs are presumptive evidence that the gonococci are lurking in the depths of the lacuna, and that more vigorous disinfection is required here.

Paris Médical

June 17, 1922, **12**, No. 24

Gynecology in 1922. L. Houdard.—p. 497.
*Necrobiosis of Uterine Fibromas. P. Bégouin.—p. 503.
*Tuberculosis of Female Genitals. E. Forgue.—p. 506.
*Radium Treatment of Cancer of Uterine Cervix. Richard.—p. 511.
*Drainage After Abdominal Hysterectomy. A. Schwartz.—p. 517.

Necrosis of Uterine Fibromas.—Bégouin remarks that the diagnosis is generally certain when pain, sudden increase in the size and the softening of the fibroma, with fever and malaise, develop in a case of uterine fibroma. The only affections which might be mistaken for it call for a laparotomy likewise, so that an exact differential diagnosis is not imperative. Whenever acute disturbances in the lower abdomen develop in a woman known to have a fibroma, this aseptic gangrene should be suspected, and the uterus should be removed at once, he says, without further delay. If there is a viable fetus, cesarean section should precede the hysterectomy.

Ascending Tuberculosis of Female Genital Organs.—Forgue insists that tuberculous metritis is more common than generally recognized. It escapes detection unless the scrapings of the uterus are examined for it. The infection is usually descending, but in a case described the metritis was evidently primary and the tubes were affected only secondarily. The lesions grew less and less pronounced and of more recent development from below upward. Among the other arguments in favor of the possibility of ascending infection are that the adnexa on both sides are so often affected, and that the ovary is very seldom attacked alone.

Radium Treatment of Cancer of Uterine Cervix.—Richard's review of recent literature on this subject extols the progress that has been realized. Many patients have been given at least the illusion of a cure who in other days would have been regarded as beyond all hope of relief. We might even conclude, he says, that the malignant disease had been cured if we did not know of the liability to recurrence after several years of a clinical cure. We must wait now for time to tell which of the methods that have been applied give the best results. It may prove that the best ultimate results have been realized with methods that did not give the most encouraging immediate results. He warns against any active measures when there is cachexia, as the reaction to the irradiation is more than such persons can stand. Another contraindication is invasion of the bladder or rectum, and cystoscopy and rectoscopy are indispensable to exclude this. Extensive invasion of the vagina is a further contraindication, as also invasion of the lumbar glands. This may be suspected if there is much persisting pain in the lumbar region.

Drainage After Abdominal Hysterectomy with Suppuration in the Pelvis.—Schwartz recalls that different conditions compel different methods for drainage. Since January, 1920, in his 26 operations of the kind he sutured without draining in 16; in 4 cases he drained through the vagina; in 3 he introduced drainage tubes through the abdominal wall, and in 3 cases, none of these methods being applicable, he used a Mikulicz drain. This latter method has numerous drawbacks; it entails adhesions and leaves a weakened wall. But in exceptional cases it may be the only technic that can be used, and the patients may owe their lives to it, as in these cases.

Presse Médicale, Paris

July 5, 1922, **30**, No. 53

*Status Epilepticus. E. Toulouse and L. Marchand.—p. 565.
*Transfusion of Citrated Blood. H. M. Béraud.—p. 568.

July 12, 1922, **30**, No. 55

Trench Fever. Sir Wilmot Herringham.—p. 589.

Status Epilepticus.—Toulouse and Marchand relate that one of their patients died the sixteenth hour after the onset of the status epilepticus. The temperature had run up to 40.2 C. In another, death occurred the tenth hour. One of their patients had 364 seizures in twenty-four hours, but Dodds counted 472 in thirty hours in one case. The status epilepticus is generally brought on by suspension of the bromid or other sedative, or by nonobservance of the restriction of salt, which is equivalent to reduction of the bromids. For each additional seizure a supplementary dose of 1 gm. of the bromid should be given, and a dose of 0.5 gm. for an attack of dizziness. Half of these doses are enough if on a salt-poor diet. The twenty-four hour total of 10 gm. (on ordinary diet) or 5 gm. (on a salt-free diet) should not be surpassed. When this supplementary amount is no longer needed, it should be stopped only slowly, dropping it by 1 gm. a day. Since this prophylactic method has been applied at Villejuif, there have been only 18 patients who had as many as from eleven to twenty seizures during the day, and none had more than this. When the status epilepticus is under way, they give 6 or 8 gm. of bromid during the first day, fractioned, about 1 gm. every three hours during the first two days if the condition continues; the third day, at four hour intervals, and the fifth day, at five. The bromid is gaged by the number of seizures, not by the general condition. They warn in conclusion that bromin poisoning is liable to occur after any regular vigorous bromid medication. The temperature may run up high and the weakness may resemble that of status epilepticus, but the dilatation and immobility of the pupils are more pronounced in bromin poisoning.

Transfusion of Citrated Blood.—Béraud describes a three-syringe method, with at least two assistants. The blood is infused in small amounts, the syringes holding only 20 c.c. each, repeating the injections with minimal intervals.

Schweizer Archiv f. Neurol. u. Psychiatrie, Zurich

1922, **10**, No. 2

*Radiation from the Human Body. S. Alrutz.—p. 163. Cont'd.
Clinical and Anatomic Study of Apraxia. R. Brun.—p. 185. Conc'n.
*Atrophy of Muscle After Severing of Tendon. A. Audova.—p. 211.
Tremor and Asthenia of Mental Origin in Soldier. R. Benon.—p. 225.
The Striatal Syndrome. O. Binswanger.—p. 230.
The Biology of Instincts. C. v. Monakow.—p. 240. Conc'n.
Myelinization in Cortex. G. Hirako.—p. 275.
Diffuse Reactional Formation of Glioma. J. L. Pines.—p. 289.

Radiation from the Human Body.—Alrutz describes what he calls a new kind of radiation from the human organism. He presents it as a contribution to the study of hypnosis. The article is illustrated and to be continued.

Muscular Atrophy After Cutting of a Tendon.—Audova has been studying the course and the length of time required for atrophy to develop.

Schweizerische medizinische Wochenschrift, Basel

June 15, 1922, **52**, No. 24

Clinical Analysis of Striatal Affections; Two Cases. O. Binswanger.—p. 601.
*Actinomycosis. B. Galli-Valerio.—p. 607.
*Metastatic Streptococcus Peritonitis. E. Ruppanner.—p. 610.
*The Blood at High Altitudes. H. C. Frenkel-Tissot.—p. 613. Conc'n No. 25, p. 635.

Actinomycosis.—Galli-Valerio declares that the diagnosis of actinomycosis is extremely simple and easy if one only thinks of it. He has seen many cases that had been mistaken for pulmonary tuberculosis. Some had been subjected to various useless operative measures before, under potassium iodid, the whole melted away. In one case a cancer of the jaw had been diagnosed. He protests decidedly against the views of Klinger and others that the actinomyces is a normal parasite of the mouth. A case of proved contagion has never been known, he says, in medical or veterinary literature.

Metastatic Peritonitis.—In the four cases of fatal peritonitis described by Ruppanner, nothing was found in the abdomen to explain the peritonitis, but the streptococcus was cultivated in pure cultures. In two of the cases the primary affection had been erysipelas; in the others, follicular tonsillitis. Metastatic peritonitis has been reported most frequently with tonsillitis. In an epidemic of sore throat at Helsingfors, in eighteen cases of acute diffuse peritonitis, it was traced to the tonsillitis in fourteen. The rarity of metastatic peritonitis in acute infectious diseases otherwise is remarkable; only one or two instances are known with scarlet fever, diphtheria or scurvy. The streptococcus or pneumococcus has been found almost exclusively. In one case he found the appendicitis and the peritonitis to be the work of the Friedländer bacillus. The course of a metastatic streptococcus peritonitis is like that with puerperal fever. The patients are generally young, and the profuse persisting diarrhea, leukocytosis and albuminuria are generally followed by death in a few days. As there is no abdominal focus, there is no reason for operating.

The Blood at High Altitudes.—The biochemical and biophysical relations between the erythrocytes and the albumin elements of the blood at high altitudes are discussed as studied on large numbers of the young and old. This method of studying the elements of the blood has revealed, it is stated, a number of new processes in the physiology and pathology of the blood in the mountain climate.

Annali Italiani di Chirurgia, Naples

May 30, 1922, **1**, No. 2-3

*Tenodesis for the Knee. R. Dalla Vedova.—p. 113.
*Natural Cure of Cancer. D. B. Roncali.—p. 121. Cont'd.
*Arteriovenous Aneurysms. G. Pascale.—p. 144.
Comparative Pathology of Tumors in Plants and Animals. G. Pianesc.—p. 171.
*Tendon Transplants for Radial Paralysis. L. de Gaetano.—p. 182.
*Arteries of the Stomach. L. Torraca.—p. 224.
*To Cover Defect After Mammectomy. F. Cinquemani.—p. 246.
Abnormal Direction of the Appendix. M. Battaglia.—p. 252.
*Pyloroplasty. M. Pavone.—p. 255.

Tenodesis of the Knee.—Dalla Vedova has corrected flaccid paralysis of the knee in three cases by turning the patella over on its longitudinal axis, freeing it of all soft parts. The region of the femur exactly corresponding to the new position of the patella, with the leg extended, is freed from soft parts in the same way. The joint is then immobilized in extension in plaster for at least two months, and then in a splint for four or six months longer. The synostosis between the femur and the patella and the tenodesis of the quadriceps thus insure the solidity of the joint, while the growth of the femur later is not interfered with, as the synostosis is above the level of the epiphysial cartilage. This is his reasoning, but his operations are too recent to determine the actual outcome in practice. This method was suggested by a case in which an inflammatory process had spontaneously soldered the patella to the femur in this way. By prying the patella loose, the function of the joint was restored. Saxl has recently reported six cases in which he fastened the tendon of the quadriceps to the anterior surface of the shaft of the femur, but Dalla Vedova thinks that his method of accomplishing the same effect by patella-femoral trochlea synostosis is easier and more logical.

Natural or Spontaneous Cure of Cancers.—Roncali analyzes twenty-one cases that have been published by Nitze, Crosbie, Laurie-Watson, Czerny and others as the spontaneous cure of a malignant epithelial or connective tissue tumor without operative or other measures or only a partial operation. His analysis shows that none of the instances related can stand criticism.

Arteriovenous Aneurysm in Carotid Artery.—Pulsating exopththalmos from the large aneurysm, involving the internal carotid artery and the sinus cavernosus, was completely cured by Pascale. Ligation of the artery failed to relieve and he then removed the sac completely and ligated the ophthalmic vein, putting an end to all disturbances. This case was published in 1915, and the man has had no return since. The aneurysm had developed after a bullet wound of the ear. The case is illustrated, and also a second case in which the same operation was done and was a technical success, but the causal fracture of the skull had induced irreparable lesions and the young man succumbed to cerebral complications from them. Necropsy confirmed that the extirpation of the sac of the aneurysm and ligation of the vein had been the logical treatment.

Correction of Radial Paralysis.—De Gaetano's illustrations show the complete success in two cases realized by tendon transplantation by his technic. He compares his method with those of others and extols its advantages. He works through three incisions, one in the middle third of the forearm, the others on the dorsal and palmar aspect of the wrist. Besides transplanting the tendons, he shortens the extensor pollicis longus by taking up and suturing a fold in it, through the dorsal incision. Then through the palmar incision, the tendons are drawn up and fastened to the extensors, shortening them if necessary. He remarks in conclusion that the intelligent cooperation of the patient is important in training the muscles to adapt them to this new function. Hence he advises against attempting tendon transplantation in imbeciles.

Nourishing Value of the Arteries of the Stomach.—Torraca concludes from his experimental ligation of the different arteries of the stomach that any one of the arteries reaching the stomach from the left side (in dogs) is capable of supplying alone ample nourishment for the stomach. This cannot be said of the arteries reaching the organ from the right side. Shutting off the majority is followed by hemorrhages and necrosis in the superficial layers of the mucosa, and sometimes ulceration which tends to rapid healing.

To Close Defect After Mammectomy.—Cinquemani illustrates Parlavecchio's method for mammectomy which has several advantages over others. A semicircular incision from the upper arm to the sternum is connected in the center by a nearly vertical incision with the oval incision outlining the breast. The skin can be turned back to allow ample access to the axilla, and after the operation the skin can be stretched to adapt itself remarkably to the defect left. No secondary operation is needed to obtain the covering skin flaps. The linear scar forms an S. The method has proved extremely satisfactory from every point of view in large numbers of cases.

Present Status of Pyloroplasty.—Pavone's comparative analysis of the different methods in vogue for shutting off the pylorus concludes by commending the tying off of the pylorus with tape as the simplest and safest. The lumen is completely closed while the constriction is no tighter than necessary, and the vitality of the tissues is not compromised. This is the method introduced by Parlavecchio of Palermo, and he has applied it sometimes to exclude considerably more of the stomach than the mere pylorus region. In one case he thus shut off nearly the entire right half of the organ. He uses cotton tape 1.5 cm. wide.

Archivio di Scienze Mediche Coloniali, Tripoli

May, 1922, **3**, No. 5

*Myiasis in Tripolitania. R. Onorato.—p. 69. Cont'n.

Myiasis in Tripolitania.—Onorato here summarizes his experiences in cases Nos. 42 to 65 of his long series. The maggots had invaded a focus of osteomyelitis, a compound fracture, an arthritis with fistula, a lupus patch, a crushing injury of a limb, otitis media or noma in the group of Arabs here analyzed. All ages are represented. In one case he removed three of the larvae from the tympanic cavity and eustachian tube.

Policlinico, Rome

June 19, 1922, **29**, No. 25

Prevalence of Tuberculosis in Rural Districts. A. Furno.—p. 805. Conc'n No. 26, p. 843.
Pregnancy in Tube with Chronic Gonococcus Infection. S. Lussana.—p. 813.
Myomectomy in Gravid Uterus; Two Cases. L. Fioravanti.—p. 815.
Park Treatment of Pneumonia. L. Grossi and A. Rivara.—p. 819.

June 26, 1922, **29**, No. 26

*Test for Bilirubin in Blood. G. Sabatini.—p. 837.

Test for Bilirubin.—Sabatini criticizes the various tests in vogue and says that one he proposes is free from the objections of others, while it does not take more than 0.5 c.c. of blood serum for the test. Distilled water is added to 12 c.c of hydrochloric acid to bring the total of fluid to 100 c.c. In a graduated tube containing 30 c.c. of this fluid, 0.5 c.c. of a 1 per cent. solution of sodium nitrite is dropped in, from a pipet. The tube is agitated, and 0.3 or 0.4 c.c. of this reagent is added to 1 or 1.5 c.c. of the fluid to be examined, blood serum or an alkaline aqueous solution of bilirubin. The positive response is a brilliant green tint which slowly fades out again. The intensity of the tint is proportional to the bilirubin content. In his 200 applications of the test the findings paralleled or were more sensitive than those with the best of other methods, including Hijmans van den Bergh's.

Riforma Medica, Naples

June 12, 1922, **38**, No. 24

Pathogenesis of Bright's Disease. U. Parodi.—p. 553.
*Colored Butter Test Meal. E. Ruggeri.—p. 557.
*Vaccination Against Tuberculosis. P. de Tommasi.—p. 558.
Electric Treatment of Kidney Tumors. E. Mancini.—p. 559.
Resection of the Esophagus. E. Aievoli.—p. 560.

Colored Butter Test Meal.—Ruggeri describes how he mixes Sudan III with 20 gm. of butter, and has this taken on bread or in coffee or in cachets, as a test meal in cases of jaundice to aid in differentiating the cause of the jaundice. The Sudan III stain has an affinity for neutral fats, and the stained butter passes through the stomach unmodified but is emulsified by the bile, and the pancreatic juice splits it and forms soaps with it. This strips the stain coating from the droplets of butter, and it is voided as a precipitate in the stools without staining them. With retention of bile from a lesion of the pancreas, the stained butter passes unmodified through the entire digestive tract and the stain is pronounced. With retention of bile, but normal pancreas functioning, the stool shows no stain, the findings being the same as in physiologic conditions.

Vaccination Against Tuberculosis.—De Tommasi vaccinated eighteen young persons by the Maragliano method, all with positive skin tuberculin reaction, and suspicious of tuberculosis. He then applied the skin tuberculin test at regular intervals up to seventy-five days. In all but four the skin tuberculin test veered to negative thereafter. He accepts this as convincing evidence that the vaccination had induced production of antibodies.

Rivista di Clinica Pediatrica, Florence

April 30, 1922, **20**, No. 4

*Chorea. Gennaro Fiore.—p. 193.
*Paralysis Following Diphtheria. G. Berghinz.—p. 227.

Pathogenesis of Chorea.—Fiore reports the necropsy findings in a case of Sydenham's chorea in a boy of 5 who had had articular rheumatism and endocarditis but no other important infection. The necropsy findings were identical also in a second case, in a girl of 9. The chorea had developed in this case after a fright, from seeing her seat-mate in convulsions. This case was also pure chorea at first. In both there was a disseminated miliary encephalitis, most pronounced in the optic thalamus and motor zone of the cortex. The cerebellum seemed to be sound. He adds that before the age of 6 the cerebral sensory tracts, the optic thalamus and the motor zone are scarcely differentiated enough to induce chorea; after 15 they are settled and their functions balanced. This explains the age limits of chorea. The encephalitis responsible for it is specific more by its seat, its entity and its distribution than by its nature, although acute rheumatism is the most frequent cause.

Postdiphtheric Paralysis.—Berghinz encountered last year a number of cases of paralysis following diphtheria. They were grouped in foci to such an extent as to suggest some special factor predisposing to paralysis. This factor, he asserts, is inadequate antitoxin treatment. In environments where the disease is recognized promptly and treated vigorously no instances of polyneuritis were known. He describes seven very grave cases; two of the children died the day after they reached the hospital, and another succumbed to intercurrent bronchitis, but the others, very grave cases, terminated in recovery.

Rivista Critica di Clinica Medica, Florence

April 25, 1922, **23**, No. 12

*Treatment of Scleroderma. G. Tognini.—p. 133.

Fibrolysin in Treatment of Scleroderma and Dupuytren's Contraction.—Tognini emphasizes the patience and perseverance required for this treatment. The drug seemed entirely harmless. The benefit was most pronounced the more recent the onset of the affection. Decided improvement was evident in all but one of his eight cases of scleroderma and four of Dupuytren's contraction. He injected 2 or 3 c.c. of a 10 per cent. solution of the fibrolysin, two or four times a week. He reviews the whole field of thiosinamin treatment in recent years, commenting that in very few of the published cases had time enough elapsed for a decisive judgment.

Brazil-Medico, Rio de Janeiro

May 13, 1922, **1**, No. 19

*The Gates-Papacosta Serologic Test. A. E. de Arêa Leão.—p. 239.
*Modern Treatment of Burns. Arnaldo de Moraes.—p. 242.

Serologic Tests.—In nearly 500 parallel tests of the Wassermann reaction and the formaldehyd gelification test, introduced by Gates and Papacosta, there was concordance in 55.86 per cent., but in 160 instances the Wassermann was positive while the other was negative, and in 58 with negative Wassermann the other was positive. The findings thus conflicted in nearly 45 per cent.

Treatment of Burns.—De Moraes reports very favorable experiences with film treatment of burns. He used a mixture of equal parts of paraffin and petroleum, melting at 40 C., with a few drops of an antiseptic.

Gaceta Médica de Caracas, Venezuela

Jan. 15, 1922, **29**, No. 1

*Induced Anaphylaxis to Alcohol. E. Freytes Pineda.—p. 2.
Obstetrics from Racial Standpoint. A. L. Briceño Rossi.—p. 6.
Chloroform Anesthesia in the Tropics. B. Perdomo Hurtado.—p. 7.
Pebble in Ear for Fifty Years. E. Conde Flores.—p. 11.
Syphilitic Chancre in Ear. E. Conde Flores.—p. 11.

April 15, 1922, **29**, No. 7

Treatment of Leprosy.—p. 79.
Bradycardia in Infectious Diseases. L. Razetti.—p. 80.
Artificial Pneumothorax. A. Larralde.—p. 82.
Tuberculosis in Venezuela. C. E. Salom.—p. 85.
Treatment of Morphin Addiction. L. Pérez Carreño.—p. 87.
The First Major Operations in Venezuela. D. Ponce Córdova.—p. 88.

Induced Anaphylaxis to Alcohol.—Freytes Pineda suggests that means to induce anaphylaxis may prove useful in prophylaxis and in treatment of abuse of alcohol. As the serum of an animal or person with anaphylaxis may confer anaphylaxis when injected into others of the same species, it might thus be possible to confer anaphylaxis to alcohol by the serum of horses in which anaphylaxis had been induced by systematic preliminary treatment. He has had no opportunity to realize this suggestion in practice. Some experiments with sheep were inconclusive, as the animals succumbed to intercurrent infection. He has attacked the problem in another way, seeking to induce reactional phenomena on ingestion of the alcohol. He experimented with the native drink, cocuy, made from the American agave, reasoning that by mixing certain substances with the cocuy it might be possible to stimulate the nonspecific production of defensive reactions. These, in addition to those engendered by the alcohol itself, might result in the formation of antibodies which would entail intolerance to alcohol. His mixture for the purpose contains 2 gm. of fluidextract of ipecac and 6 gm. of beef gall to 300 gm. of cocuy, and a little asafetida. This mixture induced intense drunkeness and, in at least 60 per cent. of the more than 200 cases thus treated, in the course of four weeks the reaction anaphylaxis was pronounced, with invincible repugnance to the odor and taste of the cocuy. He thinks that this method of *asociación mutualista de reacciones anafilácticas* might be used in treatment of morphin addiction, nicotism, etc. The anaphylaxis to cocuy has persisted in three of his cases for ten and twelve years to date. The more intense the previous abuse of alcohol, the more readily this reactional anaphylaxis was induced.

Prensa Médica Argentina, Buenos Aires

June 20, 1922, **9**, No. 2

*Delivery with Flat Pelvis. J. B. González.—p. 49.
*Precordial Pulsation with Pericarditis. F. C. Arrillaga.—p. 56.
Fracture of Transverse Process of Lumbar Vertebra. Tagliavacche.—p. 58.
Early Neurosyphilis. Nonne.—p. 68. Cont'n.

Delivery with Flat Pelvis.—González' illustrations show the protrusion of the fetal skull as it adapts itself to a flat pelvis with double promontory. This protruding portion may be mistaken for the fetal chin or elbow, unless the characteristic hardness is noted and its absolute immovability, or the fact that it can be moved only as part of the head. The ovoid shape is also suggestive.

Precordial Pulse Beat with Pericarditis.—We have been taught that when there is more or less effusion in the pericardium, the precordial pulsation can no longer be distinguished, but this was not the case in the girl of 16 whose case is reported. Necropsy confirmed that adhesions had induced anomalous conditions and these were responsible for the precordial pulsation. In case of doubt, puncture is so harmless that it should be given a trial.

Revista de la Asoc. Méd. Argentina, Buenos Aires

January to April, 1922, **35**, No. 207-210

*Cysticercus in Man. S. Mazza and O. Ivanissevich.—p. 7.
*Bacteriophagia. Cesar E. Pico.—p. 12. Idem. A. Bachmann and L. I. Aquino.—p. 18.
Autoserotherapy of Serum Sickness. Cesar E. Pico.—p. 24.
*Influence of Carbohydrates on Glycemia. M. Casteigts.—p. 28.
Influence on the Skin of Frogs of Pituitary and Brain Lesions. L. Giusti and B. A. Houssay.—p. 42.
*Cause of Death from Burns. R. A. Vaccarezza.—p. 48.
*Fracture of Semilunar Cartilage. Bosch Arana and E. Dowling.—p. 57.
*Sensory Visceral Reflexes. F. C. Arrillaga.—p. 63.
*Arthroplasty for Poncet Rheumatism. C. I. Allende.—p. 73.
*Fracture of Surgical Neck of Humerus. H. de Cusatis.—p. 81.
Scientific Work of Dr. E. Lorentz. J. Arce.—p. 89.
Prophylaxis of Tuberculosis in Children. A. Casaubon.—p. 96.
Tuberculosis Dispensary at La Plata. M. E. Jerez.—p. 111.
Mothers' Home. D. Iraeta.—p. 118.

Cysticercus Cellulosa in Man.—In the case described, the tumor was in the masseter muscle and was shelled out whole. No instance of tenia solium was known in the family. This is the eighth case published in Argentina. The others were in the orbit or brain or there were multiple tumors, up to 160 accessible tumors in one case.

Nature of Bacteriophagia.—A similar report of Pico's research on the Twort-d'Herelle phenomenon was summarized recently, June 3, p. 1765. He rejects the hypothesis of a filtrable virus as responsible for the transmissible bacteriolysis, as this assumption does not explain all the phenomena observed. He explains the bacteriophagia as a special instance of autocatalysis, and this may be instigated by a number of influences. Bachmann and Aquino have been testing snake venom, bile, etc. Their conclusions are against the assumption of an infection as responsible for the bacteriolysis.

Influence of Certain Carbohydrates on Sugar Content of Blood.—Casteigts charts the repeated findings in six diabetics and in six normal subjects. They show that the rise in the sugar content of the blood reached the highest point in about an hour in both groups, but it was far more pronounced in the diabetic. The hyperglycemia was lowest after ingestion of oatmeal and much higher with rice. In one diabetic, for example, after ingestion of 75 gm. of glucose the blood sugar rose from 1.24 to 2.12 in one hour and by the third hour was 0.88. After ingestion of oatmeal, the corresponding figures were 1.18, 1.37, 0.90 and 1. With rice, they were 1.04, 1.60 and 0.98. The physiologic sugar content of the blood averaged in the six normal subjects 0.5 to 1 gm. per cent. (Folin and Wu).

Cause of Death from Burns.—Vaccarezza reports the results of experiments on twenty-three dogs, with corresponding controls, which confirm the identity of the clinical picture resulting from mortified tissues, whether the injury entailing the mortification was from extreme heat or cold, the action of caustics, contusions, or the electric current. The clinical manifestations from all these are the same as from traumatic shock of any kind, and the only salvation when the mortified area is extensive, is by early and ample excision of the mortified tissues. The fact that the blood is the vehicle for the toxic element was demonstrated by two experiments in which the paw of a dog was burned and then the femoral artery in that limb was flushed with saline until the fluid pouring from the femoral vein was clear. Then the femoral artery was sutured to the central stump of the carotid artery in a second dog, B, and the femoral vein of A with jugular vein of B. In this way the burned limb was irrigated solely with the blood from B, none getting into the general blood stream of A. In both experiments the dog B died while dog A survived.

Fracture of Semilunar Cartilage of Knee.—The fine results are extolled of complete removal of the portion torn off from the meniscus by the longitudinal fracture.

Sensory Visceral Reflexes.—Arrillaga refers to reflexes for which some chronic visceral lesion is responsible. One young woman, for example, presented neuralgia of the eleventh dorsal nerve with an intensely tender point at the McBurney point; lightly pinching a fold in the abdominal wall caused pain in the appendix region and also along a line between the axillary line from the costal arch to the ilium. He attributes the sensory reflex to some torpid lesion in the right ovary, and proposes to treat the girl of 18 with ovarian extract plus treatment of her inherited syphilis. If this does not cure, he will block the nerve with alcohol. In a similar case in a woman of 47, his presumptive diagnosis was confirmed by the transient cure from injection of procain to deaden this eleventh dorsal nerve. Appendicectomy in both these cases had had no influence on the neuralgia. When appendicitis is responsible for the sensory reflex, the pains are more paroxysmal, while with a lesion in the adnexa they are persisting, and there may be exacerbation during the menstrual periods. With lesions in the urinary apparatus there may be similar neuralgia of the eleventh dorsal, but it usually extends to the first lumbar, and the urine clears up the diagnosis. The prostate may also induce this eleventh dorsal neuralgia, but it is usually bilateral in this case. With chronic lesions of the testicle, the tender points are generally lower. There is a specially tender point, with the eleventh dorsal neuralgia, in the next to the last intercostal space close to the spine. Further testimony to the neuralgia character of the pain is its disappearance after injection of a little procain at any of the tender points.

Ankylosis from Poncet Rheumatism of Both Knees.—Allende reports satisfactory results from arthroplasty in the young man.

Fracture of Surgical Neck of Humerus.—Cusatis relates that there were recently at one time in the service three children with this fracture. Two healed under reduction and extension, but in the third case the boy was 16, and these measures were supplemented by two nails driven to cross in the depth of the bone. This insures such solid fixation that passive movements can be begun the second or third day. It is rarely possible to suture the bone in these cases, and the nail treatment is simple and certain, and a great relief for the patient.

Siglo Médico, Madrid

April 15, 1922, **69**, No. 3566

Puerperal Pyemia. F. Villanueva.—p. 393.
Physiology of the Sense of Smell. A. Martín Calderín.—p. 395. Conc'n.
Bismuth in Treatment of Neurosyphilis. J. Marín Agramunt.—p. 397.

April 29, 1922, **69**, No. 3568

*Cajal. His Work and His School. C. M. Cortezo.—p. 449.
*Iodin Fumes in Treatment of Dacryocystitis. Pedraja.—p. 453.
*Pain in Diagnosis. R. Alvarez Salazar.—p. 453.
*Protein Therapy. M. Marín Amat.—p. 456.
*Endocrinology. G. Marañón y Posadillo and G. Pittaluga.—p. 459.
*Sanitation and Hygienization of Spain. L. Muñoz Antuñano.—p. 462. Cont'n.

Cajal.—This is another instalment of Cortezo's comprehensive study of Ramon y Cajal, his personality, his work and his school. It was begun in No. 3567, p. 421.

Iodin Fumes in Treatment of Dacryocystitis.—Pedraja reports satisfactory results from this treatment of phlegmonous dacryocystitis, filling the cavity of the sac with the fumes, after curetting. He refrains from applying fluid, and merely dabs the wound dry with gauze and then applies the iodin fumes.

Pain in Diagnosis and Guide to Operation.—Alvarez Salazar cites some specific cases in this continuation of his article, begun in No. 3567, p. 424.

Protein Therapy.—Marín Amat gives the details of his extensive experience in this line in treatment of the eyes and in general treatment. The article was begun in No. 3563, p. 309, and the conclusion is reached in No. 3573, p. 600.

Present Status of Endrocrinology.—This is the reception address presented by Marañon on admission to the National Academy of Medicine, and Pittaluga's reply thereto. The publication began in No. 3562, p. 283, and the concluding instalment has not yet been reached.

Hygienization of Spain.—Muñoz Antuñano's article is continued. The beginning instalment was in the *Siglo* for Dec. 3, 1921, p. 1176.

Deutsche medizinische Wochenschrift, Berlin

June 16, 1922, **48**, No. 24

Digitalis Substances and Digitalis Medicaments. Straub.—p. 791.
Effect of Mercuric Chlorid and Trypaflavine on Bacteria and Body Cells. Hahn and Remy.—p. 793.
Lipoid-Splitting Function of Lymphocytes. Aschoff and Kamiya.—p. 794.
Further Simplification of My Turbidity Reaction. H. Dold.—p. 797.
Appendicitis and Gonorrhea as the Two Most Common Causes of Chronic Salpingitis and Ovaritis. A. Mueller.—p. 798.
Intestinal Rupture Due to Patient's Attempt to Reduce an Incarcerated Hernia. F. Schmidt.—p. 800.
Primary Pulmonary Actinomycosis. Lichterfeld.—p. 801.
Procain Injuries. A. Decker.—p. 802.
Unusual Locations for Syphilitic Chancres. Müller.—p. 803.
By-Effects of Neo-Arsphenamin and How to Prevent Them; with Special Reference to Epinephrin. H. Reinhard-Eichelbaum.—p. 804.
Arsphenamin in Surgery of Septic Wounds. Geyer.—p. 806.
Affections of the Rectum. G. Ledderhose.—p. 807.

Münchener medizinische Wochenschrift, Munich

June 16, 1922, **69**, No. 24

Disturbances of Epiphysial Nutrition in Man. Axhausen.—p. 881.
*Eclampsia in Infants. Gött and Wildbrett.—p. 884.
Hecht's Modification of Wassermann Test. W. Loele.—p. 885.
Source of Material for Plastic Operations. J. F. S. Esser.—p. 888.
Treatment of Pleural Empyema. R. Korbsch.—p. 888.
Caffein Preceding Arsphenamin Treatment of Neurosyphilis. Sack.—p. 889.
Medical Aid in Selection of Trade. T. Fürst.—p. 890.
Rare Case of Tumor of Appendix. Rauenbusch.—p. 891.
Paroxysms of Rectal Spasm. A. Japha.—p. 892.
Table of Purin Equivalents in Food. M. Schirmer.—p. 892.
Notions and Theories of Inflammation. O. Lubarsch.—p. 893.

Eclampsia in Infants.—The investigations of Gött and Wildbrett lead them to believe that only such infants with tetany as suffer, at the same time, from eclampsia are likely to become epileptics, for true tetany has no points of contact with genuine epilepsy, but eclampsia and epilepsy have a common familial origin, being closely related to spasmophilia.

Zentralblatt für Chirurgie, Leipzig

April 29, 1922, **49**, No. 17

*Low Tracheotomy in Membranous Croup. E. Seifert.—p. 585.
Primary Arthroplasty in Tuberculosis. J. Wieting.—p. 589.
"Experimental Studies on the Question, Whether Extirpation of the Suprarenals in Epilepsy is Justifiable." J. Fischer.—p. 591.

Low Tracheotomy in Membranous Croup.—Seifert holds that his experiences with low tracheotomy in membranous croup in children justify him in giving this method the preference—at least in hospital practice. With proper technic and adequate after-treatment, the disadvantages usually ascribed to low tracheotomy can be reduced to a really satisfactory minimum and the universally recognized advantages of the method can be thus brought out. He reports on 139 patients, thirty-three of whom died, giving a mortality of 23.7 per cent., which he asserts has seldom been surpassed. The main advantage of low tracheotomy is that the cannula may be more easily removed and earlier than in high tracheotomy. A second advantage is that there is no danger of injuring the cricoid cartilage and the vocal cords. The cannula in case of the 103 living children could be removed, on the average, in 3.6 days.

Zentralblatt für Gynäkologie, Leipzig

April 29, 1922, **46**, No. 17

Experiences with Parasacral Anesthesia. F. Burgkhardt.—p. 642.
Tendencies in Constitutional Pathology; Significance of the Toxonoses of Pregnancy. A. Greil.—p. 648.
Rare Brow Presentation with Fetal Occiput Over the Sacral Promontory. A. Hermstein.—p. 655.
Hypnosis in Obstetrics and Gynecology. R. Falk.—p. 658.
*Treatment of Prolapse of Uterus. D. Maluschew.—p. 661.
*Protection of Perineum in Left-Side Posture. K. Heil.—p. 663.
*Roentgen Ray in Vomiting of Pregnancy. M. Fraenkel.—p. 664.

Operative Procedure for Treatment of Marked Prolapse of the Uterus.—Maluschew's procedure is a modification of the Baldy-Frank fixation method. It enables one to shorten the round ligaments by way of the vagina. Posterior colpoceliotomy furnishes the only rational way of attacking the round ligaments through the vagina. Such a procedure offers special advantages in that, after the celiotomy incision is made, an ample shortening of the Douglas folds and, at the same time, an indirect levator suture can be easily undertaken. As to the technic of the operation, he first makes a circular incision around the portio vaginalis, while the vaginal wall round about, for a breadth of 2 cm., at the most, is separated by blunt dissection. The bladder is not brought into view. Colpoceliotomy follows. He carries the incision to the perineum. Hereupon the corpus uteri is brought into the field so that the posterior wall presents. At this point, the round ligaments can be drawn with Kocher forceps through the broad ligaments, just as well as in the Baldy procedure, by way of the abdomen. He grasps the round ligaments some distance from the cornu uteri in order to get sufficiently long loops. The round ligaments are held by an assistant. Before the uterus is replaced, a few sutures are taken in the upper end of the celiotomy incision; otherwise the cervix, which is drawn up by the round ligaments, may slip into the abdominal cavity and cause trouble when the celiotomy wound comes to be closed. The uterus is now drawn downward, and the two Kocher forceps are slowly withdrawn. The loops of the round ligaments present at the sides of the portio and can easily be united with a few sutures and fastened to the surface of the portio. They can then be completely covered by suturing the narrow vaginal flap over them. The celiotomy incision is closed by grasping with large needles in a wide circle the uterosacral ligaments and the levatores ani. In some instances perineoplasty and an anterior colporrhaphy may be required. If incontinence of the urine should persist, a pyramidalis fascioplasty after the Goebell-Stoeckel method may be done in the usual manner. The operation can be applied without hesitation to aged women.

In Defense of the Left-Side Posture in Protection of the Perineum.—Heil opposes Abernetty's contention (Cf. abstract in The Journal, Dec. 10, 1921, p. 1934) that the lateral posture does not permit careful observation of the fetal heart sounds, and emphasizes that protection of the perineum in the left-side posture deserves, on account of offering a much better survey of what is taking place, the preference before perineal protection in the dorsal posture. He explains that the objections raised by Abernetty to the lateral posture will be eliminated if the proper technic is employed, the main point being that the patient must not be allowed to assume too soon the lateral position—not when the fetal head first engages in the superior strait but only when it has advanced to the point that it does not recede to any extent during the interval between labor pains.

Roentgen Irradiation in Pernicious Vomiting of Pregnancy.—Fraenkel reports excellent results from roentgen irradiation in four cases of hyperemesis gravidarum. He gave two applications to the stomach region of half of an erythema dose of hard, filtered rays, with an interval of five days. The action was so prompt and so effective that he could not be certain whether the irradiation actually relieved the irritation or whether suggestion, connected with the use of the apparatus, played an important part.

Hospitalstidende, Copenhagen

May 31, 1922, **65**, No. 19

Traumatic Spinal Cord Disease with Unusual Course; Two Cases. A. V. Neel.—p. 301. Conc'n.
*Marks on Fetal Skull from Pressure. P. Zachariae.—p. 310.

Marks of Pressure on Fetal Skull.—Zachariae gives an illustration of the two grooves parallel with the sagittal suture. The scalp was discolored and partly gangrenous in these grooves but the bone was not indented, and the child has developed normally. Labor had been very long and difficult, but a previous childbirth had been normal.

Svenska Läkaresällskapets Handlingar, Stockholm

June 30, 1922, **48**, No. 2. Gullstrand Number

*Simultaneous Tests for Refraction and Visual Acuity. Allvar Gullstrand.—p. 53.
*Keratoconus with Pulsation in Cornea. Idem.—p. 103.
*Case of Lenticonus Posterior. Idem.—p. 119.

Allvar Gullstrand.—The medal presented to Professor Gullstrand on his sixtieth birthday by the Swedish Medical Association is reproduced, and the list of his works is given. A German translation of his long article on the simultaneous determination of refraction and visual acuity opens this issue of the *Handlingar*. A German translation is given also of his report of a case of keratoconus with pulsation in the cornea. Both were previously published in Swedish journals, as also the third article, "A Case of Posterior Lenticonus." Gullstrand was awarded the Nobel prize in medicine in 1911 for his contributions to ophthalmology, especially his lamp.

Ugeskrift for Læger, Copenhagen

June 8, 1922, **84**, No. 23

Simultaneous Arsphenamin and Mercury Intravenous Injection. H. Boas and B. Pontoppidan.—p. 645.
*The Steinach Rejuvenation Operation. K. Sand.—p. 650. Conc'n.

The Steinach Operation.—The first instalment of Sand's report of his fifteen cases was reviewed July 29, p. 418. He protests against the ill chosen term "rejuvenation" as applied to the Steinach operation, but he asserts that there can be no question as to its having an influence on the organism in the way of a stimulation, a regeneration or restitution. With this modest aim, we can perhaps render valuable aid to our patients. The vasoligation, as he calls it, is entirely harmless, and in premature senile conditions, in impotency and in conditions of depression it may improve some patients; no effect may be apparent in others, but in still others it may have a decidedly good influence. No benefit was derived in one syphilitic, and in one patient with profound depression for several years, both in the group of senile conditions, and two patients were only transiently benefited. But the six others in this group showed remarkable improvement, physically, mentally and in some sexually. In the four cases of impotency and depression, a positive result was evident in all from the unilateral vasoligation. One man, after impotency and depression for years, recovered and married and is happy in his married life. The interval since has been from three to eighteen months in all his cases. Sand's extensive experimental and clinical experience in this line has been reviewed as published. His operation differs from Steinach's, as was mentioned on page 418. He calls his operation epididymectomy or *vasoligatur*.

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STATE LICENSURE APPLIED TO LABORATORIANS *

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A progressive development of laboratory methods for the study and diagnosis of disease and a rapid multiplication of hospitals, diagnostic clinics and laboratories, have created a constantly increasing demand for laboratorians. More and more, physicians and surgeons are demanding accurate and reliable pathologic, bacteriologic, serologic and chemical examinations and the preparation of biologic products, as diagnostic aids and therapeutic measures.

The number of medical graduates of sufficient special training in laboratory medicine adopting the laboratory as a career and specialty is inadequate to meet this demand. Graduates in medicine are not being attracted to laboratory careers in sufficient numbers, largely because of inadequate financial compensation and limited opportunities for advancement. As a result, it is becoming increasingly difficult to provide instructors in the medical sciences for medical schools, and heads for large hospital and municipal laboratories. It is imperative that salaries shall be revised upward, and that teachers of pathology and bacteriology in medical schools shall renew their efforts to attract students and recent graduates to laboratory careers. This can be done largely by developing and encouraging those who show special aptitude and leaning toward this work.

One result of the increasing demand for laboratorians and the shortage of medical graduates adopting this work has been an increase in the number of lay persons engaging in medical laboratory practice. In some instances, these are doctors of philosophy who have majored in the medical sciences, and doctors of public hygiene or certified sanitarians with special training in laboratory medicine, but not infrequently they are technicians, trained more or less thoroughly in laboratory methods and varying greatly in experience, skill and personal fitness.

In my opinion, it is indeed fortunate that properly prepared lay persons are attracted to laboratory careers. So far as clinicopathologic, bacteriologic, serologic and chemical work are concerned, there is no reason why doctors of philosophy or public hygiene, and experienced laboratory technicians who have given these subjects special study and attention, should not qualify and prove as capable for conducting the examinations as the medical graduate, and, indeed, prove more efficient, in comparison, if the latter has nothing more than the usual undergraduate medical courses of instruction in the way of technical training and experience. In other words, a course in medicine is not essential in preparation for the technical side of this work. But a medical education and experience are required in preparation for independent work in tissue pathology and roentgenology.

However, for the interpretation of laboratory examinations, a medical education is essential. For this reason, the directors or heads of medical laboratories should be graduates of medicine, possessing a fair degree of clinical experience in order that they may serve as consultants in this field for evaluating the results of laboratory examinations and may aid the physician and surgeon in correlating them with clinical data. In other words, a medical education would appear essential in preparation for the highest positions in medical laboratories, and the interpretation of examinations in tissue pathology, serology (with special reference to the Wassermann reaction) and roentgenology should always be in the hands of the specially trained and experienced graduate in medicine.

Unquestionably, properly trained and careful technicians can conduct the various tests and examinations in clinical pathology, bacteriology, chemistry and serology and prepare sections of tissue, as well as medically trained pathologists can. In fact, women are usually endowed by nature with more patience and aptitude for details than the average man and are more likely to be content with routine work. When especially trained in a certain branch instead of being required to have a smattering of all kinds of laboratory methods, they are capable of rendering very satisfactory services and are fast becoming as indispensable for the conduct of medical laboratories as nurses are in the practice of medicine and surgery.

In a large number of institutions, technicians are being practically depended on for the conduct of laboratories, with little or no supervision. In some instances, commercial laboratories are being conducted by them, and the patronage of physicians and sometimes of the laity is being solicited. With the smaller hospitals, there appears no alternative, as the work does not enable the institution to pay an adequate salary for a well-trained pathologist, although much could be done by employing a pathologist to serve part time in two hospital laboratories overseeing and directing the work of the laboratory interns and technicians.

For various reasons, therefore, nonmedical persons in increasing numbers are engaging in medical laboratory practice. So far as making tests and examinations are concerned, nonmedical graduates and technicians

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* Chairman's address, read before the Section on Pathology and Physiology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

possessing adequate training and experience are as acceptable as medical graduates; but, in tissue pathology, a medical education is essential, as it is likewise for the interpretation of laboratory results in general, with special reference to tissue pathology, serology and roentgenology. The question now arises regarding the legal status of nonmedical laboratorians in relation to the laws governing the practice of medicine in the different states; also as to whether or not it is advisable for state boards of medical licensure to devise some means of bringing nonmedical laboratorians under control, especially those conducting laboratories without the supervision of a doctor of medicine, who may be held responsible.

In a broad and general manner, persons making medical laboratory tests and examinations and reporting the results of these to physicians are engaged in the practice of medicine, even though they do not apply remedial measures. When bacteriologic examinations are made and an autogenous vaccine is prepared, with advice for the physician as to dosage, the technician comes even closer to the actual practice of medicine, even though he or she may not actually give the injections. The practice of medicine cannot be construed as being confined to the application of remedies; laboratory examinations are properly included, since the results may be applied in the making of diagnoses and the application of remedial measures. A recent decision by Attorney-General Allen[1] of Massachusetts was to the effect that "a person acting as a pathologist should be registered under the law providing for medical registration." In this particular case, the acting pathologist was a doctor of medicine who did not believe that registration was required for conducting pathologic work. The decision opens up the probability that other laboratorians must secure registration in Massachusetts and other states with similar laws; as stated by Allen: "In order to practice medicine one need not cover the entire field of the science. If he devotes himself to a very restricted part of it, he still may be found to practice medicine. It is a matter of common knowledge that there has been great specialization in the profession in recent years."

According to this opinion, a doctor of medicine who is confining his or her work to the laboratory, under the broad and general designation of "pathologist," is engaged in the practice of medicine and must be registered to avoid the possibility of prosecution. But how about the doctors of philosophy and the non-degree technicians who, in many instances, are conducting medical laboratories without the supervision of a registered doctor of medicine to assume responsibility? Is it not a matter of importance that the state shall inquire into their qualifications for conducting a medical laboratory and insist on a minimum standard of education, skill and experience in this work? What is the medicolegal status of their examinations—for example, the results of a Wassermann test in a divorce suit?

Should the states provide for the examination and registration of nonmedical laboratorians? Or would it suffice for the states to require that they practice only under the supervision of a medical graduate laboratorian who assumes responsibility? Or is it sufficient to let matters stand as at present, in which case physicians and laity shift for themselves in having pathologic, bacteriologic, serologic, chemical and even roentgenologic examinations made by any one whom they select or may be compelled by circumstances to call on, whether or not they are medical graduates and regardless of their qualifications in general?

Opinions on these questions may vary considerably. As long as nonmedical laboratories make examinations and submit reports to physicians only, it may be granted that the latter assumes most of the responsibility and that it makes little difference to the state whom the physician calls on for these examinations and for even the interpretation of the results. Under these conditions, the state may claim to afford ample protection to her citizens by holding physicians responsible, provided nonmedical and unregistered laboratories are forbidden to make medical examinations for the laity.

However, it is inconsistent to require examination and registration of medical graduates specializing in laboratory medicine and allow all other laboratorians doing similar work to practice without fulfilling these requirements, as is the case at the present time. Nothing need nor should be done to prevent nonmedical laboratorians from engaging in this work, because the majority are capable of conducting laboratory examinations in a thoroughly acceptable manner, and their services are invaluable and indispensable; but nonmedical laboratorians should not be permitted to interpret the result of examinations to the laity, because this touches on the diagnosis and possibly on the treatment of disease and so involves the practice of medicine. Under these conditions, a nonmedical laboratorian could examine the urine of a person and even make a Wassermann test for him, but the results should be interpreted by a physician, unless the individual wishes to rely on his own judgment and information.

I believe that the time has arrived when the state should give these questions some attention, in reference not only to medical laboratory examinations but also to the roentgenologic work being done by nonmedical technicians.[2] Many physicians—probably the majority—give little or no attention to the qualifications of those to whom their laboratory work is entrusted. During former days, when most clinical laboratory work embraced simple urine and blood examinations, errors probably did little harm, but the chances of harm resulting from erroneous Wassermann reactions, tissue diagnoses and various bacteriologic and chemical examinations may be considerable, and, indeed, with the Wassermann reaction, may be incalculable, in relation to the domestic life, health and happiness of the patients. As a general rule, practicing physicians do not realize the many chances for error in laboratory work; "to them a test is a test, regardless of by whom or how it is made;" and not a few fail to realize the necessity for skill, experience and care for the proper conduct of most medical laboratory examinations.

While individual rights against state interference and control are to be carefully guarded, some means should be found by the state for the licensure and control of nonmedical laboratorians engaging in general laboratory work without medical supervision; just as the state may require the examination and licensure of the doctor of medicine practicing pathology, in a general sense, as a specialty. The technician employed in a physician's office and the technicians working in an institutional laboratory under a licensed physician would be untouched, as the physician or institution may be trusted with passing on the qualifications of the technician and assumes responsibility for his or her work. But provision should be made for the examination and licensure of the doctors of philosophy and hygiene and other technicians who are not doctors of medicine, who are engaging in independent medical laboratory work and practice either in commercial, municipal or institutional laboratories. So many nongraduates of medicine are entering on medical laboratory practice that some regulation and some acceptable criteria of fitness for this work are required for the protection of both the medical profession and the laity, and especially so, since medical laboratory examinations are being requested and relied on more and more as aids in the diagnosis and treatment of disease.

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[1] Boston M. & S. J. 87: 186 (Jan. 19) 1922.

[2] Trostler, I. S.; Darling, B. C., and Landau, G. M.: Medical Supervision of Commercial Laboratories, J. A. M. A. 78: 1219 (April 22) 1922.

STANDARDIZATION OF CLINICAL LABORATORIES *

JOSIAH J. MOORE, M.D.

CHICAGO

Although the classification of medical schools has raised the level of medical education of the undergraduates and also improved the present status of graduate and postgraduate schools, the majority of physicians, for various reasons, rely on clinical laboratories for much of their diagnostic laboratory work and for much of the newer knowledge in medicine. The pathologist is rapidly advancing from being a good or poor technician to a consultant who must not only be expert in his own line, but in addition must have considerable knowledge of all the specialties. In order to have this information, the training must be broad in actual experience and practical skill.

The ideal laboratory director should be a broad minded, conservative, conscientious pathologist, preferably with clinical training, who must give freely of his knowledge to that group of physicians who depend on him for laboratory service. His rôle should be that of adviser and consultant, and he should be directly interested in having individual physicians or the profession as a unit acquainted with the value of the more accurate modern procedures of his specialty.

The average practitioner has four methods of keeping up with his education: (1) through clinics and postgraduate courses; (2) through the literature; (3) through teaching in medical colleges, and (4) through laboratory connections. Not all find it possible to take the first. We know by statistics and by the number of unopened journals on the desks of too many physicians that the second is not infrequently neglected. And only a few of those who live in cities where medical colleges are located can learn through teaching. But every practitioner at the present time should, and, I believe, does make some use of the clinical laboratory. The tests are so numerous that every physician at some time or other must come in contact with laboratory men. Here lies the greatest opportunity for the laboratory to give full service to the profession. Here is one of the strongest reasons for keeping laboratories up to a certain standard.

To reach the highest efficiency, laboratories should have in their personnel men and women of the same type as those found in medical colleges and research institutions. Medical colleges and hospitals are appreciating this, and a gradually increasing number of teaching pathologists are acting as directors of the laboratories of affiliated hospitals. This in most instances works out satisfactorily to both the school and the hospital, and is certainly a potent factor in the maintenance of efficient clinical laboratory work.

The time is past when a physician who is unsuccessful as a practitioner can start a laboratory as a last resort. Too many mistakes are made by this plan. I feel sure that most surgeons would prefer that all tissues removed by them should be examined and reported on by trained pathologists, rather than to trust to neophytes who have had a six weeks' course. Numerous mistakes in tissue diagnosis have occurred and will occur through such inexperience. It is now the custom of the majority of large hospitals to have full-time pathologists as directors of their laboratories rather than to have interns acting as pathologists. This has also made it advisable for laboratories unable to secure experienced pathologists to employ larger laboratories or teaching pathologists as consultants.

There is probably no laboratory test in which more mistakes are made than in the Wassermann reaction. Efforts to render this test as reliable as modern procedures will permit by a standardized technic and standardized antigens have been attempted in Europe and this country. I feel that Kolmer [1] has done effective work in his exhaustive study of the numerous technical methods and in his presentation of a standard method. This was not brought forth to stop investigative study of the Wassermann reaction, which still remains unexplained, but to protect the patient and the physician from errors due to faulty technic and wrong interpretations in the hands of the laboratory technician. If it succeeds in this, Kolmer will have accomplished much. A similar attitude is manifested by the New York Department of Health,[2] which says: "The complement fixation test for the diagnosis of syphilis shall be attempted only by those who are especially trained and qualified to do the work. It is undesirable for a laboratory to undertake the performance of the complement fixation test for syphilis unless the number of specimens examined is sufficient to insure adequate control of the reagents and methods used." Both statements are especially appropriate, the first in the fact that large numbers of courses of from two to four weeks are given in the Wassermann technic; and secondly, in the desire of many small hospitals with but few Wassermann tests to have them made in their own laboratory by a young woman who must, in addition, pose as an expert bacteriologist and blood chemist, and do all the routine work in the laboratory, besides taking an occasional roentgenogram. In addition to making the tests, she must also interpret the results—which, combined with little medical knowledge on the part of the technician and no medical supervision, often leads to disastrous complications.

Writing on an allied subject, the Committee on Radiological Frauds and Improper Practices of the Radiological Society of North America [3] states that:

> In May, 1921, the following resolution was passed by the Comitia Minora of the Medical Society of the County of New York:
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> "As a matter of public policy, it is recommended to the profession that their support of commercial laboratories be

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* Read before the Section on Pathology and Physiology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Kolmer, J. A.: Am. J. Syph. **6**: 82 (Jan.) 1922.
2. Laboratory Manual, New York State Department of Health, 1920, p. 20.
3. Trostler, I. S.; Darling, B. C., and Landau, G. M.: Medical Supervision of Commercial Laboratories, J. A. M. A. **78**: 1219 (April 22) 1922.

withdrawn, and wherever possible, patients be referred to laboratories under the supervision of competent and qualified medical men."

A lay technician who opens his own office and works entirely independent of medical supervision is violating the medical practice act when he gives out written and verbal diagnosis of pathologic conditions, in that he is practicing medicine without a license.

In order that there might be a definite plan to work on, a set of requirements for laboratories was prepared and submitted to a large number of laboratory directors and pathologists, and from the comments and suggestions which they made the following may be submitted:

GENERAL STANDARD REQUIREMENTS FOR CLINICAL LABORATORIES

1. The director of a clinical laboratory should be a medical graduate.

2. All interpretations of laboratory data should be made by doctors (of medicine, philosophy or public health) who are specialists in the branch of work to which the data pertain, i. e.:

(*a*) Serologic, bacteriologic and chemical interpretations should be made by doctors who are trained serologists, bacteriologists and chemists.

(*b*) Tissue diagnosis should be made by doctors of medicine who are experienced pathologists.

3. Technical procedures (methods) used in an acceptable laboratory should be the best available: those used and approved by authorities.

4. The equipment of an acceptable laboratory should be such that the proper technical procedures may be carried out. There should be ready access to current scientific books and journals.

COMMENT

With reference to these suggested requirements, the following statement is made:

1. The director of a laboratory should be able to act as consultant in evaluating for his clients the various laboratory reports and in correlating them and other clinical data.

2. Many technical methods—most of them, perhaps—may be satisfactorily carried out by technicians. The data derived by such methods, however, should be interpreted by specialists.

3. If it is insisted that only the best modern methods be used in a laboratory, it follows that the technicians employed must be trained in these methods.

4. Clinical data and other pertinent information should accompany the submission of specimens or other material to the laboratory.

The scarcity of medical graduates with proper training in laboratory work has led to the suggestion that the director of the laboratory may be a doctor of philosophy who has specialized in bacteriology, medical parasitology, serology or allied subjects, or a doctor of public health. These may, when necessity arises, have access to medical consultation. In discussing this subject, the Laboratory Manual of the New York State Department of Health[2] states that "directors of laboratories, approved for these examinations (i. e., for the diagnosis of diphtheria, tuberculosis, typhoid fever and other communicable diseases) should preferably be graduates of medicine, or bacteriologists of sufficient education and experience to interpret the significance of the results of laboratory examinations. Members of the staff who make diagnoses shall have trained under qualified experts and shall have not less than one year's experience in a bacteriologic laboratory."

Dr. Wadsworth, director of the New York State Department of Health Laboratories, says in a personal communication that:

> It has been so difficult to secure graduates in medicine who are also qualified in laboratory work that competent bacteriologists and serologists without a medical education have been accepted. They have often proved more efficient. In all our work we try to avoid making diagnoses, reporting simply the results of the examinations, leaving diagnosis entirely in the hands of the physician at the bedside.

Since it is suggested that the director should be able to act as a consultant, it necessarily follows that the medical graduate is best qualified. Secondly, there is entire accord that tissue diagnosis should be made by doctors of medicine who are experienced pathologists. It does not necessarily follow that the pathologist should be director of the laboratory; but such a combination gives, in my opinion, the most happy results. The question has arisen whether it is not the function of the physician in charge of the patient to evaluate the laboratory report and interpret it with the clinical data. This opinion is perfectly sound, but one difficulty comes from the fact that many practicing physicians cannot evaluate the newer laboratory examination; and if the laboratory reports are made by technicians, no matter how skilled, the laboratory and the patient will fail to get the best results. Various methods for standardizing clinical laboratories may be proposed. An illustration of public health laboratory standardization is to be found in New York. In a brief description of the method employed here, Wadsworth[4] says that the first step was made when the sanitary code established by the public health council of the state, under legislative authority, prescribed that certain diagnostic examinations must be made in a laboratory approved by the commissioner of health. Such examinations, when made in other laboratories, thus have no standing in court. Later the laws were amplified to require that laboratories engaged in public health work secure the approval of the commissioner of health. Approved laboratories must adopt prescribed methods of examination, and a uniform system of reporting and of keeping records. They are occasionally inspected by authorized representatives of the commissioner of health, who advise persons in charge as to methods employed, and are frequently sent test specimens from the central laboratory for checking up on their work. The laboratories are approved for one year. A manual[2] is issued which gives in detail standard methods of procedure for performing the various examinations. Dr. Wadsworth states that such a standard requirement as that submitted is an important step toward standardization, but it is difficult to understand how results are to be obtained unless there is definite responsibility fixed upon some official agency for the supervision and practical testing of the work of the laboratories. It has been necessary in New York State not only to formulate standards, but also to determine the fact that these standards are actually maintained by inspection tests at stated intervals.

Such a method of state control of public health laboratories could be adopted in each state, but there would surely arise the same difficulties we now have with the multiplication of state boards of medical examiners. Many laboratories could also exist by this plan without approval and control. The state board of medical examiners of Pennsylvania, which has under its jurisdiction the approval and standardization of hospitals for interns, requires minimum standards of laboratory equipment and a competent personnel for the hospital laboratory, which is a progressive step in the proper direction.

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[4] Wadsworth, A. B.: Cooperation Between a Central State Laboratory and Local Municipal and County Laboratories, J. A. M. A. 77: 512 (Aug. 13) 1921.

A more general system of supervision appears desirable, and this may be accomplished by having the Hygienic Laboratory of the United States Health Service act as the central authorized body. This would be somewhat similar to the issuing of licenses to biologic laboratories for the sale of their products in interstate commerce. Here again we would have difficulties, since the majority of laboratories do work only for a community or local area within the state, and there might arise questions of state and national rights.

In the rapid advance of medical education in this country, the rapid rise in the standard of the medical colleges was accomplished by the colleges themselves in the Association of American Medical Colleges, and the Council on Medical Education and Hospitals of the American Medical Association. It may be possible for the clinical laboratories to form an association and achieve the same success. However, one attempt of this kind has already been made, and the results were not encouraging. The large number of laboratories, in connection with hospitals and private institutions, makes such an undertaking difficult unless strongly supported by some stronger and older organization, such as the American Medical Association.

Another organization, the American College of Surgeons, has undertaken standardization of hospitals, and the Council on Medical Education and Hospitals of the American Medical Association has listed the requirements for institutions offering services to interns. Since the minimum standard requirements for hospitals as stipulated contain clauses applicable to clinical and roentgen-ray laboratories, it may be possible that such clauses may be enlarged to cover the details of the minimum requirements herein set forth.

The support of the American Medical Association, the American College of Surgeons, the Hygienic Laboratory of the United States Public Health Service and the proposed Association of Clinical Laboratories for the enforcement of such a standard of requirements for clinical laboratories as suggested in this paper, or a satisfactory modification of such a standard, is necessary in order to insure the complete attainment of this plan. Such a plan in successful operation would be comparable to a raising of the standard of medical education, as a progressive step in the advancement of medical science.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. KOLMER AND MOORE

Dr. Fred I. Lackenbach, San Francisco: A very valuable means of control is that exercised by the postoffice department. A regulation provides that all specimens sent through the mail shall go into a laboratory, provided the laboratory has a medical director in charge. That matter came up in San Francisco a few years ago. The container of a specimen sent through the mails was broken, and the specimen was scattered. It led to an investigation. The postoffice department sent a man to the various laboratories to find out what conditions were, and provided for issuing permits to these laboratories where the conditions were found acceptable; one of the conditions was that there should be a medical man in charge of the laboratory. One of the great difficulties in laboratories, so-called commercial laboratories, is the competition of inferior laboratories. Men who want to do good work and are capable of doing good work find themselves confronted with many laboratories that are not doing good work, and it lowers the standard; it lowers the compensation that it is possible to derive from the conduct of a laboratory. Further, there is another element, the competition of a physician or group of physicians employing a technician (perhaps some girl who has had a year or so training), putting her in charge of the laboratory work and letting her do the Wassermann tests and other important work. That class of work certainly does not compare favorably with the so-called commercial laboratories taking them as a whole, because commercial laboratories have a reputation at stake, and if they did poor work they could not continue. But in a laboratory where physicians are in charge and work is done slipshod with no one to pass on it it simply goes! That is one of the complications, it seems to me.

Dr. Philip Hillkowitz, Denver: I take issue with some of the suggestions made, although I am heartily in accord with the end in view. In the first place, I take exception to the premise on which I believe both papers are based, namely, to standardize an impersonal institution as understood in the words "clinical laboratory." I desire to emphasize the fact that the great majority of men who are engaged in clinical pathologic work do not consider themselves laboratory men, but practitioners of medicine engaged in a particular specialty. We think it entirely inadvisable, therefore, to standardize the laboratory or to license the technician any more than the laryngologist or the surgeon would want the state to tell him what kind of surgical instruments he should have, or how well the nurses he had working for him should be trained. We think that every man who engages in clinical laboratory work should be responsible for the technic and interpretation of all tests that come to his laboratory. It is his concern to see that the technicians he trains, or gets from the outside, do their work properly. We do not like the term "laboratory" as something apart from the physician who directs it. As regards the motive for licensing technicians on account of the scarcity of trained pathologists: the reward to the medical man who devotes his life to this field is not commensurate with the time, labor and study involved. That is our fault. Physicians expect hospitals to furnish blood counts, Wassermann tests, etc., on the same basis as light and heat. Every one of these tests should be conducted under the supervision and the proper interpretation of a medical man who is entitled to proper compensation for his function as a consultant. I am sure that education of the public will bring about this result. It should bring it about in every community so that pathologists will receive adequate compensation, as do the surgeons, laryngologists or other specialties. With proper valuation of the work of the pathologists, many a young graduate, instead of turning to the more lucrative fields of internal medicine or surgery, will look to pathology for his life work. If we license technicians, it means that the state places its seal of approval on this particular person. The very same question came up with the state boards of health licensing chiropractors and other cults. Where this license was granted, the "irregulars" now perform surgical operations. We shall have the very same thing with technicians. Therefore, let every clinical pathologist be responsible for the competence of the help in his laboratory.

Dr. C. C. Bass, New Orleans: I doubt whether we have reached the time when a nonmedical person should be licensed to perform any medical function, such as laboratory examinations, without the supervision and direction of competent medical men. It is true that if the physician wishes to delegate any part of his duty or of his work to a person who is specially trained to do that particular work, I think that is quite permissible, whether it is laboratory or other work. If he wishes to have a competent person to make laboratory examinations for himself, perfectly well and good. If a hospital wishes to employ a laboratory technician to perform certain of the technical work under the direction of a competent pathologist, it seems to me quite proper; but there should be no such thing as a hospital laboratory, or any other clinical laboratory, making laboratory examinations and reporting thereon except under the direction of competent medically trained men. Such work being done by nonmedical persons without supervision tends to belittle the recognition of the importance of the work of the clinical laboratory. Not only does such work tend to belittle and cheapen the work of the clinical laboratory, but it also tends to prevent the correction of the cause of the present insufficient number of competent laboratory men, namely, insufficient compensation. If a physician's ability to do reliable laboratory work were as well recognized and as well paid for as the other parts of the practice of medicine, there would not be such a shortage of competent physician laboratory workers as exists today. It seems to me, therefore, that it is unwise to license anybody except medically trained men, or women, to practice this specialty any more than any other specialty in medicine.

Dr. Frank M. Huntoon, Glenolden, Pa.: It seems to me that the whole question develops itself on two points: First, to obtain a competent pathologist who is a competent serologist. Where are you going to get a competent pathologist, and who is going to say he is competent? A pathologist can acquire bacteriology and serology. A man of good judgment and common sense can acquire this if he sufficiently applies himself. Technical pathology, however, is a special subject. The pathologist must have a peculiar type of picture memory which enables him to muster up his past experiences at the time he is looking at his slides. The question of deciding whether a tissue growth is malignant, or nonmalignant is a matter of life and death. Now whom are you going to trust with that diagnosis? Certainly not every technician or a nonmedical man? It seems to me that Dr. Kolmer's idea is that the laborer is worthy of his hire, that a man who makes the diagnosis that takes the application of years of knowledge is as worthy of a consultation fee as the internist who sees the outside of the patient and guesses at what goes on in the inside. In regard to the education of the physician who receives the report: Dr. Moore mentioned in his address that you were really forced to make the diagnosis for the physician. If the laboratory man interprets the results of his examination, he is then acting as a consultant and should receive a consultant's fee.

Dr. Ward Burdick, Denver: I am heartily in accord with the remarks of Dr. Huntoon. I do not think we should let the bars down too freely. There are at present too many lay people crowding at the gate to medicine, as evidenced by chiropractors and osteopaths. I do not approve of it. I merely wish to go on record as speaking against licensing lay people and permitting them to conduct laboratories without medical supervision. I think it is entirely wrong, and I believe that that will do more toward keeping first class men out of this field than anything else that could happen. I believe that this is at present one of the reasons why more good men, well qualified men, are not taking up the specialty of clinical pathology.

Dr. Herman Spitz, Nashville, Tenn.: I heartily agree with the statements that have been made. This question has been discussed pro and con for the last nine or ten years. It is a constant topic of discussion, and when a number of laboratory men get together, a constant source of irritation. I feel that a large part of the irritation is our own fault. Our professional colleagues come into our office and ask us to train a technician for them in from four to eight weeks; usually some girl who is looking for a job or a relative of the doctor's. They thereby imply that everything we have acquired in eight or ten years of hard work can be acquired by a girl, with or without a high school education, in from four to eight weeks. It is our own fault if we fall into the trap. We should say: "If you want her to do laboratory work, send her to college for from two to four years to learn to do things properly, and after that time you will get some satisfactory results from her work." If the physicians in my community desire to employ a layman to do their work, whether a woman or a male technician, that is their own business, not mine; but when a physician comes to me and wants laboratory work done and I or my technician, whom I have trained for years and in whose ability I have confidence, runs through a piece of work, I render an opinion in the same spirit that a consultant, whether an internist, an aurist or a surgeon, renders an opinion, and I expect a fee. If they are not willing to pay that, they do not get the service. If the case is a charity one, they get the work irrespective of what the circumstances may be. I feel that if we prolong the discussion of licensing laboratories conducted by laymen, we are simply throwing the bars down and admitting to our colleagues that all this work we have been talking about for so many years as being so highly important and necessary to do is not that at all, but can be done by anybody who has taken a four to six weeks' course in anybody's laboratory. I am certainly opposed to any such system.

Dr. A. J. Carlson, Chicago: We examine a specimen of blood for syphilis. The internist asks for our findings. It is either syphilitic or nonsyphilitic. Is that diagnosis? We examine urine specimens for albumin or sugar, and we find them. Is that diagnosis? When it comes to the interpretation of a tumor, the very best men will frequently differ as to whether it is malignant or not. It seems to me that unless we clearly differentiate here what we mean by rendering diagnosis and reporting on facts, we are merely quibbling in saying that the laboratory director at his office desk with the report of the laboratory man before him is a consultant. Unless the director did the laboratory work he does not know whether there was sugar or albumin in the urine, or whether the blood specimen contained spirochetes. So the onus, as I see it, is still the accuracy of the work. The interpretation cannot be made except in connection with the patient, as to how he contracted the malady and what chance he has to survive. Merely passing on the written laboratory report should not be dignified by the term diagnosis or consultation. The important thing there is the accuracy of the laboratory work. Is that specimen of blood syphilitic? This we cannot determine by sitting at our office desks.

Dr. J. H. Black, Dallas, Texas: In regard to Dr. Carlson's statement, I think there is an important clinical difference between the work of the technician and the pathologist. Take one of the examples he gave for instance, the finding of albumin in urine. Any technician may be able to report whether albumin is present or not, but the technician is not able to discuss intelligently with the physician whether it is a transient condition due to excessive exercise, an orthostatic albuminuria due to a lordosis, or an evidence of a true nephritis. The technician may report sugar in the urine, but cannot discuss intelligently with the physician whether it is an alimentary glycosuria, a renal glycosuria or a true diabetes mellitus. That offers a legitimate field which the technician cannot in any sense fill. We must be able to interpret for the physician our findings if he is not in a position to do it himself. The solution is going to come when the clinical pathologist makes the general practitioner see that he can give service that the technician cannot. We are clamoring constantly that we are consultants and not technicians. If we are qualified to render him service, and do render him service which the technician cannot, then we shall have little difficulty with the practitioner in convincing him that we are something that he really needs.

Dr. Josiah J. Moore, Chicago: The statement of Dr. Hillkowitz that laboratory work in a hospital should not be considered in the nature of overhead expense as water, heat, light, etc., and billed as a flat fee is agreeable to pathologists. It is the tendency of hospitals to do this; but until the surgeon and the clinician are placed on the same basis I hardly think it is fair to the pathologist. Since at present it is difficult to obtain competent pathologists for the medical schools, it will be impossible to have them for fifty-bed hospitals. However, the director of a laboratory does not necessarily have to be in the hospital. With a properly trained technician as resident, who can perform the routine work, the more difficult tests can be sent to the director, who may be some miles away. Dr. Carlson raised a question on the meaning of interpretation and diagnosis. Frequently we are asked to interpret a blood count, following which a conversation with the physician on the condition of the patient leads to a suggested diagnosis. We are then acting as consultants and not merely as technicians. Similarly, when making a diagnosis of a specimen of tissue after receiving a complete history or conversing with the surgeon, we are performing our work as consultants. Interpretations are commonly called for in the field of blood chemistry. As far as can be determined, this is now taught only as optional courses in the fourth year of medicine, and the majority of students at present graduate with but little practical knowledge of the subject. Naturally, the graduate of former years is still more handicapped, and here we find a large field for the laboratory man to help both the physician and through him the patient. Whether the laboratory man is a pathologist in a school, in a hospital or in a public clinical laboratory, he should always be a teacher, and that is the kind of men we want in our laboratories.

A STUDY OF FOUR HUNDRED AND EIGHTY-FIVE CASES WITH GENITAL LESIONS *

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The conditions diagnosed in a study of 485 cases showing lesions of the genitalia clinically suspicious of venereal disease are presented in Table 1.

TABLE 1.—CONDITIONS DIAGNOSED IN CASES SHOWING LESIONS OF THE GENITALIA

Condition	No. of Cases	Percentage
1. Chancroid	177	36.5
2. Chancre (202 lesions)	153	31.5
3. Chancroid and chancre (mixed)	18	3.7
4. Chancre redux	4	0.83
5. Secondary syphilis (moist papules)	32	6.6
6. Herpes progenitalis	37	7.8
7. Erosive gangrenous balanitis and vulvitis	30	6.2
8. Nonspecific (simple) balanitis	11	2.2
9. Folliculitis	7	1.4
10. Ulcerating granuloma of the pudenda	8	1.65
11. Scabies	3	0.62
12. Tuberculous ulcer	3	0.62
13. Epithelioma	1	0.21
14. Kraurosis vulvae	1	0.21

This series constitutes all the material of this type seen in the skin and syphilis clinic of the outpatient department of Lakeside Hospital and in private practice by me and my associate, Dr. Harold N. Cole, from Aug. 1, 1920, to Feb. 1, 1922, a period of eighteen months. The methods employed in coming to a final diagnosis will be briefly outlined.

HISTORY

The history of the case is often helpful, if accurate data can be obtained. In chancroid, the incubation period is short, as a rule less than ten days; while in syphilis the incubation period is usually from ten days to six weeks. We have found the history to be the least reliable of all clinical aids, and it should not be the sole factor in making the diagnosis.

CLINICAL APPEARANCE

The number of cases in which we see the so-called typical chancre is comparatively small. The frequency of multiple chancres, 38 per cent. in the series, the not uncommon occurrence of mixed lesions of chancre and chancroid, 3.7 per cent. in this series, and the presence of single lesions in cases of chancroid, 53 per cent. in our study, again make the importance of laboratory aids in diagnosis quite evident. We feel that the number of cases in which a clinical diagnosis of chancre or chancroid can be made safely is almost nil, and this method of making a diagnosis is to be discouraged. In only twenty-five cases was a diagnosis of syphilis made clinically. In these, it was impossible to follow the case to final diagnosis. None of this group received treatment by us. An efficient social service follow-up system in the Lakeside clinic made it possible to follow such a large percentage of our cases to final diagnosis.

LABORATORY METHODS

The laboratory methods used in this study consisted of (*a*) the dark-field illuminator for detection of *Spirochaeta pallida,* the fusiform bacillus and spirillum of Vincent; (*b*) the Wassermann test, used as a follow-up method for all cases having negative dark-field examinations and on those cases with genital lesions suspicious of secondary syphilis; and (*c*) biopsy examinations in cases diagnosed as epithelioma, tuberculous ulcer and ulcerating granuloma of the pudenda.

Dark-Field Illuminator.—Of first importance in the diagnosis of primary syphilis is the dark-field illuminator. This instrument is the most simple and accurate for the demonstration of *Spirochaeta pallida,* the procedure being no more difficult than the simple staining methods for the microscopic examination for the gonococcus or the tubercle bacillus. It should be in the equipment of every physician who treats venereal disease. It is lamentable that practically the only aid to the diagnosis of syphilis before the Wassermann reaction becomes positive should not be more universally used. In this series, all cases received at least one dark-field examination. In those cases not diagnosed at the first examination and which we were able to follow to ultimate diagnosis, examination by this method was made at one and two day intervals until at least four negative results were obtained.

Wassermann Reaction.—In all cases in which the diagnosis was not made by means of the dark field, the Wassermann tests on the blood of the patient were started at the end of the second week, and weekly examinations made for the first eight weeks and every two weeks thereafter. The patient was not pronounced nonsyphilitic until a negative result at the end of three months was obtained.

Biopsy.—In the few cases clinically suspicious of epithelioma and of tuberculosis, the diagnosis was confirmed by biopsy, by negative Wassermann tests and by negative dark-field examination. In all cases of ulcerating granuloma of the pudenda, biopsy examinations and microscopic smears were made.

ANALYSIS OF CASES

Syphilis.—The diagnosis of syphilis was made in 203 cases, or 42 per cent.; 178 of them being diagnosed by means of either the dark field or the Wassermann test, or both. In addition, we had twenty-five cases which were diagnosed by history and clinical evidence alone, because of the inability to follow the case through to ultimate laboratory diagnosis. In 171 cases, the diagnosis of primary lesion was made. Of this number, 98, or 57.3 per cent., had positive dark fields. Table 2 presents the results of the dark-field examinations.

The patients in the largest group were examined between one and ten days, thirty-seven giving positive reactions and twenty-eight, negative. The fact that out of the twenty-eight negative results twenty-four cases had received previous local treatment probably accounts for the rather low percentage of positive results. It will be noted that a higher percentage of positive examinations was found in the twenty to thirty days' series than in the ten to twenty days' series. This is doubtless accounted for by the relatively small number of cases, there being but twenty-five in this group. From an analysis of these results, we are convinced that the greatest factor in preventing a diagnosis by dark field was local treatment of the lesions, especially with preparations of mercury. The age of the lesion did not make any appreciable difference so long as it had not been treated. In those cases in which the lesion was concealed by phimosis, examination by dark field was also very unsatisfactory. In Table 3, the location of the primary lesions in our series is shown.

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* From the Department of Dermatology and Syphilology of the Western Reserve University Medical Department and of the Lakeside Hospital.

* Read before the Section on Dermatology and Syphilology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

TABLE 2.—RESULT OF DARK-FIELD EXAMINATIONS IN ONE HUNDRED AND SEVENTY-ONE CASES OF PRIMARY SYPHILIS

Duration of Chancre	Number of Cases	Dark-Field Examination		Treated Locally	Dark-Field Percentage Positive
		Positive	Negative		
1 to 10 days	67	39	28	24	58.2
10 to 20 days	48	30	18	27	62.5
20 to 30 days	25	16	9	18	64
30 to 60 days	31	13	18	22	42
Total	171	98	73	91	57.3

It will be noted that the most common location was on the prepuce, 34 per cent., the coronal sulcus having 17.2 per cent. and the frenum 14.3 per cent. The majority of the lesions were of the papulo-erosive type. The so-called typical hunterian chancre was comparatively uncommon. Lesions of the veneer type with little or no induration were seen most frequently on the shaft and prepuce. In Table 4 is shown the effect of previous local treatment on the result of dark-field examinations in cases of primary syphilis.

Of a total of eighty-one chancres which had previously been treated locally, including treatment with mild antiseptics, 26 or 28.5 per cent. were positive and 65 or 71.5 per cent. were negative. It will be seen from a study of this table that the mercury preparations nearly always inhibit the possibility of demonstrating *Spirochaeta pallida*, there being 94.4 per cent. negative results. In only one instance out of seventeen was the dark field positive after the use of mercury preparations locally. Copper sulphate used in four cases and compound solution of cresol in two inhibited the dark field in each instance, indicating that as spirocheticides they are very effectual. The actual cautery failed to prevent the demonstration of the organism in only two cases out of seven. Hydrogen peroxid is also of practically no hindrance in the demonstration, eight tests out of ten being positive. In thirty-six cases, the drug used was unknown, it being a white powder or salve procured from the drug store. In the majority of cases, it was probably calomel. There were thirty-one failures to demonstrate the organism in this group.

TABLE 3.—LOCATION OF LESIONS IN ONE HUNDRED AND SEVENTY-ONE CASES OF PRIMARY SYPHILIS

Condition	No. of Lesions	Percentage
1. Prepuce	81	34
2. Sulcus	41	17.2
3. Frenum	34	14.3
4. Shaft	27	11.4
5. Glans	23	9.06
6. Concealed (phimosis)	21	8.8
7. Intra-urethral	3	1.3
8. Labia majora	4	1.7
9. Labia minora	2	0.81
10. Vagina	1	0.42
11. Cervix	1	0.42
Total	238	

In eighty cases of chancre, there was no history of previous local therapy. The dark field was positive in seventy-three instances, or 81 per cent. It is seen, therefore, that in the locally treated group only 28.5 per cent. were diagnosed by dark field, while in the untreated series 81 per cent. were positive by this method.

The comparative infrequency of the diagnosis of primary syphilis in the female is striking in our series. Out of 171 primary infections, there were only eight cases of chancre in women, of which six were diagnosed by the dark field. This, perhaps, is explained by the occurrence of the primary lesion in the vagina or on the cervix in many cases, where it is not discovered by the patient or physician. The majority of cases of secondary eruption in women are without a history of a sore having been noticed.

In our series of primary syphilis, there are four cases of reinfection. In all cases, the previous diagnosis had been made by the dark field, and the Wassermann reactions were negative. In each instance, the second chancre was in a new location. The dark-field examination was positive and Wassermann reaction negative in each instance.

TABLE 4.—EFFECT OF LOCAL TREATMENT ON THE DARK-FIELD EXAMINATION OF EIGHTY-ONE CHANCRES

Drug Used	Number of Cases	Dark-Field		Dark-Field Negative Percentage
		Positive	Negative	
Mercury preparations	17	1	16	94.4
Tincture of iodin	5	4	1	20
Copper sulphate	4	0	4	100
Hydrogen peroxid	10	8	2	20
Actual cautery	7	5	2	30
Doubtful	36	5	31	86
Compound solution of cresol	2	0	2	100
Total	81	23	58	

A diagnosis of secondary syphilis was made in thirty-two cases. In each instance, lesions of the moist, papular type, suspicious of syphilis, were present, without evident secondary skin eruptions. The dark-field examination was positive in all.

Chancroids.—Because of the difficulty in demonstrating the Ducrey bacillus by either cultures or smears, and because of the difficulty of controlling ambulatory cases after autoinoculation, the diagnosis of this condition was made clinically in each instance. There are 195 cases in this series, 179 in males and sixteen in females. In eighteen cases, or 0.87 per cent., the disease was associated with chancre. This leaves 177 cases with a diagnosis of chancroid alone. Of this number eighty-three, or 46.9 per cent., were multiple. One hundred and ten cases, or 62.1 per cent., showed definite, painful inguinal adenitis. Of these, fifty-four cases went on to suppuration, while fifty-six were nonsuppurating. The plan of hospitalizing the patients in as many instances as possible, with rest in bed and ice packs locally, we feel, is responsible for the low percentage of nonsuppurating cases. The fact that nearly one half of the series showed on examination single lesions is noteworthy.

Herpes Progenitalis.—There were thirty-seven cases of genital herpes, or 7.8 per cent. of the total series. There were twenty-eight cases in males and nine in females. In eleven cases, there was a history of previous venereal disease. Seven patients had had gonorrhea; three had syphilis and one chancroid. In twenty-two cases, there was a history of one or more previous attacks. Our series with 75 per cent. in males and 25 per cent. in females agrees with most authorities that the condition is more common in males. When abraded or secondary infection is present, the process may be confused with chancroid, or possibly an early chancre. The absence of positive dark-field findings and follow-up Wassermann tests, associated with a sensation of burning and itching, with a history usually of previous attacks and the lack of induration and inguinal adenitis, makes the diagnosis usually not difficult.

Erosive Gangrenous Balanitis and Vulvitis.—There were thirty cases, or 6.2 per cent. of the total series. It is my opinion that this condition is, perhaps, much more common than is generally supposed. In each instance, diagnosis was made by demonstrating the fusiform bacillus and spirillum of Vincent in dark-field preparations. Most cases of so-called phagadenic chancroid, we believe to be due to this organism. In our study of 485 cases, there were no cases of phagadena. In all cases suggesting this, diagnosis of erosive gangrenous balanitis was made by the dark field. Early recognition of this disease should be emphasized; for once the process has gone beyond the stage of superficial erosion, it is difficult to prevent extensive destruction. In the first few days of the disease, the patient usually complains of a burning irritation of the glans and foreskin. The case at this stage presents a rather abundant, greenish, purulent discharge, which, when removed, reveals a very superficial erosion of the epidermis on a red, inflamed surface. Examination of the discharge with the dark-field illuminator reveals many of the organisms described above. To the practiced eye, there is no difficulty in differentiating the large, irregular, unequal, waved, rapidly moving spirillum from the shorter, delicate, slowly moving *Spirochaeta pallida* with its spirals of equal wave length. We have at times found the two organisms in the same patient and on the same lesions. A diagnosis of both erosive gangrenous balanitis and chancre from a single dark-field preparation should be most carefully made because of the polymorphous character of the spirillum of Vincent. In this series, five cases were in females and twenty-five in males. In only fourteen of the thirty cases had there been an exposure within three weeks. The disease is not always of venereal origin. In a few cases, the possibility of oral etiology was well established. The majority were in patients with long foreskins, and uncleanliness doubtless was a contributory factor in many instances.

Nonspecific Balanitis.—Eleven cases, or 2.2 per cent. of the series, were diagnosed as simple balanitis. Differential diagnosis from erosive gangrenous balanitis was most necessary. Dark-field examination with follow-up Wassermann tests in some cases is sufficient to clear up the diagnosis. The use of strong antiseptic preparations for prophylaxis is the most common cause of this condition. Irritating secretions in cases of acute gonorrhea and, in some instances, uncleanliness, are responsible.

Folliculitis.—Seven cases, or 1.4 per cent., were diagnosed as folliculitis. Lesions are usually on the shaft near the base of the penis and occasionally develop into furuncles.

Ulcerating Granuloma of the Pudenda.—There were eight cases representing 1.65 per cent. of the series. In all the cases, biopsy examinations and microscopic smears were made in addition to dark-field and Wassermann tests. All the cases but one were in women. Examination for the Leishman-Donovan organism was in only three cases satisfactory, and we arrived at the diagnosis largely by clinical means. Biopsy examinations reveal pathologic conditions similar to those of other granulomatous processes. There is marked chronic inflammation with elongation of the papillae and interpapillary processes, usually. There is round-cell infiltration in the upper corium. The absence of giant cells and caseation helps to rule out tuberculosis, and malignancy is ruled out by the pathology also. The blocking of the draining lymph channels may produce a pseudo-elephantiasis of the vulva, as seen in three of our cases. The Wassermann test may be positive (six cases in this series); but in our experience the disease is not influenced in the least by antisyphilitic therapy. The disease is most common in the negro (seven out of eight cases in this series). All of our cases were cured with antimony and potassium tartrate (tartar emetic), reacting to this remedy only. The intravenous method was used. One cubic centimeter of a 1 per cent. solution was given as the initial dose. This was increased 1 c.c. each dose until the patient received 12 c.c. as a dose. Injections were given twice each week until an average of about twelve or fifteen treatments were given. Some of our patients received as high as thirty-five injections without bad effects. There have been no recurrences to our knowledge. The diagnosis of ulcerating granuloma of the pudenda we feel should be considered in all cases, especially in colored females from Southern states, with chronic, ulcerating lesions of the genitalia.

Scabies.—There were only five cases of scabies examined by the dark field. In these cases, the presence of lesions only on the genitals made them clinically suspicious of chancre. The ultimate appearance of typical lesions on the classic areas of the body, with negative laboratory findings of syphilis, cleared up the diagnosis.

Tuberculosis.—In three cases, a history of ulcer of several months' duration, with negative laboratory findings and a pathologic picture most suggestive of tuberculosis, determined the diagnosis.

Epithelioma.—We had one case of several months' duration in an elderly man. Laboratory findings of venereal disease were negative. Biopsy examination revealed squamous-cell carcinoma.

Kraurosis Vulvae.—One case was seen. The condition is uncommon. The presence of superficial erosion suggested the possibility of erosive gangrenous vulvitis. The long duration, associated with pruritus and itching, with atrophy and almost complete disappearance of the labia, and with a chronic, irritating discharge from the cervix, in addition to negative laboratory and physical findings for venereal disease, made the diagnosis of kraurosis vulvae most plausible.

SUMMARY

1. In a study of 485 genital lesions coming up for diagnosis, we found syphilis in 203 cases, or 42 per cent. This frequency is rather startling and is a reminder of how careful we must be of ruling out this disease in all genital lesions. We are convinced that

too often the patient with a genital lesion is discharged as being free from syphilis after one or more cursory examinations—the undiagnosed syphilis revealing itself later.

2. Chancroids were seen 177 times, or in 36.5 per cent., and in eighteen cases there was a mixture of chancroids and syphilis.

3. The occurrence of four cases of reinfection with syphilis in our series, all with patients whose dark-field examination was positive and Wassermann reaction negative at the time of the first infection, emphasizes the importance of the early diagnosis of the disease, such cases apparently reacting better to treatment. It also emphasizes the value of our modern methods of treatment when properly and consistently carried out.

4. Ulcerating granuloma of the pudenda was encountered eight times in our series of cases, all but one of the cases being seen in negroes. This rare disease of the tropics is apparently becoming more common in our part of the world, or we are diagnosing a disease which in the past has been overlooked. In our experience, tartar emetic was a specific, and the sole specific, for the trouble.

5. Erosive gangrenous balanitis and vulvitis was seen in thirty patients, mostly males, and is best diagnosed by the dark-field illuminator. It is important that the disease be recognized at its inception, and that specific treatment be begun before the destructive results of the disease have set in.

6. The clinical diagnosis of primary syphilis is open to many serious objections and should not supplant the use of laboratory methods. The dark-field examination is preferable to the Wassermann test in the early recognition of primary lesions. All cases not diagnosed by dark field should be followed by Wassermann examinations on the blood at regular intervals for at least three months.

7. It is important that physicians realize that the chances of making an early diagnosis of syphilis are greatly diminished, about three to one in our series, if local antiseptics are used on genital lesions before dark-field examinations are made. In seventeen cases in which we were positive that some form of mercury had been used on the lesions, we were able to make an early dark-field diagnosis in only one case.

8. It may be interesting to note that among 171 primary lesions, only eight chancres were observed in females—six of them being diagnosed by the dark-field illuminator. This may be due to the fact that the female notes no evidence of the disease in a large majority of the cases before secondary symptoms intervene; or due to the examining physician's failing to find the primary seat of invasion in the vagina or on the cervix.

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Hookworm in Colombia.—In the report published recently by Dr. F. A. Miller of the Rockefeller Foundation on the hookworm campaign in Colombia, it is shown that during the year 1921, 131,139 treatments were given, 47,882 patients were treated and 53,990 persons examined. A total of $11,863.33 was spent, which means an average of 22 cents for each person examined and 25 cents for each patient treated. A temporary laboratory was in operation during the campaign. The Colombian government appropriated $100,000 for the campaign. Out of this, $12,868 was spent for equipment and transportation, including propaganda, and $73,661 for salaries. The government also granted free postage on all literature and correspondence relative to the campaign.

THE KAHN PRECIPITATION TEST IN THE DIAGNOSIS OF SYPHILIS

A PRELIMINARY STUDY *

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Recently Kahn [1] has proposed for the serologic diagnosis of syphilis a precipitation reaction in which he utilizes, as antigens, alcoholic extracts of heart muscle, with and without the addition of cholesterin. The clinical application of this reaction, in 350 unselected cases entering the service of dermatology and syphilology of the University Hospital, Ann Arbor, forms the basis of this study.

Since the introduction of a practical complement fixation test by Wassermann, Neisser and Bruck,[2] in 1906, serologists and clinicians have directed their efforts toward modifications of that procedure in the hope of developing a laboratory method that will retain the obvious advantages of the Wassermann test and eliminate the well-known difficulties encountered in its performance.

The precision and care with which the various ingredients entering into complement fixation have to be titrated are well known. The main difficulty, however, is that, after these titrations have been properly carried out, there still remain numerous variants which are potential sources of error. The most common error arises from the fact that the important reagent, namely, complement, tends to deteriorate with relative rapidity. Since the test is based on the disappearance of complement activity, it is evident that the possibility of mistaking complement deterioration for specific action is always present. A second frequent source of error is found in the occasional partially anticomplementary action of the serum. In such cases, the serum will absorb some complement without antigen. Assuming that a strongly anticomplementary serum is readily detectable by means of proper controls, partially anticomplementary serums are not so easily controlled, and therefore may lead to false positive results. Finally, many serums contain natural hemolysin, which would obviously lead to false negative results.

These, and many other technical difficulties undoubtedly explain why, in spite of the fact that the Wassermann reaction has now been in use more than fifteen years, it is not, as yet, wholly dependable.

In order to overcome the numerous difficulties encountered in the performance of this test and in the interpretation of the results, various biochemical procedures have been introduced in recent years. Among these, several precipitation reactions have been advanced, which gave promise of simplification and general usage.

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* Studies and contributions of the Department of Dermatology and Syphilology of the University of Michigan, service of Dr. Udo J. Wile.

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[1] Kahn, R. L.: A Simple Quantitative Precipitation Reaction for Syphilis, Preliminary Communication, Arch. Dermat. & Syph. **5**: 570 (May) 1922; Second Communication, ibid., **5**: 734 (June) 1922; Third Communication, ibid., to be published; Effect of Dilution on Precipitation Reaction for Syphilis Proposed by Author, Proc. Soc. Exper. Biol. & Med. **19**: 131 (March 15) 1922; Relation between Serum and Antigen in Precipitation Reaction for Syphilis Proposed by Author, ibid. **19**: 132 (March 15) 1922.

[2] Wassermann, Neisser and Bruck: Eine serodiagnostische Reaktion bei Syphilis, Deutsch. med. Wchnschr., 1906, p. 745.

These reactions have been favorably commented on in Germany, but, judging from the paucity of the literature, have attracted little attention in England and in this country. The first precipitation reactions of practical application were those described by Meinicke [3] in 1917, and by Sachs and Georgi [4] in 1918. The main difficulty with these reactions lies in the fact that the end-results are read after forty-eight hours' incubation; at the end of such time, serums frequently show sufficient contamination to lead to false interpretations.

For the foregoing reason, Dreyer and Ward [5] in England, and Kahn in this country, came to the conclusion that neither of these two reactions can be utilized as a practical diagnostic test for syphilis.

Dreyer and Ward [5] introduced a precipitation reaction which requires such elaborate care in preparation and dilution of its antigens, and so many tubes for each test (nine), that it offers no practical advantages over the Wassermann technic.

A still more recent precipitation test has been proposed by Wang.[6] This test embodies the use of an antigen, which shows slight turbidity on diluting with physiologic sodium chlorid solution, thus obviously rendering difficult the reading of sharp end-results. In our opinion, for a practical precipitation reaction, both the antigen and the serum should be absolutely clear. Under such conditions only can the formation of a precipitate, after mixing the two substances, be presumed to be specific.

The precipitation reaction employed in this study not only meets the requirement with regard to the employment of a clear antigenic solution, but, in addition, possesses other advantages which we believe will meet with favor. For example, the test can be carried out with relative simplicity, and the final precipitate is readily visible to the naked eye. Also, in strongly positive serums, spontaneous flocculation occurs, enabling interpretation as soon as the reagents are thoroughly mixed.

The Kahn reaction further distinguishes itself from other precipitation reactions by these salient features:

1. The serum is employed in an undiluted form, it having been shown by Kahn that diluting the serum with salt solution delays the rapidity of the reaction.
2. The antigen is prepared so as to contain a high content of antigenic material. This is attained by using an alcoholic extract of dried heart muscle, which has been previously extracted with ether, thus removing fat and other nonspecific substances.
3. The antigen is diluted for the test with approximately the smallest amount of physiologic sodium chlorid solution which will hold it in solution, rendering it thereby susceptible to precipitation when mixed with positive serum.
4. The antigen and serum are employed in that relationship which will, in the author's opinion, result in maximum precipitation.

These features give this reaction such a high degree of sensitiveness that the strongly positive serums react spontaneously in most cases.

THE METHOD

Preparation of the Antigens.—Fresh beef heart is freed from fat, fiber and blood vessels, and passed several times through a meat chopper. It is then spread in a thin layer on a porcelain platter and dried by means of a revolving fan. The dried material is broken into small particles and passed three times through a coffee grinder. Fifty grams of the dried heart muscle is then placed in a 500 c.c. Erlenmeyer flask; sufficient ether is added to cover the dried material with an inch of fluid, and it is placed in the icebox. After twenty-four hours' extraction, the supernatant ether is quite yellowish; it is then poured off and replaced with fresh ether. This is repeated daily for three days. On the fourth day, the supernatant ether is water clear. The ether is then filtered off and the ground muscle spread on paper and dried at room temperature until no odor of ether is detectable. This requires several hours' drying.

To 20 gm. of this material, 100 c.c. of absolute alcohol is added, and the whole extracted for nine days in the icebox and one day at room temperature. After this period, the alcoholic extract is filtered off. A total of 70 c.c. of alcoholic antigen is usually thus obtained. To half this quantity is added 140 mg. of cholesterin, which is dissolved by rotating the flask. The other 35 c.c. is used as a control noncholesterinized antigen.

Dilution of Antigen for the Tests.—The antigens thus prepared are diluted for the tests as follows: From 0.5 to 1 c.c. of the cholesterinized antigen is pipetted into an agglutination tube, inner diameter about three-eighths inch (10.5 mm.), depending on the amount needed for the group of tests. Three times the amount of physiologic sodium chlorid solution (0.85 per cent.) is then measured into a 10 c.c. cylinder. This solution is rapidly poured into the agglutination tube and promptly inverted back and forth. The noncholesterinized antigen is diluted in a similar manner except that two parts of physiologic sodium chlorid solution to one part of antigen are employed. Both of these mixtures appear clear and opalescent. They are used in most cases within an hour after dilution. On several occasions, the antigens were used several days after mixing, having been kept in the incubator during that time. However, this older antigen did not seem to be as sensitive as that used shortly after the addition of the physiologic sodium chlorid solution. It is, therefore, desirable to use fresh dilutions of the antigen for each day's tests.

TABLE 1.—CLASSIFICATION OF CASES

Condition	Number of Cases
1. Primary syphilis	12
2. Secondary syphilis	15
3. Tertiary syphilis, excluding cerebrospinal	19
4. Cerebrospinal syphilis	52
5. Congenital syphilis	15
6. Latent syphilis	80
7. Other than syphilis	157
Total	350

The serum was separated by rapid centrifugation, and inactivated for one-half hour in the water bath at 56 C. It was then ready for use.

Performance of the Test.—Three-tenths cubic centimeter of serum is measured into each of two agglutination tubes. To the first tube 0.05 c.c. of the diluted cholesterinized antigen is added, and the same quantity of the noncholesterinized mixture is added to the other. The remainder of the serum is carried along with the procedure as a control. The rack of tubes is vigorously shaken for three minutes. At this point, strongly reacting serums show definite precipitation, particularly with the cholesterinized antigen. These are recorded as spontaneous precipitations.

The rack is then placed in the incubator (37.5 C.) and permitted to remain overnight, in order to bring out precipitation in the relatively weaker serums. The results are read the next morning without again shaking the rack. The precipitates, being suspended in the clear serums, can be seen with comparative ease.

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3. Meinicke, E.: Ueber eine neue Methodik der serologischen Luesdiagnostik, Berl. klin. Wchnschr. **54**: 613, 1917; Ueber Theorie und Methodik der serologischen Luesdiagnostik, ibid., 1918, No. 4, p. 83; Zur Methodik der serologischen Luesdiagnostik, München. med. Wchnschr. **65**: 1379, 1918; Ueber die dritte Modifikation meiner Luesreaktion, ibid., 1919, No. 33, p. 932.

4. Sachs, H., and Georgi, W.: Zur Serodiagnostik der Syphilis mittels Ausflockung durch cholesterinierte Extrakte, Med. Klin., 1918, No. 33, p. 805.

5. Dreyer, Georges, and Ward, H. K.: A Simple Quantitative Serum Reaction for the diagnosis of Syphilis, Lancet **1**: 956 (May 7) 1921.

6. Wang, C. Y.: A Precipitation Test for Syphilis, Lancet **1**: 274, 276 (Feb. 11) 1922.

The results are recorded in accordance with the following scale:

1. A precipitate, consisting of one or more large clumps = ++++.
2. A large flocculent precipitate = +++.
3. Moderate-size flocculi or granules = ++.
4. Small-size flocculi or granules = +.
5. Fine flocculi or granules = ±.
6. Negative precipitation = —.

TABLE 2.—PRIMARY SYPHILIS

Case	Kahn Reaction	Wassermann Reaction		Treatment
		12-Hour Fixation Icebox	1-Hour Fixation Icebox	
1	++++ (spontaneous reaction)	++++	++++	None
2	++++ (spontaneous reaction)	++++	++++	None
3	++++ (spontaneous reaction)	++++	++++	None
4	++++ (spontaneous reaction)	++++	++++	None
5	++++ (spontaneous reaction)	++++	++++	None
6	++++ (spontaneous reaction)	++++	++++	Indifferent
7	++++ (spontaneous reaction)	++++	+	Indifferent
8	++	+++	++	Indifferent
9	++	++	—	Thorough
10	++	—	—	Thorough
11	—	—	—	Thorough
12	—	—	—	None

When working with strongly positive serums, it was observed that a precipitation ring frequently formed at the point of juncture of the serum and diluted antigen, a few minutes after adding the latter. This suggested the possibility of developing a ring modification with this precipitation reaction. A series of experiments was then performed in which, after the addition of the antigen to the serums, the mixture was placed in the incubator without shaking the tubes. The diluted antigen, being lighter than the serum, formed a layer over the latter, which was readily visible. Incubation intensified this reaction; but it was noted that not infrequently many moderately positive serums reacted negatively with this procedure, and positively when the regular procedure was employed. This fact would seem to enhance the importance of thoroughly mixing the serum and antigen. Vigorous shaking apparently brings the combining elements of the serum and antigen into closer contact, thereby hastening the reaction.

TABLE 3.—SECONDARY SYPHILIS

Case	Kahn Reaction	Wassermann Reaction		Treatment
		12-Hour Fixation Icebox	1-Hour Fixation Icebox	
1	++++ (spontaneous reaction)	++++	++++	None
2	++++ (spontaneous reaction)	++++	++++	None
3	++++ (spontaneous reaction)	++++	++++	None
4	++++ (spontaneous reaction)	++++	++++	None
5	++++ (spontaneous reaction)	++++	++++	None
6	++++ (spontaneous reaction)	++++	++++	None
7	++++ (spontaneous reaction)	++++	++++	Indifferent
8	++++ (spontaneous reaction)	++++	++++	Indifferent
9	++++ (spontaneous reaction)	++++	++	None
10	++++	++++	++	Indifferent
11	+++	++++	—	Thorough
12	++	++++	++	None
13	++	++++	+	Thorough
14	++	++	+	Indifferent
15	++	—	—	Thorough

Clinical Material.—The cases studied can be classified as shown in Table 1.

The cases other than syphilis included, for the most part, the more common conditions seen in a dermatologic dispensary, such as the infectious granulomas, carcinoma, papulosquamous conditions, eczema, acne vulgaris and allied dermatoses.

Comparison with Wassermann Reaction.—Aside from running a precipitation reaction on each serum. a quantity of blood was submitted from each patient to the Wassermann laboratories of the state psychopathic hospital at Ann Arbor, and to the state department of health at Lansing. It seemed desirable not only to investigate the value of this precipitation test in the diagnosis of syphilis, but also to learn to what extent it compares with the Wassermann test as carried out in two different standard laboratories.

It should be stated that there is an important technical difference between these two Wassermann tests; in the state laboratory the period of complement fixation with the cholesterinized antigen is one hour in the icebox,[7] while the complement fixation period with a similar antigen at the psychopathic hospital is twelve hours in the icebox.

TABLE 4.—TERTIARY SYPHILIS (EXCLUDING CEREBROSPINAL)

Case	Kahn Reaction	Wassermann Reaction		Treatment
		12-Hour Fixation Icebox	1-Hour Fixation Icebox	
		Cutaneous		
1	++++ (spontaneous reaction)	++++	++++	None
2	++++ (spontaneous reaction)	+++	++++	None
3	++++ (spontaneous reaction)	++++	++++	Indifferent
4	++++ (spontaneous reaction)	++++	+++	Indifferent
5	++++	++++	+	Indifferent
6	+++	++++	+	Indifferent
7	++	++++	+++	Indifferent
8	++	++++	++	Indifferent
9	—	—	—	Indifferent
		Osseous System		
1	++++ (spontaneous reaction)	++++	++++	None
2	++++ (spontaneous reaction)	++++	++	None
3	+++ (spontaneous reaction)	+++	±	Indifferent
4	+	—	—	None
5	—	—	+	Indifferent
6	—	—	—	None
		Visceral		
1	++++ (spontaneous reaction)	++++	++++	None
2	++++	++++	+	Thorough
3	++++	+++	++	Thorough
4	++++	++	++	None

The accompanying tables show the results of the Kahn test, as compared with two standard Wassermann tests, in 350 cases.

Primary Syphilis.—It will be seen from Table 2 that more than 50 per cent. of the cases examined reacted spontaneously. Also, there is agreement in the three reactions in 66⅔ per cent. of the twelve cases studied. The remaining 33⅓ per cent. show a sensitiveness in favor of the Kahn reaction.

The serum in Case 10 was taken shortly after an intensive course of therapy, and followed a ++++ Wassermann reaction before the inauguration of treatment. The lesion was rapidly involuting when first seen. This serum is interesting in that, notwithstanding the institution of treatment, it is still ++ positive to the Kahn reaction, while negative to the Wassermann tests.

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[7] Kahn, R. L.: Optimum Conditions of Fixation of Complement in the Wassermann Test, Arch. Dermat. & Syph. 4: 358 (Sept.) 1921.

Case 9, a chancre of the lip, following intensive treatment, is positive to the precipitation and long icebox fixation reactions, but negative in the shorter incubation Wassermann. This patient still has residual induration six months after infection.

Secondary Syphilis.—In this group, the greatest proportion of spontaneous reactions are found. The three tests show agreement in eight of the fifteen serums examined. In the other seven cases, the Kahn reaction compares favorably in point of sensitiveness.

In Case 15, in which the test is still positive with the precipitation reaction, but negative with the Wassermann tests, the patient had just completed an intensive course of arsphenamin.

TABLE 5.—CEREBROSPINAL SYPHILIS *

		Wassermann Reaction		
Case	Kahn Reaction	12-Hour Fixation Icebox	1-Hour Fixation Icebox	Treatment
		Diffuse Type		
1	++++ (spontaneous reaction)	++++	++	Thorough
2	++++	++	++++	Indifferent
3	+++	++++	+++	Indifferent
4	+++	++++	++	Indifferent
5	+++	++++	++	None
6	+++	++++	+	Thorough
7	+++	+++	—	Indifferent
8	+++	±	+	Thorough
9	++	++++	++++	Thorough
10	++	++++	—	Thorough
11	++	++++	++	Thorough
12	++	++	—	Indifferent
13	++	—	±	Thorough
		Tabes Dorsalis		
1	++++ (spontaneous reaction)	++++	+++	None
2	++++ (spontaneous reaction)	++++	++	None
3	++++ (Spontaneous reaction)	++++	++	Thorough
4	+++ (Spontaneous reaction)	+++	+	Thorough
5	++++	++	++	Thorough
6	++++	+	—	Thorough
7	+++	++++	++	Indifferent
8	++	++	+	Indifferent
9	++	+	—	Thorough
10	—	++	—	Thorough
		General Paresis		
1	++++	++++	+	Thorough
2	+++	++++	++	Indifferent
3	+++	++++	+	Thorough
4	++	++++	+	Thorough
5	++	++++	+	Thorough
6	+	++	—	Thorough

* This group, which numbered fifty-two cases, completely agreed in the three reactions in 45 per cent.

Tertiary Syphilis.—In late cutaneous syphilis, it will be seen that the Kahn reaction is not as sensitive as the Wassermann with the longer period of icebox fixation. It is, however, more sensitive than the Wassermann reaction with the short incubation period. In this connection, it should be noted that the latter Wassermann reaction is weaker, notwithstanding that this group of cases had been indifferently treated.

In the serums examined from patients with late bone and joint involvement, the Kahn reaction again compares very favorably with the two Wassermann reactions.

Case 4 is one of septal perforation. One year ago, this patient had a ++++ Wassermann reaction. There has been no therapy in the interim, and at the present time the precipitation test is weakly positive, with both Wassermann reactions negative.

Case 5, an old gummatous periostitis, was indifferently treated. This patient's serum, however, is negative with the Kahn test, as well as with the Wassermann test of the long incubation period, and positive with the Wassermann reaction, short fixation period. At the time the blood was drawn, the patient had a temperature elevation of 4.5 degrees from an undetermined cause.

Case 6 is an old specific perforation of the hard palate. Here the Kahn test does not appear more sensitive than the Wassermann, all three being negative.

TABLE 6.—CONGENITAL SYPHILIS

		Wassermann Reaction		
Case	Kahn Reaction	12-Hour Fixation Icebox	1-Hour Fixation Icebox	Treatment
1	++++ (Spontaneous reaction)	++++	++++	None
2	++++ (Spontaneous reaction)	++++	++++	None
3	++++ (Spontaneous reaction)	++++	++++	Indifferent
4	++++ (Spontaneous reaction)	++++	++++	Indifferent
5	++++ (Spontaneous reaction)	++++	++++	Indifferent
6	++++ (Spontaneous reaction)	++++	—	Thorough
7	++++	++++	+++	Thorough
8	++++	++++	++	Thorough
9	++++	++++	++	Indifferent
10	+++	++++	++	Thorough
11	+++	++++	++	Thorough
12	++	++++	+	Thorough
13	++	—	—	None
14	+	—	—	Thorough
15	+	—	—	Thorough

In the few cases of visceral involvement studied, the Kahn test, as may be seen from the table, was slightly more sensitive than either Wassermann test.

Cerebrospinal Syphilis.—Of the fifty-two cases studied, twelve, or 23.07 per cent., showed spontaneous precipitation. Only five of the spontaneous reactions are presented, as the other seven showed complete agreement in the three tests. Table 5 presents only the variations, from which it will be seen that the Kahn reaction again compares favorably with the more sensitive Wassermann test.

TABLE 7.—LATENT SYPHILIS *

		Wassermann Reaction		
Case	Kahn Reaction	12-Hour Fixation Icebox	1-Hour Fixation Icebox	Treatment
1	+++	++++	—	Thorough
2	+++	++	—	None
3	+++	+++	±	Indifferent
4	+++	+	+	Indifferent
5	+++	±	±	Indifferent
6	++	++++	—	Indifferent
7	++	+++	±	Thorough
8	++	++	—	Thorough
9	++	±	—	None
10	++	±	—	Thorough
11	++	—	—	Thorough
12	++	++	±	Thorough
13	++	++++	±	Indifferent
14	++	±	±	Thorough
15	+	+++	—	Thorough
16	+	—	—	Thorough
17	+	—	—	Thorough
18	+	++++	—	Indifferent
19	—	++	±	Thorough

* This group, which numbered eighty cases, completely agreed in 60 per cent. and practically agreed in 16.3 per cent. Only the divergences are shown in this table.

Cases 8 and 13 of the diffuse cerebrospinal syphilis, both of which were thoroughly treated, nevertheless gave a stronger reaction with the simple precipitation method than with either Wassermann test.

In tabes dorsalis, similar favorable comparison will be seen, although a negative reaction was obtained in Case 10, in which one Wassermann was also negative.

In the general paresis, the precipitation test is slightly less sensitive in comparison with the long icebox fixation Wassermann reaction, but markedly more sensitive than the short icebox fixation Wassermann test.

Congenital Syphilis.—From Table 6, it will be observed that the Kahn reaction is slightly more sensitive than either Wassermann test in congenital syphilis.

Case 13 is that of a girl 16 years of age, who shows unquestionable stigmas, but has been repeatedly negative to many Wassermann tests. The patient's serum, on two examinations, gave a positive result with the precipitation test, being negative with the Wassermann reaction.

Cases 14 and 15 show a sensitiveness in favor of the Kahn reaction. They are both cases of congenital syphilis in children who had been intensively treated for one year.

Latent Syphilis.—Of the eighty cases studied, seventeen, or 21.2 per cent., gave spontaneous reactions, none of which are shown in Table 7.

The greater sensitiveness of the precipitation reaction, as compared to both Wassermann reactions, is met in this group. Cases 11, 16 and 17 would have been passed as cured, or nonsyphilitic, on the basis of the two Wassermann tests, but were detected by the precipitation reaction. Cases 2, 8, 9, 10, 15 and 18 would have been interpreted as negative, or cured, by the shorter incubation Wassermann reaction, weakly positive by the longer fixation, and positive in each case with the precipitation reaction.

The sole exception is Case 19, in which a thoroughly treated patient reacted negatively with the precipitation reaction, positively with one Wassermann reaction, and doubtfully positive with the second Wassermann.

It may be noted that, in a few of the cases in this table, the longer fixation Wassermann test shows a slightly stronger degree of positiveness than the precipitation test.

TABLE 8.—NONSYPHILITIC CONTROL SERUMS [*]

Case	Kahn Reaction	Wassermann Reaction 12-Hour Fixation Icebox	 1-Hour Fixation Icebox	Diagnosis
1	++	–	–	Acne vulgaris, sebaceous cysts
2	+	–	–	Variola
3	+	–	–	Pyodermia, diabetes mellitus

[*] Of the total number of nonsyphilitic control serums examined, there was complete agreement in 154. The three variants are shown.

In this important group of asymptomatic cases, the precipitation reaction is apparently more dependable as a diagnostic procedure than the Wassermann test.

Nonsyphilitic Control Serums.—Of 157 dermatologic cases employed as controls, 154 were uniformly negative. As shown in Table 8, three cases were negative with both Wassermann reactions. Case 1 showed a ++ Kahn reaction and Cases 2 and 3, a +. These were, respectively, cases of acne, variola and diabetes. We were unable to explain these comparatively weak positive findings in apparently negative cases.

CONCLUSIONS

1. The clinical application of the Kahn precipitation test compares favorably in sensitiveness with the standard Wassermann reaction.

2. It has obvious great advantages over the Wassermann reaction in: (1) simplicity of procedure, (2) rapidity of reading, and (3) reduction of the sources of error through elimination of a hemolytic system.

3. Its obvious advantages over other precipitation reactions lie in the visibility of the precipitate to the naked eye, and the frequent spontaneous reactions with strongly positive serums.

4. Further confirmatory tests, demonstrating parallelism with the Wassermann reaction, may well lead to the eventual abandonment of the latter in favor of the simpler precipitation procedure.

5. As a last advantage, a test embodying only one reagent plus a serum offers a greater possibility of standardization.

STUDIES IN ASYMPTOMATIC NEUROSYPHILIS

IV. THE APPARENT RÔLE OF IMMUNITY IN THE GENESIS OF NEUROSYPHILIS [*]

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The operation of immune reactions in syphilis has long been suspected, speculation centering for the most part on the mechanism involved in various clinical phenomena associated with the course of the disease. The laws formulated by Colles and Profeta were early pronouncements of such a conception, and the refractoriness of infected individuals to reinoculation still forms one of the bases on which modern theories are founded. The periodicity with which clinical manifestations make their appearance from the beginning to the end of the disease, and the regular manner in which the earlier lesions particularly undergo spontaneous involution, suggest that the latter are outward expressions of a mechanism which spasmodically protects the individual from the infection, but which is unable in the vast majority of cases completely to eradicate it. Related phenomena associated with the ability of the organisms to produce increasingly harmful results are observed in the later manifestations of the disease, as witnessed by the greater degree of tissue reaction in response to insignificant toxic stimulation. The former phenomena point to a protective immunity, and the latter to a sensitizing (immunity) reaction.

IMMUNITY IN SYPHILIS FROM CLINICAL AND EXPERIMENTAL STANDPOINTS

The manner in which these mechanisms operate is as yet little understood. Immunologic studies of the body fluids have thrown little if any light on the problem, although much work has been expended along this line. Circulating antibodies directed against the treponemes apparently are not present in the blood stream; at least, we have no direct evidence that such neutralizing substances are produced in sufficient amounts to be effective. Indirectly, superinoculation experiments suggest this type of immunity, but a causal relationship still remains to be demonstrated. Avirulence of culture pallida and group reactions with nonspecific treponemes and spirochetes add difficulties to this line of research.[1]

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[*] From the Syphilis Department of the Medical Clinic, Johns Hopkins Hospital.

[*] This investigation has been aided by grants from the United States Interdepartmental Social Hygiene Board, and the American Social Hygiene Association.

[*] Read before the Section on Dermatology and Syphilology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

The limitation of justifiable experimentation in human subjects practically closes this field of investigation, so that the pursuit of data in the living subject is narrowed to the field of animal syphilis, more particularly rabbit syphilis. In this animal, syphilis is manifested by local and by metastatic lesions which conform somewhat remotely to types observed in human syphilis, but differ from the latter in intensity of reaction, variety, and in the order of their appearance. In other respects, however, the course of the disease and the maintenance of the infection present striking points of similarity.

In this country, at least, most of the data bearing on immunity derived from this source have resulted from the investigations and conceptions of Brown and Pearce. From the enormous amount of data which they have accumulated, two groups of observations stand out prominently in this connection, on account of the light which they throw on the mechanism of immunity.[2] The groups of phenomena have the force of laws in that they occur regularly and are controllable within the limits of experimentation. I refer to the phenomena described as the "law of progression" and the "law of inverse proportions." According to the former, various tissue groups are not equally susceptible and reactive to syphilitic infection, so that in the generalized infection the response of certain tissue groups proceeds in an orderly sequence. This is subject only to modifying influences due to interference with the course of infection. Such interference may confer protection on tissue groups which ordinarily are early involved, and may bring into reaction groups occupying positions further on in the sequence. These experiments are particularly interesting to us because syphilis of the eye, which is usually one of the latest tissue groups to be involved in rabbits, frequently occurs and recurs under conditions which confer the greatest protection on other tissue groups. This indicates not only a low susceptibility of this group to the infection, but both an inherent inability for defense, and a lack of protection by the general reaction. The authors suggest the possible bearing of this observation on the genesis of neurosyphilis.

By the "law of inverse proportions" is meant an inverse quantitative relationship that exists in the intensity of consecutive reactions to syphilitic infection. It has been shown that the local primary tissue reaction following inoculation plays a dominating rôle in the elaboration of defense. Suppression of this local reaction by whatever means modifies the animal's status so that clinical manifestations of generalized syphilis usually develop. Conversely, the greater the local primary reaction and the more extensive the resulting primary lesion, the less likely are generalized clinical manifestations to occur. In other words, focal lesions by intensive reaction confer protection on tissue remotely situated about other foci of infection. Subcurative doses of treponemocidal drugs by suppressing the initial lesion produce this inverse condition in rabbits: an observation analogous to what is observed when human syphilis is inadequately treated during the primary and early secondary periods. The significance of this analogy is the more obvious when it is remembered that the period of chancre in the rabbit ordinarily is the only early reaction, and therefore corresponds to the entire period in the human being during which primary and early secondary reactions appear.

INFLUENCE ON SYPHILIS OF CENTRAL NERVOUS SYSTEM

As these phenomena are identical with those observed in human syphilis, they may be accepted as fundamental. The central nervous system occupies a position toward the end of a tissue group sequence, because it is not only less susceptible, but also less reactive. It is in this sense that neurosyphilis differs fundamentally from other tissue reactions in syphilis. The incidence and gravity of neurologic reaction is regulated by antecedent tissue reactions in other parts of the body, either by a degree of protection conferred, or by the lack of such protection. The influence of immunity on the genesis of neurosyphilis is greater or less, therefore, because of the operation of the "law of inverse proportions." The secondary phenomenon of hypersensitiveness, however, operates here as it does elsewhere in tissue groups, with the difference due to the remote position in the sequence which nervous tissue occupies, so that hypersensitiveness has greater force because of its fuller development. If there is a normal condition of susceptibility and reactivity of nervous tissue, therefore, neurosyphilis will depend on the balance between the infection, on the one hand, and the protective and hypersensitive immune reactions, on the other.

Investigations of numerous observers make it probable that the central nervous system is invaded in all patients contracting syphilis. Clinically, however, we know that less than 50 per cent. of these patients are neurosyphilitic. In the syphilis department of the Johns Hopkins Hospital, 21 per cent. of all late syphilitics, including cases of latent syphilis, present definite clinical neurosyphilis on admission. In addition to this, 21.6 per cent. of late syphilitics with apparently normal nervous systems have definite abnormalities in the cerebrospinal fluid permitting the diagnosis of late asymptomatic neurosyphilis, making a total of 42.6 per cent. of all patients with late acquired syphilis who are actively neurosyphilitic. This figure represents the percentage of all late syphilitics in our clinic who have failed to acquire an immunity sufficient to suppress the neurologic invasion.

PROTECTION OF NEURAXIS BY IMMUNE REACTIONS

Evidence of immune protection is suggested in an additional 17.7 per cent. of all late syphilitics. These are patients presenting minor neurologic abnormalities not in themselves diagnostic of neurosyphilis, but suggestive indications of early neurologic damage, in whom the spinal fluid is nevertheless normal. In view of what we already know, it is probable that these are instances of neurolatency, the so-called "burnt out" neurosyphilis in which spinal fluid abnormalities have disappeared. The remaining 39.7 per cent. are patients with apparently normal cerebrospinal fluids, in whom neurolatency has developed without demonstrable neurologic damage, or who have developed protection before damage has been done.

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[1] Zinsser, Hans, and Hopkins, J. G.: Antibody Formation Against Treponema Pallidum Agglutination, J. Exper. Med. **21**: 576, 1915. Zinsser, Hans; Hopkins, J. G., and McBurney, M.: The Difference in Behavior in Immune Serum Between Cultivated Nonvirulent Treponema Pallidum and Virulent Treponemata from Lesions, J. Exper. Med. **23**: 341 (March 1916. Kolmer, J. A., and Broadwell, S.: The Relation of Luetin Skin Reaction to Immunity in Syphilis (Including Treponemecidal Action of Human Serum in Syphilis), J. Immunol. **1**: 429 (Aug.) 1916.

[2] Brown, W. H., and Pearce, L.: The Resistance (or Immunity) Developed by the Reaction to Syphilitic Infection, Arch. Dermat. & Syph. **2**: 675 (Dec.) 1920; Experimental Production of Clinical Types of Syphilis in the Rabbit, ibid. **3**: 254 (March) 1921.

Viewed from another angle, we have been able to show by statistical studies[3] that in early asymptomatic neurosyphilis the character of antecedent tissue reactions markedly modifies the incidence of cerebrospinal fluid abnormalities. Thus, patients who have had mild or average generalized outbreaks show evidence of neurologic damage with greater frequency than do those who had severe secondary lesions. In late syphilis, also, it is significant that the incidence of late asymptomatic neurosyphilis is only 18.4 per cent. in the patients presenting tertiary lesions outside the central nervous system, compared with 24.6 per cent. in patients free from such lesions.

INFLUENCE OF ADEQUATE AND OF INADEQUATE TREATMENT

The figures arrived at in these studies, however, do not represent the influence of natural immunity only, but must be revised by determining the influence of at least two other factors, namely, early treatment and pregnancy. The influence of treatment on the development of immunity depends on the degree of the patient's preliminary reaction to the infection, on the time at which treatment is begun, and on the intensity, continuity and duration of the therapeutic attack. The immediate effect of treatment in primary and early secondary syphilis is depressant on the mechanism of immunity, possibly to the extent of producing a negative phase in sensitized patients, because it serves to destroy the excitant to immunity production before the process has reached protective proportions. A short course of intensive treatment in these cases, insufficient to destroy the infection completely, produces a condition of low infectivity with little or no protection, analogous to that produced in the experimental animal by a subcurative dose of arsphenamin. As a result, it might be predicted that such patients may later develop grave lesions, especially in tissues ordinarily late to be involved. That this does happen is demonstrated by a study of the incidence of neurorecurrences in such a group in this clinic. Of approximately 800 inadequately treated patients with early syphilis, about 5 per cent. developed neurorecurrences within the first months of the disease.[4] Furthermore, a study of a large number of cases of early syphilis insufficiently treated shows an incidence of early asymptomatic neurosyphilis three times greater than that in adequately treated patients.[3]

On the other hand, prolonged courses of adequately intensive, continuous early treatment have the effect of greatly reducing the incidence of neurosyphilis. As this more especially represents a causal effect other than that due to immune reactions, it need not be illustrated here. It has been suggested, however, that this type of treatment protects the patients not only by virtue of its parasiticidal action, but possibly also by increasing eventually the activity of the natural protective processes.[5] Concerning the latter action, there is as yet insufficient evidence of a positive character so that it is hardly justifiable to attempt to evaluate its influence at this time. If the initial reaction to the infection has been vigorous and extensive before treatment is begun, and the time relation necessary for the elaboration of immunity has not been disturbed, a short course of treatment seldom, if ever, leads to neurorecurrences, and the incidence of abnormalities in the cerebrospinal fluid is not increased.

POSSIBLE RELATION OF PREGNANCY TO IMMUNE PROCESSES

The relative infrequency of clinical neurosyphilis in women as compared with men is a matter of common observation. In spite of the fact that, in early syphilis, invasion of the neuraxis occurs with equal frequency in the two sexes, three times as many men as women develop clinical manifestations of neurologic damage. In searching for the explanation of this apparently anomalous condition, pregnancy as the chief point of difference in the life history of the two sexes has been investigated by Moore of this clinic.[6] Pregnancy greatly modifies the reaction to syphilitic infection, the tendency being to suppress lesions and induce latency. The incidence of neurosyphilis in women who have been childless is equal to that in men, while its incidence in women who had been pregnant since their initial infection is only half that of the nonpregnant group.

This protection conferred through pregnancy may be a distinct mechanism apart from natural immunity, or it may be the result of altered conditions leading to a more pronounced development of the natural protective mechanism. It is, nevertheless, a factor of great importance in the natural protection of syphilitic women.

SUMMARY

Since neural invasion occurs in probably all cases of early syphilis, and the incidence of late symptomatic and asymptomatic neurosyphilis is limited, it is probable, if not certain, that immune reactions protect the neuraxis. The character of the early tissue reaction to syphilitic infection, the intensity, continuity and duration of the therapeutic attack, and the occurrence of pregnancy in women, markedly modify the incidence of neurosyphilis, both clinical and asymptomatic. An analogy exists between these factors in human syphilis and the laws of progression and inverse proportions in animal syphilis.

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[3] Moore, J. E.: Studies in Asymptomatic Neurosyphilis, II, The Classification, Prognosis and Treatment of Early Asymptomatic Neurosyphilis, Bull. Johns Hopkins Hosp. **33**: 231 (July) 1922.

[4] Zimmermann, E. L.: Neurorecurrences after Arsphenamin, Arch. Dermat. & Syph. **5**: 723 (June) 1922.

[5] Toyama, I., and Kolmer, J. A.: The Influence of Arsphenamin and Mercuric Chloride upon Complement Antibody Production, J. Immunol. **3**: 301 (July) 1918 (extensive bibliography).

[6] Moore, J. E.: Studies in Asymptomatic Neurosyphilis, III, The Apparent Influence of Pregnancy on the Incidence of Neurosyphilis in Women, Arch. Int. Med., to be published.

Shamanism.—The modern Koreans are said to number their demons by "thousands of billions." Among savages such beliefs usually go hand in hand with shamanism, an intermediate stage between polytheism and monotheism, which assumes a Supreme Being or Great Spirit, with lesser divinities and demons subordinated. With the beginnings of shamanism, we have everywhere the advent of the medicine man and the bilbo or witch-doctor, who assumes a solemn supervisory relation to disease and its cure not unlike that of priest to religion. The shaman handles disease almost entirely by psychotherapeutic maneuvers, which serve to awaken a corresponsive state of autosuggestion in his patients. . . . To prevent future attacks, in other words to keep the demon away for the future, he provides his patient with a special fetish or amulet to be worn or carried about his person. . . . We may smile at these phases of shamanistic procedure, but, except for the noise, they are not essentially different from the mind-medicine or faith-healing of our own day.—Garrison, F. H.: History of Medicine.

FLUMERIN—A NEW MERCURIAL FOR THE INTRAVENOUS TREATMENT OF SYPHILIS

FIRST REPORT OF CHEMICAL, ANIMAL AND CLINICAL EXPERIMENTS AND RESULTS[*]

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Experience in recent years has made it increasingly evident that the present day treatment of syphilis is not entirely satisfactory, partly owing to the fact that our attack on the disease is not sufficiently varied. It is generally agreed that efforts to improve on arsphenamin and neo-arsphenamin have been so far unavailing. It is also admitted that these drugs, either with or without mercury, constitute our most powerful antisyphilitic remedies, especially in early syphilis. In most cases (and in all instances of late syphilis) mercury in some form must be employed. A few patients, moreover, fail to tolerate the arsphenamins, and complete reliance must then be placed on mercurial treatment.

The four common methods of administration of mercury, by ingestion, intravenous injection, intramuscular injection, or inunction, are open to various objections. All these methods are of value, but all fall short of the desired ideal. As far as intravenous injection is concerned, the compounds of mercury in common use (mercuric chlorid, cyanid, oxycyanid, benzoate, succinimid) are limited in value either by comparatively high toxicity or by their local corrosive action.

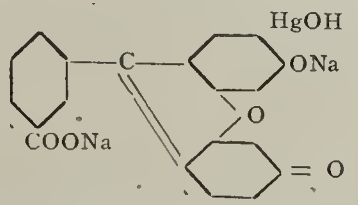
We have attempted, therefore, to develop a mercurial drug suitable for intravenous injection, in which would be combined the three factors of therapeutic value in animal and human syphilis, low toxicity and absence of local irritating qualities. The drug which forms the subject of this paper has these advantages. It is well to state that we do not believe that this drug, or any mercurial so far developed, can supplant the arsphenamins. We attempt to demonstrate only the three advantages mentioned and to suggest that further experience may show this drug to be of more value than other mercurials now in use by the intravenous route. We do not suggest that the intravenous route is the best method of administration of mercury, and we do not wish to be interpreted as advocating any special plan of treatment for syphilis.

CHEMISTRY OF FLUMERIN

The field of search lay obviously among the organic mercurials, substances in which the mercury atom is bound directly to a carbon atom. In solutions of such compounds, the mercury is in a nonionic condition. In an earlier research on penetrating disinfectants, which led to the development of mercurochrome,[1] a number of mercury derivatives of various phthaleins were prepared by one of us (E. C. W.). Laboratory tests on these compounds included, of course, determinations of their toxicity for animals; and from this standpoint the substance described in this paper stood out as having very low toxicity, although it was discarded as a local disinfectant because it did not show as marked penetration of tissue as did the other members of the series, and because it was comparatively low in bactericidal power.

Although low toxicity is perhaps the best lead in selecting a mercurial drug from a series for study in the treatment of syphilis, it must be pointed out that this property does not of itself mean that the drug will have practical usefulness. Only if it can be shown that there is a concomitant marked therapeutic effect in animals are we justified in believing that the low toxicity will be an asset of clinical value. For this reason, the present study has included a description of chemistry of the drug, toxicity determinations, a study of the effect of the drug on rabbit syphilis, and finally a careful clinical study.

Description of the Drug.—The drug is the disodium salt of hydroxymercurifluorescein[2] (whence the simplified name flu-mer-in) whose chemical formula is:



It forms a dark red powder with greenish iridescence and is easily soluble in water, especially hot water, up to about a 10 per cent. solution. The solution used clinically (2 per cent.) is stable to the air and to heat; in fact, solution of the powder is best effected by using hot water, although it is easily, though less rapidly, soluble in cold water. The powder is stable indefinitely in air, except that it is somewhat hydroscopic and should, therefore, be kept in well stoppered bottles or in ampules. As the drug has disinfecting value about equal to that of phenol, the solution may be considered self-sterilizing. Although we have used, clinically, solutions as old as 3 or 4 days, it is best to use only freshly prepared solutions made up in sterile, freshly distilled water. Exposure to the air for several hours does not alter the solution chemically. On long standing (one week or more), a slight precipitate of metallic mercury as a gray powder is sometimes seen.

Solutions of the drug give no precipitate with caustic alkali, iodids or ammonium sulphid, with the exception that the latter forms mercuric sulphid on long standing in the cold or in a short while on boiling. There is complete absence of precipitation when the solution is mixed with serum. This nonprecipitating action on protein accounts for the blandness of the drug toward tissues.

The drug contains about 32.5 per cent. of metallic mercury, as against the theoretical content of 33.8 per cent. required by the formula $C_{20}H_{10}O_6Na_2Hg$. The difference is due to moisture and a small amount of unmercurated fluorescein salt, which is quite inert.

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[*] This investigation has been aided by a grant from the United States Interdepartmental Social Hygiene Board.

[*] From the James Buchanan Brady Urological Institute and the Syphilis Department of the Medical Clinic, Johns Hopkins Hospital.

[*] Read before the Section on Dermatology and Syphilology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Young, H. H.; White, E. C., and Swartz, E. O.: A New Germicide for Use in the Genito-Urinary Tract: "Mercurochrome-220", J. A. M. A. **73**: 1483 (Nov. 15) 1919.

[2] To avoid misunderstandings, reference is made to two German patents, Nos. 201903 and 308335, dealing with mercury derivatives of phthaleins. At this time, it is only necessary to say that the process employed in the preparation of flumerin is fundamentally different from those of the patents mentioned, and leads to an essentially different product. Discussion of the technicalities involved would be out of place here, but will be entered into in detail in a later chemical paper. It is interesting to note that Klages and Schreiber (Seventeenth International Congress of Medicine, 1913, Transaction of Section of Therapeutics, pp. 65-71) made a clinical trial of some of the patented substances, including the derivatives of fluorescein. The therapeutic effects were so slight that further clinical use was not considered.

The 2 per cent. solution is hypotonic, showing a freezing point lowering of 0.14 C. as against an average value of 0.56 C. for normal blood serum.

TOXICITY OF FLUMERIN FOR ANIMALS

Toxicity has been determined on rabbits and dogs, always using intravenous injection. Rabbits uniformly tolerate a single dose of 30 mg. per kilogram. This is often followed by the appearance of albumin or casts, or by a decrease in phenolsulphonephthalein output, or by all three. The damage is transient, and usually within a week the phenolsulphonephthalein excretion, if lowered, returns to normal, and the urinary abnormalities disappear. This dose is usually followed by definite loss in weight. Of four rabbits receiving 40 mg. per kilogram, two died within twenty-four hours, and two survived. Fifty mg. per kilogram was fatal in all cases. Repeated small doses of 5 or 10 mg. per kilogram have been given in a series of as many as twenty doses, at intervals averaging two or three days. This rarely led to any urinary abnormality or phenolsulphonephthalein decrease, although some animals lost weight under continued medication. In this respect, there is great variation among individuals. Likewise, diarrhea has been observed occasionally, but its incidence has been so variable that it cannot be linked with size or number of doses.

The toxic limit is about the same in dogs, which usually die within twenty-four hours after a single dose of 50 mg. per kilogram, although a few have survived this amount. This dose always causes violent retching and diarrhea shortly after the injection, and the animal appears very sick. Blood in the rectum and mouth has been observed in some animals dying from such an injection. Thirty mg. per kilogram is well tolerated, although there is sometimes transient evidence of kidney damage. Loss in weight is less frequent and less marked than in rabbits receiving the same dose. Repeated doses, at average intervals of two or three days, of 10 mg. per kilogram are well borne, and as many as twenty doses of 5 mg. per kilogram are well tolerated by strong, healthy dogs, with no loss in weight and no evidence of kidney injury.

On the basis of the figures given by Schamberg, Kolmer and Raiziss [3] as to the toxicity of various common mercurials suitable for intravenous injection, it is apparent that, by this route flumerin is tolerated by animals in amounts more than six times as great as any of the usual preparations; as utilized clinically, the average dose is twenty times that of the cyanid, benzoate, mercuric chlorid or succinimid, and in equivalent mercurial content is about eight times as large.

Pathologic studies on animals experimentally killed by large single doses, and sacrificed after repeated small doses, have been carried out by Drs. W. A. MacCallum and J. R. Cash. These studies, as yet incomplete, will be reported in detail in connection with a series of experimental and clinical papers to appear later.

THE VALUE OF FLUMERIN IN EXPERIMENTAL SYPHILIS

The chemotherapeutic investigations of Brown and Pearce on arsenicals, and of Schamberg, Kolmer and Raiziss on mercurials, have conclusively demonstrated that the therapeutic ratio of a given drug in protozoan infections other than syphilis, for example, trypanosomiasis, relapsing fever or chicken spirillosis, cannot be considered accurate for syphilis. Mercurials have in general little or no effect on trypanosome infections. We have, therefore, confined the testing of the therapeutic action of flumerin to syphilis in the rabbit.

This method of therapeutic experimentation has fortunately become much more accurate than formerly, because inoculations of animals with infectious material are always successful, the incubation period is well defined and a complicating cause of resolution of lesions may be eliminated by avoiding their aspiration. Most important, the former indefinite end-point of therapeutic activity, namely, the resolution of lesions and prolonged observation of the animal for relapse, has been replaced by the method of transfer of lymph nodes from treated animals to normal rabbits. This offers not only a definite end-point, but also provides more rigid criteria of cure.

Method.—Through the kindness of Dr. Wade Brown, a rabbit was secured with a testicular infection of the Nichols strain of *Spirochaeta pallida.*[4] From this rabbit, the strain has been continued by two methods. By the first,[5] an infected testicle was excised under ether anesthesia, emulsified in a small amount of sterile 0.85 per cent. salt solution, the presence of spirochetes determined by dark-field examination, and normal rabbits injected intratesticularly, in most instances unilaterally, with not more than 0.5 c.c. each of this emulsion. By the second method,[6] under ether anesthesia, the popliteal or inguinal nodes were excised, emulsified in a small amount of sterile salt solution, and, regardless of dark-field findings, normal rabbits were injected intratesticularly with not more than 0.5 c.c. each of the emulsion.

Treatment with flumerin was carried out in animals with fully developed lesions. A study of the action of the drug on very early lesions, at present in progress, indicates that it is more difficult to influence the infection at the time of first appearance of lesions than later. Treated animals, in which resolution of lesions occurred, were held under observation to allow the infection to become reestablished. If no relapse took place, transfers of the popliteal nodes were then made to the testicles of normal rabbits, which were observed for an average of seventy-nine days. If the transfer animals failed to develop lesions and if organisms could not be found in popliteal or inguinal nodes at the end of the period of observation, we felt justified in concluding that the action of the drug had been sufficient to destroy the organisms in the regional lymphatics, where Pearce and Brown [7] have shown that spirochetes may be found on and after the second day after inoculation in untreated animals. Careful controls were made on every series of experiments.

Experiments.—Our experiments have fallen into two groups: animals treated with repeated small doses, and those treated with single large doses. In every case, the drug was given intravenously. The tolerated single dose of flumerin for rabbits by this method is, as has been stated, 30 mg. per kilogram.

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[3] Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: A Study of the Comparative Toxicity of the Various Preparations of Mercury, J. Cutan. Dis., December, 1915.

[4] Nichols, H. J., and Hough, W. H.: Demonstration of Spirochaeta Pallida in the Cerebrospinal Fluid, J. A. M. A. **60**: 108 (Jan. 11) 1913.

[5] Brown, W. H., and Pearce, Louise: Experimental Syphilis in the Rabbit. I, Primary Infection in the Testicle, J. Exper. Med. **31**: 475 (April) 1920.

[6] Brown, W. H., and Pearce, Louise: Latent Infections with the Demonstration of Spirochaeta Pallida in Lymphoid Tissues of the Rabbit, Am. J. Syph. **5**: 1 (Jan.) 1921.

[7] Pearce, Louise, and Brown, W. H.: A Study of the Relation of Treponema Pallidum to Lymphoid Tissues in Experimental Syphilis, J. Exper. M. **35**: 39 (Jan.) 1922.

Series I: Using Repeated Doses of 10 Mg. per Kilogram.—Five animals were given from four to eight doses of 10 mg. per kilogram, the drug being given every other day. In four, there was prompt resolution of lesions; the fifth, in which the local lesions had resolved, but which was known to be syphilitic, was treated during the latent period. These animals were held an average of thirty-five days after the last dose. At the beginning of these experiments, the value of lymph node transfer had not been demonstrated, but transfers of the popliteal nodes of two of this series failed to produce lesions in the transfer animals during eighty days of observation.

Series II: Using Repeated Doses of 5 Mg. per Kilogram.—Five animals were given an average of ten daily doses of 5 mg. per kilogram. Resolution began promptly and was complete in an average of eight days. At an interval of thirteen days after the last dose in four animals, and twenty-five days in the other, popliteal node transfers were made. One of the transfer animals failed to develop lesions during fifty-seven days' observation, the others remaining negative during seventy-seven days.

Series III: Using Repeated Doses of 3 Mg. per Kilogram.—Five rabbits were given twelve daily doses of 3 mg. per kilogram. The results of this treatment varied strikingly. In one animal, lesions resolved, and node transfer made forty-nine days after the last dose was negative during fifty-three days of observation. In a second, there was resolution of lesions, but node transfer made the fifteenth day after the last dose was positive in thirty-five days. In the third rabbit, the lesions persisted, and though spirochetes could not be found on the thirtieth day after the last dose, a node transfer was then made which proved positive in thirty-four days. In the other animals, lesions were not resolved, spirochetes being found in one the sixty-fifth day after the last dose. The remaining animal died by accident during the night, and although spirochetes could not be found at necropsy in the morning, the large lesions indicated the slight effect of the drug.

Series IV: Using a Single Dose of 30 Mg. per Kilogram.—Four rabbits were given this dose. In all, there was prompt resolution of lesions. Popliteal node transfers made twenty days after treatment were negative in three animals during ninety days of observation, and positive in one in forty-eight days.

Series V: Using a Single Dose of 20 Mg. per Kilogram.—Four rabbits were used in this series. In all, there was resolution of lesions. Node transfers from two animals made thirty days after treatment showed negative results during 101 days of observation in one, and positive results in the other in forty-three days. A third animal relapsed forty-five days after treatment, and spirochetes were found by dark-field examination. The fourth is still under observation.

Summary.—From four to eight doses of 10 mg. per kilogram, given on alternate days to a series of five rabbits with well established infection, caused resolution of lesions in every case, and in two instances in which node transfer was made no infection resulted in the transfer animals. An average of ten daily doses of 5 mg. per kilogram to a series of five rabbits caused resolution of lesions in every case, and popliteal node transfers were consistently negative. Twelve daily doses of 3 mg. per kilogram to a series of five rabbits gave conflicting results. In two animals, lesions resolved, and node transfer was negative in one, but positive in the other. In the remaining three, lesions persisted. A single dose of 30 mg. per kilogram caused resolution of lesions in four rabbits, negative node transfers in three cases and a positive node transfer in the remaining animal. One dose of 20 mg. per kilogram caused resolution of lesions in four animals, and later observation resulted in negative node transfer once, positive node transfer once, and relapse once; and one rabbit is still under observation.

In a single dose, therefore, the curative dose of flumerin, 30 mg. per kilogram, closely approaches the maximum tolerated dose; but a series of doses of 5 mg. per kilogram is uniformly effective. This is in sharp contrast to serial doses of 3 mg. per kilogram, which are usually ineffective.

CLINICAL APPLICATION OF FLUMERIN

The foregoing is a satisfactory demonstration that this drug is one of very low toxicity, and that in rabbit syphilis it has a definite curative effect. In single dose, its therapeutic ratio is, in common with that of other mercurials, 1 : 1; but repeated small doses are effective in eradicating rabbit infections, the standard of cure being based on rigid criteria. These data were considered sufficient to justify its use in human syphilis. Accordingly, a number of patients have been treated in the syphilis department of the medical clinic, under the direction of one of us (J. E. M.).

We have used flumerin alone in order that the results may not be obscured by the administration of arsphenamin.[8] Treatment has generally been continued at two-day intervals, until a course of from twelve to sixteen doses has been given. In most instances, patients presenting open lesions have been chosen so that the effect of the drug on the healing of lesions could be followed.

In spite of the low toxicity of flumerin in animals, it was considered advisable to begin in the human subject with doses smaller than the demonstrated curative dose in rabbits, in order to avoid possible untoward effects. For this reason, the first dose was usually 2 mg. per kilogram, and subsequent doses 3 mg. per kilogram. For a man, this is about 0.2 gm. Recently, we have administered as much as 5 mg. per kilogram, or about 0.35 gm., to a small number of robust patients, without demonstrable ill effects. These patients are still under treatment, however, and are not included in the present discussion of therapeutic effect or reactions. The results of this larger dosage will be reported in a separate clinical paper.

Ninety-six patients have been treated. Of these, five patients with primary syphilis, twenty-one with secondary syphilis, and twenty-four with various lesions of tertiary syphilis, received five or more injections of the drug, sufficient to permit the formation of an opinion as to therapeutic and possible toxic results. In addition are included ten patients who were intolerant to arsphenamin, five who reacted badly to other methods of administration of mercury, four Wassermann-fast patients, and a few patients with latent or neurosyphilis. The remainder received only a few injections, and were then lost from observation.

The results on the whole have been good. In Table 1 are shown, in summary form, the data regarding the groups with open lesions.

Of the primary cases, three gave seronegative reactions on admission, the duration of the disease being three days, ten days, and seven weeks, respectively. (The last patient had received two doses of arsphenamin, beginning at the fifteenth day of his disease. He developed a typical arsphenamin dermatitis after the second dose, and was transferred to flumerin for this reason. At the time of transfer, his lesions were still unhealed.) In all three of these cases, the blood Wassermann reaction remained permanently negative during and after treatment with flumerin. One patient had a seropositive reaction on admission which became permanently seronegative after the twelfth dose of flumerin fifty-three days after starting treatment, though a break in the Wassermann reaction was obtained eight days earlier. The length of time necessary to bring about this result is probably due to a long lapse in treatment, twenty-three days intervening between the first and second doses.

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[8] Since the toxicity of at least one of the halogen mercury compounds of fluorescein is much greater than that of flumerin, it is considered inadvisable at present to administer iodids concurrently because of the theoretical possibility of the formation of a toxic halogen mercurial compound in the body. A separate set of toxicity experiments, using an iodid and flumerin together, should be made.

With one exception, the primary lesions were healed in an average of twenty-two days, the shortest time being fourteen days (after five doses of the drug), the longest thirty days (after four doses). The one case in which healing failed to occur was that of a man with a typical diphtheritic chancre of three days' duration, in which spirochetes were demonstrated. His blood Wassermann reaction was negative. After seven doses of 3 mg. per kilogram, the initial lesion was still unhealed and had definitely spread. At this time, sixteen days after starting treatment, no spirochetes could be found. A week later, two more doses of flumerin having been given without healing, this drug was discontinued, and a course of eight doses of arsphenamin substituted. The lesion healed very slowly, complete cicatrization occurring only after the sixth arsphenamin injection. At the completion of this series, he was put on mercury by inunction; but after three weeks of faithful application to this treatment, he returned with an ulceration in the indurated scar of the healed chancre. Many spirochetes were now demonstrated by dark-field examination. This case, therefore, is obviously resistant to arsphenamin, as well as to mercury, and can hardly be charged against flumerin as a failure.

TABLE 1.—SUMMARY OF TREATMENT OF FIFTY CASES WITH FLUMERIN

Stage of Syphilis	Number of Cases	Lesions Healed	Average Number of Days to Heal Lesions	Serologic Result (Blood)		Average Number of Doses to Reduce Wassermann
				Good	Poor	
Primary.....	5	4	22	4	1	3 remained 0 1 case, 12 doses
Secondary...	21	21 (relapse in 1 case)	19	11	10	8
Tertiary.....	24	19 (improved in 5 cases)	25	9	15	10

In secondary syphilis, evidence of the therapeutic activity of the drug was also obtained. Of twenty-one cases, the blood Wassermann reaction was reduced to negative (in most instances permanently so) in eleven. This result was accomplished in an average number of eight doses (about three weeks of treatment). In another case, a break to suggestive negative was obtained after seventeen doses of flumerin. An additional patient, who had received numerous doses of antimony and potassium tartrate intravenously elsewhere because of the erroneous diagnosis of granuloma inguinale, had a negative reaction on admission, which remained so in spite of unmistakable lesions of early secondary syphilis. In the remaining eight patients, the blood Wassermann reaction remained positive throughout the course of treatment. Four of these, however, received only six injections or less.

All lesions were healed, the average time necessary (regardless of the type of lesions) being twenty-one days (seven doses of flumerin). In one patient, a man with enormous condylomas, the behavior of spirochetes was studied. Five hours after the injection of 3 mg. per kilogram, no spirochetes could be found, though on admission they averaged one to the high power field. Twenty-two hours after the injection three spirochetes only could be found after exhaustive search, while, after twenty-five hours, none were present.

One case was of particular interest. This was that of a colored girl with annulopapular lesions on the face, and moist papules about the genitalia. She was given sixteen doses of flumerin, the average dose being 3 mg. per kilogram, at fairly regular intervals, though treatment was twice interrupted because of stomatitis, for a week and ten days, respectively. Her original lesions were completely healed in thirty-one days, after eight doses of the drug, and at the same time a beginning reversal of her blood Wassermann reaction had occurred. The remainder of her treatment was uneventful until the day of the sixteenth injection, when she drew attention to a lesion on her lower lip, of two days' duration. This was a typical papulo-erosive mucous patch about 2 cm. in diameter, containing an enormous number of actively motile spirochetes. Her blood Wassermann reaction was still negative. This represents a clinical recurrence while under treatment, such as are practically never observed under arsphenamin therapy, though similar instances after administration of various types of mercurials are not uncommon.

To sum up with regard to primary and secondary syphilis: evidence is provided that in the dosage employed, 3 mg. per kilogram, flumerin is therapeutically active in the sense that it will cause spirochetes to disappear from lesions, will bring about the resolution of lesions, and, in about half the cases treated, will change a positive blood Wassermann to negative.

Twenty-four cases of tertiary syphilis, mostly gummatous or nodular skin lesions, have been treated. Several cases of bone syphilis are included in this total. All lesions were healed in nineteen cases, and in the remaining five were greatly improved. The average time of healing was twenty-five days. Nodular syphilids healed more promptly, the average being fifteen days; while skin gummas, ranging in diameter from 1 to 10 or 15 cm., took an average of thirty days to heal. A break in the blood Wassermann reaction, not always to a complete negative, was obtained in nine of the twenty-five cases, while in sixteen the test remained positive.

The groups of patients who tolerated arsphenamin or other forms of mercury badly are of interest, and the cases may be briefly summed up. Ten patients who had had an arsphenamin dermatitis have been treated with flumerin and have in every instance tolerated the drug well. The results are obscured by the previous treatment, but in two cases it has been possible to reduce a positive Wassermann reaction to negative. It is suggested that in patients of this type flumerin may prove a valuable addition to our insufficient armamentarium.

Five patients who tolerated badly mercury in other forms have been treated. Three of these, all patients with late syphilis, had repeatedly shown their inability to tolerate mercury by inunction. In each instance, after a week or two of rubs, salivation, headache or severe bone pains always occurred. Each of these persons tolerated from eight to twelve doses of flumerin, 3 mg. per kilogram, without reaction of any kind. The remaining two suffered from recurring eye lesions each time mercury by inunction was attempted, though arsphenamin promptly controlled the lesions. In the first, a case of recurrent iritis and neuroretinitis, flumerin was begun after the third course of arsphenamin, in the attempt to avoid the recurrences of the first and second course of inunctions. The result was satisfactory—no recurrence developed. The second patient was put on flumerin during his fifth recurrence of iritis, which healed promptly—a result never obtained in that patient by inunctions.

Reactions.—There were no local reactions observed from the use of this drug. It is nonirritating to veins, and thrombosis has never occurred, even after many injections. In a few instances in which the drug has been injected outside the vein, a moderately painful swelling, lasting about twenty-four hours, has resulted. No sloughs have been observed.

TABLE 2.—GASTRO-INTESTINAL REACTIONS FROM FLUMERIN

Total Number of Doses Given	Number of Injections Followed by				
	Immediate Nausea or Vomiting			Diarrhea	
	Mild	Severe	Cramps	Mild	Bloody
945	22 (2.3%)	19 (2.01%)	7 (0.7%)	10 (1.0%)	8 (0.9%)
	41 (4.3%)				

The general reactions observed may be separated into three groups: (1) gastro-intestinal; (2) stomatitis, and (3) renal irritation. In Table 2, it is shown that, of 945 doses of the drug, 66 injections (6.9 per cent.) have been followed by a reaction of the first group. For the most part they have been negligible, but occasionally a very severe reaction is observed. Fairly commonly, a patient complains of nausea, either actually during the injection of the drug or within five minutes afterward. This is usually mild in character and lasts only a few moments. Less frequently it is quite marked and is associated with very severe retching and vomiting. Even in these cases, however, the discomfort disappears spontaneously within half an hour, and usually there is no after-result. In a few patients, such reactions have tended to recur after succeeding injections, and twice it has been necessary to discontinue the drug for this reason. The rapidity with which the reaction appears suggests that it may be central in origin. Four per cent. of all injections have been followed by reactions of this type, equally divided between mild and severe. Dosage, the number of injections given, the concentration of the solution, or the speed of administration, seems to play no rôle in the development of these reactions.

Seven injections were followed in a few hours by abdominal discomfort or cramps, and eighteen (1.9 per cent.) by diarrhea, which in eight instances, according to the patient's report, contained blood. Two patients had to be transferred to arsphenamin because of bloody diarrhea.

Of the total number of ninety-six patients treated, more than one third complained, at some time during the course of treatment, of sore mouth, gums or teeth. In the majority of cases, this was subjective only. Nothing could be seen on examination, and the continued administration of more drug did not make the condition worse. On the contrary, it usually cleared up spontaneously, even when further injections were given. In six cases, an actual stomatitis, with swollen, bleeding gums, ulceration behind the last lower molar, etc., occurred. In all instances, this was comparatively mild, and cleared up as soon as the drug was stopped.

Aside from this, and the gastro-intestinal reactions already detailed, the use of flumerin has been attended by practically no subjective complaint. These reactions are less frequent than after the arsphenamins or an equivalent amount of other mercurials.

Particular attention has been paid to the possibility of renal damage. Urine examinations have usually been made at every visit, phenolsulphonephthalein tests have been made before and after treatment, and, in a few cases, the blood chemistry has been studied. Of seventy-seven patients in whom adequate urine examinations had been made, the urine showed no change in fifty. In ten instances (12 per cent.), albuminuria or cylindruria present on admission was cleared up by the end of treatment with flumerin. In seventeen cases (22 per cent.), a transient albuminuria or cylindruria developed during treatment, but cleared up promptly on cessation of the drug. In four instances, both albumin and casts appeared, in nine cases albumin only, and in four casts only. These figures are based on a dosage of 3 mg. per kilogram. Recent experience, using 4 or 5 mg. per kilogram, shows no higher incidence of urinary abnormalities, though the data regarding these dosages are not included in this paper. Judging from the urine examinations, therefore, no permanent renal damage was done by flumerin.

Confirmation of this is afforded by the phenolsulphonephthalein results. In thirty-six of sixty-one patients, the last test was the same as the first. In nine instances (14.7 per cent.), the phenolsulphonephthalein output was fifteen or more points higher at the end than at the beginning of treatment, while in three cases (4.9 per cent.) only was there a drop of fifteen or more points (—25 once [artefact?], —15 twice). Blood chemistry studies before and after treatment have also been negative. Not only is evidence of nephritis lacking, but it is also apparent that the functional renal abnormalities caused by syphilis have frequently disappeared after the administration of flumerin.

TABLE 3.—REACTIONS FROM FLUMERIN

Total Number of Patients	Stomatitis		
	Total Cases	Mild	Severe
96	36 (37.5%)	30	6 (6.2%)
	Urine Examinations		
	No Change	Existing Abnormalities Cleared up Under 205	Transient Albuminuria or Casts During Treatment
77	50	10 (12.9%)	17 (22%)
	Phenolsulphonephthalein Output		
	No Change	Increased Plus 15 or More	Decreased Minus 15 or More
61	49	9 (14.7%)	3 (4.9%)

This drug is, therefore, singularly free from serious reactions in the dosage which we have employed.

COMMENT

The evaluation of the worth of any new drug in medicine, and particularly in the treatment of syphilis, is a difficult problem, which must be approached with the utmost caution. In this instance, it is fraught with special difficulties. It is obvious that flumerin cannot be compared with the arsphenamins. No strictly comparable studies with other mercurials, especially so far as rabbit syphilis is concerned, have been carried out. It is not permissible to conclude, because the single dose therapeutic ratio of this drug is the same as that of other mercurials, and because a quantity of flumerin from eight to twenty times greater than other mercurials can be safely employed, that the actual therapeutic activity of flumerin is, therefore, proportionally greater. Therapeutic activity depends on many other factors, chief among which may be mentioned the penetrability of a given drug, and its ultimate fate in the body. No comparisons are therefore attempted, and it is given only as our clinical impression that flumerin is, from the standpoints of toxicity and therapeutic activity, superior to the soluble mercurial salts in general use by the intravenous route.

No attempts have as yet been made to employ the drug by the intramuscular route. For the present, and until adequate experimentation shall have demonstrated the limitations of toxicity, the factor of freedom from pain and the relative value of this route as compared to the intravenous route, we do not advise its use.

From the standpoint of the clinical results, it should be pointed out that, as yet, we have given only small doses of the drug. The results obtained in rabbit syphilis indicate the desirability of employing doses larger than 3 mg. per kilogram. The few instances in which we have recently administered 4 or 5 mg. per kilogram indicate that the effect of the drug on lesions and on the Wassermann reaction is enhanced. Attempts to increase the dosage must, however, be carried out cautiously and under adequate control.

No attempt is made to suggest the ultimate place which this drug may attain in the treatment of syphilis. It is not available for general distribution, and, for the present at least, permission will not be granted for its commercial manufacture.

SUMMARY

This paper deals with a new soluble mercurial drug of low toxicity and of remarkably nonirritating character when injected intravenously. The complete chemical name—hydroxymercurifluorescein—has been shortened to flumerin. This drug is effective in eradicating experimental syphilis in rabbits in doses which are well tolerated. Even in large doses, it causes little or no clinical injury to the kidneys of animals. In ninety-six human cases, definite proof of its value as an antisyphilitic drug has been given.

Doses containing from eight to twenty times the amount of mercury present in the therapeutic dose of other mercurial drugs commonly used intravenously have been given with impunity, and the maximum dose which may be employed serially in the human being has not yet been determined.

The therapeutic effect of the drug has been shown in primary, secondary and tertiary syphilis by the resolution of lesions and the reversal of positive blood Wassermann reactions. The number of cases treated is sufficient to demonstrate that this mercurial is of value, but is too small to permit the allocation of the drug to a definite place in the therapy of syphilis.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. KEIM AND WILE, KEIDEL, AND WHITE, HILL, MOORE AND YOUNG

Dr. Udo J. Wile, Ann Arbor, Mich.: I can add very little to what Dr. Keim has said about this test, except to emphasize that it embodies certain features that are simplifications of our standard Wassermann reaction. It commends itself by the fact that all those tests which would ordinarily be 4 plus with the standard Wassermann reaction can be read within one hour after the blood has been drawn. Secondly, the use of a single substance in the performance of the test, together with a small quantity of blood serum, leads certainly to the hope that we are on the way toward a possible standardization of this test. Surely, if a test is so simple that it requires only a single substance plus the suspected blood serum and the complete elimination of the many details and sources of error which are found in the employment and nomenclature of the hemolytic system, that test is deserving of careful scrutiny for general application. It must be remembered that we have used this test in only a small number of cases. Three hundred cases tested clinically is really a very small number on which to base conclusions. This test has been used about 8,000 times, not clinically but in the department of health in Lansing, where its author, Dr. Kahn, compared it from the serologic standpoint with the Wassermann reaction, and I believe that it is on the way to a permanent place in the serology of syphilis.

Dr. R. L. Kahn, Lansing, Mich.: The limited time at Dr. Keim's disposal necessarily did not give him an opportunity to discuss the principle of the reaction. I will therefore take the liberty to say a word about it. Briefly, the antigen is so prepared that it contains a concentrated amount of antigenic substance and is diluted with physiologic sodium chlorid solution for the tests, with a view to rendering the final mixture as unstable as possible. This instability is brought about by adding as little salt solution to the alcoholic antigen as possible, rendering the diluted mixture on the verge of precipitation. This mixture is opalescent and clear, and will remain so at warm room temperature; but placed in the icebox, it will precipitate. The antigen is thus quite sensitive to precipitation. Therefore, when properly mixed with syphilitic serum, the antigen molecules readily react with the combining molecules of the serum, and marked precipitation results. Dr. Wile said that in the state health department at Lansing, about 8,000 tests had been made. This, I think, is based on a statement made months ago. We have now a record of more than 12,500 precipitation tests in the state laboratory. Most of these tests, however, lack definite clinical histories. The combined laboratory and clinical study of Dr. Keim and Dr. Wile, therefore, is of the utmost importance. For my part, it can only serve as a stimulus to try to perfect the test as much as possible, with a view to rendering it an important aid in the diagnosis of syphilis. With regard to spinal fluids, we are still in the experimental stage. We hope, in the course of months, to have this test apply to spinal fluids as well. The paper presented by Dr. Keim and Dr. Wile is based on the third communication of this precipitation test, which is to be published.

Dr. James Herbert Mitchell, Chicago: I should like to emphasize the importance of gland puncture in the early diagnosis of syphilis. Until about a year ago I thought very little of this, not having carried it out in any series of cases. Recently, however, I have carried this out as a routine procedure in all early cases of syphilis. Many times the chancre has been treated locally with various antiseptics, and often we do not see the chancre in public practice until three or four weeks have elapsed. At that time, especially after the application of antiseptics, it is very difficult to find spirochetes in the serum from the surface. Formerly we used to puncture the chancre at the root, but now we are puncturing the lymph glands. At first I used a small needle, believing that I obtained a better serum in that way; but now I use a large needle and leave it in the gland for two or three, or sometimes five, minutes, moving it about quite a little. Then with a very tight fitting syringe we aspirate gently. In practically all cases in which the glands in the region are large it is possible to get the organism.

Dr. Richard L. Sutton, Kansas City, Mo.: Dr. Driver referred to the importance of repeated Wassermann tests in cases that are negative to examination by dark field illumination. At times, it is extremely difficult to diagnose a suspicious primary lesion, and in many instances, only time and a number of serum tests will solve the problem. Should material from the lesion itself fail to contain spirochetes, serum, obtained by puncturing a contiguous lymph node, may prove fruitful. I believe that much of the criticism of the Wassermann test is due to the fact that in about 50 per cent. of cases the test is improperly or carelessly made. If it is too sensitive, we not infrequently get a false positive in a patient who is innocent of syphilis; if lacking in sensitiveness, a weak positive will be reported as negative. In one of our Kansas City laboratories, Dr. W. W. Duke and his laboratory chief, Miss Elizabeth Lease, have formulated a standard Wassermann test, or rather series of tests, in which I have grown to have great confidence. I cannot too strongly emphasize Dr. Keidel's plea for early and repeated examinations of the spinal fluid in patients with tertiary syphilis and neurosyphilis. It is a serious mistake to release a patient as "cured" until a careful examination of the spinal fluid has been made. I was also interested in Dr. Keidel's statement regarding the absence of gross skin manifestations in many, if not the majority of cases of syphilis of the nervous system. Dr. Charles White has called attention to the great frequency with which persons suffering from tabes and paresis give a negative history of skin syphilis, and I must acknowledge that I belong to that rather old fashioned school, the pupils of which believe that there exist certain strains of spirochetes which possess an affinity for certain tissues, such as the skin and the spinal cord. Dr. Moore and his associates have done an interesting and, I believe, valuable piece of work, and the remedy which they have introduced should find a broad field in the treatment of those patients who are very susceptible to arsenic.

Dr. John E. Lane, New Haven, Conn.: I was particularly interested in the relatively high percentage of ulcerative and gangrenous balanoposthitis found in Dr. Driver's series of penile lesions. Attention has not been called to this disease sufficiently, although Donovan's paper on the subject a year or two ago attracted considerable attention. The extremely rapid destruction of tissue which takes place when this condition is not recognized early makes its early diagnosis of the utmost importance, whether it exists alone or in combination with a chancre. I have found that this condition does not respond as well to intravenous injections of arsphenamin as does the Vincent infection in the mouth. I should like to know whether others have had the same experience. I was much interested in Dr. Moore's paper, but was rather disappointed that he did not compare the toxicity, therapeutic results and accidents following the use of the new compound, with those of the best mercurial compound we have previously used intravenously, mercuric cyanid. It would seem that a comparison of this sort should be made and that a probable superiority of the new compound should appear from the comparison in order to make a convincing argument for the adoption of the new compound. I should like to hear Dr. Moore's impression of this, even though he may have no experimental data on the cyanid. From the minor accidents following the injection of the new mercurial as described by Dr. Moore, I should infer that they are more frequent and somewhat more troublesome than they are following the use of mercuric cyanid.

Dr. Harry G. Irvine, Minneapolis: The figures of Dr. Driver on the difficulty of making an early diagnosis in syphilis are not only very interesting but also of extreme importance. I was much interested in the failure with results after something had been used on the chancre in the way of antiseptics. I should like to call attention to the work of Kolmer on the Wassermann test of serum from the chancre. For the past year we have been doing some work along this line, and have confirmed his work with forty or fifty cases. These have been proved later, either by clinical symptoms or finding of spirochetes, and so far as we have gone we have been able to show the presence of a positive Wassermann reaction in the serum from the initial lesion. I think this is important, and it may be that before long physicians will be able to send in serum from the lesion as they now send the blood for a test, and we may then make the diagnosis much earlier.

Dr. William Allen Pusey, Chicago: One of the points Dr. Keidel made should not pass without more comment than it has had, and that is the importance of the early immunity produced when syphilis is allowed to run its course. It is interesting to find that this work is confirming the early view that the uncured early treated case of syphilis was in worse shape than the patient who had been allowed to go on and develop his immunity. The experiments of Moore and Pearce are along the same line as the experiments reported today, and we should not let pass the importance of the observation that was made.

Dr. Joseph Grindon, St. Louis: In reference to the intravenous use of mercury in syphilis, I wish to call attention to the fact that in the medical history exhibit at the library of the St. Louis Medical Society, among many other interesting things, there is a copy of the Acta Philosophica of the British Royal Society, published in 1674, giving an account of the treatment of syphilis by the intravenous injection of a mercurial solution, done in 1668. Also an English translation of the Latin original by Dr. L. C. Boisliniere of this city.

Dr. V. G. Vecki, San Francisco: I am really glad to see that the glands are being a little more appreciated as a pathognomonic symptom, for even in late syphilis the glands sometimes will tell us stories that the blood test cannot. Ravogli recently named the two different strains of spirochetes, the neurotrope and the dermatrope. I had the opportunity to see the Molzer experiments in Munich. One strain he called his own, and another he got from Italy. With Plaut's system to obtain the spinal fluid of the rabbit without any admixture of blood, it was proved in many experiments that the Italian strain caused an increased cell count in the spinal fluid before any other symptom of syphilis appeared, or even any symptom to show that the inoculation was successful. That would prove that there are neurotrope strains; but if the German strain and the Italian strain show such a difference, how shall we explain the difference here in America? There are many questions to answer and one really does not know where to begin or where to stop. Of course, I also had my troubles with the Wassermann reaction, and I only hope that the Vernes colorimetric test, which is being investigated at the Columbia Hospital and which I have closely studied, and which, though fought for many years by the French medical profession, is now being endorsed by the president of the Pasteur Institute, Professor Brock and many other syphilographers, is going to solve the problem and enable us to make a periodic quantitative diagnosis and always receive the proper answer: Is there any syphilis or not?

Dr. James R. Driver, Cleveland: I am glad to hear Dr. Mitchell speak of gland puncture in making dark-field preparations. This procedure, especially in cases having had previous local treatment, should increase greatly our percentage of positive results. Our results so far by this method have not been very flattering, but with Dr. Mitchell's suggestions in mind we will try to improve our technic. Dr. Lain spoke of Vincent infections in the mouth reacting better to treatment than those on the genitalia. This has been our experience, if the infection involves the deeper tissues. What I wish to emphasize about erosive gangrenous balanitis is the early diagnosis, before the deeper structures are involved. In one of our cases there was almost complete destruction of the penis in one week's time, and in another there was total destruction of the scrotum in less than a week. We put these cases on soaks of hot potassium permanganate, 1:5,000 solution, for thirty minutes every four hours, alternating with hydrogen peroxid as a wash. The process clears up in a few days, but in the cases with extensive destruction a much longer time is necessary. Dr. Irvine's suggestion of early Wassermann tests on the serum from genital lesions is quite timely. This, in addition to our dark-field examination from the lesions, and from serum obtained by puncture of the regional lymph glands, I think, should make it possible to diagnose almost 100 per cent. of our primary lesions before the Wassermann reaction on the blood becomes positive. This would mean the possibility of curing practically all of our primary syphilitics if adequate therapy is given.

Dr. H. L. Keim, Ann Arbor, Mich.: We suggested that the tests should be read on the following morning without shaking. However, I noticed that immediately when the tubes were received in the audience, they were shaken; while this does not dissolve the precipitate, it does break it up and make it less perceptible to the naked eye. We are planning further studies with this test, and hope at a later date to add more data on its clinical application.

Dr. Albert Keidel, Baltimore: Whether or not we shall have to change our conceptions of immunity will be told by the future, but it seems today that our original ideas about immunity in parasitic diseases are about to undergo some rather fundamental changes, particularly getting away from the idea of the more or less graphic conception which we carry in our minds of Ehrlich's side-chain theory. We are approaching the chemical solution rather than the biologic solution of these theories. The question of strains has a bearing on the problem I presented, but as it is such a controverted point I wish only to say that my attitude toward the existence of strains, the neurologic strain, for example, is not one of great enthusiasm. I think the arguments against the existence of strains are very much more sound and practical than those in favor of them.

Dr. J. E. Moore, Baltimore: In reply to Dr. Lane, I did not attempt to make any very definite comparison with cyanid or other mercurials used intravenously. Cyanid contains by weight about 83 per cent. of mercury as against 32 per cent. for the new drug. The maximum therapeutic dose of cyanid is about 0.02 gm., whereas the therapeutic dose of flumerin is from 0.2 to 0.3 gm. On the basis of mercurial content, that means about seven times as much mercury in flumerin as in cyanid. The therapeutic ratio of both drugs is 1:1. The single curative dose in animals is practically the maximum tolerated dose. In order to cure the disease one has to kill the animal. No experiments have been carried out with node transfer for other mercurials, so far as I know, so that we feel we have a better criterion of cure for flumerin than for other preparations. I am not familiar with any recent literature on the use of cyanid alone. I am familiar with much literature in which cyanid has been used in connection with other drugs, and I feel that such work is absolutely of no value in estimating the worth of cyanid. This drug has been supplied to four or five clinics, notably those of Dr. Fordyce, Dr. Schamberg, Dr. Stokes and Dr. Wile, who I hoped would say something about it. Dr. Schamberg has been particularly interested because of the work he and Dr. Kolmer had done on the mercurials.

CALCIUM AND PHOSPHORUS METABOLISM IN PATIENTS WITH FRACTURES *

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The exact mechanism by means of which calcium salts are deposited in areas of bone growth or bone repair is to a large extent unknown. While part, at least, of the process must take place at the site of growth or fracture, there is reason to believe that changes in the inorganic metabolism of the body may accompany and perhaps determine the deposition of bone salts. During the last three or four years, many investigations have been undertaken in the study of one of the frequently encountered diseases of childhood which produces marked changes in the osseous system; namely, rickets. These investigations included not only the experimental production of rickets in animals, but also the study of the inorganic metabolism in children with this disease. Howland and Kramer[1] have shown that in rachitic infants the inorganic phosphate content of the blood serum is markedly reduced, and that when healing occurs, with the deposition of bone salts, the phosphate content of the serum again reaches a normal level. These authors have advanced a theory to explain the deposition of bone salts, and have given considerable evidence in support of it. Briefly, the theory is that the serum (and tissue fluids) of normal infants contains calcium and phosphate in a nearly saturated solution; slight reduction of the acidity of the tissue fluid at a point at which the cartilage is in close contact with the circulation from the bone marrow reduces the solubility of these salts, and results in their precipitation. As a result of the foregoing work, and also of the study of the calcium and phosphate concentration in the serum of rachitic infants undertaken by one of us, we have endeavored to determine whether some of the fundamental principles which apparently apply to the deposition of bone in rickets also apply to the deposition of calcium salts in the union of fractures.

TABLE 1.—CONCENTRATION OF PHOSPHORUS IN SERUM OF PATIENTS OF VARIOUS AGES FROM A FEW MONTHS TO FORTY-FOUR YEARS

Serum No.	Age, Years	Inorganic Phosphorus per 100 C.c. of Serum, Mg.	Serum No.	Age, Years	Inorganic Phosphorus per 100 C.c. of Serum, Mg.
53	4 mos.	5.7	29	21	4.1
22	10 mos.	5.3	43	21	3.9
10	1 yr.	5.2	33	23	3.5
20	1 yr. 2 mos.	5.8	53	23	3.7
55	3	6.4	40	24	4.0
61	5	5.7	50	24	3.7
58	7	4.8	45	25	3.8
69	9	6.0	46	25	3.7
59	10	5.2	51	25	3.8
62	11	5.7	47	26	4.3
68	12	5.5	36	27	3.6
64	13	5.4	35	28	3.7
397	14	4.4	49	28	3.6
411	15	4.4	44	29	3.7
395	16	6.0	48	30	4.0
412	17	5.1	31	31	4.0
396	19	5.2	30	32	3.7
413	19	4.5	32	33	3.7
25	19	4.2	34	33	3.7
28	20	4.1	41	34	3.2
39	20	3.7	42	44	3.9

While we by no means have solved the problem of deposition of bone in fractures, we have found that certain definite and important changes in the inorganic metabolism of the body almost invariably accompany the process of bone repair.

The inorganic constituents of bone consist largely of calcium phosphate, with a small amount of calcium carbonate and a trace of magnesium phosphate. These elements must be carried to the site of growth by the tissue fluids, which in turn receive their calcium, phosphorus and magnesium from the blood serum. As it is not feasible to examine tissue fluids, our studies have consisted in the determination of the calcium and phosphorus in the serum of normal persons and of patients with fractures. The methods used have been described elsewhere.[2] After making several hundred determinations of both calcium and phosphorus by these methods, we are convinced that the results recorded here are accurate within 2 or 3 per cent.

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* From the Nutritional Research Laboratory of the Hospital for Sick Children and the Departments of Pediatrics and Surgery, University of Toronto Faculty of Medicine.

[1] Howland, J., and Kramer, B.: Calcium and Phosphorus in Serum in Relation to Rickets, Am. J. Dis. Child. **22**: 105 (Aug.) 1921.

[2] Kramer, B., and Tisdall, F. F.: J. Biol. Chem. **47**: 475 (Aug.) 1921. Tisdall, F. F.: Ibid. **50**: 329 (Feb.) 1922.

As a basis for further work, an examination of the phosphate content of the serum of normal persons was undertaken. Howland and Kramer first drew attention to the fact that the phosphate content of the serum of infants is considerably higher than that of adults. In sixteen normal infants, they found an average phosphate content of 5.4 mg. of phosphorus for each hundred cubic centimeters of serum, while an average concentration of 2.1 mg. of phosphorus for each hundred cubic centimeters was found in eight normal adults. In Table 1 of this paper are given the results of our determinations on forty-two normal persons. These are recorded according to the age, which varied from 4 months to 44 years. The results from 4 months to 19 years averaged 5.4 mg. of phosphorus for each hundred cubic centimeters, while the results from 20 to 44 years average only 3.8 mg. of phosphorus for each hundred cubic centimeters.

In Table 2 are given the results of the determination of the calcium and phosphorus in the serum of adults with fractures. The blood was obtained in most instances from two to six weeks after the fracture occurred, and in all cases there was clinical or roentgen-ray evidence of union. The calcium concentration increased only slightly above the normal of 10 mg. of calcium for each hundred cubic centimeters, while the phosphorus increased from the average in the adult of 3.8 mg. of phosphorus to 5.3 mg. of phosphorus for each hundred cubic centimeters.

TABLE 2.—CONCENTRATION OF CALCIUM AND PHOSPHORUS IN SERUM OF PATIENTS DURING THE PERIOD OF UNION OF FRACTURES

Serum No.	Age, Years	Calcium per 100 C.c. of Serum, Mg.	Inorganic Phosphorus per 100 C.c. of Serum, Mg.
107	33	9.6	5.3
108	20	9.9	5.3
109	32	9.5	5.0
111	79	10.0	5.1
112	50	9.9	5.3
282	20	10.7	5.4
290	53	9.9	5.5
378	35	11.0	5.3
381	21	10.5	5.6
444	47	10.1	5.2
445	57	10.2	5.2

The figures reported in Tables 1 and 2 are of considerable interest. It is to be noted that from 4 months to 19 years of age, the concentration of phosphorus is remarkably constant. At about 19 or 20 years of age, the concentration falls to a much lower level, and from then on the results are again very constant (Chart 1). It is at this age that most of the epiphyses unite, and active bone formation ceases. When active bone formation again occurs as the result of a fracture, the phosphorus is again elevated to the high level present during the period of normal growth of bone. It is thus evident that a high concentration of phosphorus in the blood serum accompanies the deposition of bone salts during the periods of normal growth of bone, and of repair of fractures.

In a number of cases calcium and phosphate determinations were made at weekly intervals. A slight increase in the concentration of the calcium in the serum generally occurred. In Chart 2 the phosphate determinations in a typical case are graphically recorded. There is a rapid elevation of the phosphorus, which remains at a high level until about the seventh week, at which time it begins to fall, and reaches its original concentration at the eighth or ninth week. The time at which the phosphate curve begins to fall coincides with the period at which the deposition of bone salts at the site of fracture ceases.

Since the repair of a fracture is usually accompanied by a high phosphate content in the serum, one might expect to find a low concentration of this element in cases of nonunion. We have been fortunate enough to have the opportunity of making observations of the calcium and phosphate content of the serum in two cases of nonunion. Determinations were made within a short period of the time of fracture, and then repeated at weekly intervals for fifteen weeks in one case, and eight weeks in the other. The second case will be discussed later. The phosphate determinations from the first case are recorded in Chart 3. In contrast with the cases of normal union, it required five weeks for the phosphorus to reach the concentration of 5 mg. of phosphorus for each hundred cubic centimeters. The calcium concentration, which was at 9.2 mg. of calcium for each hundred cubic centimeters of serum, instead of the normal average of from 9.5 to 10 mg., increased in four weeks' time to the normal level, and continued at this level throughout the remaining determinations.

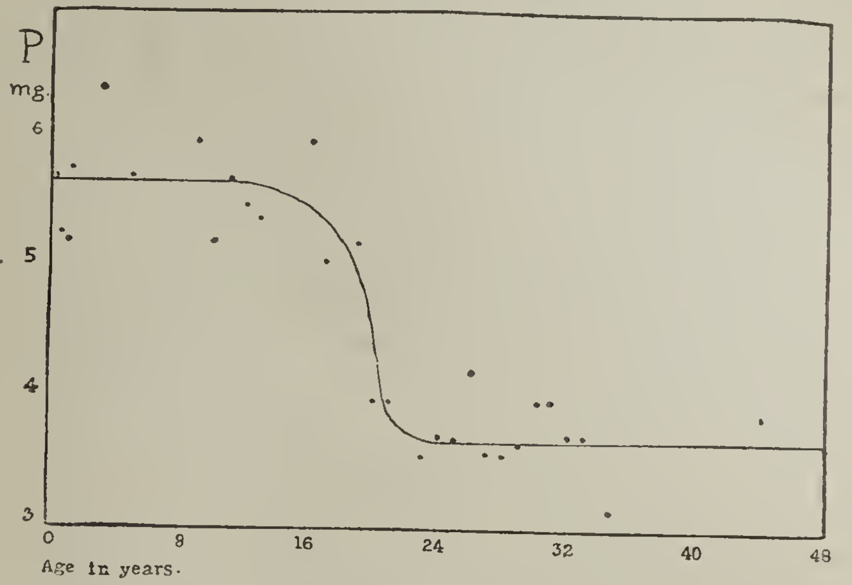

Chart 1.—Curve of the phosphate content of the serum throughout life. This chart is based on forty-two determinations of the phosphate content of the serums of patients whose ages varied from a few months to 45 years. Prior to the age of 20 years the phosphate content is practically always above 5 mg. for each hundred cubic centimeters, while after 20 years of age the estimations nearly all fall below 4 mg. for each hundred cubic centimeters. The drop in the phosphate curve occurs at the age of 20, corresponding to the period of cessation of growth. In all of the charts, the figures at the left indicate milligrams of phosphorus for each hundred cubic centimeters of serum.

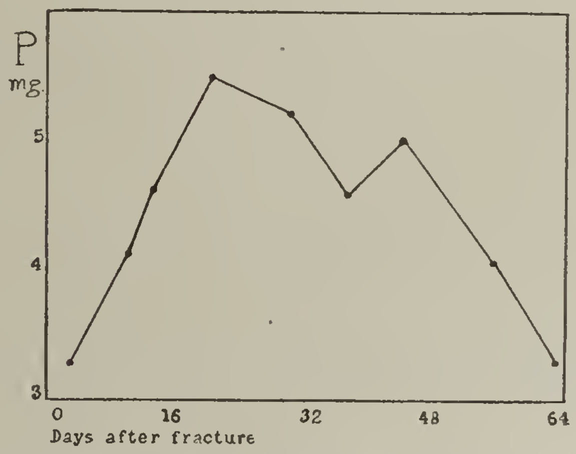

Chart 2.—Phosphate content of the serum of T. T., aged 53, with simple fracture of femur, treated by fixation in a Thomas splint. Union solid at the end of nine weeks. Roentgen ray revealed abundant callus. Patient was walking at the end of twelve weeks.

The changes which occur in the phosphate concentration of the serum during periods of defective deposition of bone and of active bone formation are recorded graphically in Chart 4. In this chart there has been superimposed upon the diagram representing the concentration of the inorganic phosphorus of the serum throughout the greater part of life the curve of the phosphate changes in an infant with rickets, and an adult during the period of repair of a fracture. In the case of the infant with rickets, the calcium concentration was lowered only slightly. Roentgenograms were taken when the phosphorus was at 3 mg. for each hundred cubic centimeters, and defective deposition of bone was clearly in evidence. No essential change was made in the diet, but the infant was exposed daily for fifteen minutes to the rays from a mercury vapor quartz lamp. After two weeks the phosphorus was elevated to 5.5 mg., and two weeks later to 6.7 mg. of phosphorus for each hundred cubic centimeters. Roentgenograms taken at these periods showed a marked deposition of bone. It is evident from the chart that during the repair of a fracture, the phosphate content of the serum is raised to a level equal to that which it reaches during childhood, i. e., during the period of bone growth. In other words, whenever new bone is being laid down, there is an increased concentration in the serum of certain inorganic salts necessary for the formation of bone.

There is some evidence to warrant the belief that certain drugs are capable of influencing the deposition of bone. In reviewing the literature it was noted that the administration of calcium phosphate was recommended in the treatment of delayed union of fractures. Phemister and his co-workers[3] have shown clinically that the administration of yellow phosphorus to patients suffering from rickets and fragilitas ossium results in the deposition of new bone. Previous work had shown us that 1 ounce (30 c.c.) of cod liver oil administered daily for ten days to normal adults increased the phosphate content of the blood by 15 per cent. These three drugs, alone or in combination, were therefore administered to dogs in which fractures of the humerus had been experimentally produced.

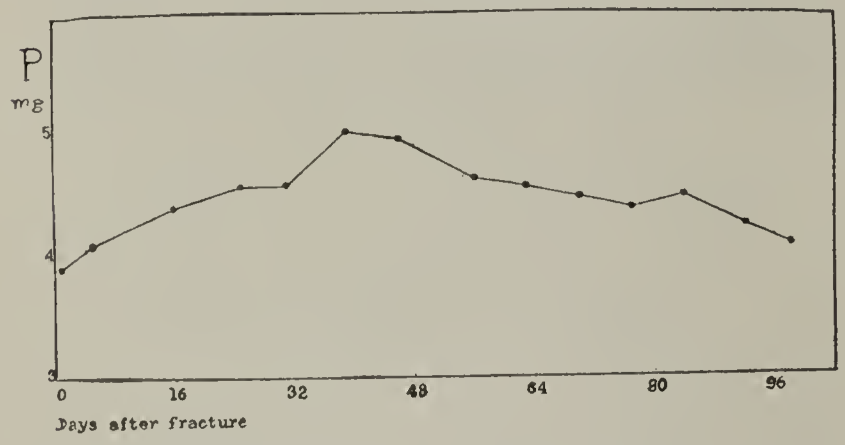

Chart 3.—Phosphate content of the serum of G. S., aged 46, with simple fracture of the tibia and fibula, treated by fixation in plaster. At the end of seventeen weeks there was still complete absence of union, although the fragments were in apposition.

RESULTS OF THE EXPERIMENTS

All the animals showed a rise in the phosphate content of the serum similar to that seen in the clinical cases of fracture cited above. The administration of the various drugs did not appear to modify these curves to any appreciable degree. As in the clinical cases, the calcium curves showed only slight alterations.

The most interesting observation was that, in spite of the rise in the phosphate curve which our previous work had led us to regard as an index, and perhaps an essential factor in the union of fractures, solid union had not occurred in any of the animals at the end of seven weeks. Fair union had occurred in the control animal to which no drug had been administered. In this animal it happened that the fragments remained in reasonably accurate apposition, and this appears to have been the deciding factor in producing union. In the remaining animals there was more or less imperfect apposition of the ends of the bone, and in all of these there was nonunion. It was evident from these results that, in addition to the metabolic change we had been studying, there was another and equally important factor of a local nature concerned in the union of fractures.

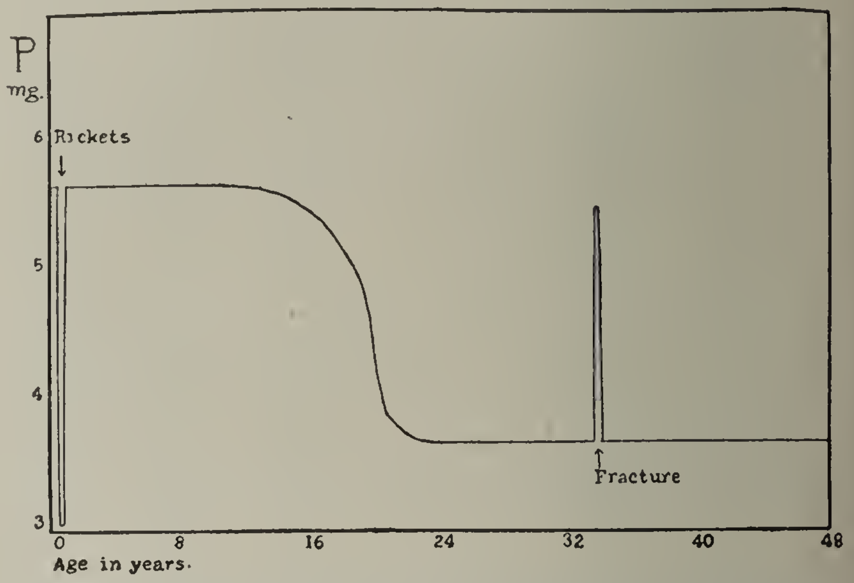

Chart 4.—Normal curve of the phosphate content of the serum throughout life, on which has been plotted on the same scale the curves of two patients suffering from conditions which are accompanied by alterations in the phosphate content of the serum. In infancy is plotted the curve of a patient suffering from severe rickets, who recovered under treatment by quartz mercury light. In adult life is plotted the curve of a patient who sustained a fracture of the femur. These inserted curves illustrate graphically the degree of the changes in phosphate metabolism that may take place as the result, respectively, of impairment of deposition of bone, and renewed deposition of bone.

The repair of fractures presents many unsolved problems. Union of fractures is sometimes difficult to obtain. Apart from nonunion due to mechanical factors, such as loss of substance from the shaft of the bone, or interposition of soft tissue between the ends of the fragments, there exists a group of cases in which union fails, although every factor seems favorable to success. The failure in these cases is due to a lack of deposition of bone salts in the reparative tissue between the ends of the bone. The exact mechanism by which this deposition is normally produced is not known. It would seem that, in the healing of fractures, two mechanisms are at work: one concerned with maintaining an adequate supply of bone salts in the blood, and the other with the taking up of these salts from the blood, and their precipitation in the tissue between the ends of the bone. Of these, the latter is apparently the more important process. The following case appears to be evidence that in spite of an imperfect metabolic reaction, perfect union of the fracture may take place, indicating that the mechanism at the local focus was able to calcify the reparative tissue, in spite of a comparatively low phosphate content in the blood:

M. E. suffered a compound fracture of the tibia and fibula. The phosphate content of his blood serum did not at any time during the period of observation exceed 4.2 mg. of phosphorus for each hundred cubic centimeters. At the end of six weeks, however, solid union of the fracture had taken place. Discharging sinuses due to a traumatic osteomyelitis remained.

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[3] Phemister, D. B.: The Effect of Phosphorus on Growing, Normal and Diseased Bones, J. A. M. A. **70**: 1737 (June 8) 1918. Phemister, D. B.; Miller, E. M., and Bonar, B. E.: The Effect of Phosphorus in Rickets, J. A. M. A. **76**: 850 (March 26) 1921.

It should be stated in explanation of this unusual failure of metabolic response that the patient was a diabetic, a condition in which the whole acid-base metabolism may be altered. In addition we have some evidence which leads us to believe that patients with discharging sinuses have a low phosphate curve under circumstances which ordinarily would produce a sharp rise. Whatever may be the explanation of the low phosphate curve of this patient, the outstanding fact is that the local mechanism was able to produce normal calcification without a high concentration of phosphate in the serum. On the other hand, the second case of nonunion which came under our observation afforded evidence that a normal rise in the phosphates is not of itself sufficient to insure union:

M. W. suffered a fracture of the tibia. After treatment by fixation for nine weeks, there was no clinical evidence of union, and roentgen-ray examination did not detect any callus. Examination of the blood sérum revealed the usual rise in the phosphate content (Chart 5).

This is apparently a case in which every factor in the healing of fractures was normal, except the mechanism whereby bone salts are precipitated at the local focus. These two cases appear to point to the importance of a local process, the exact mechanism of which is as yet unknown.

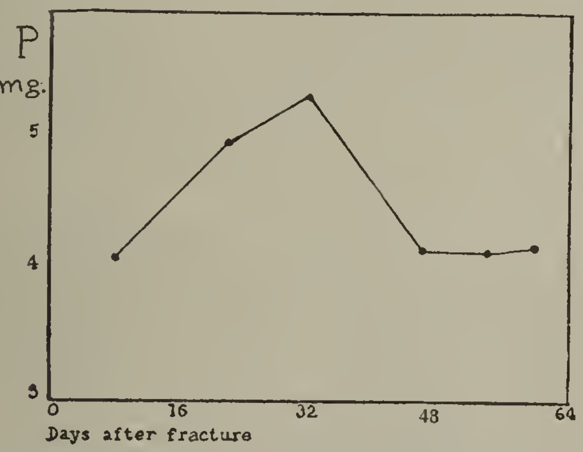

Chart 5.—Phosphate content of the serum of W. W., with simple fracture of the tibia and fibula, treated by fixation in plaster. Eight weeks after fracture there was no evidence of union on either clinical or roentgenographic examination. This appears to be evidence of the importance of the local mechanism as contrasted with the metabolic mechanism in the healing of fractures.

It is known that the rate of healing of fractures varies with the age of the patient, and union is more rapid in young than in old persons. We have found that the increase in the blood serum phosphate which occurs after fractures takes place much more rapidly in young than in old persons. An increase which occurs in two to three weeks in adults takes place in patients under 25 years of age in less than one week. Whether the delayed response of the general inorganic metabolism of the body to a fracture accounts for the slower union in elderly patients, or whether it is due also to a delayed response of the local factor, we do not know. Further investigations are being carried out in an endeavor to throw more light on this interesting problem.

CONCLUSIONS

1. The inorganic phosphate content of normal serum from birth to 20 years of age is remarkably constant. At this age it drops sharply to a lower concentration, and is again remarkably constant at this lower level throughout adult life.

2. The drop in the phosphate content of the serum at the age of 20 corresponds to the period of cessation of bone growth.

3. During the period of union of fractures in adults, the phosphate content of the serum is raised to a level approximately the same as that present in childhood, i. e., the period of active bone growth.

4. There is a close parallelism between the concentration of inorganic phosphate in the serum, and the deposition of new bone, both during the period of growth and during the period of repair of fractures.

5. In addition to the increase which occurs in the inorganic phosphate content of the serum during the union of fractures, there is also a local metabolic process at the site of fracture, which is probably even more important for the production of union than the increased phosphate content of the blood serum.

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CHRONIC APPENDICITIS *

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Much of the confusion which arises from a discussion of chronic appendicitis is due to the fact that it is not always specified whether the point of view is that of the pathologist or that of the clinician. The clinician has in mind a very definite syndrome when he speaks of acute appendicitis: A patient who has previously been well has a sudden severe pain in the abdomen, referred first to the epigastrium, with accompanying nausea, and possibly vomiting; a slight increase of pulse rate, with slight elevation of temperature; a chilly sensation, an appreciable increase of the leukocytes, and sooner or later tenderness over McBurney's point. On immediate opening of the abdomen there is sufficient evidence to warrant the diagnosis of an acute appendicitis. The pathologist, standing by, may at first see nothing more; but on closer examination he will find either macroscopic or microscopic evidence of a former inflammatory process. This may be confined to the mucosa, or may extend to the submucosa, the muscularis or the serosa. To him it is an acute exacerbation of a chronic appendicitis. A more careful review of the history of the case may occasionally lead to a revision of the diagnosis, and the clinical and pathologic diagnoses will agree; but too often this is not the case, either because the patient has forgotten, or the physician has not been sufficiently keen in his analysis of the history, or it may be because the attack was so mild or the symptoms so insidious that they were not recognized by either patient or physician. There is no doubt that the latter is frequently the case, and that many of the so-called cases of acute appendicitis are really acute exacerbations of a chronic appendicitis which may have come on insidiously. Such is the opinion of Aschoff and other reliable authorities.

The problem of the chronically diseased appendix is therefore a large one, for it includes a consideration not only of those appendixes in which there is a clear and definite history of acute exacerbations leading to a chronically diseased appendix, but also of those in

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which the symptoms are mild, scarcely recognized or entirely masked (appendicitis larvata—Ewald).

That this problem may be discussed to any advantage, the underlying pathologic condition must be definitely kept in mind. The mucous membrane of the appendix is studded with crypts very much the same as are found in the tonsillar tissue. These crypts may become infected, and an inflammatory process, single or multiple, may arise, such as is seen in acute tonsillitis. When this process is confined to the mucosa, it may be said to be a simple catarrhal process; when it extends to the submucosa it may be said to be diffuse, and if the inflammation proceeds to the pus-producing stage, it is called purulent appendicitis. At either of these stages the tissues may maintain the power of repair, and after a time there may be no other evidence than localized scar tissue of the disease process having been present. The simple catarrhal or the diffuse forms may occur without any appreciable symptoms. It is not improbable that a localized purulent form may occasionally occur without recognized symptoms so long as the lumen of the appendix is not encroached on to interfere with adequate drainage. If, on the other hand, the inflammatory process continues to tissue death, or if drainage is interfered with, gangrene and perforation may ensue. Even at this stage, the tissue defense may be so effective that repair may take place without surgical intervention.

After many repetitions of acute catarrhal or acute diffuse attacks, the appendicitis takes upon itself the form of chronicity. In this condition, however, on account of interstitial scar tissue from ulceration, surrounding adhesions, retained fecaliths or an obliterating process, an acute exacerbation may again occur, which may be as definite in its course as though it had occurred in a previously healthy appendix. The relative frequency of these conditions is shown by Klotz,[1] in an analysis of 5,647 appendixes examined. Of these, 1,718 showed chronic interstitial lesions, 1,689 had adhesions, 832 were obliterated, and 195 had concretions.

If operation does not follow an attack, and localized peritonitis occurs with recovery, the appendix may be left attached or adherent to certain surrounding organs. A considerable portion of the organ, or only the tip, may be attached to the right tube and ovary, or even to the left; also to the bladder, to the cecum, to the ileum, to the duodenum, to the gallbladder or to the stomach.

It is not the purpose in this paper to discuss at length the etiology of appendicitis, as that is largely a matter of the acute form. The condition becomes chronic practically by the same process in all cases, whether the etiologic factor was largely either a predisposing, a contributory, or an essential or infectious one; or whether the infection was direct from the cecum to the appendix, according to Ashcoff, or from certain foci of infection through the blood stream to the appendix, according to Kretz.

The discussion will be directed more definitely to the diagnosis, treatment and end-results.

SYMPTOMATOLOGY

The symptoms of chronic appendicitis divide themselves naturally into two groups—those of the abdomen, and connected more directly with the digestive system, and those outside the digestive system and referred to organs located elsewhere. Of the first, the symptoms within the abdomen, the most constant is pain and soreness in the region of the appendix. This pain is aggravated by exercise, especially by walking and running. It may be so severe as to incapacitate the patient for a few days. The soreness can always be elicited by making pressure with the examining hand and, unfortunately, the patient himself frequently learns to develop pain by making pressure. It is always the cause of considerable anxiety. It may extend down into the right thigh. On the other hand, the symptoms may be entirely gastric, with only slight soreness in the region of McBurney's point. Under these circumstances there may be only the symptoms of a "chronic dyspepsia," such as the discomfort from "gas" in the stomach, loss of appetite, coated tongue, constipation and occasionally nausea. In 400 chronic cases in which operation was performed, 279 patients were constipated, eighteen had diarrhea, and 103 had regular, normal bowel movements; 230 had nausea at times, and 115 of these vomited. Or, again, the symptoms may be definitely those of peptic ulcer with acid eructations, gnawing sensations in the epigastrium, and "hunger pains" relieved by taking food. Sir Berkeley Moynihan[2] has said:

> There is now no longer any doubt in my own mind that the commonest site of a gastric ulcer is in the right iliac fossa. That is to say, in the majority of cases, where the symptoms would justify or compel a diagnosis of ulcer, the patient is suffering from a lesion elsewhere, and more often than not, from a lesion in the appendix.

Occasionally the bowels are loose and contain considerable mucus. John B. Deaver, in his early teaching, called attention to the significance of mucus in the stool in relation to chronic disease of the appendix. To these symptoms may be added the history of acute attacks, occurring from time to time.

Of the second, the symptoms outside the abdomen, much could be written, but little can be said with any degree of certainty. The patient gives a history of one or more of the abdominal symptoms already described, and adds thereto those of nervousness, weakness, headache, backache, hypochondriasis, and many others rather bizarre. There is usually a marked loss of weight. The patient assumes a faulty posture, and gives the physical signs of a general splanchnoptosis. There may be rather definite symptoms referred to the cardiovascular system or to the urinary tract. It is frequently difficult and, in fact, often impossible to recover from the tangle of symptoms the history of an acute attack.

DIAGNOSIS

The diagnosis can be made with only a certain degree of assurance, depending on whether a history of an acute attack can be developed. Without such a history, physical signs and laboratory tests must be taken at a considerable discount. In 400 chronic cases in which operation was performed only 217 patients gave a satisfactory history of having had acute attacks of abdominal pain which could be interpreted as being of the appendix.

It will be found best, therefore, to make the diagnosis by exclusion. In this way it may be possible to eliminate certain diseases, such as chronic peptic ulcer, "latent gallstone," cholecystitis, stone in the right ureter or in the kidney, certain chronic pelvic diseases, the various ptoses of the abdominal organs, and also certain so-called endocrine disturbances as well as the more common neuroses. To do this, a thorough routine physical examination should be undertaken, which should be followed by test meals, and examinations of the stools, of the blood, including the Wassermann test, and of the urine, including kidney efficiency tests. A roentgen-ray examination of the entire intestinal tract may be of great value, not so much in giving direct information of the appendix as in determining the presence or absence of disease elsewhere.

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[1] Klotz, Oskar: Some Points in the Pathology of Chronic Appendicitis, Tr. Am. Gastro-Enterol. A., 1918, p. 76.

[2] Moynihan, Berkeley: The Gifts of Surgery to Medicine, Brit. M. J. 2: 169, 1913.

The physical examination should, of course, include a careful examination of the abdomen. Of the greatest significance is persistent tenderness at McBurney's point. This may be definite at one time and indefinite at another. It is best elicited by making firm pressure over McBurney's point while the patient is lying on his back with the shoulders elevated and the knees partly flexed. An indefinite tenderness may be developed into a more definite sign by making pressure with the index finger over McBurney's point and then asking the patient, when he is in the position described above, to extend the right knee, hold the leg rigid, and elevate it from the bed or examining table. The diseased appendix, thus pinched between the approximating anterior abdominal wall and the rigid belly of the ileopsoas muscle, gives evidence of extreme tenderness. This sign was first suggested by Meltzer,[3] and goes by his name. It is a procedure which is, of course, applicable only in subacute or chronic conditions. By inflating the large bowel with air (Bastedo's sign), or by exerting pressure downward over the cecum toward Poupart's ligament (Rovsing's sign), pain and tenderness may be produced in the right iliac fossa. Among my cases of chronic appendicitis in which operation was performed, 286, or 71.5 per cent., gave a definite Meltzer's sign. It is interesting to note that in the 400 cases in which operation was performed, rigidity of the right rectus muscle was present in only twenty-three.

By the examination of the abdomen it should be determined whether there is a partial or a general visceroptosis, as this condition frequently is accompanied with symptoms suggestive of chronic appendicitis, although the appendix may be normal. Disease of the genito-urinary organs, especially of the right ovary and tube and of the right kidney and ureter, should be excluded before a diagnosis is made. In an obscure case, catheterization and roentgen-ray examination of the right ureter may be justifiable. In the male patient the investigation is not complete without a rectal examination, and in the married female, without a pelvic examination.

Occasionally the pain from a right sacro-iliac strain may be referred to the abdomen and produce pain and tenderness like that of chronic appendicitis. The aid of a competent orthopedist is therefore often valuable in suspected cases. The gastric crises of tabes dorsalis should be kept in mind.

Finally, a routine examination of the teeth, tonsils, sinuses and eyes, together with an examination of the chest, should be followed out.

Laboratory examinations may not furnish any direct information in establishing the diagnosis of chronic appendicitis, but they are of great assistance in establishing the diagnosis of other conditions which might suggest chronic appendicitis. The constant presence of a gastric hyperacidity with the absence of peptic ulcer is of considerable significance, as it may indicate a pathologic condition elsewhere in the abdomen, the most frequent location being in the right lower quadrant. In 263 chronic cases of appendicitis with operation, in which gastric analyses were made, 189 patients, or 71.9 per cent., had a hyperchlorhydria, forty-seven, or 17.8 per cent., had a hypoacidity, and twenty-seven, or 10.3 per cent., had an achylia. The patients with achylia were, in the majority, such as had a history of great chronicity, were much below their normal health, and revealed at operation extensive pathologic changes by way of adhesions about the appendix and cecum.

The effect on gastric function of extragastric pathologic changes, occurring particularly in the abdominal cavity, has been commented on by others during the last ten or fifteen years. Among these there are Graham and Guthrie,[4] Paterson,[5] Fenwick,[6] Moynihan[7] and Lichty.[8]

A thorough examination of the stool should be made for mucus and parasites, and for blood. The presence of blood and mucus must be carefully interpreted. Occasionally intestinal parasites are responsible for the symptoms. In one of my cases, pinworms were found in the appendix. In a number of suspected cases of appendicitis, successful treatment for intestinal parasites cured the patient. Finally, roentgen-ray examination of the stomach and bowels should be made. Pfahler[9] says that the chronically irritated appendix gives much roentgen evidence of value in diagnosis on account of: (1) localized tenderness, (2) visualization of appendix, (3) fixation, (4) position, (5) kinking or angulation, (6) constriction, (7) abnormal retention and (8) incompetent ileocecal valve. To this he adds later the visualization of fecaliths. To me the demonstration of fixation (adhesions), angulation, constriction and an abnormal retention of bismuth have been of considerable diagnostic value.

If, after the foregoing procedure, the diagnosis is still in doubt, a tentative course of treatment, hygienic, dietetic and medical, based largely on the symptoms, may be undertaken for a period of probably two to four weeks. When this is done with the patient under close observation, especially if it is a patient who will cooperate, a satisfactory diagnosis may often result where otherwise it could not be made. If disease of the appendix is finally excluded, it is likely that such a study will lead to the proper diagnosis.

In following such a course of treatment and of observation there will not infrequently be brought to light the evidence of a distinct neurosis which characterizes a group of patients who present symptoms suggestive of chronic appendicitis. Attention has been called to this especially in the German medical literature recording from time to time the observations of Heidenhain, Küttner, Nothnagel and others.

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[3] Meltzer, S. J.: On the Contraction of the Ileo-Psoas Muscle as an Aid in the Diagnosis of the Contents of the Iliac Fossa, New York M. J., July 10, 1902.

[4] Graham, Christopher, and Guthrie, Donald: The Dyspeptic Type of Chronic Appendicitis, J. A. M. A. **54**: 960 (March 9) 1910.

[5] Paterson, H. J.: Appendicular Gastralgia in Appendicitis as a Cause of Gastric Symptoms, Proc. Roy. Soc. Med., Surg. Sec. **3**: 187, 1909-1910; Lancet, March 12, 1910.

[6] Fenwick, W. S.: Proc. Roy. Soc. Med., Surg. Sec. **3**: 177, 1909-1910; Lancet, March 12, 1910.

[7] Moynihan, B. G. A.: Brit. M. J. **1**: 241 (Jan. 29) 1910.

[8] Lichty, M. J.: Influence of Perigastric Lesions on Gastric Secretions, J. A. M. A. **55**: 1799 (Nov. 19) 1910.

[9] Pfahler, G. E.: The Roentgen Rays in the Diagnosis of Appendicitis, Tr. Am. Gastro-Enterol. A., 1918, p. 83.

Liek[10] of Danzig warns us of the nervous manifestations which these cases present, and speaks particularly of the spastic condition which may be found in the colon, presenting symptoms like chronic appendicitis. He speaks of these cases as being those of "pseudo-appendicitis," a term not altogether satisfactory.

Liek analyzed 1,000 cases in which operation had been performed, and found among them only 100 definite cases of chronic appendicitis. Of the remainder the greater proportion were patients suffering from certain definite neuroses, and the others were patients having surgical conditions in other parts of the body.

TABLE 1.—OPERATIVE FAILURES

Condition	Number
Chronic appendicitis	243
Chronic appendicitis and pelvic disease	78
Chronic appendicitis and gallbladder disease	44
Chronic appendicitis and peptic ulcer	9
Gallbladder disease	47
Pelvic disease	41
Peptic ulcer	16
Promiscuous cases	39
Total	517

It is not unlikely that many of the patients which the late Dr. S. Weir Mitchell treated so successfully with his system of "rest cure" were cases which we now are too prone to call chronic appendicitis, and are attempting to cure by operation.

TREATMENT

In the great majority of cases, the only treatment which offers a reasonable prospect of cure is operation. But unfortunately many of these patients have already passed into chronic invalidism, and the kinked appendix, the appendix bound down with adhesions, or containing fecaliths is only an episode in the general ill health. Many of these patients improve with appendectomy only, but the great majority need additional care, dietary, hygienic, orthopedic, mental and social. It is on account of the lack of appreciation of this both by the physician and by the patient, and on account of sometimes hurrying into the abdomen without proper consideration, that the surgery for chronic appendicitis is so frequently unsatisfactory. In 517 consecutive cases, compiled from a general and consulting practice, in which the patients had already been operated on for various conditions and in whom the complaints "after the operation were the same as before the operation," 243 had been operated on for chronic appendicitis. Of the remainder, seventy-eight were operated on for appendicitis and pelvic disease, forty-four for appendicitis and gallbladder disease, nine for appendicitis and peptic ulcer, forty-seven for gallbladder disease only, forty-one for pelvic disease only, sixteen for gastric ulcer only, and thirty-nine for promiscuous conditions including all kinds of operations.

It seems, therefore, to be the most unsatisfactory surgery of the abdomen. It is of considerable significance that in most of these patients the abdominal scar was small, only an inch or more long, oblique, and in such a position that nothing but the appendix could have been seen at the operation. With all the chances there are of being mistaken in the diagnosis of chronic appendicitis, it would seem desirable to make a generous right rectus incision in these cases and, unless there is a contraindication, make a thorough examination of all the abdominal organs, with as little traumatism as possible.

Compared with the results of operation for acute appendicitis, that for chronic appendicitis is a great disappointment, as is shown by Tables 2 and 3, which represent 1,440 cases, 120 of which were diagnosed as acute and 1,320 as chronic.

The question of correct diagnosis in the nonoperative cases is, of course, pertinent. It is probably safe to say that not more than 60 per cent. of the diagnoses are justifiable clinically. The remaining 40 per cent. may consist of patients who suffer from certain neuroses, or who may have a pathologic condition elsewhere in the body; but of this we could not be certain at the time.

The patients with acute appendicitis were definitely well after the operation; those with chronic appendicitis showed satisfactory results in about 60 per cent. of the cases in which operation was performed. Some of these were not definitely cured, but were better than before the operation. The question arises, Why are the results so unsatisfactory; why were there approximately 40 per cent. of failures? This is a difficult question to answer, but it is no doubt the crux of the whole problem.

The reason for the practically 100 per cent. recoveries of the acute cases is, no doubt, that there was a definite acute pathologic condition which was promptly recognized and successfully removed. Of the two patients who died, one had a perforation which had occurred about three weeks before the operation; a subphrenic abscess followed. The other developed a postoperative pneumonia. In these cases as well as the chronic cases, the operations were performed by about thirty-five different surgeons. The reason for the unsatisfactory results among the chronic cases can be seen more clearly if a certain classification or grouping of the patient will be followed. The patients suffering from a real chronic appendicitis or from a so-called "pseudo-appendicitis" will gradually arrange themselves into four groups. The term "gradually" is used advisedly and with a purpose, for it is not always possible at once to place the patient into the proper group. An operation may occur before the case is properly classified. But when all is known which can be known of a patient, it is usually found that the classification covers about all conditions. It is as follows:

TABLE 2.—CASES OF ACUTE APPENDICITIS

	With Operation	Cured	Died
Males	50	49	1
Females	35	34	1
Total	85	83	2
	No Operation	Apparently Well	Died
Males	12	12	0
Females	23	23	0
Total	35	35	0

Group 1. *Those patients in whom there is a definite pathologic condition confined to the appendix and its immediate surroundings.* The pathology is of the nature already described for chronic appendicitis. The

history is usually satisfactory in that there is rather definite evidence of preceding attacks. In these the results are almost invariably good. The patients recover their health following the operation.

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[10] Liek, E.: Der nervöse Darmspasmus, Ein Beitrag zur Differentialdiagnose der Appendizitis, München. med. Wchnschr., Dec. 25, 1917, p. 1659.

Group 2. *Those patients in whom there is a definite pathologic condition in the appendix, and, in addition, extensive adhesions about the cecum,* possibly an adherent omentum, ptosis of the viscera with adhesions scattered here and there, such as at the hepatic flexure invading the gallbladder region, or about the pyloric region. The intestines are congested; the walls are thickened and give evidence of grave secondary pathologic changes. In these the appendix may be removed and the adhesions broken, but the results naturally are not satisfactory and the symptoms usually continue. These are the cases with multiple operations, ten, twelve or fourteen, occasionally ending in a partial or complete colectomy as practiced by Sir Arbuthnot Lane.

Group 3. *Those cases in which there is little or no pathologic change in the appendix* beyond an obliterating appendix. They present pronounced nervous symptoms. These do not improve, or if they do it is largely the result of the psychic effect.

Group 4. *Those cases in which there are no pathologic changes of the appendix, but pathologic changes in other organs,* such as the gallbladder, stomach, right kidney and right ureter, pelvic organs or pancreas.

TABLE 3.—CASES OF CHRONIC APPENDICITIS

	With Operation	Cured	Died
Males	159	125*	4
Females	241	100*	1
Total	400	225	5
	No Operation	Well	Died
Males	459	(?)	0
Females	461	(?)	0
Total	920		0

* Approximately.

These are usually the cases which result in a small abdominal incision through which the appendix is delivered, but which do not permit of careful exploration of the abdominal cavity. They are not surgical failures, but diagnostic mistakes.

It will be seen that in certain patients, such as those of Group 2, other treatment besides surgery is necessary. A long course of dietetic, medical and hygienic care may be sufficient to restore health without an operation. Or, if an operation is done, such a course must often be followed persistently and intelligently as an after-treatment before the cure is realized. These constitute a difficult group, since it is no easy matter to decide what course to pursue, and whatever course is undertaken the results are usually unsatisfactory. It requires the closest cooperation of the surgeon and the internist.

The cases constituting Group 3, in which the patients suffer from a neurosis, are particularly difficult, especially if the patients are so unfortunate as to have already been operated on. The psychic effect of the operation is usually unfortunate, and they drift into chronic invalidism. Occasionally, however, the patient feels such relief from the knowledge that he really has not had appendicitis, or that his appendix is now removed, that he immediately begins to make substantial improvement leading eventually to restored health.

The nonsurgical care of patients suffering from chronic appendicitis should receive careful consideration. It is based on the data obtained in the comprehensive examination which has already been instituted. These patients compose a large percentage of the chronic invalids one meets. They are undernourished, dyspeptic, constipated, ptotic, hypochondriacal and neurotic. Frequently, if operation is not clearly indicated, the treatment is best begun by forced feeding, thus replacing the normal amount of fat which the abdomen should contain to support the organs. After this graded physical exercise should be instituted, and continued until the patient becomes to a degree athletic. He should be taught to sit, stand and walk properly. The bowels should be regulated by following proper physiologic lines in diet and exercise. Cathartics should be avoided. The persistent habit of introspection which the dyspeptic unconsciously develops should be broken up. Healthful occupation and recreation should be required, and in every way the physical and mental health should be brought to a higher level.

If an operation is necessary, such as for removal of the appendix or for clearing up of foci of infection, it should be done as soon as the physical condition will permit. It is unfortunate when these patients are left in doubt about a suggested or a proposed operation, and it is also unwise to lead the patient to expect more from an operation than the conditions actually warrant. Such a course will require a great deal of time and patience, but this is nothing as compared with the suffering and the disappointment which may follow an operative failure.

CONCLUSIONS

1. The diagnosis of chronic appendicitis is often beset with difficulties.

2. While surgery is the accepted treatment, the results are frequently unsatisfactory.

3. The comparative satisfactory results following operation for acute appendicitis are convincing evidence of the necessity for a more careful study of the more or less acute conditions of the abdomen. Prevention of chronic appendicitis is easier than cure.

4. Hospital statistics bearing upon the operative results of chronic appendicitis are unreliable, as the recovery from the operation is considered as synonymous with a cure.

5. In certain cases a course of medical treatment is necessary before a cure is realized. In other cases, surgery may be contraindicated even though medical treatment affords only an approximate cure.

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ABSTRACT OF DISCUSSION

DR. LOGAN CLENDENING, Kansas City, Mo.: Can physiologic or anatomic pathologic changes in the appendix cause chronic gastric symptoms? From discussing this matter with various internists and gastro-enterologists I am led to believe that my experience with it is the experience of most members of this section. Several years ago we should have been very enthusiastic about the relation of appendicitis to gastric symptoms; but as time has gone on and we have had various discrepancies in the stories that patients tell us after an appendectomy, our enthusiasm has somewhat cooled, and this experience Dr. Lichty has tabulated for us very well. About 60 per cent. of the patients are relieved, and about 40 per cent. are not relieved. Among my patients about 70 per cent. were relieved of gastric distress by appendectomy alone from five to seven years after operation. The question of pathology is important, and while we all agree with Dr.

Lichty that there is a difference between the clinician's point of view and the pathologist's point of view, yet that seems to be a very dangerous doctrine. But it is possible. One condition in which a gastric symptom can be associated with a pathologic condition of the appendix is hematemesis. Several years ago I reported one such case. There were several large lymph glands in the meso-appendix, and all through the omentum there were little shotty lymphatics. The serosa of the stomach was congested, and small venules could be seen like those on the drunkard's cheek. There was no gastric ulcer. The hemorrhage from the stomach ceased after appendectomy. Another small group of cases consists of persons who suffer from ulcer-like symptoms for a long time and finally have an acute attack of appendicitis. The appendix is removed and the gastric symptoms are relieved.

Dr. Leon T. LeWald, New York: I am one of the advocates of the possibility of making the diagnosis of appendicitis by the retention of opaque substances in the appendix, provided there is a proper time interval between the administration of the opaque substance and the observation of the retention, and the correct interpretation is put on this point. At the Washington meeting Dr. White spoke of some cases in which there was retention in the appendix, and the question was brought up as to whether there was a drying out of the opaque material or whether perhaps there was some other cause. I have made two observations since then and attempted to demonstrate the drying out of barium in a rubber tube, and it does not follow out exactly that line. My impression is that the condition is due to a coating. A roentgenogram of the appendix after its removal is of value. I have analyzed a large number of appendixes in which there has been retention for from three days to three weeks, and in many cases I have been able to find a coating.

Dr. J. J. Gilbride, Philadelphia: Chronic appendicitis gives rise to upper abdominal symptoms, and most of us believe that it frequently gives rise to upper abdominal disease. There are cases of chronic appendicitis with local symptoms, and there are cases of chronic appendicitis without local symptoms. It is well known that chronic appendicitis may simulate duodenal disease or gallbladder disease. A great number of those patients whom I have seen manifested symptoms which were quite suggestive of duodenal ulcer. Many of them did not have marked symptoms indicative of disease of the appendix. In these cases the pictures were often sufficiently clear for one to make a positive diagnosis of appendicitis. It is my experience that but few of these patients give a history of recurrent attacks of appendicitis. The cases I have seen usually required postoperative treatment. They do not respond at once, but necessitate dietetic and hygienic treatment prolonged over a period of several months before full relief is obtained. In the case of an acute attack this simplifies the matter, because it brings the patient to the operating table. The symptoms are often sufficiently severe to require that the patient be referred to the surgeon, and the patient may go on suffering from periodic intermittent attacks of so-called indigestion.

Dr. Joseph C. Bloodgood, Baltimore: In the early days, acute appendicitis predominated. There were few cases of chronic appendicitis. Gradually the number of cases of chronic appendicitis became very much greater than those of acute appendicitis, and since that time the cases of chronic appendicitis have predominated. In the days before the advent of the roentgen ray and gastro-enterology, we based our indication for operation on the clinical history. And the number of cases in which there was no relief was relatively small. They were cases that today are easily recognized, cases of stone in the kidney or in the ureter; relatively few cases of duodenal ulcer, practically no cases of gallstones. At present the results, relatively, in the treatment of chronic appendicitis are worse than ever before. I think the reason for this is that we are overrun by patients whose cases are very difficult to diagnose. The appendixes that are taken to the laboratory and examined may show nothing even when the history is positive, but those people are well, and that is what we are after. Then we must remember that even a definite history of chronic appendicitis does not exclude another lesion. I remember that when I began to do surgery of the appendix, in ten minutes after a patient came into the hospital I had made the diagnosis of chronic appendicitis, because none of the difficult cases came to me. Those people with chronic appendicitis had one or more definite acute attacks. Today I know of no group of cases that takes more of our time than those in which we might designate the condition as a possible chronic appendicitis. Nothing is more difficult in a case of indigestion than to exclude an organic lesion. There is a large group of cases in which the appendix has been removed after exhaustive examination and the surgeon finds nothing; but the mere fact that these patients are not relieved is not an indication that the operation is a failure. They would have been just the same if not operated on. We shall do less harm by removing an appendix than otherwise. We find nothing, and remove the appendix as we come out. But in that group there should be no deaths from organic disease.

Dr. Walter C. Alvarez, San Francisco: I think we will agree that the diagnosis of chronic appendicitis has been made too frequently, especially by the general practitioner and by the surgeon who does not examine these cases very carefully. During the last ten years I have been so disgusted by sins committed along this line that I have swung to the opposite extreme. I do not feel like making this diagnosis unless I can elicit a history of more than one attack. A point I wish to emphasize particularly is that we must have fewer of the two finger incisions. Often the surgeon is very proud of such an incision, but the patient is not relieved. There is no reason why the surgeon should not have explored every organ in the abdomen, when he probably would have found something wrong and, perhaps, cured his patient, instead of making it necessary in many cases to have another laparotomy.

Dr. Seale Harris, Birmingham, Ala.: I think the surgeons rather than the gastro-enterologists need to know the facts that have been brought out. While not quite sure of my statistics in this matter, I am certain that more than 25 per cent. of patients who come to me for gastro-intestinal conditions have had the appendix removed, and many of them have ulcer or gallstones, and some have multiple lesions. The surgeon should be impressed with the fact that it is almost criminal to make a small McBurney incision when operating for suspected chronic appendicitis, unless the patient has definite symptoms of acute appendicitis, because in all probability it is not appendicitis that is causing the condition. I recall a case in which there were gallstones, ulcer of the stomach and also a chronically inflamed appendix. The patient who is without a history of recurring definite attacks of pain in the abdomen, what is generally called by laymen acute indigestion, has probably not had chronic appendicitis. I am almost beginning to believe that there is no chronic appendicitis except when there have been acute attacks. It has been suggested, and I concur in the opinion, that patients operated on for chronic appendicitis should have postoperative medical treatment. I believe, however, that if they have preoperative medical treatment, many will be relieved of symptoms and not require operation. The mere fact that a patient has pain and some tenderness in the right iliac region does not mean that chronic appendicitis exists. There may be colitis associated with intestinal stasis, particularly in the cecum, when by the institution of treatment for intestinal stasis, putting the patient on a low protein diet, with exercises to develop the abdominal muscles and to correct the colonic adhesions, combined with measures to regulate the life of the patient so he can get well, a large proportion of these patients who are supposed to have chronic appendicitis will get well without the necessity of operation.

Dr. Franklin W. White, Boston: The roentgen-ray method is a very delicate one in the diagnosis of chronic changes in the appendix and clearly shows fixation, kinking, changes in shape, obliteration, slow emptying of the fecal material, etc.; in short, it gives many facts about the appendix, but it does not tell us what to do. Many times when the report comes from the roentgenologist "chronic appendicitis," our impulse is to do immediate appendectomy. This is not a wise attitude. Frequently chronic changes are found, such as poor mobility, small fecal masses, peculiar shapes, chronic obliteration and moderate delay in emptying, which apparently do the patient no harm, and often we do not benefit him at all by taking the appendix out as result of such an examination. I have been following up quite a series of patients for four or five years, in whom the roentgen ray has shown definite chronic changes in the appendix, and have found quite a large number in whom these changes apparently made no difference to the patient at all. He kept his appendix and was happy.

Dr. Frank Smithies, Chicago: We are forgetting one of the very interesting and important points of Dr. Lichty's paper; namely, that about 60 per cent. at least of persons who had some kind of queer, long drawn out intestinal or gastric upset, were cured or relieved by a certain form of treatment —removal of the appendix or an abdominal exploration. This is an important fact. It seems to me that we should not go to the other extreme and say that our patients who have what we carelessly diagnose chronic appendicitis should not receive the benefit of a surgical exploration. Certainly it is better to have these patients sick in bed for a little while rather than wandering from place to place as chronic abdominal invalids, treated for colitis, with infection about the large bowel, for peptic ulcer, for suspected carcinoma, etc. It is better to have these persons submit to a simple exploration, and if the appendix be diseased, remove it, but at the same time look about. I should say that certainly 50 per cent. of the cases of so-called gastric ulcer would be cured permanently if a laparotomy were done. It has come within the experience of all of us to note how rapidly persons with so-called ulcer symptoms are cured and remain cured following exploratory laparotomy at which appendicostomy is a part. In many of these persons it has seemed to me that the appendix infection, which can be proved, is only a part of a general infection throughout the large intestine. There can be seen patches of vascular engorgement and changes in musculature throughout the colon; and the appendix is then only an easily removable focus of infection. It is to be expected in such cases that physiologic rest of the bowel after operation will give these patients relief for a time, but that afterward, if they still go on living as before, we shall have, not a lighting up of the appendical trouble, for the appendix has been removed, but a recurrence of symptoms due to these infected areas of the large bowel again exhibiting a pathologic condition. Consequently, colonic spasms will recur, when we have a patient who is again ill, and whose symptoms are quite similar to those which he exhibited previous to his appendicectomy.

Dr. R. Walter Mills, St. Louis: Relative to the subject of the diagnosis of appendicitis, clinically versus the roentgen ray: The roentgen ray shows that practically all appendixes are abnormal, a reflection of the findings of the pathologist and of the surgeon at operation. The diagnosis should never be based solely on a roentgenologic examination. The diagnosis is essentially clinical and should be based on the history of attacks of local pain, discomfort, tenderness and suggestive digestive disturbances. The roentgen ray is of great aid in several ways: First, in localizing tenderness of the appendix, which, without fluoroscopic control, I have come to regard as almost a farce. In many instances, when clinical evidence would indicate a pathologic condition of the appendix, it is almost impossible to locate tenderness without fluoroscopic control. Practically always the tenderness is at the base of the appendix, and often special manipulations under fluoroscopic control are necessary in order to elicit this tenderness. The roentgen ray often detects dislocations of the appendix and cecum, indicating the results of pathologic processes originally appendicular, besides valuable information as to appendicular structural changes. Relative to the matter of digestive disturbances associated with chronic appendicitis, in a considerable number of cases I have been able to show that gastric motility is demonstrably slow, probably as a result of reflex, perhaps protective inhibition. Such impaired gastric motility may account for the gastric symptoms.

Dr. John A. Lichty, Pittsburgh: I think we all agree that at times a roentgen-ray examination may be very helpful. Dr. Bloodgood has brought out some important points with reference to the attitude of the surgeon toward these patients. There is one point regarding which I shall, however, have to differ with him somewhat, and that is as to the likelihood of there being no bad after-effects from operative procedure, even only exploratory. I am always ready to agree to operation in a chronic case of appendicitis, provided I am quite convinced that there has at one time been an acute attack, and especially if I can get an intelligent idea of the condition immediately following the acute attack. Those patients get well if operated on. But somehow or other, when such a history cannot be obtained, operation begins a chain of operations to which there is no end. I did not exaggerate at all when I said I had seen patients who had been operated on fourteen times, the first operation having been done for a supposed chronic appendicitis. Some of my own cases of postoperative symptoms are in the group presented in this paper, and I do not wish to think that I consider myself immune from the mistakes that have been mentioned. These are the cases of which I can speak definitely. After operation the subjects were very much worse off than before. I am sorry Dr. Alvarez did not tell us some of the things he knows concerning the spastic colon in relation to chronic appendicitis. I might say that the patients referred to in my paper were operated on by about thirty or thirty-five different surgeons, in hospitals and out of hospitals, so that I do not claim anything unusual so far as the mortality is concerned. It will be noticed that there is a mortality among the chronic cases that should be considered carefully.

HEART DISEASE IN PREGNANCY *

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The subject of marriage in girls, and pregnancy, in women with cardiac disease is naturally of vital interest from the standpoint of the obstetrician, the general practitioner and the cardiologist.

With reference to marriage in girls with valvular disease, views vary from the extremely narrow one of absolute interdiction in those with any type of heart trouble to the physician's consent to marriage in those with even advanced heart disease. Marriage (without pregnancy) has as its chief dangers the excitement and heart strain incidental to coitus. That this can be a real danger is shown by occasional instances of hemoptysis immediately following coitus in those with mitral stenosis. In those with a tendency to or with actual tachycardia without decompensation, the sexual act may induce or continue a cardiac neurosis superadded on an actual organic lesion. While there is no invariable rule, marriage should not be advised in those who have suffered from any decompensation, even slight, or from any inflammatory rheumatic recrudescence or recurrence of an existent endocarditis, for a period of two years prior to the time of expected marriage. This applies to lesions of all kinds. Two years, of course, is a purely arbitrary limit, but it comports best with the probability of a long, quiescent period after marriage. When the endocardial lesion has become stabilized, that is to say, when compensation is perfect and there has been no lighting-up of the endocardial lesion, and when there is no immoderate degree of hypertrophy, marriage may receive the physician's sanction. I shall not enter into such correlated social questions as the general advisability of marriage

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* Read before the Brooklyn Cardiological Society, May 31, 1922.

in those with heart disease, the economic factors involved, and the possible hereditary effect on the offspring.

PREGNANCY

A study of statistics of lying-in institutions reveals little of value from the cardiologic standpoint, for, until the recent paper by Pardee,[1] the statistics were as a rule based on patients who entered the hospital already decompensated, with only a cursory or, often, no account of the cardiac history prior to hospital admission. Such meager reports emphasize the importance of collaboration and cooperation between obstetrician and cardiologist.

My experience with exercise tolerance tests on the blood pressure and heart rate in pregnancy with heart disease has been limited. I have, however, studied the effect of various types of exercise on the blood pressure in the nonpregnant with heart disease, compensated and uncompensated, and I have found no guide in such studies either as to the severity of the lesion or as to probabilities of decompensation. The chief reason for this seems to be extreme lability of the vasomotor mechanism, a variable factor in each individual.

An exercise tolerance test by means of swinging a dumb-bell of known weight a definite number of times, and noting its effect on the cardiac rate, dyspnea and the length of time required for the pulse rate to again reach its normal is another modification of older tests to study cardiac energy and reserve. I myself have never employed this or similar tests in any form of heart disease as a standard of fitness, because I believe that they cannot gage the patient's sensations. After all, the best tolerance test can give information only at the time of the test. Besides, as with the vasomotor mechanism, different persons—normal and those with heart disease—respond very differently, and not according to set rules when their hearts are raced by exercise. It appears to me that such tests have too many exceptions to be of any real value.

A study of the dangers of pregnancy with heart disease can best be classified under cardiac neurosis; decompensation, and recrudescent or recurring endocarditis.

Cardiac Neurosis.—I refer here to a superadded neurosis in addition to the actual cardiac lesion. In another connection,[2] I recently indicated the importance of such factors as fright and excitement as initiators of symptoms, even death ultimately, in otherwise stabilized cardiac disease. In pregnant women with cardiac disease and a superadded neurotic factor, with otherwise perfect compensation and with no recurrent endocarditis, the cause of the neurosis is likely to be dread of the strain of childbirth. The chief symptom is moderate tachycardia with constant and annoying consciousness of the heart action. This may so upset the patient that it leads to lack of sleep and to such extreme neurasthenic phenomena—weeping, dyspnea, anorexia, vomiting, etc.—that interruption of pregnancy may have to be advised. This happened to two women who came under my observation:

One, aged 21, pregnant three months, with an old stabilized double aortic lesion, dreaded death during labor. The only symptom was tachycardia, with an average cardiac rate of 100 a minute. Interruption of pregnancy was advised and carried out. The patient was told, however, that if at a subsequent pregnancy she should be less nervous, there would probably be no reason why pregnancy could not be carried to full term. She again became pregnant within one year, was reconciled to her fate, and had a normal delivery at full term.

A young woman who had a double mitral lesion and who had been pregnant six weeks was obsessed with the idea that she would die at childbirth, wept constantly, and, despite medication, was unable to sleep. The heart action was regular, the average rate, 110 a minute. Interruption of pregnancy was advised and carried out. Later, she again became pregnant and was delivered by cesarean section.

Decompensation During Pregnancy.—Frank decompensation—usually found in neglected or insufficiently observed cases—is readily recognized. Dependent edema, constant dyspnea, congestion of the lungs, and tachycardia are the cardinal symptoms. Unless relieved by therapeutic measures—rapid intensive digitalization (1½ ounces [45 c.c.] of the tincture or twelve digitan tablets within two or three days)—severe cardiac failure calls for immediate interruption of pregnancy, no matter at what stage. In those in the early months of gestation with milder degrees of decompensation which yields to therapy, and when the pregnant women express an earnest desire to carry out pregnancy, an attempt may be made to continue pregnancy at least to the stage of viability, if not to full term. If, however, compensation in these milder decompensated cases is not fully restored, approximately at the end of a week or two of proper therapy, or if there is evidence of recurring heart failure after compensation has been restored, it should serve as a warning and indication that further delay is dangerous, and that interruption of pregnancy is called for.

Recrudescent or Recurring Endocarditis.—This has to my knowledge received no mention in the literature, yet I regard it as dangerous as decompensation. Perhaps because of its very insidiousness it has escaped general attention, for gestation in some unknown fashion seems to light up and activate dormant or slightly active endocarditic processes. Those who had experience with the influenza pneumonia pandemic of 1919 will doubtless recall the sad plight and terrible fatality of the pneumonias occurring in pregnancy.[3] Then, too, it was puzzling—and it is still unanswered—to understand why simple uncomplicated pregnancy with even mild pneumonia should so frequently lead to death. Hints of endocarditic recurrences during pregnancy may be found in occasional mild sore throats, occasional slight fever, the presence of local dry pericarditis, of louder murmurs transmitted to larger areas, of fleeting rheumatic pains, of occasional extrasystoles, of occasional sticking or stabbing pains in the heart, of fleeting tachycardia, and of subjective dyspnea without tachycardia. Unless such symptoms are checked or their significance is understood, they may gradually merge into various degrees of heart failure. Treatment of such insidious recurrences depends on our usual remedies—salicylates in large doses, bromids and phenobarbital (luminal). Heart failure, should it supervene, calls for its proper therapy.

The classification given above refers to all types of endocardial lesions. The various lesions require some individualization.

Patients with quiescent, compensated, nonhypertrophic mitral regurgitant lesions are the most favorable for pregnancy. Decompensation, when present, is likely to be milder and to respond more readily to therapy than the other valvular types.

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[1] Pardee, H. E. B.: The Fitness for Pregnancy of Women with Heart Disease, J. A. M. A. **78**: 1188 (April 22) 1922.

[2] Neuhof, Selian: The Neurotic Element in Organic Cardiovascular Disease, New York M. J. **115**: 80 (Jan. 18) 1922.

[3] Neuhof, Selian: Clinical Aspects of the Influenza Pandemic, Interstate M. J. **26**: 14 (Jan.) 1919.

While mitral stenosis is certainly not the absolute contraindication to pregnancy that had perhaps been generally believed (I know of one woman who had had eighteen children), it constitutes, I believe, a greater danger than the other types of valvular lesions. This seems to depend on the more rapid production of an annoying tachycardia, on hemoptysis from pulmonary infarcts, and on bronchitis with sibilant breathing resembling bronchial asthma. None the less, even patients with mitral stenosis and auricular fibrillation (complete irregularity of the heart action) have been known to bear several children with no increase of the cardiac symptoms. Thus, I had under observation one woman with a double mitral lesion and auricular fibrillation, the mother of four children, who from the history had probably had her cardiac irregularity throughout her various pregnancies and labors.

Patients with rheumatic aortic lesions—especially those with aortic regurgitation without extreme ventricular hypertrophy—are likely to complain chiefly of tachycardia. When the heart is massively enlarged, continued and violent tachycardia is likely to be the rule.

Regarding the general question of cardiac strain incident to pregnancy and labor, much has been written, but, on the whole, we possess no accurate information or knowledge of the many factors involved. Undoubtedly the demands made by the growing fetal circulation, and interference with venous return in the splanchnic area by the growing uterus and by the displaced abdominal contents are physical factors of importance during pregnancy in those with diseased hearts. Added to these is the cardiac strain incidental to labor itself. Bearing down expulsion pains, by producing venous congestion and by the holding of the breath, unquestionably call for increased cardiac energy, and hence, cause cardiac strain. Such efforts may finally result in more or less continuous dyspnea. Prolonged labor—dry labor, for example—by interfering with sleep and by keeping the patient's nervous condition keyed up and on edge may gradually interfere with and decrease an already diminished cardiac reserve, so that more or less obvious signs of mild heart failure, especially dyspnea and tachycardia, may finally eventuate. In addition, the obstetrician can rarely give definite information, especially in primiparas, as to whether the labor is going to be easy or difficult, quick or slow. All these questions—some answerable, some not—are intimately bound up with the method of procedure to be followed during labor and, more particularly, at the stage of viability. At full term, labor should naturally be shortened and made as easy as possible for the patient. Pituitary extract, when indicated in those with normal hearts, is also indicated in those with heart lesions. Forceps should be applied as soon as the procedure is considered safe.

With reference to induction of labor at the stage of viability, the choice between divulsion with bags and cesarean section arises. The former is very likely to give rise to a tedious labor with all the cardiac disadvantages just referred to. Regarding cesarean section, it is perhaps surprising to observe how well women with heart disease withstand the operation. My personal experience has been limited to two cases, in both of which there were mitral regurgitant lesions. One patient had moderate dyspnea during the last two months, the other during the last month of pregnancy. In the latter, the dyspnea responded quickly to rapid digitalization, so that, at the time of operation, compensation was fully restored. After cesarean section in the two cases, the cardiac condition was satisfactory during and immediately after the operation. There was no untoward rise of the pulse rate. Dyspnea, the main symptom, disappeared within twenty-four hours. The succeeding days showed a steady improvement; indeed, the heart reacted no differently than after any skilfully performed cesarean section in those with normal hearts. Of interest is the previous cardiac history of one of these patients. This cesarean section was performed at her third pregnancy. Her second labor lasted one week. She stated that it took months for her heart finally to recuperate so that she could walk comfortably and go about her household duties. The last time I saw the patient was two weeks after operation. The cardiac rate was normal. She felt perfectly well with the single exception that she could not yet lie comfortably on her left side. From all indications she will very probably recuperate perfectly from the cardiac standpoint by the time she is allowed out of bed, for it is the laparotomy, not the heart, that keeps her in bed at present. This is an instance in which the operation saved her not only the cardiac strain of labor but also its annoying, long continued after-effects.

One word of caution is necessary regarding cesarean section, and that is that compensation should be restored as much and as quickly as possible by thorough digitalization before operation.

SUMMARY

We possess at present no instrumental guide or tolerance test which can adequately measure the cardiac reserve of the diseased heart of the pregnant woman. Each case must be individualized, and the presence or absence of heart failure noted. The best clinical guide for heart failure is a detailed study of the patient's symptoms, together with a detailed study of the physical signs. Cardiac neurosis, decompensation and endocarditis recurrences seem the best inclusive groupings of all types of cardiac symptoms that occur in pregnancy with heart disease. The degree of decompensation and the month of pregnancy together determine the type of procedure. Decompensation that does not quickly and permanently react to medication requires interruption of pregnancy at any stage. When viability has been reached and decompensation is moderate or absent, cesarean section, when skilfully and rapidly performed, seems to be well withstood by the diseased hearts of pregnant women. It prevents the cardiac strain incidental to labor; it may likewise prevent a lingering, cardiac recuperation following labor. Should the woman come to term, the labor should be shortened as much as possible. Ether is the anesthetic of choice.

1000 Park Avenue.

Syphilitic Aortitis.—Not all dilated aortas are the seat of a syphilitic invasion nor is every aneurysm due to the Spirocheta Pallida, but it is undoubtedly true that the greatest single factor in producing an infective aortitis is syphilis. Furthermore, Turnbull found that specific aortitis was by far the most constant lesion found in syphilitics at necropsy, and Hubert concludes that aortitis comprises 70 per cent. of all visceral syphilis. Wilson, *Canad. M. A. J.*, May, 1922.

Clinical Notes, Suggestions, and New Instruments

PENETRATING WOUND OF PERINEUM WITH PUNCTURE OF THE INTESTINE

Frederick C. Warnshuis, M.D., and Max Lampert, M.D.,
Grand Rapids, Mich.

This case of unusually severe intra-abdominal injury presents the value of prompt operative interference and reiterates the value of thorough drainage in such types of intra-abdominal trauma.

REPORT OF CASE

History.—G. T., a farmer boy, aged 16, admitted to the hospital at 7 o'clock one evening in June, 1922, had slid down the side of a hay stack at noon that day and landed on the broken handle of a pitchfork that was standing alongside the stack. The handle penetrated the perineum on the right side about an inch from the rectum. He pulled out the handle, lay down on the ground for about an hour, and then walked to the farm house. There was no severe hemorrhage. The boy stated that the handle penetrated a distance of 6 or 7 inches. A physician saw him about five hours later. The boy was complaining of severe abdominal pain. Morphin and codein were given to control the pain. He was conveyed to the hospital, a distance of 24 miles, and was seen at 7:30, approximately eight hours after the injury. He had not vomited. The previous history was unimportant.

Examination.—The boy was well nourished and healthy. He was evidently suffering considerable pain, and was restless. The temperature was 101.4; pulse, 118; respirations, 18. The color was good. There were no signs of hemorrhage or shock. The abdomen was hard retracted, with spastic recti. The boy complained of pain and cramps in the lower abdomen. On general percussion there was dulness. A catheterized specimen of urine was clear, with no blood. To the right of the rectum there was a ragged, penetrating, stellate wound, which did not bleed. No trauma or laceration of the rectum was detected on proctoscopic examination. A diagnosis was made of penetrating wound of the perineum, and intra-abdominal trauma. The diagnosis was based on the nature of the injury, acute abdominal pain and muscular rigidity, rising pulse, and absence of a puncture wound of the rectum. Immediate operation was advised and accepted.

Operation.—At 9 o'clock, under ether anesthesia, a median incision was made. There poured out fluid and intestinal contents. Food and fecal material were widely disseminated among the intestinal coils. Exploration revealed a lacerated wound of the ilium, about 16 inches from the cecum, through which the intestinal contents were escaping. The wound of the intestine was closed with two layers of inverting suture. There was no other injury to the bowels, though they were covered with lymph exudate and were deeply injected. The penetration of the peritoneal cavity was at the right of the pelvic peritoneum and did not involve the ureter or the prostate gland. The abdomen was freely flushed with saline solution. Two tube drains to the pelvis were inserted. The abdominal wound was closed. On exploration of the perineal wound, the examining finger came in contact with the abdominal drainage tubes. A tube was inserted through this wound into the lower abdominal cavity, thereby attaining through and through abdominal drainage. The tube was retained by a silkworm suture. The time of operation was thirty-five minutes. The pulse at the close was 110.

Postoperative Course and Treatment.—At no time did nausea or vomiting occur. There was good recovery from the anesthetic. Antitetanic serum, 1,500 units, was given. Continuous proctoclysis was given. The patient was kept in Fowler's position. Morphin was given in sufficiently frequent doses to keep the respirations between ten and twelve. Frequently changed, moist, hot pads were applied to the upper abdomen and both sides. Water was given freely by mouth. At the end of twenty-four hours, the pulse was 136, temperature, 102.4. There was slight epigastric distention. At the end of second day the pulse was 112, the temperature, 101.2. Morphin and local moist heat were continued. The color was good. There was free water intake. The patient retained rectal saline solution well. At the end of the third day the pulse was from 90 to 100, the temperature, 100. The treatment was unchanged. Albumin water and buttermilk were given at intervals of three hours. Morphin was discontinued. The abdomen was soft. On the fourth day the pulse was from 68 to 82, the temperature, 99.6. There was a spontaneous, normal bowel movement. The subsequent course was uneventful. There was considerable serous, cloudy drainage the first thirty-six hours from the perineal and abdominal tubes. This gradually subsided, and at no time was it purulent. The tubes were removed on the fifth and sixth days. The wounds were packed lightly and gradual closure ensued. The bowels were normal, a voluntary bowel movement continuing daily during the patient's hospital residence. Nourishment was gradually increased after the fourth day. The urine was voided, and no need for catheterization ever presented itself. The patient was dismissed from the hospital on the sixteenth day, in good condition. There were no indications of suppuration in the healed incision or the penetrating wound.

COMMENT

Pain is usually one of the first and most constant signs of injury to the abdominal contents, its character depending on the amount of fluid escaping into the peritoneal cavity. Associated with the pain is the spasm of the abdominal muscles, especially the recti. In this instance the severe pain and abdominal muscle rigidity gave ample evidence of visceral trauma, demanding prompt operative interference, irrespective of the location and lack of local evidence at the site of the original injury.

Mortality increases in direct and rapid proportion to the hours intervening between the time of injury and the operation. Mortality will be reduced, the more prompt the operation. When doubt exists, operation should be resorted to rather than to wait for definite symptoms. If prompt, early operation reveals no visceral injury, no harm has been done. On the contrary, early, prompt operation when visceral injury exists enhances intensively the patient's recovery.

Drainage properly placed and of ample size is extremely essential. The tubes may be removed on the fifth day, as a rule. Soiling of viscera, by intestinal contents, is best removed by free saline flushing and by vacuum aspiration, though opinions are frequently expressed to the contrary.

These classes of intra-abdominal visceral trauma should receive active treatment as potential acute peritonitis. Our experience has been that morphin should be given in sufficient dosage to reduce the respirations to between ten and twelve, and to maintain that respiratory rate for three or four days. To envelop the whole abdomen with frequently changed, hot, moist applications, and to flood the system, so to speak, with water by means of continuous proctoclysis, supplemented by intravenous and subcutaneous saline solution at from eight to twelve hours, and water by mouth freely as soon as may be, are important, material measures that limit and prevent active, spreading peritonitis. When nausea or vomiting exists or continues, frequent gastric lavage is employed. The intensity of employment of these measures depends on the condition that confronts the surgeon. In all soiling or contamination of the abdomen in emergency or planned operative procedures, a potential peritonitis should be regarded as existing, and active treatment must be directed to counteract so dire a complication. Blood transfusion, early, is another valued addition to this treatment.

Through and through drainage, more readily possible in female than in male patients, is recognized as effective and desirable. In the male it would be a difficult procedure, with careful dissection, to avoid injury to vessels, prostate, bladder, ureter and rectum. In this case the avenue provided by the penetrating object enabled us to attain this desired drainage, thereby assisting the patient's recovery.

New and Nonofficial Remedies

FLUMERIN, THE DISODIUM SALT OF HYDROXYMERCURIFLUORESCEIN

Preliminary Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following statement on the experimental status of flumerin, the disodium salt of hydroxymercurifluorescein.

W. A. Puckner, Secretary.

A report on "Flumerin—A New Mercurial for the Intravenous Treatment of Syphilis," was read before the Section on Dermatology at the recent meeting of the American Medical Association by Edwin C. White, J. H. Hill, Joseph Earle Moore and Hugh H. Young. Flumerin is said to be the disodium salt of hydroxymercurifluorescein. The authors have requested the Council to consider flumerin with a view to its eventual admission to New and Nonofficial Remedies. The Council considered the evidence presented in the report by Dr. White and his collaborators and recommended its publication in The Journal. In addition to the evidence presented in the paper, Dr. White supplied the Council with a specimen of flumerin, together with tests and standards for the identification and control of the product.

The A. M. A. Chemical Laboratory has made a preliminary examination of the product and of the chemical information furnished. It considers the evidence for the identity of the substance correct and the proposed tests for its identification and control acceptable.

The animal experiments reported by White, Hill, Moore and Young indicate that flumerin is less toxic than mercuric chlorid, mercuric benzoate, mercuric cyanid or mercuric succinimid and that it produces typical mercury effects when given intravenously to rabbits. The experiments indicate that the drug is effective in eradicating experimental syphilis in rabbits in doses that are well tolerated and which cause little or no injury to the kidneys of these animals.

The clinical trials carried out by White, Hill, Moore and Young appear to give proof of the value of flumerin as an antisyphilitic drug. In primary, secondary and tertiary syphilis, the therapeutic effects of the drug were shown to be the resolution of lesions and the abatement of positive blood Wassermann reactions. As the investigators caution: "The number of cases treated is sufficient to demonstrate that this mercurial is of value, but is too small to permit the allocation of the drug to a definite place in the therapy of syphilis." In consideration of the lack of clinical evidence, the investigators wisely announce: "It is not available for general distribution, and, for the present at least, permission will not be granted for its commercial manufacture."

The available evidence for the therapeutic value of flumerin is thus far limited to the report mentioned. Obviously, confirmation of the work there reported is necessary before more than a tentative acceptance can be accorded. However, flumerin is a definite chemical of nonsecret composition. This, together with the evidence presented in the publication referred to, may warrant its clinical trial in selected cases. Nevertheless, it is recognized that its therapeutic status is in the experimental stage.

The Council has deferred acceptance of flumerin for New and Nonofficial Remedies until proof has been furnished that the product is a useful addition to the list of mercury compounds for use in the treatment of syphilis, and until it is on the market.

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. Puckner, Secretary.

ADRENALIN (See New and Nonofficial Remedies, 1922, p. 109).

The following dosage forms have been accepted:

Adrenalin Tablets No. 2.—Each contains adrenalin, 0.00033 Gm. (1/200 grain) as borate, yielding a 1: 1,000 solution when dissolved in 5 minims of water.

Hypodermic Tablets Adrenalin and Cocain Rx. B. (Cylindrical).—Each contains cocaine hydrochloride, 0.005 Gm. (1/12 grain) and adrenalin, 0.00005 gm. (1/1200 grain).

BROMETONE (See New and Nonofficial Remedies, 1922, p. 75).

The following dosage form has been accepted:

Brometone Capsules, 5 grains.

CORPUS LUTEUM-G. W. C. CO.—The fresh substance from the corpora lutea of the hog, dried, freed from fat, and powdered. It contains no diluent or preservative.

Actions and Uses.—See general article, Ovary (New and Nonofficial Remedies, 1922, p. 208).

Dosage.—From 0.065 to 0.3 Gm. (1 to 5 grains).

Manufactured by G. W. Carnrick Co., New York. No U. S. patent or trademark.

Tablets Corpus Luteum, G. W. C. Co., 2 grains.

Corpus Luteum-G. W. C. Co. is a yellowish powder, having a characteristic odor. It is partly soluble in water.

One part of desiccated corpus luteum-G. W. C. Co. represents approximately 5 parts of the fresh corpus luteum substance.

EPINEPHRINE (See New and Nonofficial Remedies, 1922, p. 108).

Epinephrin-Lederle.—A brand of epinephrine-N. N. R. made from the suprarenal glands. Sold in the form of the solution.

Manufactured by the Lederle Antitoxin Laboratories, New York City. No U. S. patent or trademark.

Solution Epinephrin-Lederle.—A solution containing epinephrine sulphite equivalent to 1 part epinephrine in 1,000 parts of physiological solution of sodium chloride, preserved by a small quantity of sulphurous acid and saturation with carbon dioxide. The epinephrine is isolated from the suprarenal glands of sheep or cattle. Solution epinephrin-Lederle is standardized colorimetrically by the method of Folin, Cannon and Denis (*J. Biol. Chem.* **13**: 179).

MERCURIC SUCCINIMIDE (See New and Nonofficial Remedies, 1922, p. 194).

The following dosage form has been accepted:

Hypodermic Tablets No. 50 Mercuric Succinimide Mulford, 0.012 Gm. (1/5 grain).

Prepared by H. K. Mulford Company, Philadelphia.

MERCURIALIZED SERUM-MULFORD (See New and Nonofficial Remedies, 1922, p. 189).

The following dosage form has been accepted:

Mercurialized Serum No. 2-Mulford.—For intraspinal use. Each package contains one 30 cubic centimeter double ended vial, containing the equivalent of 0.0026 Gm. (1/25 grain) of mercuric chloride in 30 Cc. of horse serum.

TUBERCULIN-KOCH (See New and Nonofficial Remedies, 1922, p. 293).

Parke, Davis & Company, Detroit.

Tuberculin (Old) and Control for the Pirquet Test.—Marketed in packages (*Bio. 530*) containing three sealed glass tubes of tuberculin, each tube containing tuberculin sufficient for one test, and three tubes of control material.

Tuberculin Ointment for the Moro Test.—Marketed in collapsible tubes (*Bio. 520*) containing 2 gm. of an ointment consisting of 50 per cent. of tuberculin-Koch and 50 per cent. of anhydrous wool fat.

Physiology and Pathology of the Blood of the New-Born.—A study of the blood of the new-born by Dr. José Martins Barbosa, a Portuguese anatomist, gave the following results: average of red cells in the first month of life, 6,160,000 per cubic millimeter; 6,562,000 among male infants and 5,224,000 among female; white cells average 14,526: 14,039, male, and 15,104, female; hemoglobin average (Fleischl and Sahli) 142 per cent.: 146 per cent., male, 139 per cent., female; average cell hemoglobin value, 1.17: 1.11, male, 1.21, female; proportion of white to red cells 1: 458: 1: 492, male, 1: 414, female; differential white cell count; neutrophil polymorphonuclear cells, 5,658, eosinophil polymorphonuclear cells, 256; mast cells, 24; large mononuclear and transition cells, 135, mononuclear cells, 2,240; lymphocytes, 6,213; small, 4,754, large, 1,459. Grand total per cubic millimeter 14,526. In the first month a number of anomalies having no pathologic significance may be observed in the white cells. The presence of erythroblasts in the first week, if not over 11 to 15 per cubic millimeter, should not be considered pathologic. Dr. Martins Barbosa used for dilution of red cells, a 0.75 per cent. sodium chlorid solution, which in his opinion is the best to preserve and examine the shape of red cells. For the white cell count the diluent was distilled water, 100 c.c., glacial acetic acid, 1 c.c. The blood was obtained from the plantar arteries.

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SATURDAY, SEPTEMBER 9, 1922

CURRENT ESTIMATES OF SUPRARENAL FUNCTION

It has become increasingly more difficult in recent years for the clinician to find his way through the tortuous maze of conflicting opinions regarding the functions and potency of epinephrin in the organism. The epoch-making discovery of Oliver and Schäfer in England a quarter of a century ago that extracts of the suprarenal glands have a powerful action as cardiovascular stimulants directed attention to this phenomenon, a truly remarkable manifestation of pharmacologic action, to the almost complete exclusion of other considerations of possible suprarenal function. The presumable untenability of the long-fostered belief that effective blood pressure and a stimulative influence on the sympathetic nervous system are maintained by continuous discharge of the active principle epinephrin into the circulation has repeatedly been referred to in The Journal.[1] In a similar category of undemonstrated beliefs belongs the conclusion that the profound asthenia attending destruction of the suprarenal tissues is due to a loss of epinephrin; for administration of the latter fails to become life-saving when the suprarenals are destroyed. The cortex is probably the indispensable part of the gland.

Other knotty points in present-day suprarenal physiology are also becoming disentangled. In a current review revealing critical judgment, Hoskins [2] has made it clear that there is today no justification for classifying epinephrin solely as a vasoconstrictor agent, as most clinicians are likely to do. It is either vasodilator or vasoconstrictor, depending on the amounts used, the organ affected and the conditions attending the administration, as regards body temperature, anesthesia, the action of deleterious factors such as anaphylaxis, and other eventualities. A failure to recognize the importance of such modifying factors, Hoskins remarks, accounts in part, perhaps, for the existing conflicts in the evidence regarding suprarenal pharmacology.

That suprarenal discharge exerts any significant effect on the circulation during the ordinary periods of routine existence seems unlikely in the face of the accumulated negative evidence. Whether, however, in times of special stress attended by emotional excitement the output of suprarenal secretion may not reach an "effective level" at which it can promote circulatory changes leading to an altered distribution of blood has been vigorously debated during the past decade. The Journal has attempted, from time to time, to reflect the convictions to which the growing evidence tended to direct the unbiased student—perhaps not always wisely. Progress dictates, therefore, that we refer to the latest conclusion of an energetic critic [2] who believes that, despite the ingenuity with which the data have been criticized, enough careful and concordant observations are now available to justify the conclusion that the suprarenal glands "are controlled by the central nervous system, and that they are stimulated to effective secretion, as would be expected, by such influences as affect other organs under sympathetic control." Thus, strong emotions, pain and asphyxia exert a physiologic effect. If the reaction postulated is indeed a fact, the epinephrin discharged under such stress can reinforce the sympathetic stimulation leading to a mass shifting of the blood from the "vegetative" organs to those involved in neuromuscular exertion. Such a redistribution must be of great advantage to the individual in times of need, as Cannon, the sponsor for the theory, has often pointed out.

PURIN SYNTHESIS IN MAN AND THE PRODUCTION OF URIC ACID

The employment of purin-free diets in the therapy of certain conditions in man—a procedure widely advocated only a few years ago both in this country and in Europe—was based on the assumption that the precursors of uric acid are not formed de novo in adult man. As uric acid is the end-product of the metabolism of the ordinary dietary purins, whether they are ingested preformed or as constituent complexes of nucleoproteins, the regulation of the production and output of uric acid was naturally supposed to be controllable by restriction of the intake of its immediate antecedents. In harmony with this it is observed that, in contrast with the quantities of uric acid eliminated in the urine on a mixed diet, the output during a liberal purin-free regimen is almost always lowered.

Students of nutrition have found it necessary, however, to reckon with the further fact that, despite the exclusion of all known antecedents of uric acid in the diet, the blood and urine are never entirely free from this product. Even during starvation, some uric acid circulates and is eliminated by the kidneys. In this instance it has been assumed that the purin precursors arise from the disintegration of cellular tissues rich in nucleoproteins. How to account for the ever present minimum during an abundant but purin-free regimen has not been so easy. The known facts regarding this so-called endogenous uric acid have led to the assumption that even during adequate nutrition there is sufficient wear and tear of cellular organs to furnish more or less purins.

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[1] Is Epinephrin Indispensable for the Organism? editorial, J. A. M. A. 69:40 (July 7) 1917; The Suprarenals and Shock, ibid. 69:729 (Sept. 1) 1917; Pituitary Functions, ibid. 69:1697 (Nov. 17) 1917; Emotional States and the Suprarenal Secretion, ibid. 70:94 (Jan. 12) 1918.

[2] Hoskins, R. G.: The Relation of the Adrenals to the Circulation, Physiol. Rev. 2:343 (July) 1922.

A recently reported experiment by Kollmann[1] will serve to reopen the question as to whether, after all, a synthetic production of purins may not occur in man as it surely does in some of the lower species. A healthy person so nourished as to gain 3.6 kg. (8 pounds) in body weight during a period of fifty days on a diet of known low purin content excreted 15 grams (½ ounce) more uric acid than could be accounted for by the food purin intake. How is this not inconsiderable elimination to be accounted for if not by actual synthesis from nonpurin substances? Such findings are not new in the literature of physiology, and they deserve to be recounted from time to time lest we become entirely converted to an hypothesis about the origin of uric acid that no one has adequately reconciled with the facts.

THE INORGANIC ELEMENTS IN THE BLOOD

In the days of the pioneer organic and biologic chemist von Liebig, the blood was looked on as a fluid consisting essentially of a solution of proteins and inorganic salts in which the red and white blood corpuscles are suspended. Considerable importance was attached to the "mineral elements," which were assumed to have some special nutritive functions. The justification for this becomes apparent without much further investigation when one considers the large part which calcium and phosphorus, for example, play in the structure of the bones alone. Progress in the science of biologic chemistry has since brought new information regarding other components of the circulating fluids of the body. The small but significant content of glucose, the diversity of so-called nitrogenous catabolites including urea, uric acid, creatin and less well identified compounds, as well as the gases of the blood, have claimed a good share of attention, so that not until recently have the long recognized inorganic constituents begun to reclaim the consideration to which their presumable physiologic importance entitles them.

In speaking of the blood as a "physiologically balanced" solution, one cannot overlook the share which the inorganic ions must have in the maintenance of neutrality, the development of osmotic pressure, and other physicochemical reactions. It may be worth while, therefore, to call attention to the latest evidences regarding the distribution of some of the most prominent inorganic elements of the blood, a knowledge of which is likely to be necessary in connection with a variety of problems. Numerous investigators now agree that the concentrations of sodium, potassium, calcium and magnesium are singularly constant in human serums. As recent years have witnessed the introduction of accurate methods for estimating the content of these important elements in small amounts of blood, it has become possible to secure data of clinical value, because even small variations from the little varying normal may point to pathologic conditions. The studies on the fluctuations in the content of blood calcium and inorganic phosphorus in rickets and tetany may serve as illustrations.[1]

A surprising discovery is the fact that the blood corpuscles normally suspended in a solution in which, according to the electrochemical studies of Neuhausen and Marshall,[2] the sodium and chlorid are present in the same ionic concentrations as in a comparable solution of sodium chlorid, do not contain appreciable amounts of sodium or of calcium.[3] Kramer and Tisdall,[3] on the other hand, have found that potassium represents virtually all of the fixed mineral base of human corpuscles, in which it occurs in a concentration about twenty times that of the same element in the serum. Sodium represents about 92 per cent. of the fixed base of the latter. Only about one tenth of the calcium is in ionic form.[2] Magnesium is more uniformly distributed between plasma and formed elements in the blood. There is an excess of about 16 per cent. of basic radicals over the well known acid radicals in both serum and corpuscles—an excess which Kramer and Tisdall believe to be in combination with proteins.

It is too early to predict the possible bearing which these newly recognized aspects of the mineral make-up of the blood may have on pathologic conditions. Enrichment or deprivation of the body with respect to sodium, potassium and calcium does not affect corpuscles and plasma alike. Under what conditions migration of these ions in or out of the formed elements of the blood occurs remains to be ascertained. It is conceivable that changes in reaction, in gas tension of the blood, may lead to altered permeability of the corpuscles with coincident discharge of potassium ions into a body fluid bathing tissues peculiarly susceptible to untoward effects from it. The recent announcement[4] of a type of ophthalmia apparently caused by unsatisfactory relations in the inorganic portions of the

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[1] Kollmann, G.: Ueber Harnsäuresynthese im menschlichen Organismus, Biochem. Ztschr. **123**: 235 (Nov. 5) 1921.

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[1] Rickets and Tetany, editorial, J. A. M. A. **78**: 730 (March 11) 1922.

[2] Neuhausen, B. S., and Marshall, Jr., E. K.: An Electrochemical Study of the Condition of Several Electrolytes in the Blood, J. Biol. Chem. **53**: 365 (Aug.) 1922.

[3] Kramer, B., and Tisdall, F. F.: The Distribution of Sodium, Potassium, Calcium and Magnesium Between the Corpuscles and Serum of Human Blood, J. Biol. Chem. **53**: 241 (Aug.) 1922.

[4] McCollum, E. V.; Simmonds, Nina, and Becker, J. Ernestine: On a Type of Ophthalmia Caused by Unsatisfactory Relations in the Inorganic Portions of the Diet; an Ophthalmia Not Due to Starvation for Fat-Soluble A and Not Curable by Its Administration, J. Biol. Chem. **53**: 313 (Aug.) 1922.

diet and not due to starvation for vitamin A should serve to keep investigators alert to the problems of salt effects in the organism.

Current Comment

ALEXANDER RIGHTER CRAIG

The sudden passing of Dr. Craig is a shock that makes it difficult of realization. On August 25 he left for his annual vacation, and was spending it with his family in rural Maryland. For some weeks he had not been feeling altogether well, although he treated the matter lightly, and jokingly rejected the suggestion that it was time for him to take his vacation. Finally he got away and then, out of a clear sky, came the telegram telling of his death. The rank and file of the profession probably will never know the loss which it sustains in Dr. Craig's going. It is doubtful whether the impress he has left on the American Medical Association ever will be fully realized, except by the few who have been intimately associated with him. He was so unassuming, so modest, so free from any arrogant or dictatorial spirit, that his far-reaching influence made itself known rather by end-results than by his efforts to bring about those results. Especially valuable were his counsel and advice in the various difficult problems that would come up in matters affecting the organization. To a degree far beyond the average man he was able to see the point of view of the other fellow and, by virtue of his desire to do to others as he would be done by, frequently brought harmony out of what bade fair to be discord. He not only filled the position of Secretary of the Association, but also was the secretary and executive officer of the Council on Scientific Assembly and of the Judicial Council. In the latter position particularly his exceptional tact showed itself. By his associates at the headquarters office, Dr. Craig was loved for his gentleness and unfailing courtesy. In all the years that he was with the Association, he was never known to make an unkind criticism of those with whom he was thrown in daily contact—subordinate or equal. Criticize, he could and would, when in his opinion principles were at stake, but always in a spirit of helpfulness and service. A rare type of man he was; a re-creation of the spirit of service; a giver of himself; a man whose life was a mission; "we shall not soon see his like again."

THE STATUS OF ARTERIOSCLEROSIS

Arteriosclerosis is one of those expressions which we at times use so glibly that the untutored person is likely to be profoundly impressed by its presumable medical import. Sometimes other terms, such as atheroma, atherosclerosis or endarteritis deformans, are applied to the same affection of the arteries, characterized most conspicuously by thickening of the wall accompanied by degenerative changes such as fat deposits. Arteriosclerosis is occasionally a sort of password thanks to which an open pathway is secured out of the uncertainties of diagnosis. It may come as a surprise, therefore, to those accustomed to deal with arteriosclerosis as a serious entity to learn how uncertain still is our knowledge of its cause and even of its predominant anatomic features. In fact, a pathologist familiar with the subject has not hesitated to state [1] that apart from the conflicting studies of a few investigators, one is impressed by the feeling that most of what is written has only the value of opinion, and that we are extraordinarily ignorant with respect to this common affection. Diametrically opposite views, he adds, are put forward as to the causes, the anatomic nature and the effects of arteriosclerosis; many names of different significance are proposed for it and, withal, there has been no unanimity of opinion as to what should be included under this heading and what excluded. In the debate as to whether the lesions of the media are primary or secondary in the pathologic changes of the arterial wall, MacCallum [1] inclines to accept the paramount importance of the intimal changes. With respect to the latter he emphasizes the presence of lipoid substances followed by a great hyperplasia of the connective tissue and to a less extent of the elastic tissue. Despite the varied experimental efforts to affect the blood vessels adversely, in ways resembling the lesions of arteriosclerosis, by mechanical means through elevation of arterial pressure or otherwise, no success has followed this procedure alone. Only when additional toxic or dietary factors are introduced does the production of experimental arteriosclerosis seem likely at present. Here is a great opportunity for thorough investigation.

GELATIN AS A FOOD

Although gelatin enjoys a widespread popularity as a dietary article, and has found much favor in recent times in the feeding of the sick, few persons who partake of this protein substance realize that it is, in a sense, an artificial product. Gelatin is produced by mild hydrolysis from the organic basis of certain connective tissues which are collagenous in nature. Thus, by simple chemical means, less readily digestible materials which are essentially wastes or by-products of the meat industry are rendered more available for culinary and dietetic use in a form easily utilized in alimentation. Opinion as to the real food value of gelatin has vacillated between wide extremes. In the days of the French physiologist Magendie, early in the last century, a commission of the Paris Academy of Sciences regarded the product as having no food value by itself, and as reducing the value of other foodstuffs fed in combination with it. Although all investigators of the modern era admit that gelatin alone cannot satisfy the entire nitrogenous needs of the body as other proteins may, they usually teach that a considerable proportion of this requirement can be supplied without detriment by the connective tissue derivative. The failure of gelatin to equal the proteins of meat, milk or eggs, for example, in their "biologic" or nutrient value is today understood to be due to the "incomplete" character of the protein; that is, gelatin lacks in its chemical make-up certain amino-acid groups, notably tyrosin, tryptophan and cystin, which are indispensable in the diet because they cannot be synthesized de novo in the animal organism, yet play an important part in metabolism. These amino acids are normally derived from the dietary proteins; hence a shortage ensues when gelatin is the sole food protein. There is no contradiction to the well established fact that gelatin is a food in the same sense that sugar or fats furnish energy to the body. The distinctions which Liebig and his contemporaries made between "respiratory" and "plastic" foods cannot be maintained in their original interpretation. But the observations of Robison[1] at the Lister Institute in London leave the impression that gelatin can at best satisfy only a very minor part of the specific nitrogen needs of the body in man. The dietetic use of gelatin need not be abandoned because we have learned the truth with respect to what it can and cannot accomplish physiologically.

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[1] MacCallum, W. G.: Arteriosclerosis, Physiol. Rev. 2:70 (Jan.) 1922.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALASKA

Hospital at Nome.—A bill reported in the Senate by the Committee on Public Buildings and Grounds, recently, transfers the Detention Hospital at Nome to the U. S. Bureau of Education.

ARKANSAS

New Board of Health.—Dr. George S. Brown has been appointed chairman and Dr. Isaac N. McCollum, city health officer, on the board of health of Conway.

CALIFORNIA

"Drugless Healers" Refused Narcotic Permits.—Collector of Internal Revenue John P. McLaughlin announced, June 25, according to the Oroville (Calif.) *Mercury*, that so-called drugless physicians, including chiropractors, osteopaths, etc., will not be permitted to register for narcotic permits under the Harrison Narcotic Law. Under McLaughlin's ruling, only regular physicians and surgeons who are licensed to practice in California are entitled to the use of narcotics.

Rockefeller Foundation Donation.—Proposal of the Rockefeller Foundation, through Dr. Platt W. Covington, state director of the international health board of the foundation, to donate the sum of $5,000 yearly for three years toward establishing a laboratory in San Bernardino County for research work, has met with approval from the county physicians. A condition is made that the county provide a like sum for the three-year period and furnish the laboratory and an experienced physician and chemist to be placed in charge of the work. San Bernardino is one of three counties in the state to receive the offer. The object of the proposal is to better health conditions and provide means for lowering the heavy death rate.

COLORADO

Personal.—Dr. David H. Winternitz, Colorado Springs, has been appointed county physician of El Paso County to succeed Dr. Albert H. Peters, who died recently.

CONNECTICUT

Hospital Contract Awarded.—The Eastern Engineering and Construction Company of Bridgeport has been awarded the contract for the New Britain General Hospital to be erected at New Britain. The cost of construction will be about $350,000.

DISTRICT OF COLUMBIA

Personal.—Dr. Robert W. Shufeldt, Washington, major, M. C., U. S. Army, retired, has accepted the position of lecturer on art anatomy and zoology on the faculty of the Research University of that city. He will also give a course of lectures at the Catholic University of America on the "Essentials of Natural Science."

FLORIDA

Hospital News.—The contract has been awarded for the administration building of the new tuberculosis hospital for Jacksonville, it is announced. Only the first unit will be erected at present at a cost of $137,000. It will be a three-story fireproof building, the wings of which will contain twenty-five beds each.——A committee of the Polk County Medical Association is in charge of plans for a county hospital.

Petition for Langley Bill.—The board of trade has sent the following resolution to members of Congress from Florida and to the department headquarters of the American Legion:

> Whereas, It has been called to the attention of this organization by representatives of the American Legion that certain obstacles are being put in the way which are delaying operation of the Langley bill, which provides for the construction of government hospitals for the care of disabled veterans of the World War; and
>
> Whereas, It has been brought to our attention that Brigadier General Sawyer, chairman of the hospital board of the U. S. Army, appears to be largely responsible for the delay in carrying out the provisions of the Langley bill; therefore, be it
>
> *Resolved*, That this organization, representing the city, adopts these resolutions urging General Sawyer to refrain from further opposition to the carrying out of the Langley bill, and further urging General Sawyer to endeavor to have the provisions of this bill carried out as early as possible.

GEORGIA

Government Hospital Under Construction.—Construction work on the Lenwood Hospital is nearing completion, it is announced. The institution calls for an expenditure of $400,000, and will be completed, it is stated, by September 15. The seven buildings under construction are of stucco and reinforced concrete. Patients will be housed in five of the buildings, in addition to the main building. The sixth building will be used as dining room and kitchen, and the seventh as a power house.

ILLINOIS

Nursing School at State Institution.—A nurses' training school will be opened, September 15, at the Lincoln State School and Colony at Lincoln.

Clinic for Cripples.—A free clinic was held in St. Mary's Hospital, East St. Louis, August 25, under the auspices of the Visiting Nurses' Association.

Personal.—Dr. E. P. Sloan, Bloomington, president of the Illinois State Medical Society, addressed the Madison County Medical Society at Edwardsville, September 1. The subject of his lecture was "Goiter."

Hospital Superintendent Resigns.—Mrs. Bertha Logan has resigned as superintendent of the La Salle County Tuberculosis Sanitarium at Ottawa, in order to devote a year to travel. The resignation will be effective October 1. Her successor has not yet been appointed.

Physician Shot by Bandit.—In an unsuccessful attempt of four bandits to rob the Forreston postoffice, August 30, Dr. Walter W. Overfield, president of the Forreston Commercial State Bank, was shot and perhaps fatally wounded. The robbers escaped. Dr. Overfield was leaving his office when he heard the nitroglycerin explosion. With two other men, he ran toward the postoffice, and the bandits fired at them through the windows.

Ordinance Governing Weeds.—A determined effort is being made by the city health authorities of Galesburg to abate the weed nuisance. The city council is endeavoring to have an ordinance covering the cutting of weeds enforced. Any person allowing weeds, such as jimson, burdock, ragweeds, thistles, cocklebur or other weeds of like kind to grow on his premises will be subject to a fine of not less than $3 or more than $20. This ordinance is declared urgent and necessary for the preservation of the public health.

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[1] Robison, R.: The Value of Gelatin in Relation to the Nitrogen Requirements of Man, Biochem. J. **16**: 111, 1922.

Tuberculosis Conference.—The regional conference on tuberculosis and public health will be held in Springfield, September 11-12, under the auspices of the Illinois Tuberculosis Association, forty-one counties of the southern section of the state participating. Dr. George T. Palmer, president of the state association, will discuss "The Broadening Program of Tuberculosis Work," and Philip P. Jacobs, Ph.D., editor of the *Journal of Outdoor Life,* New York, will give an address.

Chicago

Personal.—Drs. William Allen Pusey, Edward H. Ochsner, Clarence W. Hopkins and Robert H. Babcock, were among the speakers at the annual meeting of the State Medical Society of Wisconsin at Green Lake, recently.

Rumor that "Dead" Physician Is Alive.—Repeated reports that Dr. J. Newton Roe, convicted on violation of the federal prohibition law, who disappeared in March, 1921, is alive and has been seen in South America are appearing in the press. Dr. Roe was under sentence to serve eighteen months in the Atlanta penitentiary at the time of his supposed death. It is reported that his supposed body was obtained from a medical school. The body was disinterred, but positive identification was impossible owing to the length of time since death.

INDIANA

Violations of Health Laws.—The health board of Gary recently filed forty-seven prosecutions for violations of health laws, in one day. All of these prosecutions were successful, and fines were applied in each case. They were chiefly for insanitary conditions in the distribution of food and milk.

KANSAS

Public Health Nursing.—At the annual meeting of the state board of health a new division of public health nursing was created with Miss Hulda Cron as chief.

KENTUCKY

University Head Dies.—James Kennedy Patterson, Ph.D., aged 89, president emeritus of the State University of Kentucky, Lexington, of which he was first head, died, August 15, at his home on the university campus. Professor Patterson served as dean of the university from 1869 until 1910.

Memorial Issue of Medical Journal.—An early issue of the *Kentucky State Medical Journal* will be published as a memorial to the life and work of the late Joseph N. McCormack. The publication of this issue will be under the direction of his life-long friend and associate, Dr. Lewis S. McMurtry, president of the Kentucky State Board of Health.

Mental Survey.—At a meeting of the National Committee for Mental Hygiene, held in the State Board of Health Building, Louisville, plans for conducting the mental survey of the state, authorized by the last general assembly, were made. The purpose of the survey is to determine the deficiencies of prisoners in the state penal institutions and the mentality of the schoolchildren, in order that steps may be taken to reduce the number of criminals and defectives in the next generation. Dr. Frank O'Brien, secretary of the Louisville Society for Mental Hygiene, was elected executive secretary of the advisory committee, and Drs. A. T. McCormack, Louisville, and C. P. Sprague, Lexington, are other members of the committee. It was decided that the national committee's six experts shall arrive in Kentucky early in the autumn to start work at the penitentiary at Frankfort. Finally, there will be an investigation in ten selected counties to discover the causes of absence among schoolchildren and the reasons for their failure to earn promotion.

LOUISIANA

Physician to Aid Belgians.—Dr. Sanders L. Christian, U. S. Public Health Service, Shreveport, has sailed for Antwerp, Belgium, where he will aid the United States consul in promoting better health conditions in that country.

MAINE

Public Health Courses.—The University of Maine, Orono, and Bates College, Lewiston, have established courses in public health, at their summer schools.

Medical School Is Sold.—The Medical School of Maine (Bowdoin Medical School), Portland, has been sold, together with the land on Chadwick Street, for $30,000. It is expected that an apartment building will be erected on the site.

MARYLAND

Hospital Contract Awarded.—The contract for the municipal hospital for communicable diseases in Baltimore, to be located at Montebello, has been awarded, at a bid of $658,600. It has been decided to eliminate at present Pavilions A and C, to avoid running the cost of the hospital up to $1,000,000 or $300,000 in excess of the loan. These pavilions will be built later. The building to be erected will be of light colored brick with green tile roof.

School Dietitian to Be Appointed.—Dr. C. Hampson Jones, commissioner of health, Baltimore, has been authorized to appoint a woman dietitian to the public school health work staff, to enable the department to look after children who are undernourished. The chief work of the new employee will be to instruct the 100 school nurses in dietetics, the nurse in turn to carry the information into the homes of children found to be under weight from disease or malnutrition.

Improvements to Marine Hospital Planned.—Plans to reopen the U. S. Marine Hospital, Baltimore, with enlarged facilities, are being made, following a recent appropriation of $20,000 by Congress. Improvements will consist of new heating apparatus and mess rooms and enlargement of the hospital capacity to about 230 beds. The hospital will be directed by Major M. H. Foster, formerly in charge of the Fort McHenry Hospital. The hospital is open to patients from the U. S. Coast Guard, naval service and merchant marine, and to disabled federal employees and foreign seamen. At present, such patients are being treated at the Morrow, Mercy and University hospitals in Baltimore.

University of Maryland Alumni Association Planned.—Plans are being made to form an alumni association of the new University of Maryland. This will include graduates of the Baltimore Medical College, College of Physicians and Surgeons, and the University of Maryland Medical School, now merged into the University of Maryland. The aim is to form an executive body composed of members of these former schools, who will interest themselves in the working of the medical department and for the building up of the university. In charge of the alumni association are Dr. G. Milton Linthicum, president; Drs. Jacob Guy Steele and Charles Bagley, Jr., vice presidents, and Dr. William S. Love, recording secretary.

MASSACHUSETTS

Public Health News.—The legislature has authorized a division of mental hygiene in the state department of mental diseases.——Through its division of hygiene, the department of public health will extend its maternity and infant hygiene service. The first feature of the new program will be an investigation of the causes of maternal and early infant deaths during the last year in Massachusetts. Two physicians have been added to the staff, as well as a vital statistician, to carry on the work. A supervisor and a staff of five nurses will soon be added to the division, whose main purpose will be to stimulate prenatal and infant care by the extension of public health nursing into regions not reached, by helping to raise standards of work already under way. Educational methods demonstrating to the public the value of prenatal maternal and early infant care will also be illustrated.

MICHIGAN

John Sanford Dies.—Mr. John P. Sanford, for four years law enforcement officer of the venereal disease bureau of the department of health, died recently from heart disease.

Health Educational Exhibit.—At the Michigan State Fair, a health exhibit will be established by the Detroit Tuberculosis Society, it has been announced by the secretary of the society. A cartoonist will draw large colored cartoons illustrating health rules. A trained dietitian will be in attendance. Health moving pictures will be shown every evening.

Health Institutes.—Since the announcement by Dr. R. M. Olin, recently, of the consolidation of the clinic divisions and the lecture, moving picture and exhibit units of the state board of health, the bureau of education has arranged a schedule and prepared a fall program. The first health institute was opened in Berrien County this week and will continue until September 16.

MINNESOTA

County Medical Meeting.—At the annual meeting of the Stearns-Benton Medical Society, Dr. Tolbert Watson, Albany, was elected president, and Dr. John N. Libert, St. Cloud, secretary-treasurer.

Appointment Approved.—The appointment of Dr. Delos J. Bristol of Harvard University to head the department of public health and preventive medicine recently created at the University of Minnesota has been approved by the board of regents. Professor Bristol taught at the state university from 1908 to 1912, and was medical director of the St. Paul Antituberculosis Dispensary from 1910 to 1912.

Registration of Students in Minnesota.—Instead of only eight students out of 250 being able to secure admission to the medical school of the University of Minnesota as reported last week, it is now reported that 100 out of 197 applicants will be able to secure admission. A statement has been published to the effect that the "double shift" would be very expensive and lead to much confusion. Instead of the double shift, therefore, it is stated that the laboratory buildings of anatomy and physiology will be enlarged and the capacity of the university hospital increased, so as to provide for larger numbers of students.

Public Health Exhibit at State Fair.—For the third year, a public health exhibition was presented at the Minnesota State Fair, held in the Twin Cities, September 2-9. Education of both parents and children in child hygiene was largely emphasized, and a prize of $500 was given for healthful mouths and good teeth. Entertainments by a "toothbrush man," to impart lessons in oral hygiene, and health plays were also given. The need of legislation for higher standards of nursing education was emphasized in the exhibit of the Minnesota State League for Nursing Education. Organizations participating in the exhibits and entertainments of the health exhibition building were the Northwest Pediatric Society, the American Red Cross, the Minnesota State Board of Health, the Minnesota Public Health Association, the state dental association, the state sanatorium advisory commission, the state league of nursing education, the Twin City Industrial Nurses, the Minneapolis Health Department, the Hennepin County Public Health Association, the Minneapolis Infant Welfare Society, the St. Paul Baby Welfare Society, the Ramsey County Public Health Association and the Hennepin County Rural Public Health Nurses.

MISSISSIPPI

New Health Unit.—The Jackson County health unit, for which the board of supervisors made an appropriation last spring, will be organized this month. Dr. May F. Jones, Sanatorium, has been sent to Pascagoula by the state board of health to organize the unit.

NEBRASKA

School Health to Be Taught.—Special courses have been prepared for each grade in the public schools of Omaha, and two periods a week will be given in health instruction for the pupils. The work will start in the first grade, with emphasis on personal cleanliness, washing the face, teeth, etc., until in the eighth grade the pupils will study sanitation, precautions against disease and public control of health.

NEW HAMPSHIRE

Campaign for Better Health.—The Merrimack County Medical Association recently went on record as advocating a clinical examination of presumably well people twice yearly. Physicians of the county will conduct an intensive campaign to promote better health. A resolution was also passed on the desirability of treating tuberculous patients at general and municipal hospitals, providing separate wards be maintained for this purpose.

NEW MEXICO

Personal.—Dr. LeRoy S. Peters, Albuquerque, has been appointed to the state board of public welfare to succeed the late Dr. Abraham G. Shortle.

NEW YORK

Medical School Making Progress.—The Medical School of the University of Rochester is slowly making progress. A research laboratory will be completed in about three months. An affiliation is being brought about between the city authorities and the university for the building of a municipal hospital on or near the university campus, and, in accordance with the arrangements, the university medical school will furnish the professional training and nursing staffs, and the medical teaching will be carried on in the hospital. Walter R. Bloor, Ph.D., of the University of California Medical School has accepted the chair of biochemistry, and will begin his duties this fall. Dr. George W. Corner, now at Johns Hopkins University, is to be the professor of anatomy. He will assume his duties at Rochester early in 1924. Dr. Nathaniel W. Faxon, now of the Massachusetts General Hospital, will assume the position of director of the University Hospital, Oct. 15, 1922. The school will be ready to receive students in the fall of 1924 or 1925.

New York City

Personal.—Dr. Emanuel Libman has recently returned from Europe, where he was called to attend the late Lord Northcliffe, English publisher.——Dr. Joseph Eastman Sheehan sailed for Liverpool, September 1. Dr. Sheehan is the American representative to the International Clinic of Plastic Surgery, which meets in London, September 15.——Dr. Pasquale A. della Badia has returned from a trip to Rome.

Meatless Diet in Hospital.—An experiment in meatless diet is being tried in the Beth Israel Hospital by Superintendent Frank. Until recently, it was contended that meat was the source of vitamins, but this has been refuted by Prof. E. V. McCollum, professor of chemistry and hygiene at Johns Hopkins University, Baltimore. From a medical standpoint, it is now asserted that there is nothing inherent in meat that cannot be supplied by fish, milk, eggs and milk products.

Warning Against Typhus.—Health Commissioner Copeland returned, August 26, from a tour of France, Germany and Poland, where he went to study health conditions. He considers that the world today faces an eminent health peril. He prophesies that Poland will be swept by typhus this winter and that if it is not drained and cleaned the whole world will suffer. The commissioner will ask public spirited citizens of this city for $100,000 for a temporary hospital to care for typhus patients going from Russia to Poland.

Amendments to the Sanitary Code.—At a meeting of the Board of Health of New York, August 10, the following amendments to the sanitary code were adopted:

> Section 201. Precautions to be observed by physicians, nurses, midwives or other attendants for the prevention of ophthalmia neonatorum in the eyes of all new-born children: It shall be the duty of every physician, nurse, midwife or other person in attendance on a confinement case, to instill in the eyes of the new-born child, immediately after delivery and before the expulsion of the after-birth, a 1 per cent. solution of nitrate of silver or an equally effective agent, in order to prevent the development of ophthalmia neonatorum in the eyes of all new-born children.
>
> Section 39. The manager or superintendent of any public or private hospital wherein a mortuary is not maintained for the temporary retention of the remains of persons deceased therein, shall forthwith permit the removal of the remains of such deceased persons on presentation by an undertaker of a removal permit duly issued by the department of health.

NORTH CAROLINA

County Health Lectures.—A health campaign has been conducted for several weeks in Lenoir County. Physicians and dentists have delivered health lectures at various points in the county every Thursday night. These lectures will be continued through September.

Physician Escapes Prison.—It is reported that Dr. James W. Peacock, Thomasville, who has been confined in the department of the criminal insane at the state prison, Raleigh, since his acquittal of the killing of Chief of Police Taylor, escaped, August 30, by sliding down a rope from his cell on the third floor.

Committee on Medical School.—Dr. John W. Long, Greensboro, president of the Medical Society of the State of North Carolina, has appointed a committee of thirty members of the society to take action as they may see fit on the proposed plans for a four-year medical school to be established by the University of North Carolina. Dr. I. W. Faison, Charlotte, has been named chairman of the committee. The trustees of the university recommended that the school be located at Chapel Hill, but the committee will meet some time in the fall to investigate and make recommendations in the matter.

OHIO

Academy of Medicine of Cleveland.—The first fall meeting of the academy will be held, September 15. Dr. John M. T. Finney, professor of clinical surgery, Johns Hopkins University, Baltimore, and Dr. Mose E. Blahd, Mount Sinai Hospital, Cleveland, will be the speakers of the evening.

Nonlicensed Practitioners Fined.—Three of five persons arrested recently at Youngstown on charge of practicing medicine without licenses admitted their violations. George Fink and C. A. Stone were fined $100 and costs each, and P. B. Derr, $100, on condition that he refund $70 collected from a patient.

Dr. Biskind Appointed Government Surgeon.—Dr. Israel J. Biskind, formerly of Cleveland, personal physician to Sir Herbert Samuel, high commissioner for Palestine, has been appointed consulting surgeon to the government of Palestine, it was recently announced. Dr. Biskind is a graduate of the Cleveland College of Physicians and Surgeons, class of 1899, and practiced in Cleveland for twenty years.

Personal.—Dr. Russell D. Bussdiker, following three years' service with the medical department of the U. S. Navy, returned to his home in Dayton in July. In August he left for Kermanshah, Persia, where he will have charge of a hospital in connection with the foreign mission of the Presbyterian Church.——Dr. J. Fred Wuist, Dayton, has been appointed a member of the board of medical examination and registration to succeed Dr. Sylvester M. Sherman of Columbus.

Stolen Narcotic Forms.—In a recent regulation issued from the office of the Commissioner of Internal Revenue, methods for reporting stolen or lost order forms for narcotics have been altered. If used or unused forms are stolen from or lost by persons registered under the provisions of the Harrison Narcotic Law, a report of the same, stating the serial numbers, is to be forwarded to the Commissioner of Internal Revenue, Washington, D. C. If the theft, or loss, however, includes an entire book and the serial number is unknown, then the report is to be submitted to the Collector of Internal Revenue from whom the purchase was made.

Action Taken Over Vaccination Opposition.—Dr. Clayton W. Shaw, Alexandria, president of the Campbell County Board of Health, was in Dayton, August 21, to make an investigation of the printed matter and posters circulated by the Northern Kentucky Medical Liberty Association, opposing vaccination in the public schools. After a conference with Dr. George R. Aiken, city health officer of Dayton, Dr. Shaw called a meeting of the county board of health to take action in the matter. It was stated that the law, which requires parents of schoolchildren to have them vaccinated, unless recent certificates of vaccination can be shown, will be enforced.

OKLAHOMA

Personal.—Dr. John C. Hubbard, who for several years served in the federal health department as quarantine physician at Cristobal, Canal Zone, has returned to the United States and will locate at Oklahoma City.

PENNSYLVANIA

Health Inspection of Fair Stands.—The state health department, through the division of restaurant hygiene, will insist that all persons handling food at country and local fairs undergo a physical examination and furnish health officers' certificates stating that they are free from contagious diseases. Seventy-two fairs, having 2,300 refreshment stands, were covered by the inspectors last summer. Several persons were refused certificates, and their stands closed.

Crawford County Medical Society Meeting.—A regular meeting of the Crawford County Medical Society was held, June 7, in the Market House as a part of the child welfare program. A public meeting was held in the evening in the same place. Dr. Flood addressed the society, his subject being "The Milk Problem and Infant Feeding." The annual outing of the Crawford County Medical Society was held, Wednesday, July 12, at the Meadville Country Club.

Camp for Malnourished Children.—A camp for 200 undernourished children, taken from the rural districts of the state, was opened this summer on the grounds of the state sanatorium, Hamburg. The children were fed and given exercises and rest periods, until they were in normal physical condition for attendance at the fall school term. More than 600 applications were received from physicians, nurses and school teachers, requesting that undernourished children under their care might be admitted to the camp.

Health Boards Combine for Enforcement of Laws.—Members of local boards of health throughout the state have banded together in groups comprised of several counties. Permanent organizations for a uniform enforcement of state health laws and regulations have been effected, officers elected and constitutions adopted. Members of the state health department attend their meetings for the purpose of answering questions which may arise regarding health law administration, and to show how these laws can and should be enforced by the local authorities.

Philadelphia

Jurors Condemn Indigents' Home.—Conditions at the Home for the Indigents at Byberry, characterized as cheerless and insanitary, were reported by the grand jury to Judge Monaghan at the close of its term in the Quarter Sessions Court. The Home for the Indigents was found in very bad condition owing mainly to our county authorities' failing to supply money to repair or keep it in a sanitary condition. The city maintains 724 male and 344 female inmates in the home. The House of Correction was found to be in better condition than the Home for Indigents. The census reported 322 males and 117 female inmates.

Mental Affliction Held as Illness.—Presiding in the municipal court, August 30, Judge Brown decided a question that had long been the subject of a controversy between the department of public health and the department of welfare. The question involved the responsibility for the care of mentally afflicted, dependent children, pending their admission to an institution at Spring City, which at the present time is so crowded that there is no further room for patients committed there by the juvenile court. In deciding the question, Judge Brown contended that a person who is afflicted mentally is just as ill as one who is suffering from an affliction of the body, and for that reason he declared that the responsibility should be borne by the department of public health.

University of Pennsylvania News.—Changes in the faculty of medicine of the University of Pennsylvania, some of which have been previously announced in The Journal, are as follows: Dr. Charles H. Frazier, John Rhea Barton professor of surgery, to succeed Dr. Deaver; David Wright Wilson, Ph.D., to succeed Drs. Marshall and Taylor, the Benjamin Rush professorship of physiologic chemistry and of chemistry and toxicology having been combined. Dr. Hendrixson, assistant professor of physiologic chemistry for several years, has accepted the position of professor of physiologic chemistry at the University of Texas. Three years of college work will be required for admission next year; the following year, 1924, only college graduates or seniors "in absentia" will be admitted.

SOUTH CAROLINA

Health Board News.—Dr. Charles H. E. Esdorn has resigned as chairman of the board of health of Waterboro.——Dr. Percy Brigham has resigned as health commissioner of Orangeburg and has been appointed city health commissioner of Florence to succeed Dr. Clarence C. Craft, who resigned recently.

Seaboard Plans Health Program.—Arrangements have been completed with the U. S. Public Health Service, the State Board of Health of South Carolina and the Seaboard Air Line Railway for an extensive survey, by a sanitary engineer, of the lands connected with that railroad in South Carolina, with a view to extensive health control along the entire line, it was announced by the state board of health in Columbia, July 12. Beginning at Andrews, the malaria survey will be continued to the Savannah River line, and thence to Jacksonville, Fla.

TENNESSEE

Colored Baby Clinic.—A colored baby clinic was recently held at Clarksville. Of all the children examined, nine averaged 23 per cent. underweight, and no children were more than 10 per cent. overweight. These babies will be visited in their homes by the nurses of the Montgomery County health unit, and efforts will be made to bring those underweight up to normal. Future clinics will be held to note changes in the general condition of the children.

TEXAS

Pathologist Appointed.—Dr. Frank W. Hartman, Temple, chief pathologist at the Temple Sanatorium for the last three years, has been appointed chief pathologist at the Detroit City Hospital, Detroit.

Personal.—Dr. Marcus P. Smartt, Manor, has resigned as a member of the state board of health, to become director of the bureau of communicable diseases in the department of health.——Dr. Robert H. Looney, Waxahachie and Dr. William F. Holland, Santa Anna, have been appointed members of the state board of health by Governor Neff, to succeed Dr. Dickson G. Thompson, and Dr. M. P. Smartt.

UTAH

Child Hygiene Work to Be Continued.—The bureau of child hygiene of the state board of health will continue activities during the month with the establishment of clinics at Tremonton and other towns in Boxelder County. These clinics are conducted with the aid of the U. S. Public Health Service, under the Sheppard-Towner Act. The government has made available funds for the purpose of carrying on further activities in the bureau of child hygiene and has made possible the employment of additional personnel on the state health board.

VIRGINIA

Personal.—Dr. Micajah Boland, formerly of the Naval Training Station, Hampton Roads, has been appointed medical director of the Gendarmerie d'Haiti, with the rank of colonel, with headquarters at Port au Prince, Haiti.

Nurses Have Police Power.—An amendment was recently made to the city ordinances of Richmond to extend police powers to certain employees of the health department, so as to include nurses connected with the bureau of health. In accordance with this ruling, twelve nurses and the chief nurse of the health bureau were recently sworn in with police powers.

WEST VIRGINIA

College Alumni Organized.—At a recent meeting of the Fayette and Raleigh County societies at Beckley, the alumni of the Medical College of Virginia who were present organized the Alumni Society of the Medical College of Virginia in Southern West Virginia. Dr. John E. Cannaday, Charleston, was elected president, and Dr. Walter E. Vest, Huntingdon, secretary.

Physicians' Automobile Emblems.—The chief of police of Huntingdon has requested all Huntingdon physicians, through the Cabell County Medical Society, to display on the radiators of their cars the official automobile emblem of the American Medical Association. This is in line with action recently taken by the police departments of a number of other cities.

WISCONSIN

Personal.—Dr. Fred E. Tryon has been appointed health officer of Baraboo.——Dr. Benjamin H. Schlomovitz, director of the department of physiology and pharmacology, Marquette University School of Medicine, has resigned to become director of the laboratories of the National Soldiers' Home Hospital, under construction in Milwaukee.——Dr. Frederick V. Watson and Dr. George W. Moore, both of Antigo, have left for Los Angeles with their families and will make their future homes in that city.——Miss Adda Eldredge, Madison, was elected president of the American Nurses' Association at the recent conference in Seattle.

Health Training in Schools.—At a meeting of the health officers and public health nurses of the state at Madison, recently, a resolution was adopted endorsing a plan for a systematic course of health instruction for all teachers in normal and other training schools. It was requested that the state superintendent of public instruction bring the matter to the attention of all schools, which will thereupon be furnished by the state board of health with suitable material for instruction. Dr. Charles R. Bardeen, dean of the University of Wisconsin Medical School, Madison, gave an address at the meeting.

Wisconsin General Hospital.—Construction of the $1,350,000 Wisconsin General Hospital, authorized by the special session of the legislature in 1920, will go forward at once from funds made available through the service recognition board. The building of this hospital, on which a four-year medical course of the University of Wisconsin is to be developed, has been held up by Governor Blaine for the last year and a half, because of his belief that there were not sufficient funds in the treasury to warrant construction. Recovery of unreported income taxes amounting to $250,000 has replenished the hospital fund.

Health Policy to Be Changed.—The health department of Milwaukee has been caring for persons afflicted with venereal disease by treating them in city institutions for the last several years. August 25, it was learned that, on the opinion of the attorney-general, they could be committed to county and state institutions for treatment, even against their will. The opinion was given on the request of Dr. Cornelius A. Harper, Madison, director of the state board of health. Present laws, however, do not permit of criminal prosecution for refusal to accept treatment, but it is expected that a bill to make refusal of treatment a criminal offense will be presented to the next legislature.

PHILIPPINE ISLANDS

Rockefeller Foundation Fellows.—Director Elmer Merrill of the Bureau of Science, Director Vincente de Jesus of the Philippine Health Service and Miss Giron of the Philippine General Hospital, have been appointed a committee of three to select six physicians and two nurses to become fellows of the Rockefeller Foundation. The fellows selected will study public health work.

CANADA

Medical Association News.—At a meeting of medical women, held recently in Toronto, Ont., preliminary steps were taken to form a Canadian women's medical association. A committee was formed, consisting of Drs. Esther H. Loudon, Toronto, and Lilias W. Cringan, Calgary, Alta., for the purpose of getting in touch with all the woman physicians in Canada, in an effort to secure their membership for the national organization. Drs. Sproule-Mason and Isabel Ayer, both of Toronto, Ont., were appointed acting president and secretary, respectively. Dr. Jennie Smillie was appointed delegate to the international conference of medical women, to be held in Geneva, Switzerland, in September of this year.

Personal.—Sir Charles Scott Sherrington, M.D., president of the Royal Society, and Waynflete professor of physiology at Oxford University, England, has accepted an invitation to attend the formal opening of the new biologic building of McGill University, Montreal, Que., in October.——Dr. Donald S. McLennan has been appointed medical officer of health for New Toronto, Ont. He succeeds Dr. G. L. Serson, who has occupied these posts for a number of years.——The Hon. Dr. Henri S. Beland, minister of health for Canada, and his bride were the recipients of a handsome silver service, presented by Dr. Beland's colleagues in Ottawa, on their return to Ottawa, from their honeymoon recently.——Dr. Alexander MacKay, provincial inspector of prisons and public charities, has been gazetted lieutenant-colonel on the retired list of the Thirty-Sixth Peel Regiment.

University News.—The Province of Quebec has purchased from the U. S. Radium Corporation, one gram of radium, valued at $100,000, for the use of its citizens in the treatment of cancer and other malignant diseases. The radium will be sent to the University of Montreal, Que., where, under the supervision of Dr. J. A. Gendreau, it will be at the service of the people of Quebec Province.——The removal of McMaster University from Toronto to Hamilton, Ont., now seems unlikely, in view of the fact that certain fundamentals of the Baptist Church forbid the university to accept state aid, and that there is a scarcity of funds for the purpose of removal. The report of the committee of the board of governors of the university, who have been looking into the matter of the removal, will be presented this fall. It is believed that any federation with the University of Toronto will not be acceptable except in case of dire necessity, as various considerations tend to discourage such a course.——In accordance with a plan decided on by the universities of Canada, the Medical College of the Western University, at London, Ont., will this year limit the number of freshmen, and will accept only fifteen new students when the school reopens in the autumn. It has been demonstrated that medical colleges in Canada have been turning out more physicians than the demand warrants.

GENERAL

George Creveling Joins the Medical Times Staff.—It is announced that George B. Creveling, for twenty-five years advertising manager with the *Medical Record*, has been elected secretary and a director of *The Medical Times*. He will also be in charge of the advertising department.

Hygiene Board Discontinued.—The Interdepartmental Social Hygiene Board recently went out of existence with the ending of the fiscal year. No appropriation for its continuation had been made. A bill has been introduced authorizing the Department of Justice to take over the work of the board, but no action has yet been taken on this bill.

Creation of Independent Prohibition and Narcotic Bureau.—Two bills, one introduced by Representative Wood of Indiana and one by Senator Ernst of Kentucky, were introduced in the House recently and referred to the Committee on Judiciary. These bills, identical in wording, provide that a separate bureau under the direct control of the President shall be created for the enforcement of the prohibition and narcotic laws.

American Dietetic Association.—The fifth annual meeting of the association will be held at Washington, D. C., October 16-18, with headquarters at the New Willard Hotel. An exhibit of equipment, food materials, charts and other illustrative matter valuable to a dietitian will also be a feature of the convention. Speakers of national importance will discuss recent developments in dietetics, as well as administrative and other practical problems of the dietitian.

Senate Passes Water Pollution Bill.—The Senate this week passed the bill recently introduced by Senator Frelinghuysen prohibiting the discharge of oil and other pollution into navigable streams. Supporters of the measure claimed that it was designed to avoid unhealthy conditions along water fronts, as well as to eliminate fire hazards, which are said to endanger water front property in many cities as a result of the constant discharge of oil into streams and harbors. The measure now goes to the House.

Production of Synthetic Chemicals.—The total production in the United States of synthetic organic chemicals other than those derived from coal tar, which are used as medicinals, perfumes, flavoring ingredients and solvents and in numerous industrial processes, was 21,545,186 pounds in 1921; the sales amounted to 16,761,096 pounds, valued at $13,746,235. The development of this industry in the United States has been similar to that of the dye industry, as the supply of synthetic organic chemicals was controlled primarily by Germany prior to the war.

Rockefeller Foundation.—President G. E. Vincent recently stated that 157 persons held fellowships in the Rockefeller Foundation during 1921, funds for which were supplied by the foundation, directly or indirectly. Among these were seventy-one Americans, one Belgian, seven Brazilians, eleven Canadians, one Singhalese, seventeen Chinese, one Colombian, two Costa Ricans, nineteen Czechs, seven British, four French, one Guatemalan, one Mexican, two Nicaraguans, seven Poles, two Salvadoreans, two Syrians and one Norwegian.

Hay-Fever Association.—In the forty-ninth annual report of the United States Hay-Fever Association, statistics are compiled for the benefit of those afflicted with hay-fever, indicating the degree of immunity experienced by members of the association at summer resorts in the United States and Canada. The highest rating of all is awarded to Campobello Island, N. B., Canada, where forty-eight members found total immunity from the illness. Members of the association reported as to whether they were immune, not immune or partially immune at 106 summer resorts which are listed in the report.

Provisional Birth Figures for 1922.—The department of commerce announces that provisional birth figures compiled by the bureau of the census for the first quarter of 1922 indicate lower birth rates than for the corresponding quarter of 1921. For the states compared, the total birth rate for the first quarter was 23.3 in 1922 as against 25.3 in 1921. The highest birth rate for the quarter (29.2) is shown for North Carolina and the lowest (16.5) for the state of Washington. Higher rates will be necessary for the remaining months of the year if the 1922 rate is to equal the 1921 rate for the birth registration area—24.3.

Provisional Mortality Figures for 1922.—The department of commerce announces that provisional mortality figures compiled by the bureau of the census for the first quarter of 1922 indicate higher death rates than for the corresponding quarter of 1921. For the states compared, the death rate for the first quarter was 13.7 in 1922 as against 12.6 for the first quarter of 1921. The highest mortality rate for the quarter is shown for the District of Columbia (17.6) and the lowest for Wyoming (9.6). These early figures forecast for the year 1922 a higher rate for the death registration area than the record low rate (11.7) for the year 1921.

Minnows for Malaria Prevention Shipped to Palestine.—Dr. Shapiro and Mr. Weigemann of the International Health Board, Rockefeller Foundation, recently arrived in America from Palestine, to study American methods of malaria and mosquito control. They have conferred with the bureau of fisheries and the U. S. Public Health Service and have ordered a shipment of the common top-water minnow, known as the gambusis, to Palestine to combat the mosquito. The minnow is used extensively as an agent for the control of mosquitoes in the South, the Hawaiian and the Philippine Islands and Spain, where the employment of the fish has proved effective.

Welfare of Women and Children.—The U. S. Children's Bureau has recently issued pamphlets on "Industrial Home Work of Children" (Bureau of Publication No. 100), a study made in Providence, Pawtucket and Central Falls, R. I.; "Children of Wage-Earning Mothers" (Bureau of Publication No. 102), a study of a selected group in Chicago; and "Child Labor and the Work of Mothers in Oyster and Shrimp Canning Communities on the Gulf Coast" (Bureau of Publication No. 98). The U. S. Women's Bureau has issued a pamphlet on "Women in Georgia Industries" (Bulletin No. 22), a study of hours, wages and working conditions. Health and sanitation are discussed in each of these pamphlets.

Pacific Association of Railway Surgeons.—At the twentieth annual session of the Pacific Association of Railway Surgeons, held in San Francisco recently, the following officers were elected for the ensuing year: president, Dr. Walter B. Coffey, San Francisco; vice presidents, Drs. George R. Carson, San Francisco, and George W. Stout, Ukiah; treasurer, Dr. Ernest M. Keyes, Alameda, and secretary, Dr. W. T. Cummins, San Francisco. In a resolution passed at the meeting, the association condemned "singly and collectively the chiropractic, osteopathic and antivivisection initiatives" and urged all those interested in the scientific study, prevention, cure and control of disease and the promotion of public health to vote against these measures.

Good Health Week.—With the cooperation of leading manufacturers, Good Health Week will be inaugurated throughout the country, October 23-30, under the auspices of the Good Health Week Promotion Bureau of Milwaukee, of which William Hatch is secretary-treasurer. The executive committee will be assisted by a medical committee of five physicians prominent in public health work, who will check over any medical statements made, to insure accuracy from a medical standpoint. There will also be an advisory committee of twenty-five physicians, professional, and business men, to whom the policy of the campaign will be submitted for suggestions. The Good Health Week Promotion Committee is prepared to furnish good health articles on the subjects of ventilation, sanitation and personal hygiene.

Bequests and Donations.—The following bequests and donations have recently been announced:

The Children's Memorial Hospital, Chicago; the Visiting Nurses' Association, the United Charities, the Chicago Home for the Friendless, Chicago Nursery and Half Orphan Asylum, Chicago Home for Destitute Crippled Children, the Country Home for Convalescent Children and the Scottish Old People's Home of Riverside are among the recipients of Continental and Commercial National Bank stock, valued at more than $1,300,000, under the will of Mrs. Nellie A. Black.

Presbyterian Hospital, New York, $100,000; New York Society for the Relief of the Ruptured and Crippled, $10,000; Northern Westchester Hospital Association, $10,000, and St. John's Guild, New York, $10,000, by the will of William Sloane.

Roosevelt Hospital, New York, the residuary estate of the late Elizabeth A. Osgood, amounting to $411,556.

Tulane University, New Orleans, $50,000, in memory of her father, by the will of Mrs. Josephine Electa Howard, wife of Dr. W. A. Howard.

Truesdale Hospital, Fall Fiver, Mass., $25,000, by Mr. and Mrs. Earle Charlton of Fall River; $25,000, by Mrs. John P. McGowan of Little Compton, R. I., and $5,000 by Dr. M. Lawrence Turner of Washington, D. C., for the addition of new fifty-bed wing.

Winthrop Community Hospital, Winthrop, Mass., $35,000, as the result of a drive for funds. This money will be used to purchase the Metcalf Hospital and provide it with equipment.

Southampton Hospital, Southampton, L. I., $31,000, the proceeds of a street fair held, August 4.

Salem, Ore., for a new hospital, $5,500, toward a fund of $25,000, from subscriptions.

Beth Israel Hospital, New York, $5,000, by the will of Aaron J. Bloomberg.

St. Agnes Hospital, Philadelphia, $1,000, by the will of Elizabeth O'Keefe.

Hicks Memorial Hospital, Oxford, N. C., $1,000, and the Oxford Orphan Asylum, 1,250 yards of homespun for winter garments, by Mr. F. L. Seely.

Lincoln Methodist Hospital, Lincoln, Neb., his Lincoln estate, "Fairview," to be remodeled as a hospital, by William J. Bryan.

St. John's Riverside Hospital, Yonkers, N. Y., the endowment of two beds, by the will of Emily M. Trevor.

Massachusetts General Hospital, Boston, the ophthalmologic department, the principal of the estate of George D. Loud, eventually.

Charity Hospital and the Touro Infirmary, New Orleans, one Hess incubator bed each, by Mr. Samuel Bonart of New Orleans.

LATIN AMERICA

Personal.—The Mexican secretary of war has appointed among those to represent Mexico in the centennial celebration of the independence of Brazil, the army medical officers, Dr. Enrique and Dr. Servando Osornio Camarena, and the alumni of the military school, C. Vásquez del Mercado and Luis Trujillo. This medical group will accompany the official delegation.

FOREIGN

Prize Awarded to Hasebroek.—The *Klinisch-therapeutische Wochenschrift* relates that seventeen articles were received in competition for a prize offered by H. Cohn of Hamburg for the best work on the scientific grounds for monism on a theistic basis. The prize was awarded to Dr. K. Hasebroek of Hamburg.

Opposition to Birth Control. — Catholic medical men in Glasgow, Scotland, with the Archbishop of Glasgow as chairman, have passed a resolution urging the British government to make the publication and distribution of birth control literature and appliances a penal offense. Sterilization of the unfit was denounced by unanimous resolution as opposed to the fundamental principles of Christianity.

Retirement on Reaching the Age Limit.—Among those retiring this year on account of having reached the official age limit for university professors is Dr. W. Uhthoff, the ophthalmologist. His chair in the University of Breslau is to be offered to Dr. A. Bielschowsky, professor of ophthalmology at Marburg.——Dr. Dante Giacobbi, professor of clinical medicine at the University of Parma, was presented with a gold medal by his friends on the occasion of his retirement recently.

Foreign Practice Diplomas.—The University of Hamburg has organized courses to fit a physician to practice in a foreign land. The examinations are not on professional topics but on countries (Spain, Spanish America, the Netherlands, Sweden, Denmark and Norway). The candidates are examined in the language of the country, its history, political and intellectual development, civics, etc., with tropical or other special medicine as an optional course. The university has arranged courses to conform to these *auslandsdiplomprüfungen* to prepare both theoretically and practically for establishing a practice in a foreign land.

Personal.—Dr. J. Verdes Montenegro, a tuberculosis specialist at Madrid, has been commissioned by the Spanish minister of public instruction to investigate on the spot the measures adopted for the fight against tuberculosis in France and Germany.——The Italian military authorities recently presented Dr. E. Trombetta and Dr. S. Santucci, general and brigadier general, with an illuminated address and gold medal in appreciation of especial services rendered. They are ophthalmologists connected with the University of Turin.——A memorial tablet was recently unveiled in honor of the alienist, Dr. P. Repond, at the sanatorium Malevoz, of which he was the founder. It is the first time in Switzerland that the cantonal government ever inaugurated a memorial of the kind with official ceremonies.

The Netherlands Council on Pharmacy and Chemistry.—The third bulletin issued by the Rijks-Instituut voor Pharmaco-Therapeutisch Onderzoek appeared in June, and contained reports on twenty-five different proprietary pharmaceutical preparations, besides a group of iron preparations. It is the intention to publish an annual list of articles which stand accepted after thorough investigation. The *Bulletin* warns that any quotation from its publications by those sending in articles to be examined or others must always state the exact source of the quotation or state "Included in the annual list of articles accepted by the Rijks-Instituut voor Pharmaco-Therapeutisch Onderzoek." Research is under way on digitalis, arsphenamin, chenopodium oil, etc. Prof. L. van Itallie is the president of the council, and Dr. A. J. Steenhauer is secretary, both of Leiden. The whole work is modeled on that of the Council on Pharmacy and Chemistry of the American Medical Association, but the institute is proceeding only tentatively at first.

Deaths in Other Countries

Dr. **Arthur Ramsome,** formerly lecturer on biology at the University of Cambridge, England, and professor of hygiene at Owens College, Manchester; author of "Prognosis in Lung Disease" and associate editor of *Zeitschrift für Tuberkulose;* July 25, aged 88.——Dr. **Edward H. E. Stack** of Bristol, England, ophthalmologist; served in the R. A. M. C. during the World War; surgeon to the Bristol Royal Infirmary; in London, August 3, aged 55.——Dr. **John Maitland Forsyth,** representative on the medical council for the Straits Settlements and Federated Malay States of the British Medical Association; June 26, in Singapore.——Captain **N. N. G. C. McVean,** Indian Medical Service; July 21, aged 42.——Dr. **Arthur J. Harries,** formerly physician and lecturer on clinical dermatology, St. John's Hospital, London; pioneer of electrotherapeutics for diseases of the skin in England; July 28, aged 66.——Dr. **C. Scanardo** of Ravenna, victim of an assassin.——Dr. **A. Wiesinger,** long surgeon in chief of the Hamburg St. Georg Hospital, aged 71.——Dr. **A. Mégevand** of Geneva, aged 80, one of the founders of the Geneva Canton Medical Association.

CORRECTION

American Hospital Association.—The annual convention of the association will be held in Atlantic City, September 25-30, and not at West Baden, Ind., as previously announced.

Government Services

Bill Introduced for Removal of General Sawyer

Representative Ryan of New York introduced a resolution in the House this week calling for the removal of Brig. Gen. Charles E. Sawyer, private physician to President Harding, as chief of the coordination section of the U. S. Veterans' Bureau.

Departmental Reorganization Postponed

The Harding administration plan for the reorganization of the executive departments of the government, including the various bureaus devoted to medical and public health activities, will not be submitted in the form of proposed legislation to Congress this session. Indications to this effect were made at the White House this week. It was stated, however, that the Bureau of Coordination, of which Walter H. Brown is the head, is constantly at work on the task of overcoming difficulties and friction between the various departments affected by the proposed legislation. The announcement from the White House is in accord with the statements from time to time published in The Journal, to the effect that this reorganization could not be accomplished during the present Congress. It is known that this undertaking is one of the leading policies which President Harding hopes to establish during his administration, and he is personally disappointed that his plans have, because of the pressure of other legislation, failed thus far to reach fruition.

Legislator Blocks Appropriation for Leprosarium

Declaring that if the national government undertook the care of all persons suffering with leprosy in the United States it would soon be called on to care also for all tuberculous patients, Representative Stafford of Wisconsin blocked consideration of the bill providing funds for the erection of additional buildings at the National Leper Home at Carville, La., in the House, September 1. The bill came up under the unanimous consent calendar and was passed over as a result of the objection. In explaining his objection to the immediate consideration of the bill, which appropriates $650,000 for the leprosarium at Carville, Representative Stafford said:

> The national government had already provided an appropriation of $250,000 for the accommodation of 200 lepers at this leprosarium, which was opened for the reception of patients in March, 1921. There are 100 additional applications on file. The bill provides for 300 additional beds. If it is going to be the policy of the national government to take over all of the health activities of the government and that no health activities shall be prosecuted by the states, that the states, including those in the South, are to abandon their ancient doctrine of state rights in looking after the health and security and protection of their own, this appropriation will mount to not only a million but to many millions, and we will have the care of all tuberculous patients and every other invalid, by the national government.

Military Bill Passes House

The House Military Affairs Committee has reported favorably the bill introduced by Representative Anthony of Kansas, designed to remove restrictions under which the war department is operating in its task of reducing the commissioned personnel of the army to the strength provided in the recent annual appropriation bill. The Anthony measure makes mandatory the distribution of surplus army officers through demotions, thus overcoming the possibility of creating an additional officers' list and requiring the elimination of officers whose records made them particularly valuable. The committee acted promptly after it had heard Major-Gen. J. G. Harbord, deputy chief of staff, who said the present legislation was a result of a misunderstanding as to the recommendations of the department. The Anthony bill provides a minimum elimination of 880 officers from the army, to bring the total to 12,000, as required by law. It also provides that, in case of demotion, officers shall continue to receive the pay and allowances of their present grade. The measure after a short debate in the House of Representatives, September 1, was passed by a vote of 180 to 35.

Soldiers' Hospital Near Chelsea, N. Y.

Assistant Secretary of the Treasury Clifford has announced that the government has acquired the proposed soldiers' hospital site near Chelsea, N. Y., and that a preliminary contract for grading and excavation for the building has been awarded for $17,000. The property was purchased for the sum of $100,000. It is known as "Summerfields." The plot consists of 228 acres sloping back from the Hudson River to an elevation of 250 feet. On the property are orchards, gardens, a large residence and twenty-six other buildings. This site was chosen on the recommendation of the National Tuberculosis Association.

Dr. Adsitt on Hospitalization Board

Dr. Henry Adsitt, surgeon, Buffalo, N. Y., has been named chairman of the national hospitalization committee of the disabled American war veterans of the World War. He will represent the disabled veterans on the Federal Hospitalization Committee in charge of Brig. Gen. Charles E. Sawyer. General Sawyer agreed to place a representative of the disabled American veterans on the federal hospitalization board last week when Commander Cook and Adjutant Lasange conferred with President Harding and General Sawyer.

Bill for Disabled Emergency Officers

Emergency officers who incurred physical disability equal to 30 per cent. permanent disability, duly rated by the U. S. Veterans' Bureau, shall receive the same privileges accorded retired officers of the regular army, if this bill introduced by Representative Hill in the House finally becomes a law. A further provision in the measure gives such officers with less than 30 per cent. permanent disability the same privileges as retired officers of the regular army, but without retired pay. The bill also provides that payments of these compensations to disabled emergency officers under the terms of the proposed act shall be made by the U. S. Veterans' Bureau instead of the war department.

Gas vs. Tuberculosis

At the recent convention of the board of medical officers of the U. S. Army at Fort Grant, Ill., held for the purpose of examining all soldiers claiming disability from the effects of gas, 2,000 were examined. Following this examination, it was stated that gas victims, irrespective of the type of gas and the severity of the attack sustained, showed no marked predisposition toward active pulmonary tuberculosis, or toward the reactivation of a healed or quiescent pulmonary lesion; also, that gassed victims presented little evidence of material destruction of lung tissue.

Rehabilitation Division of U. S. Veterans' Bureau

At the sixteenth annual convention of the North Carolina State Federation of Labor, August 15, a resolution was passed, again pledging the assistance of the members toward aiding the U. S. Veterans' Bureau in finding suitable employment for trained veterans and rendering them every assistance in making good in the positions in which they are placed.

New Reserve Organization

Pursuant to instructions of the Secretary of War, June 27, the organization of a general hospital, organized reserves, to be known as General Hospital No. 60 (Iowa Methodist Hospital, Des Moines) was authorized, it is announced by the Surgeon-General.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Aug. 18, 1922.

Training of Medical Social Workers

The purpose of the Ecole des infirmières de l'assistance publique is to train social workers for the hospitals and municipal lodging houses administered by the Assistance publique (public charities) of Paris. The initial annual salary for such workers, after two years of study, is 4,850 francs (when lodging is not furnished), to which is added a bonus on account of the high cost of living (at present 730 francs), and a residence bonus of 1,200 francs for the region of Paris. During the course of their preparation, pupils receive their board and room and laundry. For the first year they receive an annual salary of 730 francs and for the second year, 1,095 francs, together with a residence bonus of 485 francs a year and a bonus, to cover the high cost of living, of 438 francs a year. Candidates for appointment must be unmarried and between the ages of 19 and 26. The course of study at the school includes: anatomy, physiology, administration, hospital management and discipline, hygiene, pharmacy, massage, electrotherapy, roentgenotherapy, theoretical and practical instruction in the care of patients suffering from affections of a medical or surgical nature, in the management of the insane, contagious cases, the aged, incurables, children, parturients and the new-born; dissection, theoretical and practical instruction in laboratory work, ward service, office service, in the preparation of decoctions, beverages and light dishes for the sick.

The Michelin Prize

The national alliance to promote an increase in population is planning a competitive contest with prize awards totaling 120,000 francs for the best essays setting forth the critical demographic situation in France and the best means of combating the danger. The first prize is 50,000 francs; the second, 10,000 francs; the third, 8,000 francs, while the balance of the 120,000 francs will be distributed in small sums. The essay which is awarded the first prize will be printed by the national alliance and 500,000 copies will be distributed throughout the country.

The competitors will deal more especially with the following topics, but they will not be confined to these:

A. The evil as it exists: (1) the decrease of the birth rate in France, during the past century; the inevitable further decrease in the future if the most energetic measures are not adopted, and (2) the dangers that lurk in the fall of the birth rate and the catastrophe that threatens not only the life of the nation but also the individual.

B. The proposed remedies: (1) the respect due to large families and the advantages that they deserve; (2) the reforms needed to raise the birth rate—at the price of financial sacrifices, if necessary; if by the expenditure of certain sums an increase in the number of births can be brought about, no money could be better expended, and (3) instruction in the matter of the moral, social and patriotic duty of paternity and maternity—their joys and their rewards.

A Monument to Yves Delage

A committee has been appointed to open an international subscription for the erection of a monument to the memory of Dr. Yves Delage, who held a professorship in the Sorbonne and whose death was recorded in The Journal, Nov. 27, 1920, p. 1510. The colleagues and friends of Delage think this memorial should be erected at Roscoff by the side of the monument of Henri de Lacaze-Duthiers, in the vicinity of the maritime laboratory where Delage conducted so many important researches. The committee, on which many French and foreign biologists are serving, will be supported in its endeavor by Monsieur Leon Berard, minister of public instruction; Monsieur Appell, rector of the Academy of Paris, and Dr. Roux, director of the Pasteur Institute. Those wishing to subscribe to the undertaking are requested to send their contribution, as soon as possible, to Mlle. L. Dehorne, treasurer of the committee, Laboratoire de Zoologie à la Sorbonne, 1 Rue Victor Cousin, Paris (Ve Arr.)

Progress in Aviation in the Army Medical Service at Morocco

In a previous letter (The Journal, Jan. 14, 1922, p. 123) I referred to the transportation of wounded by aeroplane. According to the most recent information, transportation by aeroplane of the wounded and sick has become the normal method of evacuation. The aeroplane serves also, in case of emergency, for the transference of personnel and equipment. Between May 29, 1921, and April 20, 1922, 103 evacuations by aeroplane were effected, which signifies sixty-five separate flights and a distance of 6,070 kilometers covered. No accidents of a medical or mechanical character have happened.

BERLIN

(From Our Regular Correspondent)

Aug. 12, 1922.

Lessened Ability to Distinguish Colors as a Sign of Fatigue

As the result of the systematic examination of athletes following various forms of physical exertion, it has been shown that as the body becomes fatigued the ability to distinguish colors becomes much diminished. According to Boehmig, who has an article on the subject in the *Münchener medizinische Wochenschrift,* certain subjects who, when examined immediately before the physical performance, were found to possess a perfectly normal ability to distinguish colors, were unable, after the body became fatigued, to recognize the color of very small red and green objects, and some presented transient scotomas, which, however, were of a mild sort, so that the subjects were frequently not aware of their existence. In the case of heavy smokers and those addicted to alcohol, the manifestations appeared in a more marked form. The so-called fatigue substances will doubtless have to be assumed to be the cause of this hitherto unobserved disturbance of color vision. I have reference to the waste products of metabolism that collect in the muscular tissue following muscular activity and that cause the well known painful feeling in muscles that have been used to the limit. As a rule, these fatigue substances are removed from the muscular tissue through the blood stream, the skin, the kidney and the intestine, and are eliminated from the body. If the muscular work is prolonged, large quantities of the fatigue substances collect in the muscles or the blood stream; and since in this case elimination cannot proceed so rapidly, their harmful effect is noted, and the subject feels tired and exhausted. Certain investigators have regarded lactic acid as the main fatigue substance; others have postulated phosphoric acid, either free or combined, with acid salts. Their actual effect has been demonstrated by noting that when the blood of fatigued animals is injected into healthy resting animals distinct symptoms of bodily exertion and fatigue are produced.

Hypnosis and Mental Disease

Professor Siemerling, director of the psychiatric clinic in Kiel, has published an interesting study in the *Archiv für Psychiatrie* on the relationships between hypnotism and mental disease, in which he gives a critical discussion of the general value of hypnosis as a therapeutic remedy. All writers on the subject are taking a strong stand against the misuse of hypnosis, opposing especially all public demonstrations. Even Lombroso, who in general is an ardent advocate of hypnotism, warns against its misuse. He holds that the state has just as much justification to intervene and prohibit public demonstrations of hypnotism as it has to adopt measures against the misuse of narcotics and other methods of influencing the nervous system by artificial means. Siemerling emphasizes that no matter what conception one may take in regard to the essential nature of hypnosis it must ever be considered as a psychic trauma, and in every instance great care should be taken to determine whether the person who is to be subjected to hypnotic treatment is in condition to withstand such a trauma. When employed by a skilled physician, hypnotism may do good, just like any other therapeutic remedy, but it offers no guarantee of being unconditionally superior to other therapeutic measures. In the matter of hypnosis, we are entering a field in which exaggeration, deception and self-deception play an important part. This fact should never be lost sight of in estimating the curative effects of hypnotism. Several cases have been reported in the literature in which subjects are said to have been so strongly influenced by hypnosis that they surrendered their will absolutely to the operator. In all these cases, however, especially if a sexual factor enters in, considerable doubt may be entertained whether hypnosis was even needed to attain such a result. It is an established fact that in the case of persons who are especially open to suggestive influences, hypnosis is not an absolute requisite. Siemerling has observed many cases in which the absolute surrender of will had a sexual basis. Other observations show that even without hypnotic influence there may be marked subjection to the will of another person. In view of the strong influence that may be exerted by hypnotism, Siemerling thinks it is very unwise to think of using hypnotic methods to secure evidence in court from witnesses, either with their consent or against their will.

Social Insurance in Germany

According to the government report, government accident insurance was accorded in 1920 to sixty-seven different industries operating 804,711 plants and employing 9,537,350 persons. The total number of accidents reported in 1920 was 591,922, 9,338 of which were fatal, while 659 resulted in permanent total incapacitation. The number of accidents with fatal outcome has decreased somewhat. The report on the amounts paid to the sick and incapacitated, as well as to the families of the insured, shows a considerable increase over previous years.

Marriages

Romeyn Treadwell Allen, Schenectady, N. Y., to Miss Francis Colver Braley of Glens Falls, N. Y., August 19.

Paul Farr Russell, New York, to Miss Phyllis Hope Addition at Owl's Head, Me., August 10.

Frederick Alfred Wurzback, Jr., New York, to Miss Lula Early of Corbin, Ky., recently.

Eli L. Levin, Indiana Harbor, Ind., to Miss Anne Goldstein of Atlanta, Ga., September 3.

Alfred C. Wood to Dr. Dorothy Donnelly, both of Philadelphia, August 24, in Paris.

John W. Conwell to Miss Helen Bullock, both of Cleveland, July 27, at Cadiz.

Judson P. Pendleton, Brooklyn, to Miss Elsie M. Lyon of Bangor, Me., August 2.

John W. Means, Columbus, to Miss Madelaine Butler of Plain City, August 3.

E. B. Walker to Miss Geneva Wilson of Mayfield, Ky., June 15.

Deaths

Alexander Righter Craig, Secretary of the American Medical Association since 1911, died of uremic poisoning while on his vacation at Port Deposit, Maryland, September 2, aged 54. Dr. Craig was born in Columbia, Pa., July 31, 1868, the son of Dr. Alexander Craig and Eleanor Margaretta Righter Craig. He received his A.B. degree from Franklin and Marshall College, Pennsylvania, in 1890, the A.M. degree in 1893 and the M.D. from the Medical Department of the University of Pennsylvania in 1893. In 1920 he was granted the honorary degree of Doctor of Science by Franklin and Marshall College, his alma mater. Following his graduation in medicine Dr. Craig served as resident physician at the Philadelphia Polyclinic Hospital, 1893 to 1894. He then practiced in Philadelphia until 1895 and in Columbia, Pa., from 1895 to 1906, when he removed to Philadelphia and continued practice until 1911. At the Los Angeles Session, in 1911, he was elected Secretary of the American Medical Association; this election was the culmination of many years of service to organized medicine. He had served Pennsylvania continuously in the House of Delegates from 1903 to 1910, and had been a member and chairman of many important committees. At three different Sessions he was Chairman of the Committee on Amendments to the Constitution and By-Laws, aiding greatly in the production of the Constitution under which the Association now operates. He was also Chairman of the Committee on Reports of Officers, in 1909. Since 1911, Dr. Craig has devoted his entire time to the work of the American Medical Association. He considered his vocation in the nature of a call for service much as would a minister who had been called to a religious undertaking. He was a member of the American Academy of Medicine and president in 1912, and a member of the American Academy of Ophthalmology and Otolaryngology. Dr. Craig was active in religious and social work, serving as elder and chief clerk of the sessions of the Fourth Presbyterian Church in Chicago. Two years ago Dr. Craig underwent an operation for removal of the gallbladder following a series of severe attacks of cholecystitis. He recovered satisfactorily and returned to his work with renewed ambition. During the St. Louis Session of the Association he demonstrated an efficiency in aiding the conduct of the Section Meetings and of the House of Delegates which met the unanimous commendation of all who attended the Session. His reelection at this Session to the office of Secretary was voted with enthusiasm. Following his return from St. Louis he continued his work, but had complained during August of severe attacks of gastric disturbance. On August 25 he left for his vacation at the family farm in Port Deposit. Telegrams announcing his death, September 2, were the first intimation had of his serious illness. The funeral was held at Port Deposit, Md., September 6. Dr. George E. de Schweinitz, President, represented the Association at the funeral. Dr. Craig was universally loved, a man with never a harsh word, calm, self-effacing, reticent, and withal a marvel of efficiency in his chosen work.

Alexander Righter Craig, 1868-1922

Otto Juettner, Cincinnati; Medical College of Ohio, Cincinnati, 1888; professor of clinical medicine and physical therapeutics, Cincinnati Polyclinic and Post-Graduate School, 1909; member of the American Electro-Therapeutic Association, American Physio-Therapeutic Association, Royal Society of Medicine (England), member of the London Roentgen Society, corresponding member of the German Roentgen Society, member of the Société de radiologie et electrologie (Paris), Academie Physico-Chimique Italienne; author of "Modern Physio-Therapy," "Songs of the University of Cincinnati," and other works; served in the M. C., U. S. Army, with the rank of captain, during the World War; died, August 25, aged 57.

Lee Benjamin Clarke ⊕ Atlanta, Ga.; Medical College of the State of South Carolina, Charleston, S. C., 1897; associate professor of medicine, pediatrics and clinical diseases of children, Emory University School of Medicine, Atlanta; on the staffs of the Grady Memorial, and the Wesley Memorial hospitals; formerly president of the Fulton County Medical Society; died, August 24, aged 54, from paresis.

Theron Yeomans Sutphen ⊕ Newark, N. J.; Bellevue Hospital Medical College, New York, 1873; member of the American Academy of Ophthalmology and Oto-Laryngology, American Ophthalmological Society and the American Otological Society; on the staff of St. Michael's Hospital; aged 72; died, August 24, in Maine.

Joseph Johnson Holt, New Orleans; New Orleans School of Medicine, 1861; member of the Louisiana State Medical Society; Confederate veteran; formerly professor of obstetrics at the New Orleans School of Medicine; at one time president of the Louisiana State Board of Health; died, August 23, aged 82.

Godfrey W. Rautenberg, Staten Island, N. Y.; Medical Department of the University of the City of New York, 1886; member of the Medical Society of the State of New York; died, August 21, aged 63, from inflammatory rheumatism with heart and kidney complications.

Frederic Milford Pendleton, Quincy, Ill.; Rush Medical College, Chicago, 1883; member of the Illinois State Medical Society; aged 63, died, July 6, at the Presbyterian Hospital, Chicago, following an operation for bladder trouble.

George M. Hamilton, Weston, W. Va.; Jefferson Medical College, Philadelphia, 1889; member of the West Virginia State Medical Association; formerly city health officer and county coroner; died, August 20, aged 61.

Henry Hannum, Bayfield, Wis.; Rush Medical College, Chicago, 1881; member of the State Medical Society of Wisconsin; in the Indian Service; died at the home of his son in Muskegon, Mich., August 16, aged 67.

William J. Stephenson, Decatur, Neb.; Medical College of Indiana, Indianapolis, 1886; member of the Nebraska State Medical Association; died recently, aged 70, from cerebral hemorrhage.

Levi Allen Neiman ⊕ Brooklyn; Baltimore Medical College, 1897; on the staff of the Lutheran Hospital; died, August 25, aged 60, from streptococcus septicemia and endocarditis.

William S. Scott, Dickson, Tenn.; Vanderbilt University Medical Department, Nashville, 1876; member of the Tennessee State Medical Association; died, August 22, aged 69, from paresis.

Adolf L. Korn, Joplin, Mo.; University of Tübingen, Germany, 1902, member of the Missouri State Medical Association; on the staff of St. John's Hospital; died, August 16, aged 44.

Robert Charles McManus, Lancaster, S. C.; Medical Department of the University of the City of New York, 1881; died, August 9, aged 63, from carcinoma of the stomach.

Elnora Gilson Whitmore, Topeka, Kan.; Woman's Medical School of Northwestern University, Chicago, 1894; member of the Kansas Medical Society; died, August 19, aged 56.

Samuel Maxwell Johnson, Brooklyn; Bellevue Hospital Medical College, New York, 1880; for twenty years police surgeon in New York; died, August 17, aged 66.

Samuel D. Cameron ⊕ Yakima, Wash.; Manitoba Medical College, Winnipeg, Man., Canada, 1899; was found dead in his office, August 19, aged 50, from heart disease.

John Emmet Rheim ⊕ Mora, Minn.; Northwestern University Medical School, Chicago, 1910; died, July 31, aged 36, from acute dilatation of the heart.

Benjamin Pomeroy Wright, Schenectady, N. Y.; University of Michigan Medical School, Ann Arbor, 1885; also a numismatist; died, August 4, aged 64.

Marshall M. Chandler, Greenville, Texas; University of Nashville Medical Department, Nashville, Tenn., 1874; died, July 8, aged 83, from paresis.

Henry Hale Brotherlin ⊕ Hollidaysburg, Pa.; Jefferson Medical College, Philadelphia, 1883; died, August 20, aged 62, following a long illness.

John Aaron Rawlins ⊕ Davenport, Iowa; Rush Medical College, Chicago, 1888; died, August 18, aged 56, at Ainsworth, Neb., from paresis.

Martin E. Thomas, Paducah, Ky.; Memphis Hospital Medical College, Memphis, Tenn., 1898; aged 48; was found dead on the street, August 20.

Donald E. MacPhail, Dayton, Ohio; University of Michigan Medical School, Ann Arbor, 1914; died, July 4, aged 32, from lobar pneumonia.

Gerson Strauss, New Haven, Conn.; Baltimore University School of Medicine, 1895; died, August 11, aged 55, from cerebral hemorrhage.

Charles S. Horning, Norristown, Pa.; Hahnemann Medical College of Philadelphia, 1881; died, August 16, from locomotor ataxia.

John Elwyn Cochrane, Valatie, N. Y.; University of Vermont College of Medicine, Burlington, Vt., 1893; died, June 26, aged 51.

Elmer Ellsworth Curl, Degraff, Ohio; Jefferson Medical College, Philadelphia, 1889; died, August 13, aged 60, from diabetes.

Thomas Croston, Lucas, Ia. (licensed, Iowa, 1886); for fifty years a member of the school board; died, August 12, aged 76.

Joseph C. Purdy, Terhune, Ind. (licensed, Indiana, 1897); died, August 15, aged 67, from chronic nephritis.

B. F. Kiester, Dayton, Ohio; Medical College of Ohio, Cincinnati, 1875; died, August 21, aged 74.

Correspondence

SANITATION IN PANAMA

To the Editor:—In The Journal, August 5, under "Medical News," you quote the Panama *Star and Herald* to the effect that an epidemic of malaria has developed among Canal Zone employees, and that breeding places of mosquitoes, which had been sprayed with oil the year round, are now neglected, with the result that there are now more mosquitoes on the Isthmus than ever before, since sanitation days; also that Ancon Hospital is overcrowded with malaria patients.

I believe your readers will appreciate the truth regarding these reports, which have had a widespread circulation in United States papers. The statements of the Panama *Star and Herald,* published June 18, 1922, may be categorically denied:

There is not an epidemic of malaria among the employees of the Panama Canal.

Breeding places of mosquitoes, formerly sprayed with oil the year round, are not now neglected.

There are not more mosquitoes on the Isthmus than ever before since sanitation days, but indeed far less than in any previous year. Observations made and records kept for the last twelve years abundantly prove this.

Ancon Hospital is not overcrowded with malaria patients, there being not only fewer cases than the average number in former years, but, even when the reduction of Panama Canal forces is considered, the relative number is less than the average of former years.

After the appearance in the Panama *Star and Herald* of the article you quote, there were others of similar tenor, and on June 21 the governor of the Panama Canal published this statement:

THE PANAMA CANAL
Canal Zone
EXECUTIVE OFFICE

Balboa Heights, C. Z., June 21, 1922.

To All Concerned:

Certain unauthorized, entirely inaccurate, and apparently malicious statements regarding the malaria situation and the work of the Health Department of the Panama Canal have been appearing recently in the daily press.

Even a carefully prepared statement of the chief health officer and other interviews have been published in a garbled manner under misleading headlines so as to give a different impression from that intended.

The known facts do not justify any undue alarm, nor are sanitary conditions on the Isthmus any worse, but rather better, than in former years at this season. The statistics of the health department, which are carefully recorded and are always available to interested inquirers, fully indicate the true condition.

At the beginning of each rainy season there is a natural increase of mosquito breeding, lasting through a couple of months, the most prevalent variety being a harmless, though vicious biter called *Aedes taeniorhynchus.* Anopheles, or malaria bearing mosquitoes, are kept under adequate control near our residential sections at all times.

The funds of the health department have been greatly curtailed in recent appropriations, but in anticipation of just such an eventuality, for several years past the division of sanitation has been carrying out a policy of eliminating by subsoil drainage large areas that had required maintenance, so that the present era of economy finds this division well prepared to cooperate to the fullest with the national policy of retrenchment. No vital element of sanitation is being sacrificed in doing so.

Grass cutting about quarters, while extremely desirable from an esthetic point of view, and as a measure of general policing, plays no part in the control of mosquito breeding, it being much more the part of wisdom to spend available public funds on drainage and control of areas in which mosquitoes are actually produced. This is being done, and it is believed our residential sections are thereby now even better protected than they were formerly.

There is not a case of blackwater fever in any of the Panama Canal or other hospitals, nor has there been a case originating on the Isthmus for several years. However, the type of malaria most prevalent in Panama at all times is a very serious type, unless promptly treated, and should never be disregarded. Under prompt and adequate treatment it is usually easily and permanently cured.

The health department has frequently issued warnings to the public of the danger of contracting malaria by visiting unsanitated areas after sundown, and this caution is again urged here. Beach parties. jungle trips and expeditions to native villages are safe and proper pleasures during daylight hours, but after nightfall, and especially in the rainy season, such unwarranted exposure is the height of imprudence.

Jay J. Morrow, Governor.

On July 5 there appeared in the New York *Times* an interview with Mr. W. C. Hushing, the representative of the Canal Zone union workers at Washington, D. C., in which even more fantastic statements regarding health conditions were uttered and graver charges made against officials of the government and the Panama Canal. The governor branded Mr. Hushing's statements as false and discharged him from the Panama Canal employ (that of pattern maker and member of the wage board). Back of this controversy lies a complex situation, a knowledge of which is necessary to a complete understanding of the attack on the administration and the health department of the Panama Canal.

TABLE 1.—INCIDENCE OF MALARIA AMONG EMPLOYEES FOR THE LAST FOUR YEARS

	Rate per Thousand per Annum Among Employees
Fiscal year 1919	29.64
Fiscal year 1920	25.00
Fiscal year 1921	18.10
Fiscal year 1922	15.39

TABLE 2.—MALARIA INCIDENCE PER THOUSAND EMPLOYEES OF THE PANAMA CANAL

Month	1918	1919	1920	1921	1922
January	2.53	2.95	2.62	1.52	1.08
February	2.54	3.57	1.51	1.21	1.29
March	2.03	4.34	1.57	1.19	0.56
April	2.24	1.66	0.22	0.37	0.28
May	1.86	2.72	0.36	0.72	1.65
June	1.50	3.53	2.44	1.69	1.96
July	1.66	7.04	1.97	1.89	....
August	1.93	3.15	2.75	1.87	....
September	0.98	2.06	2.31	1.13	....
October	0.76	1.03	2.36	1.01	....
November	1.51	1.48	1.25	0.88	....
December	3.40	2.00	1.17	1.37	....

In June, 1921, a Special Panama Canal Commission, appointed by the Secretary of War, arrived on the Isthmus to

> investigate and report upon existing conditions relating to the care, maintenance, sanitation, operation and government of the Panama Canal and Canal Zone, including all matters affecting the Panama Railroad and the Panama Railroad Steamship Line, and to make recommendations relative to any changes in such conditions affecting the organization, government, and operation of the Panama Canal and Canal Zone, and the operations of the Panama Railroad Company.

This commission submitted to the Secretary of War a full report, with recommendations for the operation of every department of the Panama Canal. Many of their findings and recommendations were in accord with previous ones, and these and others received the approval of the Secretary of War and were placed in operation. Principally affecting, and objected to by, the employees was the order requiring them to pay rent on quarters and the cost of care of grounds immediately about their quarters, garbage collection, fuel, light, subsistence while in hospital, etc., all of which they had hitherto enjoyed free.

Also among the recommendations of the special commission was the following:

> It is recommended that the amounts expended for sanitation in the Canal Zone be greatly reduced and if as a result the sick and death rate from malaria rises above the average in twenty of the largest cities of the United States, the sanitary precautions may be increased.

This recommendation was not accepted by the Secretary of War and was not put into effect or included in the published report of the commission, although it was published in the daily papers on the Isthmus and elsewhere and aroused much unfavorable comment. Instead of this recommendation, the Secretary of War ordered as follows:

> The amounts expended for sanitation in the Zone shall be reduced as much as possible consistent with maintaining the necessary sanitary precautions requisite for the preservation of the health of American employees in tropical service.

This is the policy actually pursued by the health department for some years past.

Following the imposition of the charges outlined above, the employees attempted to obtain relief through the courts here and in the United States, but these ruled they had no jurisdiction, and the employees then decided to appeal to Washington, and sent for that purpose Mr. Hushing and another to represent them at the capital. Here, too, their efforts ended in failure, and then began, first on the Isthmus and later in the United States, the publication of these articles regarding health conditions on the Canal Zone. In the minds of the American people, the Panama Canal is a great monument, first to the skill, initiative and ability of their engineers, and second, but in no less degree, to the far seeing wisdom, self-devotion and courage of their medical and sanitary officers. General Gorgas reaped a well deserved meed of fame and devotion from his own and other nations. Herein lies the secret of the recent attack on health conditions. The employees of the Panama Canal wanted the ear of the people, that they might not voice their complaints unheeded, and in this at least they appear to have succeeded.

Unfortunately (for them) their assertions regarding health and sanitation are as easy to disprove as they would be had they stated that the Panama Canal was failing to operate in a physical way—that ships are not put through on time or are endangered in their passage. In no other disease are cases reported, investigated and followed up more closely than in malaria. The accompanying tables show the incidence of malaria among employees for the last four years.

Were these figures separated for white and colored employees, the white rates would be even better than the totals. Owing to lack of work, many colored employees are engaged by the canal only a small portion of their time, and when not so employed they are roaming about, seeking food and small jobs, in various places outside the sanitated districts.

There was a definite increase in 1921 and 1922 in the total number of malaria cases on the Zone among nonemployees of the canal (including army and navy forces as well as others), but this cannot in any way be ascribed to a fault of the program of sanitation. The army, which shows the greatest increase, has been engaged from time to time in very necessary maneuvers and reconnaissances in the unsanitated parts of the Zone and the Republic of Panama, resulting, for a time at least, in a heavy malarial infection. The Canal Zone has recently been opened to repopulation by discharged former colored employees, who have been allotted for agricultural purposes small tracts of uninhabited land remote from the canal settlements and towns, and these too are now furnishing—as was expected—a number of malarial infections.

I think I have written enough to show the fallacy of the published accusations against the health administration of the Canal Zone. Were they true, I should be among the first to protest publicly against the commission of so great a crime.

D. P. Curry, M.D., Balboa Heights, Canal Zone.
Acting Chief Health Officer.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CHENOPODIUM OIL

To the Editor:—In all cases of proved intestinal infestation with parasites, I give chenopodium oil. Its effects are really wonderful. No intestinal parasite stands against it. There are, however, two serious objections to its use, namely, its odor and its taste. Patients, both adults and children, take it with much distaste, and the majority vomit it, losing its benefit.

V. Rodríguez Arjona, M.D., Mexico.

Answer.—This objection has apparently been obviated by giving the drug in freshly prepared, hard gelatin capsules (Darling, Barber and Hacker: Hookworm and Malaria Research in Malaya, Java, and Fiji Islands, Pub. 9, International Health Board, 1920. Darling, S. T., and Smillie, W. G.: The Technic of Chenopodium Administration in Hookworm Disease, The Journal, Feb. 12, 1921, p. 419.

Royer, E. R.: Hookworm and Other Intestinal Parasites in Ecuador, The Journal, Dec. 18, 1920, p. 1702). In some of Royer's cases, vomiting was apparently due to the administration of chloroform in castor oil following the treatment, and the trouble did not recur when magnesium sulphate was substituted. In children the dosage must, of course, be graded according to the age, and the drug may also be administered in a teaspoonful of granulated sugar. In hospital cases, an intestinal tube may be used, such as the one described by Kantor in The Journal, Oct. 18, 1919, p. 1181.

"THE BLOOD DURING WATER TRANSPORT"

To the Editor:—I am much interested in the editorial on "The Blood During Water Transport" (The Journal, August 5, p. 477). I enclose a reprint appearing recently which answers some of the questions raised in that editorial. It is probable that the title of this reprint was not properly worded, and therefore the writer of the editorial was not familiar with these experiments, which show that copious water drinking increases appreciably the plasma volume of dogs.

G. H. Whipple, M.D., Rochester, N. Y.

Answer.—In the editorial referred to by our correspondent, it was pointed out that, despite great variations in the water output from the body, it is a rarity to detect even minute changes in the electrical conductivity of the serum, a factor susceptible of being measured with a considerable degree of accuracy. At any rate, the changes, if they occur, are so slight and inconstant that they cannot be connected definitely with changes in the intake of water which might well be expected to produce alterations in the composition of the blood. It was pointed out, however, that the facts on record do not contradict the possibility of some changes in the relative volume of plasma and corpuscles or in the total volume of the circulating blood. The very recent studies which Whipple and his associates at the University of California Medical School made on animals show that copious water ingestion does distinctly increase the plasma volume. When the amount of water taken into the stomach was large the increment amounted to as much as 40 per cent. in some cases. Active diuresis was established. Strangely enough, short periods of active exercise leading to considerable fluid loss from the body did not modify the total plasma volume.

HEALTH OF THE AMERICAN INDIAN

To the Editor:—Please give a list of the literature dealing with the health of the American Indian and the United States Indian Medical Service.

B. H. Frayser, M.D., Fort Harrison, Helena, Mont.

Answer.—

Contagious and Infectious Diseases Among the Indians, U. S. Public Health Service, 1913.
Hoffman, F. L.: Conditions in the Indian Medical Service, Prudential Life Insurance Company of America.
Moodie, R. L.: Surgery and Disease Among the Pre-Columbian Indians of North America, *S. Clinics,* Chicago **4**: 1091 (Oct. 20) 1920.
Indian Babies: How to Keep Them Well, Government document, Interior Department, 1916.
Safford, W. E.: Narcotic Plants and Stimulants of the Ancient Americans, Smithsonian Institution.
Hrdlicka, A.: Goiter Among the Indians Along the Missouri, *Science* **44**: 203 (Aug. 11) 1916.
Government Health Work Among the Indians, *Outlook* **114**: 168 (Sept. 27) 1916.
Murphy, J. A.: Work of the U. S. Indian Medical Service, *Survey* **33**: 444 (Jan. 23) 1915.
Maxwell, H.: Indian Medicines, *Scient. Am. Supp.* **86**: 100 (Aug. 17) 1918.
Eastman, C. A.: The Indians' Health Problem, *Pop. Sc.* **86**: 49 (Jan.) 1915.
U. S. Joint Commission on Indian Tuberculosis Sanitarium and Yakima Indian Reservation Project, Impounding Waters and Indian Tuberculosis Sanitarium, 1914 (Supt. of Doc.).
Brand, L. F.: Modern Medicine Man, *Survey* **47**: 218 (Nov. 5) 1921.
Ancient Botany of the Zuñi Indians, *Scient. Am. Supp.* **82**: 197 (Sept. 23) 1916.

Additional references can be obtained by writing to the Superintendent of Government Documents, Washington, D. C., or to the Superintendent of Indian Affairs, Interior Department, Washington, D. C.

Rapid Recovery.—An important contribution to the discussion as to the etiology of war neuroses was the statement made by Major General Ireland to the Senate Committee on Military Affairs, that of the 2,500 cases of shell shock awaiting transportation to the United States, 2,100 recovered within a day or two after the armistice was declared.—May, *Mental Diseases,* 1922.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

California: Sacramento, Oct. 16-19. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.
District of Columbia: Washington, Oct. 10. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.
Florida: Tallahassee, Oct. 10-11. Sec., Dr. W. M. Rowlett, Tampa.
Georgia: Atlanta, Oct. 10-12. Sec., Dr. C. T. Nolan, Marietta.
Hawaii: Honolulu, Oct. 9-12. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.
Idaho: Boise, Oct. 3. Director, Mr. Paul Davis, Boise.
Illinois: Chicago, Oct. 10-12. Supt. of Registration, Mr. V. C. Michels, Springfield.
Kansas: Topeka, Oct. 10. Sec., Dr. A. S. Ross, Sabetha.
Massachusetts: Boston, Sept. 12-14. Sec., Dr. Samuel H. Calderwood, State House, Boston.
Michigan: Lansing, Oct. 10-12. Sec., Dr. Beverly D. Harison, 504 Washington Arcade, Detroit.
Minnesota: Minneapolis, Oct. 3-5. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.
Montana: Helena, Oct. 3. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
New Jersey: Trenton, Oct. 17-18. Sec., Dr. Alexander MacAlister, State House, Trenton.
New Mexico: Santa Fe, Oct. 9-10. Sec., Dr. R. E. McBride, Las Cruces.
New York: Albany, Buffalo, New York and Syracuse, Sept. 25-28. Ass't, Professional Examinations, Mr. Herbert J. Hamilton, State Education, Albany.
Oklahoma: Oklahoma City, Oct. 10-11. Sec., Dr. J. M. Byrum, Shawnee.
Porto Rico: San Juan, Oct. 3. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.
West Virginia: Huntington, Oct. 10. State Health Commissioner, Dr. W. T. Henshaw, Charleston.

Minnesota April Examination

Dr. Thomas S. McDavitt, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, April 4-6, 1922. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 9 candidates examined, 8 passed and 1 candidate, an undergraduate, failed. Eighteen candidates were licensed by reciprocity. One candidate was licensed by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Johns Hopkins University		(1919) 90.3, (1921)	90.3
Harvard University		(1918) 89, (1919)	87.2
University of Pennsylvania		(1916) 91.6, (1917)	92
University of Toronto		(1915) 89.2, (1920)	89.9
	FAILED		
Undergraduate			43

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1921, 3)	Illinois
Indiana University		(1920)	Indiana
Iowa College of Physicians and Surgeons		(1895)	Iowa
State University of Iowa Coll. of Homeopathic Med.		(1906)	Iowa
Tulane University		(1921)	Louisiana
Medical School of Maine		(1906)	Maine
Johns Hopkins University		(1918), (1919)	Maryland
Detroit College of Medicine and Surgery		(1921)	Michigan
St. Louis University School of Medicine		(1918)	Missouri
Omaha Medical College		(1899)	Nebraska
Medical College of Ohio		(1897)	Vermont
University of Pennsylvania		(1919) Wisconsin, (1920)	Penna.
University of Pittsburgh		(1920)	Penna.
Wisconsin College of Physicians and Surgeons		(1909)	N. Dakota

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Syracuse University		(1920)	N. B. M. Ex.

District of Columbia July Examination

Dr. Edgar P. Copeland, secretary, Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, July 11, 1922. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Thirty-one candidates were examined, all of whom passed. Three candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University		(1921) 84.8, 87.6, (1922)	81.6, 81.6, 82.1, 82.1, 82.2, 84, 84.2, 85, 86.3, 88, 89.3, 89.7
George Washington University		(1921) 76.6, (1922)	80.7, 81.8, 81.8, 83.5, 85.2, 87.6
Howard University		(1921) 83.2, 84.3, (1922)	76.6, 80.3

Johns Hopkins University	(1922)	81.1
University of Maryland	(1922)	81
College of Physicians and Surgeons, Boston	(1921)	77.7
Fordham University	(1916)	81.6
University of Vermont	(1918)	81.5
University of Virginia	(1922)	85.2

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Howard University	(1892)	Virginia
College of Physicians and Surgeons, Baltimore	(1879)	Kansas
University of West Tennessee	(1914)	Tennessee

Book Notices

The Practice of Medicine in the Tropics. By Many Authorities. Edited by W. Byam, O.B.E., Lecturer on Tropical Medicine at St. George's Hospital Medical School, and R. G. Archibald, D.S.O., M.D., Director of the Wellcome Tropical Research Laboratories, Sudan Government, Gordon College, Khartoum. Volumes I and II. Cloth. Price, $75 per set of 3 volumes. Pp. 856, with illustrations. New York: Oxford University Press, 1921.

In two stately volumes published under the auspices of the British Fellowship of Medicine, the editors have prepared a system of tropical medicine to which practically all of the great English-speaking authorities of the world have contributed. The first volume is divided into six sections concerning hygiene and tropical sanitation, nursing, entomology, laboratory methods, snakes and snake poisoning, and toxicology. The second volume includes sections on differential diagnosis, bacterial diseases, and spirochetal and protozoal diseases. All of the articles are well worked up and profusely illustrated; the numerous color plates of tropical insects, snakes and plants being an exceedingly valuable feature. There are sixty-six color plates and almost 600 halftones and outline drawings in the two volumes. The American contributors include Bailey K. Ashford, who writes on "Ankylostomiasis"; C. C. Bass, "Rat-Bite Fever"; George E. Bushnell, "Tuberculosis in the Tropics"; H. R. Carter, "Yellow Fever"; C. F. Craig, "Imperfectly Differentiated Fevers"; Victor T. Heiser, "Plague"; H. S. Houghton, "Schistosomiasis"; L. O. Howard, "Non-Bloodsucking Diptera"; G. W. McCoy, "Leprosy"; G. M. Niles, "Pellagra"; Hideyo Noguchi, "Infectious Jaundice"; E. B. Vedder, "Deficiency Diseases," and S. B. Wolbach, "Rocky Mountain Spotted Fever." The two volumes contain as frontispieces portraits of Sir Patrick Manson and Professor Laveran. The books have excellent indexes both to the authorities cited and to the general subjects discussed. The preparation of these volumes has been an exhaustive and difficult task: they represent a great achievement in the literature of tropical medicine.

Reports of St. Andrews Institute of Clinical Research, St. Andrews, Fife. Volume I. Cloth. Price, $3. Pp. 208. New York: Oxford University Press, 1922.

In the town of St. Andrews, Fife, there has been organized under the leadership of Sir James Mackenzie a group of physicians whose primary object is research. The cooperation of the general practitioners of this town of 10,000 people has been secured, and the hope is that by united, concentrated study of the commoner diseases, particularly in their earlier stages, more may be learned as to their earlier stages, their progress, the means of recognizing them, of foretelling their course and, so far as possible, preventing them. These workers are attempting to get some semblance of order out of the chaos of poorly understood symptoms. They are seeking for simplicity, for underlying principles that may help in diagnosis and prognosis. The emphasis in their work is on the clinical as contrasted with laboratory investigation. They are aiming "to restore clinical medicine to the van of research." The papers in this report are admittedly incomplete. Some are astonishingly amateurish in content and manner of presentation. The commonplaces that Mackenzie and his followers have so often and so wearisomely reiterated are here once more repeated, and we are again informed that all the medical world save these chosen few have been, and are, entirely wrong in their views and in their practice. But in spite of these blemishes, partly pardonable in a first report, there flash out here and there sudden truths that make us reflect and see that these men are striving toward high ideals, that there is much of truth in what they think and say. And so we can heartily say an encouraging word and hope that later reports may show progress and encouraging approach to results. It is to be hoped, too, that leaders of this group will realize that not every general practitioner is competent to observe and to draw conclusions. Directors of laboratories know what a very small percentage of recent medical graduates are qualified to act, even under guidance, as research workers. The number of those fitted by nature and training to be reliable clinical investigators will be found to be very small indeed. Unless this is recognized, the results of the St. Andrews Institute will be disappointing. Among the papers may be mentioned three by Mackenzie: "An Address on Clinical Research," "The Theory of Disturbed Reflexes in the Production of Symptoms of Disease," and "Prognosis." Rowand discusses the "Present State of Medical Knowledge Regarding the Diseases Common Among the People" and also the "Scheme for the Investigation of Disease in Childhood." Paton has a paper on "Care-Taking Methods" and also one on a "Clinical Study of Influenza." Professor Herring writes on the "Sensations as Reflex Manifestations of Disease"; Ramsay on the Response of the Eye to Effort"; Waterston on "Observations upon Cutaneous Sensation"; James Orr on the "Response to Effort," in our judgment the clearest and most satisfying article in the volume.

Le Réflexe Pilomoteur. Étude Anatomo-Clinique sur le Système Sympathique. Par le Dr. André-Thomas, Médecin de l' Hôpital Saint-Joseph. Paper. Price, 25 francs, net. Pp. 242, with 86 illustrations. Paris: Masson et Cie, 1921.

This is a comprehensive study of the pilomotor reflexes in soldiers suffering from nerve lesions, chiefly of the spinal cord. In twenty-nine cases the author was able to check his clinical observations against findings at necropsy. On the basis of this information he has been able to construct a scheme of the arrangement of the pilomotor neurons—a field of work entirely new and of considerable clinical importance. The first chapter takes up the anatomy of the sympathetic nervous system and the physiology of the pilomotor reactions. The remaining chapters are devoted to the author's own observations, and contain numerous diagrams and tables showing the distribution of the pilomotor neurons. In transverse sections of the spinal cord there is blocking of impulses within the cord from segments above to segments below the lesion, and vice versa. If the skin is stimulated above the line of anesthesia, there is erection of the hairs in the dermatomes receiving pilomotor impulses from segments of the cord above the lesion. Some time after the injury, from several days to a few weeks, the segments of the cord below the lesion take on automatic activity. The pilomotor reflexes which can be elicited by stimulating the skin below the line of anesthesia are now of value in fixing the extent and lower limit of the lesion, the upper limit being determined by the line of anesthesia and the muscles which are paralyzed. The lower limit of the lesion can be determined, since it is known what dermatomes are supplied with pilomotor fibers by the various segments of the spinal cord.

Morfología y Biologia de los Protozoos. Por el Dr. E. Fernández Galiano, Catedrático de Histología y de Zoografía de Animales Inferiores en la Facultad de Ciencias de la Universidad de Barcelona. Paper. Price, 12 pesetas. Pp. 266, with 152 illustrations. Madrid: Calpe, 1921.

This is a compendium of available information on protozoa for the use of physicians and the public in general. While not quite up, either in scope or in handling, to the standard set by Minchen's classic, it presents in condensed and readable form a mass of information on a group of organisms, the full significance of which just begins to be appreciated. The book begins with a review of general characteristics and classification of protozoa; takes up the morphology of the most important species, motions, nutrition, reproduction and evolution, and in the last two chapters makes a general survey of the two points probably of most interest to the class the book is intended for: development of protozoa and their rôle as parasites. The many illustrations in the first part of the book are really interesting and valuable.

Medicolegal

Consideration of Character of Illegal Practitioner

(State v. Davis (Mo.), 238 S. W. R. 522)

The Springfield (Mo.) Court of Appeals, in affirming a conviction of the defendant of having unlawfully and wrongfully practiced medicine and surgery without having procured a license from the state board of health, says that the only error assigned in the defendant's brief on appeal was the exclusion of evidence offered by him showing his good reputation as a law-abiding citizen, and that the court failed to instruct the jury on this point. When the evidence was offered, the state admitted that the defendant's reputation for truth and honesty was good. But for the purpose of disposing of this appeal, the alleged error, if error, was not available to the defendant, because he, when placed on the witness stand, admitted that he had done the identical things which have been declared a violation of the statute under which he was charged. The question, therefore, of his guilt, was admitted. On the other hand, had the punishment for this admitted guilt, which was fixed by the verdict and judgment of sentence at the minimum established by the law, been greater than the minimum as fixed by statute, then the court thinks it would have been reversible error not to permit the jury to consider his previous good character; and the defendant would have been entitled to have attention called to such by instruction; all of which would have been matters for the consideration of the jury in fixing the amount of punishment to be given. But here was a defendant who, by his own admissions, convicted himself of violating the statute under which he was being tried, and who was meted out the least punishment fixed for such breach of the law. This court, therefore, fails to see wherein he could claim that the action of the trial court was prejudicial to him. It was not a case in which the guilt or innocence of the accused was in question, nor was he denied any right whereby his punishment might have been mitigated.

Ten Nonexperts and One Expert Against Two Experts

(Security Life Insurance Co. v. Black's Administrator (Ky.), 237 S. W. R. 1059)

The Court of Appeals of Kentucky, in affirming a judgment in favor of the plaintiff administrator on a policy of life insurance, says that the insurance company contended that the insured had made false representations in his application for the policy, these representations being that no member of his family ever had consumption. Two physicians who had attended the insured's father, who admittedly died of pneumonia, testified that in their opinion the father had tuberculosis of the lungs or throat for a long time before he died, and that they had treated him for that disease. It was on the testimony of those physicians that the company relied to sustain its burden of proving that the insured had falsely represented a material fact. Each of those physicians admitted, however, that the approved and best test for determining whether or not a person is afflicted with consumption is an examination of the sputum, and that this was not made. For the administrator ten neighbors of the father, who qualified as nonexperts, and one physician who frequently saw, but never treated, him, testified that, while never a robust man, he had not exhibited to them any of the well-known symptoms and evidences of this disease which is so prevalent and easily recognized that, when of long standing, it usually cannot be concealed from even casual acquaintances. The evidence for both sides as to whether or not the mother had consumption was virtually the same as with reference to the father. That the jury under the circumstances accepted the evidence of ten nonexperts and one expert witness rather than two expert witnesses, even though the latter had the better opportunity for observation, was not sufficient to enable this court to say that the verdict was so flagrantly against the evidence as to show clearly or at all that it was the result of prejudice or passion.

Validity of Provisions of Narcotic Drug Act

(Ex parte Bryson (Okla.), 205 Pac. R. 190)

The Criminal Court of Appeals of Oklahoma, in denying the petitioner a writ of habeas corpus and dismissing his petition for it, says that he represented that he had been arrested and was unlawfully held for an alleged violation of the narcotic drug act of that state of 1919, which he contended was unconstitutional. The purpose of the act is primarily to regulate the dispensing of narcotic drugs for medicinal purposes only, and in this connection makes it a felony for any person to violate the provisions of the act, among others of which is possession at one time of more than one dose of such drugs unlawfully acquired by any person who is not one of those excepted by the provisions of the act, and it is further provided that in charging the offense the exceptions contained in the act need not be negatived. In many of its provisions the act is similar to the federal act on the same subject, and also like those of many of the states. That in the exercise of the police power the legislature may regulate the sale and distribution of any drug in its nature poisonous, the use of which tends to debauch the public in the formation of a habit that undermines the physical, mental and moral constitution of its users, is no longer, this court thinks, a question of doubt. Nor does the court believe that the Oklahoma act is unconstitutional by reason of the provision in it that "it shall not be necessary to negative any of the aforesaid exceptions in any complaint, information or indictment" brought under the act, and the burden of proof of any such exemption or exception is put on the defendant; nor because of the provision that "any of such narcotic drugs found or discovered to be held or possessed by any person, firm or corporation except as permitted by this act shall be confiscated and delivered by the person or officer finding or discovering the same to the hospital of the medical department of the University of Oklahoma." It was contended that this was a taking of private property for public use without compensation, contrary to both the constitution of the United States and that of Oklahoma.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Minneapolis, Sept. 19-23. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Sec'y.
American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Albany, N. Y., Sept. 19-21. Dr. James E. Davis, 111 Josephine Ave., Detroit, Secretary.
American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. Louis J. Mitchell, 29 E. Madison St., Chicago, Secretary.
American Child Hygiene Association, Washington, D. C., Oct. 12-14. Miss G. B. Knipp, 111 Cathedral St., Baltimore, Md., Secretary.
American Electro-Therapeutic Association, New York, Sept. 19-22. Dr. Richard Kovacs, 223 E. 68th St., New York, Registrar.
American Public Health Association, Cleveland, Ohio, Oct. 16-19. Mr. A. W. Hedrich, 370 Seventh Ave., New York, Secretary.
American Roentgen Ray Society, Los Angeles, Sept. 12-16. Dr. H. E. Potter, 122 S. Michigan Ave., Chicago, Secretary.
Association of Military Surgeons of the United States, Washington, D. C., Oct. 12-14. Col. James Robb Church, M. C., U. S. Army, Medical Museum and Library, Washington, D. C., Secretary.
Colorado State Medical Society, Colorado Springs, Oct. 3-5. Dr. F. B. Stephenson, Metropolitan Bldg., Denver, Secretary.
Delaware State Medical Society, Dover, Oct. 9-10. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.
Indiana State Medical Association, Muncie, Sept. 27-29. Dr. Charles N. Combs, Terre Haute, Secretary.
Kentucky State Medical Association, Paducah, Oct. 16-19. Dr. J. A. McCormack, 532 W. Main St., Louisville, Secretary.
Medical Association of the Southwest, Hot Springs, Ark., Oct. 4-6. Dr. W. H. Bailey, 115 West 21st Street, Oklahoma City, Okla., Sec'y.
Minnesota State Medical Association, Minneapolis, Oct. 12-13. Dr. Carl B. Drake, Central Bank Building, St. Paul, Secretary.
Mississippi Valley Medical Association, Rochester, Minn., Oct. 10-12. Dr. Henry Enos Tuley, 244 Francis Bldg., Louisville, Ky., Secretary.
Missouri Valley, Medical Society of the, St. Joseph, Mo., Sept. 21-22. Dr. Charles W. Fassett, 115 E. 31st St., Kansas City, Mo., Secretary.
Nevada State Medical Association, Reno, Oct. 6-7. Dr. Horace J. Brown, Goldfield, Secretary.
New England Surgical Society, Burlington, Vt., Sept. 22-23. Dr. P. E. Truesdale, 151 Rock Street, Fall River, Mass., Secretary.
Pennsylvania, Medical Society of the State of, Scranton, Oct. 2-5. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.
Vermont State Medical Society, Burlington, Oct. 12-13. Dr. W. G. Ricker, St. Johnsbury, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

July, 1922, **164**, No. 1

*Actions of Atropin and Quinidin in Fibrillation of Auricles; Clinical and Experimental Studies. T. Lewis, London, Eng.—p. 1.
*Phenomena of Raynaud's Disease. J. A. Buchanan, Rochester, Minn.—p. 14.
*Spleen and Digestion. Study II. Spleen and Pancreatic Secretion. W. DeP. Inlow, Rochester, Minn.—p. 29.
Surgical Aspects of Disease of Biliary Tract. A. O. Wilensky, New York.—p. 44.
*Etiology of Pneumonia. R. L. Cecil, New York.—p. 58.
*Introduction of Antimeningococcus Serum by Cistern Puncture. Report of Case of Meningococcus Meningitis in Infant Aged Four Months Cured by This Method. A. G. Mitchell and J. J. Reilly, Philadelphia.—p. 66.
*Case of Disseminated Gummatous Sporotrichosis, with Lung Metastasis. L. M. Warfield, Milwaukee.—p. 72.
*Comparative Prognosis in Tuberculous Lesions of Right and Left Lung. Study of 1,048 Cases. B. P. Stivelman and N. C. Miller, Bedford Hills, N. Y.—p. 82.
*Blood in Cases of Chronic Nephritis Associated with Nitrogen Retention. B. N. Berg, New York.—p. 88.
Present Status of Treatment of Hay-Fever and Asthma. A. Vander Veer, Jr., Albany.—p. 97.
*Syphilitic Backache. W. Thompson, Omaha.—p. 109.
*Incidence of Cecal Tuberculosis with Pulmonary Tuberculosis. I. H. Levy and H. H. Haft, Syracuse, N. Y.—p. 115.

Action of Quinidin in Auricular Fibrillation.—Lewis shows that quinidin reactions, notable as they are, are to be explained if it is assumed that circus movements have become established in the auricles. The way in which observation and theory harmonize is sufficiently remarkable; this accord affords strong circumstantial evidence that the theory of circus movement is sound. The reactions of the heart to quinidin test a theory which, if true, is of fundamental consequence to conceptions of disordered rhythm. They are severe tests; nevertheless, the theory still holds good. Let the final verdict in regard to the usefulness of quinidin in therapeutics be what it will, and the outlook is by no means unhopeful, Lewis believes that the new knowledge gained from its reactions, the new lines of research which they have suggested and will continue to suggest, are far from negligible. Quinidin is not only testing new current theories, but it is bringing valuable confirmation of older conclusions. One of the most striking of these is its final proof that fibrillation and flutter are fundamentally similar. Another incidental service which it is accomplishing is that it is confirming the analysis of those cases of fibrillation in which the ventricle beats slowly. These cases have been interpreted as instances of combined fibrillation and heart-block; quinidin clearly displays this block when it restores the normal rhythm. Quinidin is opening up many lines of original research.

Phenomena of Raynaud's Disease.—The histories of sixty-seven patients observed in the Mayo Clinic were studied by Buchanan; fifty of these were traced. The incidence of Raynaud's disease in relation to the total registrations of patients in the clinic each year varied from 0.012 to 0.026 per cent. It was not demonstrated that physical and nervous strain incident to any one type of occupation or social stratum was a cause of the condition. The duration of the disease was up to forty-five years. Sixty patients described the mode of onset as very sudden. There was nothing in the histories of the patients to indicate that the disturbances depended on a toxic process. Local hyperemia, with the other vasomotor phenomena of Raynaud's disease, was found in eight patients. The lesions were bilateral and symmetric in thirty-eight patients and asymmetric in twenty-nine. The systolic blood-pressure was within normal limits in forty-nine patients, above normal in eleven and below normal in seven. The diastolic blood-pressure was within normal limits in fourteen patients, above normal in thirty-three and below normal in twelve. The absence of a fixity of blood-pressure variations in a vasomotor disturbance coinsides with the experimental work of Krogh. The examination of the urine was negative in all cases. Hemoglobinuria was not observed in any case. The basic mechanism involved in the production of the symptoms manifested in Raynaud's disease, Buchanan says, remains obscure, but the phenomena observed coincide satisfactorily with the theoretic and experimental possibilities of a disturbance of the vasomotor apparatus. The attacks of syncope are no doubt constrictor, as the part or parts are partially or completely bloodless during the attacks. This is shown by the absence of hemorrhage on pin prick, and further by the total lack of color of the part and the lowered temperature. The asphyxial attacks are probably also constrictor and not dilator, as is commonly believed. The search for a tangible causative factor has been without results. It is not possible to attribute the condition to toxemia, as no possible toxic cause is visible. The infrequency of acute infections in the onset minimizes the importance of the ordinary type of infections as etiologic factors. Heredity plays no part. Whatever may be the causal agent, the method of its action seems in most cases to be peripheral on the vasomotor nerves rather than on the central mechanism, although it is possible that in certain cases both may be affected. Buchanan suggests that the term "Raynaud's disease" should be discarded and "local syncope of Raynaud," or "local asphyxia of Raynaud," or "gangrene of Raynaud" substituted.

Spleen and Pancreatic Secretion.—Data are given by Inlow concerning the pancreatic secretion, before and after splenectomy, on two dogs with permanent pancreatic fistulas secreting an inactive proteolytic juice; and on two similar nonsplenectomized dogs serving as controls. Removal of the spleen in these instances caused no constant changes in the amount, enzyme content, or alkalinity of the pancreatic juice. It is concluded from a review of the literature and this experimental inquiry that a definite trypsinogenic function of the spleen has not been demonstrated.

Bacteriologic Nomenclature of Pneumonia.—In Cecil's opinion it would be a step in advance to speak less of lobar and bronchial pneumonia and more of pneumococcus, streptococcus and *Bacillus influenzae* pneumonia. Progress in the specific treatment of pneumonia is in large measure dependent on the adoption of such a point of view.

Antimeningococcus Serum Introduced by Cistern Puncture.—Mitchell and Reilly report a case of meningococcus meningitis in an infant aged 4 months cured by cistern puncture. As far as they have been able to ascertain, this is the first case of subarachnoid block due to the meningococcus which has been cured by this procedure.

Sporotrichosis with Lung Metastases.—A case of disseminated gummatous sporotrichosis in a young colored man is reported by Warfield. There was a nodule in the right lung, suspected on physical examination, seen in the roentgen-ray plate and confirmed at necropsy culturally and histologically. Warfield asserts that this is the first case of its kind reported in American literature. The sporotricha reported from American cases and some reported from French cases differ in the pathogenicity and in the ability to produce lung lesions in albino rats. Attention is called to sporotrichosis as a generalized disease and to the probability of cases of lung sporotrichosis which are unrecognized.

Prognosis of Right and Left Lung Tuberculosis.—The results of their study lead Stivelman and Miller to conclude that in early tuberculosis the right side is affected twice as often as the left. As the disease progresses there is a marked increase in the number of involvements of the left lung, so that in the advanced stage of the disease the right and the left lungs are numerically equally involved. Patients with a predominating left lung involvement are liable to run an active course more often than those with preponderating right-side lesions. In early phthisis the side of the lung involved has no definite relation to the general prognosis. In advanced phthisis the prognosis is distinctly less favorable in those with preponderating lesions of the left lung. The presence of but one interlobar fissure, moderate atelectasis and the evil effects of sinistracardia and retraction of the stomach are factors which contribute toward the greater gravity of left lung lesions as compared to the right lung lesions.

Blood in Chronic Nephritis.—Berg asserts that severe anemia in chronic nephritis occurs principally in cases accompanied by nitrogen retention. The anemia is characterized by a high hemoglobin index, often more than one, with relatively slight morphologic changes in the erythrocytes. It therefore constitutes an additional form of anemia of the hyperchromic type. Edema bears no constant relation to the presence or absence of the anemia. The character of the anemia suggests profound alterations in the activity of the hematopoietic organs.

Syphilitic Backache.—Thompson records two cases in which severe backache was caused by a syphilitic spondylitis. The pathology is similar to syphilis of bone elsewhere in the body. The nervous manifestations depend on the part of the vertebral column involved and the extent of the morbid process. Syphilitic spondylitis presents no definite clinical picture, the diagnosis being made chiefly by (1) the roentgen ray, (2) evidence of syphilis elsewhere in the body, (3) the Wassermann test, and (4) the therapeutic test.

Incidence of Tuberculosis of Cecum.—Among eighty cases of pulmonary tuberculosis Levy and Haft found twelve showing a definite filling defect in the cecum or ascending colon. This sign is the most important roentgen-ray sign of cecal tuberculosis.

American Review of Tuberculosis, Baltimore

July, 1922, **6**, No. 5

Clinical and Roentgen-Ray Findings in Chests of Normal Children. H. K. Pancoast, Philadelphia, and F. H. Baetzer, Baltimore.—p. 331.
*Upper Respiratory Tract in Pulmonary Tuberculosis; with Special Reference to Laryngeal Tuberculosis: Clinical Study of 200 Cases. I. D. Bronfin and C. Markel, Edgewater, Colo.—p. 341.
Gastrotomy as Emergency and Therapeutic Measure in Laryngeal Tuberculosis with Extreme Dysphagia. S. Swezey and H. Freed, Denver.—p. 364.
Effect of Hydrogen Ion Concentration on Production of Carbon Dioxid by Tubercle Bacillus. M. M. Brooks, Washington, D. C.—p. 369.
*Four Cases of Pulmonary Abscess. R. H. Morgan, Mt. McGregor, N. Y.—p. 377.
*Case of Pulmonary Tuberculosis with Extensive Involvement Without Symptoms. I. S. Kahn, San Antonio, Texas.—p. 391.
Light Touch Palpation: Lung Changes Demonstrable by Superficial Skin Palpation. C. Jacobson, Chicago.—p. 394.
*Artificial Pneumothorax for Pulmonary Tuberculosis with Coexisting Diabetes of Unusual Onset: Report of Case. E. K. Geer, St. Paul. —p. 399.
*Cod Liver Oil in Treatment of Tuberculosis. H. E. Kirschner, Monrovia, Calif.—p. 401.
*Use of Calcium in Pulmonary Tuberculosis. T. J. Beasley, Indianapolis.—p. 407.
*Plaster Cast in Treatment of Pulmonary Tuberculosis. N. Levitt, Towson, Md.—p. 410.
Physiologic Adjuvant in Rest Cure of Pulmonary Tuberculosis. S. A. Knopf, New York City.—p. 417.

Upper Respiratory Tract in Pulmonary Tuberculosis.—The upper respiratory tract was studied by Bronfin and Markel in 200 tuberculous patients, in the moderately advanced or far advanced stages, with an average pulmonary duration of 507 years. Abnormalities of the nasopharynx were noted in 64 per cent. and nasal stenosis in 62 per cent., but the number of cases with positive laryngeal tuberculosis was not greater in those with nasal obstruction than in those with normal nasal chambers. Strophy of the nasal mucous membranes was not a frequent manifestation and seemed to have no definite relation to laryngeal tuberculosis. Definite pathologic changes of laryngeal lesion were of such a type as to warrant a positive clinical diagnosis of tuberculous laryngitis. Five positive cases had associated syphilis, two of which received specific treatment without any demonstrable effect on the laryngeal lesions and the other three presented the characteristic lesions of tuberculosis. In three cases the lesion was subacute and stationary and in the other two the lesion was chronic and stationary. The quickest and most satisfactory results were obtained with the cautery. All active throat cases under the different forms of treatment improved; 139 cases under no treatment improved or remained stationary; in eight cases the lesion became progressive.

Pulmonary Abscess.—The cases reported by Morgan were diagnosed either as probable or positive pulmonary tuberculosis. They are particularly interesting inasmuch as they represent three known or assumed causative factors and one entirely unknown. Two of the four cases were proved to be abscess at the necropsy table and one by the surgeon. The remaining case recovered without any surgical procedure. The two cases going to necropsy were treated by artificial collapse of the lung and demonstrated the probable danger of attempting such treatment except in the very early stages of the disease. All four cases were in men, and the abscesses were all located in the right lung: two in the upper and two in the lower lobe. The two fatal cases showed multiple abscesses at necropsy. In three the abscess or abscesses were situated close to the pleura. All showed a rather typical symptomatology (including repeated hemoptysis). One died from massive hemorrhage, one from rupture of the lung with pyopneumothorax and fatal bronchopneumonia, the surgical case is still under treatment and improving, and the remaining case recovered without surgery.

Extensive Pulmonary Tuberculosis Without Symptoms.—In Kahn's case the roentgen ray disclosed extensive involvement of both lungs, although the patient, a man, aged 28, was not at all sick and was free from symptoms. There was complete lack of clinical symptoms and physical signs indicative of disease activity. Under rest cure for two weeks there was no cough, expectoration or fever, and no râles detectable by almost daily chest examinations, so that the diagnosis of tuberculosis was even considered doubtful. The patient was transferred to an outdoor camp for another month for further observation and was given daily light exercise. He gained 20 pounds during these six weeks, but his condition otherwise remained unchanged without the slightest evidences of tuberculous activity. Then he contracted influenza. From the start he ran a high temperature and was decidedly sick. He began to cough almost at once, with profuse expectoration. Chest examination now revealed numerous subcrepitant and indeterminate râles over the entire left upper lobe, front and back. The sputum was markedly positive for tubercle bacilli on two occasions, thus ending all diagnostic questions.

Pneumothorax in Pulmonary Tuberculosis with Diabetes.—Geer reports two cases of pulmonary tuberculosis with coexistent diabetes in which pneumothorax was induced with no untoward effects which could be ascribed to the diabetes. The thoracentesis wounds healed promptly after each refill. In one of the cases the diabetes manifested itself several months after the onset of the pulmonary lesion.

Cod Liver Oil in Tuberculosis.—Kirschner asserts that cod liver oil aids in the absorption and deposit of calcium. There appear to be at least three good reasons for increasing the calcium content of the body in tuberculosis: First, to overcome the demineralization, which French writers have apparently demonstrated as taking place in tuberculosis, and thus restore the normal calcium balance to the system, a condition very essential to health. Second, to secure the deposit of calcium in tuberculous foci, in order to promote healing mechanically by inducing fibrosis, and also calcification of the lesion. Third, to stimulate phagocytosis. Nagai and Itol stated that following the administration of calcium chlorid leukocytes incorporate tubercle bacilli more readily and in larger numbers than if it is not given. They believe that this explains the good results which they have obtained in the treatment of certain cases of tuberculosis in the Tokio city poorhouse. Cod liver oil in the treatment of tuberculosis is valuable because: Its large amount of unsaturated fatty acids permits it to be almost entirely absorbed and thus furnishes a large amount of fat food. It promotes the absorption of other fats. It limits respiratory ventilation. It has a destructive action on the tubercle bacillus. It has a large fat soluble vitamin A content several hundred times that found in butter. It favors the absorption and deposit of calcium in the tissues. It is important that it should be given in sufficient doses and continued for a sufficiently long time.

Calcium in Tuberculosis.—Beasley combines calcium with cod liver oil in the treatment of pulmonary tuberculosis as an aid in conjunction with all of the established and recognized measures that have proved of value in the past.

Plaster Cast in Tuberculosis.—Acting on the principle of rest in the treatment of all the other diseases, Levitt applies the plaster cast to the chest in cases of pulmonary tuberculosis to rest the lungs if possible. A series of fifteen cases was selected, all but one being far advanced: one was moderately advanced. All had the advantage of the usual treatment of rest, fresh air, and nourishing food. They did not improve, however, but steadily lost ground, so that there was nothing to lose but all to gain in trying out this treatment. The immediate results after the cast is applied are lessened cough and expectoration, reduction of temperature, improved appetite, and disappearance of pains in the chest. The plaster cast was worn for a period, ranging from two to four months, steadily and without complaint. Of the fifteen cases, three were markedly improved; six were improved; and in six cases the condition remained unchanged.

Journal of Biological Chemistry, Baltimore

July, 1922, **53**, No. 1

Presence of Antineuritic Substance, Water-Soluble B, in Chlorophyll-Free Plants. C. R. Orton, E. V. McCollum and N. Simmonds, Baltimore.—p. 1.
Glacial Acetic Acid as a Solvent for Antineuritic Substance, Water-Soluble B. V. E. Levine, Omaha; E. V. McCollum and N. Simmonds, Baltimore.—p. 7.
Modification of Bell-Doisy Phosphate Method. A. P. Briggs, St. Louis.—p. 13.
Colorimetric Determination of Blood Chlorids. M. L. Isaacs, Cincinnati.—p. 17.
Dietary Factors Influencing Calcium Assimilation. II. Comparative Efficiency of Dry and Green Alfalfa in Maintaining Calcium and Phosphorus Equilibrium in Milking Cows. E. B. Hart, H. Steenbock and C. A. Hoppert, Madison, Wis.—p. 21.
Method for Preparation of Crystalline Oxyhemoglobin. M. Heidelberger, New York.—p. 31.
Growth and Reproduction on Simplified Food Supply. II. Influence of Food on Mother and Young During Lactation Period. H. C. Sherman and M. Muhlfeld, New York.—p. 41.
Id. III. Efficiency of Growth as Influenced by Proportion of Milk in Diet. H. C. Sherman and J. Crocker, New York.—p. 49.
Estimation of Lipoid Phosphoric Acid ("Lecithin") in Blood by Application of Bell and Doisy Method for Phosphorus. F. S. Randles and A. Knudson, Albany, N. Y.—p. 53.
Buffer Systems of Blood Serum. E. A. Doisy, E. P. Eaton and K. S. Chouke, St. Louis.—p. 61.
*Studies on Enzyme Action. XV. Protease Actions of Malignant Human and Rat Tumor Extracts at Different Hydrogen Ion Concentrations and in Presence of Various Salts. K. G. Falk, H. M. Noyes and K. Sugiura, New York.—p. 75.
*Studies of Urinary Acidity. I. Some Effects of Drinking Large Amounts of Orange Juice and Sour Milk. N. R. Blatherwick and M. L. Long, Santa Barbara, Calif.—p. 103.
Fermentation of Hexoses and Related Compounds by Certain Pentose-Fermenting Bacteria. W. H. Patterson, E. B. Fred and J. A. Anderson, Madison, Wis.—p. 111.
Study of Acetone and Butyl Alcohol Fermentation of Various Carbohydrates. G. C. Robinson, Toronto, Can.—p. 125.
*Animal Calorimetry. 22nd Paper. Production of Fat From Protein. H. V. Atkinson, D. Rapport and G. Lusk, New York.—p. 155.
*Lipoids of Blood in Tuberculosis. B. H. Henning, Berkeley, Calif.—p. 167.
*Fat Excretion. E. Hill and W. R. Bloor, Berkeley, Calif.—p. 171.
Colorimetric Determination of Hemoglobin with Especial Reference to Production of Stable Standards. E. H. Terrill, St. Louis.—p. 179.
Fate of Certain Sulphur Compounds When Fed to Dog. C. L. A. Schmidt and G. W. Clark, Berkeley, Calif.—p. 193.
*Acetonuria of Diabetes. R. S. Hubbard and S. T. Nicholson, Jr., Clifton Springs, N. Y.—p. 209.

Proteose Actions of Malignant Human Tumor Extracts.—The proteolytic actions on casein and on peptone of extracts of malignant human tumors and of the Flexner-Jobling rat carcinoma were studied by Falk et al. by the Van Slyke aminonitrogen and the Sorensen formol methods at different hydrogen ion concentrations, in the presence of a number of neutral salts, for various lengths of time, and with various concentrations of enzyme and of substrate. Similar results were obtained with the extracts from the two sources. Optimum conditions for action were found at p_H 7.0. The general actions were similar to those of other protease preparaions and could be formulated similarly. Tables and curves showing the retardations exerted by various neutral salts and by mixtures of several salts are given.

Effects of Drinking Large Amounts of Orange Juice on Urine Excretion.—Two young women were the subjects studied by Blatherwick and Long. They found that the drinking of large amounts of orange juice resulted in the production of alkaline urines, an increased organic acid excretion, and a decreased ammonia content of the urines. It was impossible to overreach the organism's ability to oxidize the contained citric acid even though the amounts drunk in one day were the equivalent of about 48 gm. of acid. The drinking of large amounts of lactic acid milk caused the formation of strongly acid urines. This increased acidity was shown to be due to the excretion of increased amounts of acid phosphate, as indicated by simultaneous increases in titratable acidity and phosphorus. The lactic acid appeared to have been completely oxidized or retained, as there was no change in the organic acid excretion.

Production of Fat from Protein.—When the glycogen reservoirs of the body are low, Atkinson et al. state, the ingestion of meat in large quantity results in the deposition of glycogen. The continued ingestion of much meat brings about the retention in the body of a pabulum consisting partly of fat. Only when meat in very great excess is given is fat alone retained. When a carbohydrate containing meal is given in the evening and 1,000 gm. of meat in the morning, then during the height of protein digestion the respiratory quotient indicates a production of fat from protein. Following the prolonged ingestion of meat in large amounts, which induces the retention of "deposit protein," the basal metabolism may rise from a former level of 16 calories per hour to one of 19.7, an increase of 23 per cent., from which level it slowly falls with the gradual elimination of "deposit protein."

Blood Lipoids in Tuberculosis.—Cholesterol was found by Henning to be uniformly low in tuberculous blood when determined by the saponification method, but normal when determined without saponification. The presence in the blood plasma in tuberculosis of a relatively large amount of an unknown substance which is probably closely related to cholesterol is thus indicated. Total fatty acid and lecithin were within the normal range of values for these substances. The "residual" fatty acid of the blood was high and since there was no lipemia the presence of other forms of fatty acid combination than those ordinarily present is suggested.

Fat Excretion.—When moderate amounts of fat are fed, the fat of the feces is largely independent of the diet, and in composition approaches that from a fat-free diet. The comparative constancy of composition of the feces fat favors the idea of a fat excretion from the intestine, but while an excretion is probable, it cannot be regarded as proven in view of the undetermined influence of lipoid from free cellular material. The feces fat cannot ordinarily be regarded as unabsorbed food fat and, therefore, feeding experiments as a test of the extent of utilization of food fat are of doubtful value unless account be taken of the amount and kind of fat which appears in the feces independently of the food.

Acetonuria of Diabetes.—A method is described by Hubbard and Nicholson for calculating a molecular ratio between ketogenic and antiketogenic compounds contained in the diet which is applicable to diabetic patients, and seven cases are described in which a comparison was made between the values of this ratio and the excretion of the acetone bodies in the urine. It is shown that the acetone excretion varies inversely with the numerical values of this ratio. A study of the numerical values of the ratio calculated for diets which correspond with a slightly increased excretion of acetone shows that they were approximately the same as those values found for normal subjects receiving diets low in carbohydrate, but containing sufficient calories to supply the needs of the subject. It is also shown that fat fed sometimes increases the amount of acetone excreted, even when the increase replaces a part of the fat which the body was probably withdrawing from its own reserve supplies of this material.

Mental Hygiene, New York

July, 1922, **6**, No. 3

Some Aspects of Mental Hygiene. E. F. Buzzard.—p. 449.
Habit Clinics for Children of the Pre-School Age. D. A. Thom, Boston.—p. 463.
Inauguration of State Wide Public School Mental Clinic in Massachusetts. W. E. Fernald.—p. 471.
Personality in Mental Defective; Method for Its Evaluation. H. W. Potter, New York.—p. 487.
Some Psychologic Mechanisms of Human Conduct. I. J. Sands, New York.—p. 498.

Internal Secretions and Home. E. D. Bond.—p. 522.
Problem of Mental Misfit in Industry. G. K. Pratt.—p. 526.
Psychiatric Work of New York Probation and Protective Association. A. T. Bingham, New York.—p. 539.
Social Analysis of Group of Psychoneurotic Ex-Service Men. G. Massonneau, New York.—p. 575.
Personnel Relations in State Hospitals. H. M. Pollock, New York.—p. 592.
Incidence of Insanity Among Jews. J. A. Goldberg, New Yok.—p. 598.
Study of Individuality. C. E. Nixon.—p. 603.

Philippine Islands Medical Association Journal, Manila

May-June, 1922, 2, No. 3

Leukanemia; Report of Case. A. G. Sison and A. B. M. Sison.—p. 113.
Radium Therapy in Eye, Ear, Nose and Throat Work. R. Fernandez.—p. 116.
*Hemolytic Streptococci; Their Rôle in Puerperal Infection. G. Rustia.—p. 121.
Clinical Notes on Ear, Nose and Throat Cases in Dispensary of Philippine General Hospital. A. S. Fernando.—p. 125.
Protozoology; Its Place in Medical Curriculum. L. Leiva.—p. 129.

Streptococci in Puerperal Infections — The organisms found by Rustia in fifty cases of puerperal infection were: *Streptococcus pyogenes-hemolyticus*, twenty-eight times; *Sterptococcus infrequens-hemolyticus*, once; nonhemolytic streptococcus (not classified), five times; nonhemolytic *Streptococcus mitis*, once; nonhemolytic *Streptococcus ignavus*, twice; hemolytic streptococcus associated with *Staphylococcus aureus*, eight times; nonhemolytic streptococcus (not classified) with *Staphylococcus aureus*, once; nonhemolytic *Streptococcus fecalis* with *Staphylococcus aureus*, once, and *Staphylococcus aureus*, three times. The above results show that *Streptococcus pyogenes-hemolyticus*, either pure or associated with *Staphylococcus aureus*, is the most frequent cause of puerperal infection in the maternity ward of the Philippine General Hospital. Of the fifty cases of infection studied, twenty-nine pure strains of hemolytic streptococcus and eight strains associated with *Staphylococcus aureus* were isolated.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Aug. 5, 1922, 2, No. 3214

Alcohol as Beverage and Its Relation to Certain Social Problems. E. Mellanby.—p. 195.
Alcohol in Its Relation to Problems of Mental Disorders. F. W. Mott.—p. 199.
General Etiologic Factors in Alcoholic Psychoses. J. T. MacCurdy.—p. 204.

Aug. 12, 1922, 2, No. 3215

Physician: Naturalist, Teacher, Benefactor. J. G. Kerr.—p. 241.
Alcohol as Beverage and Its Relation to Certain Social Problems. Alcohol and Industrial Efficiency. E. L. Collis.—p. 244.
Alcohol Restriction and Mortality. M. Hindhede.—p. 248.
Alcohol as a Beverage in Its Relation to Infantile Mortality. J. W. Ballantyne.—p. 252.
Alcohol as Selective Agent in Improvement of Racial Stock. C. R. Stockard.—p. 255.

Calcutta Medical Journal

June, 1922, 16, No. 12

*Specific Gravity of Blood in Cholera. D. N. Banerji.—p. 459.
Social Environments and Other Causes Contributing to Spread of Tuberculosis in this Country. R. B. G. C. Chatterjee.—p. 468.
Case of Tetanus. —p. 475.
I. Puerperal Sepsis. H. Chatterjee.—p. 478.
II. Mineral Metabolism. Rate of Mineral Salts in Organism.—p. 480.

Specific Gravity of Blood in Cholera.—Banerji discusses the various methods for determining the specific gravity of blood as a guide to the treatment of cholera and describes his own method. The procedure is as follows: One ounce of saturated solution of magnesium sulphate is made. To 25 c.c. of water in a small vial, 6.25 c.c. of the saturated magnesium sulphate solution is added. The specific gravity of this solution will be 1.060 at body temperature. This vial is placed in water at a temperature of 98.4 F. and a drop of blood put into it. If it sinks, intravenous injection will be required; if it floats, no intravenous injection is required. If the drop sinks slowly, about 2 pints is required; if rapidly, about 4 pints, and if very rapidly, like lead, from 5 to 6 pints.

Irish Journal of Medical Science, Dublin

March, 1922, 5, No. 1

Organization of Irish Medical Profession. T. Hennessy.—p. 5.
Transfusion of Blood. H. Stokes.—p. 18.
Blood Transfusion. G. E. Nesbitt.—p. 23.

July, 1922, 5, No. 5

*Rotunda Lying-In Hospital Clinical Report of 1920-1921. G. Fitzgibbon, A. H. Davidson and J. S. Quin.—p. 193.

Obstetrics at Rotunda Hospital.—In the extern maternity of the Rotunda Hospital 1,726 women were attended during their confinements, 194 were cases of abortion or miscarriage. There were fourteen cases of placenta previa, three central; all were treated by bringing down a leg after version, when necessary, and then allowed to deliver themselves. Delivery was completed in from one to twenty-three hours and six infants were born alive. One mother died, a sesquipara. There were seven cases of accidental hemorrhage, one being concealed. Of the six external cases one was treated by rupture of the membranes and one by plugging of the vagina. The case of the concealed hemorrhage ended in death. One case of eclampsia was treated with recovery. One transverse case terminated by corpore conduplicato. There were nine deaths, two from puerperal sepsis, following easy normal deliveries in multiparas, and one from mitral disease of the heart, with marked failing compensation at the time of delivery. In the intern maternity 2,150 cases were admitted, fifty of these being abortions or miscarriages. Twelve deaths occurred, three of these were general conditions complicating pregnancy. The others were conditions arising from pregnancy or confinement. There were twelve cases of placenta praevia, central four, maginal five, and lateral three. One mother died. Seven children were born alive. There were seven cases of accidental antepartum hemorrhage. Two external were treated by rupturing the membranes. One delivered spontaneously was combined external and internal; this case and three others had profound albuminuria. There were fourteen cases in which excessive loss occurred during the third stage. In all, the bleeding began during the third stage, and in the majority was controlled by the removal of the placenta. None of the cases gave rise to more than temporary uneasiness. There were thirty-one cases of contracted pelvis. Fifteen cesarean sections were done, in thirteen the indication was contracted pelvis; one case had two previous sections on account of constriction of the upper part of the vagina, and one case was for posterior development following an interposition operation. Six of the patients had previous deliveries by section. In one case the operation was done for the fifth time, the patient's first delivery being after pubiotomy. Another patient had two deliveries by pubiotomy and one by cesarean, with three other pregnancies ending in placenta previa, miscarriage and prolapse of the cord. Nine cases had section performed for the first time, all but one for contracted pelvis. Pubiotomy was done three times. Labor was induced twenty-two times, five times for contracted pelvis with living children; all the others were for dead fetus, or moles. One case of rupture of the uterus occurred. It was treated by tampon in the rent and recovered. Sixteen cases of eclampsia were treated—four antepartum; two antepartum and during labor; two during labor; and seven postpartum, with one death. The treatment was by the Rotunda routine: gastric lavage and purgative by tube, copious rectal lavage, shortening of the second stage if necessary, submammary sodium bicarbonate solution or free ingestion of water and morphin. There were forty-four other cases with marked albuminuria and all the symptoms of eclampsia, except fits. Several of these had uterine hemorrhage but not enough to be classed under that heading, as the toxemia was the dominant condition. One case was associated with a hydatid mole, with history of thirty weeks' pregnancy. The morbidity for the year was 6.2 per cent. Hydatidiform mole was found in seven cases.

Lancet, London

Aug. 5, 1922, 2, No. 5162

Normal Stomach. A. E. Barclay.—p. 261.
Plea for Study of Biology in Relation to Public Health. A. K. Chalmers.—p. 265.

*Toxi-Infective Lesions in Central Nervous System. Influence of Disturbance of Sympathetic Mechanism on Their Localization. D. Orr and A. C. Sturrock.—p. 267.
*Case of Localized Suppurative Meningitis Over Motor Cortex. C. P. Symonds and W. H. Ogilvie.—p. 272.
Wassermann and Sigma Tests. W. T. Collier.—p. 274.
*Formalin Test for Syphilis: Some Conditions Controlling Gel Formation. A. G. Holborow.—p. 274.
Luminal. W. Johnson.—p. 275.
Case of Autosuggestion Blindness. K. Campbell.—p. 276.

Toxi-Infectious Lesions in Central Nervous System.—The active elaboration and secretion into the cerebrospinal fluid of lipoid substances in great quantity under the stimulus of acute general intoxication, and the parallel between this activity and the developmental phenomena described by Pelizzi, Orr and Sturrock believe, lead to a strong presumptive deduction that the secretion by the choroid plexus and the ependyma of the ventricles and the iter is of the greatest importance as an active defense measure against intoxication, as well as one destined for the purposes of regeneration and repair. Here are described lesions due to sympathetic division alone; lesions found when, after division of the cervical sympathetic, a general intoxication is produced, and the periarteritis in the head of the caudate nucleus and the lipoid secretion in the ventricles and choroid plexus.

Localized Suppurative Meningitis Over Motor Cortex.—The lesion in the case cited by Symonds and Ogilvie was a sharply localized patch of suppurative meningitis overlying the motor cortex, and separated by at least 2 inches of healthy tissues from the source of the organisms—i. e., the middle ear and mastoid process. The mastoid infection was in an early stage, and the obvious bone disease was only in that portion of the mastoid process farthest removed from the cranial cavity. From the surgical point of view, the chief interest lies in the question of the path by which the spread of infection had occurred. Three routes suggest themselves as possible: first, by the labyrinth and internal auditory meatus; secondly, by the diploe of the squamous temporal bone and the communications with the meningeal veins; and thirdly, direct spread through the subarachnoid space. The first two are definitely excluded. From the neurologic point of view, the main facts of interest in the early history of the case are the completeness and sudden onset of brachial monoplegia in relation to what must have been a quite superficial lesion of the cortex, and the absence at this early stage of focal epileptic attacks, which only supervened as a penultimate phase preceding the recovery of voluntary power. This progress, from complete paralysis, through a stage of epileptic attacks to recovery of voluntary power, is the exact reverse of that often seen in cases of progressive destruction of the motor cortex by a tumor of the meninges, in which the initial phase of epileptic seizures is gradually succeeded and replaced by paralysis. Taken in conjunction, the two observations lend support to the theory that the epileptic discharge is dependent on a condition of the motor nerve cells which lies at some particular point on the scale between the two extremes of normal activity and complete inexcitabiilty. In the case of a very rapidly progressive depression of function, such as occurred at the onset in the case recorded, this optimum point for an epileptic discharge may be passed before a seizure has time to mature. As far as they go, these observations support the beliefs expressed by Head that in the case of a lesion of the sensory cortex "the farther forward it lies within this region, the grosser and more extensive is the disturbance shown by the spatial tests;" and that, when such disturbance exists, the ability to localize a spot touched is less severely affected than the discrimination of two compass points.

Nature and Value of Formol-Gel Test for Syphilis.—When serum forms a gel with liquor formaldehydi, Holborow says, it is due to the direct action of the reagent on serum albumin or serum globulin, or both, and not to any action on the toxins of *Spirochaeta pallida* direct. It is probable that acid protein produces a gel with formaldehyd and alkali protein does not. If formaldehyd forms a gel of human serum it is an indication of decreased alkalinity of that serum, but does not decide the cause of the decreased alkalinity. The evidence obtained by Holborow is, in his opinion, sufficiently adverse to regard the formaldehyd test with much reserve.

Medical Journal of Australia, Sydney

July 15, 1922, 2, No. 3

Need for Antenatal Clinics. R. M. Allan.—p. 53.
Puerperal Mortality and Morbidity. E. S. Meyers.—p. 54.
Drug Treatment in Obstetrics. L. P. Winterbotham.—p. 56.
Sour Milk; "Russian Culture." F. Tidswell.—p. 58.
Myositis Among Papuan Natives. W. E. Giblin.—p. 60.
Diphtheria in Country. D. D. Browne.—p. 62.
*Three Cases of Lead Poisoning in Children. E. S. Littlejohn.—p. 63.
Chronic Intussusception of Appendix into Cecum. Hypernephroma of Kidney. P. L. Hipsley.—p. 65.

Lead Poisoning in Children.—The three cases cited by Littlejohn are examples of lead intoxication being caused by the repeated ingestion of small quantities of lead paint over a prolonged period. One little girl, aged 3 years, spent considerable time each day standing on a chair looking out of a window and had sucked and bitten most of the paint off the lower part of the window sash and frame. Another patient, a boy, aged 9, had been in the habit of playing with some pots of paint his father had in a shed, painting everything about and getting the paint all over his hands; also he was in the habit of biting his nails.

Bulletins de la Société Médicale des Hôpitaux, Paris

June 16, 1922, 46, No. 21

Pneumoconiosis of One Apex plus Cancer. A. Cramer.—p. 926.
*Syphilis of the Lung. J. Lecaplain.—p. 930.
*Cancer of Lung. J. Rolland.—p. 939.
*Cancer of Vertebra. J. Sicard et al.—p. 943.
Simplified Apparatus for Artificial Pneumothorax. A. Jousset.—p. 951.

Pulmonary Syphilis.—In one of Lecaplain's two cases the lesion in the lung was a group of gummas, casting a shadow with a scalloped outline, while the clinical manifestations were those of unilateral pulmonary tuberculosis with cavities. In the other case there was a broad band of shadow across the lung, with four round deeper shadows in it. The clinical picture was that of sclerosis of bronchi and arteries. The anomalous physical findings and scars of syphilitic lesions, and the rapid recovery under specific treatment, confirmed the diagnosis.

Cancer of Lung.—The man of 55 had long had a cough, returning every winter, but in the last three years it had been more severe. The symptoms and roentgen findings finally indicated cancer of the lung. It retrogressed under deep roentgen-ray treatment, a total of 64 H. units. Percussion by the end of the second week gave approximately normal findings. As the large neoplasm melted away under treatment, the general condition grew worse and the man wasted away, dying in about a month after the conclusion of the treatment.

Vertebral Cancer.—Sicard reproduces some roentgenograms to illustrate the difference in the shadows cast by caries and cancer involving vertebrae. With Pott's disease the intervertebral disk is more or less destroyed, while, with cancer, the adjacent disks seem to be comparatively intact, and the body of the vertebra has more or less completely disappeared. He ascribes this noninvolvement of the disks to the poor provisions for circulation in them. The cancer cells are swept to better irrigated regions. In one of the three cases described, the cancer was anatomically verified, and the diagnosis has been confirmed by the course in the others.

June 23, 1922, 46, No. 22

*Periglandular Plexus in Appendicitis. P. Masson.—p. 956.
Deforming Articular Rheumatism of Syphilitic Origin. H. Dufour and Geismar.—p. 970.
Progressive Lesion in Corpora Quadrigemina Region. G. Guillain and C. Kudelski.—p. 971.
*A Voluntary Fast. M. Labbé et al.—p. 975.
Obesity with High Blood Pressure. C. Aubertin.—p. 977.
*Suprarenal Tumor. M. Labbé et al.—p. 982.

Periglandular Plexus in Appendicitis. — Masson devotes fourteen pages to a description of the hypertrophied nerves and neuromas he has found in chronic appendicitis. These nerves contain cells which are not visible with the ordinary staining technic, but they show well with an ammoniacal solution of silver nitrate. He discusses the part played by these argentaffine cells in the production and preservation of the nerves. They seem to be homologous with the Kultschitzky cells of the intestines, and he presents evidence which apparently classes them in an autochthonous system, possibly of endocrine nature.

Voluntary Fast.—The man of 42 is at the thirty-sixth day of his fast "undertaken without any pathologic condition to justify it, on the advice of an American book by Dr. Dewey." The fasting has induced pronounced acidosis, while the basal metabolism has dropped from 46.2 the fifth day of his fast to 21.6 the thirty-second day. There is dizziness, and the man has lost 15 pounds in weight. To all remonstrances he declares he is not going to eat until he feels hungry.

Solar Plexus Crises and Paroxysmal Hypertension with Suprarenal Tumor.—The young woman of 28 had paroxysms of a sensation of constriction in the epigastrium with vomiting and intense vasomotor disturbance, and the blood pressure fluctuated rapidly and in a wide range. There were two attacks of pulmonary edema, the second proving fatal. Necropsy revealed a large tumor in the left suprarenal medulla while the digestive and the cardiovascular apparatus were sound. The blood pressure ran up very high and declined, sometimes from one hour or day to another, this paroxysmal fluctuation reaching extremes beyond anything yet recorded.

Echo Médical du Nord, Lille

July 15, 1922, **26**, No. 28

*Effect of Suprarenalectomy on Nerves. E. Wertheimer et al.—p. 229.

Excitability of Splanchnic Nerve Fibers After Excision of Suprarenals.—The excision of suprarenals in dogs and cats by Wertheimer and Duvillier demonstrated that the splanchnic nerve fibers inhibiting intestinal contraction possess an excitability independent from the one conferred by epinephrin in the blood.

Paris Médical

July 8, 1922, **12**, No. 27

*Mercuric Chlorid Poisoning. C. Achard.—p. 33.
*The Reflexes in Localization of Spinal Cord Lesions. J. Lévy-Valensi.—p. 41.
*Intraspinal Treatment with Insoluble Salts. A. Carniol.—p. 44.
*Symptoms of Disease in Pituitary Body. J. Mouzon.—p. 47.

Mercuric Chlorid Poisoning.—Achard remarks in the course of this study of the lesions induced by mercuric chlorid that the injury of the kidneys does not attract the patient's attention as it is not painful. But it might be called the gravest element in the clinical picture. In a case described the urine was bloody by the fourth hour, and then there was no further secretion of urine. On account of the excessive losses of fluids and the difficulty in drinking, fluids must be supplied by the subcutaneous or rectal drip. In one case with recovery he had thus given a solution of sulphates and glucose. In a case reported by Milian, an injection of a strong solution of glucose was followed by restoration of kidney functioning. The glucose aids in nourishing the patient, and he says there need be no fear of edema in these cases.

The Reflexes in Localization of Spinal Cord Affections.—Valensi gives an illustrated description of the most instructive of the tendon and periosteal reflexes, and the best way to estimate minor differences in the responses.

Intraspinal Therapeutics.—Carniol remarks that therapeutics does not seem to have profited by the intraspinal route. He ascribes this to the difficulty of introducing an actually effectual dose of the drug on account of the fear of grave reactions. Another reason is the extreme shortness of the period of contact of the drug with the tissues, and a third reason is that the circulation of the blood in the meninges is almost entirely independent of the nerve substance. The drug injected passes at once through the vessels in the meninges into the general circulation. Absorption into the blood by the meninges is rapid and vigorous while the circulation of the cerebrospinal fluid is very slow, if there is any at all. The only means to insure the continued action of the drug injected intraspinally is to use a drug that is not absorbable. His experiments with dogs showed that insoluble salts were borne better than the soluble. This encouraged clinical trials, and calcium was tried in epilepsy and mercury in general paresis. The research was begun in 1916, and the epileptics who had been having from two to five seizures a day did not have any more for from five to eight days. After this the seizures returned, but much less frequent than before. They gradually grew more numerous until the former frequency had returned. No sedative action was observed in four women with chronic mania, which confirmed that the calcium ion acts only on the motor nerve substance. All he can say of his cases of general paresis is that the reaction was minimal to intraspinal injection of 0.005 and 0.007 gm. of mercury salicylate, and the calomel seemed to be borne even better.

Pituitary Syndromes.—This was the main subject discussed at the recent annual Réunion neurologique, and Mouzon epitomizes the trend of the discussion. It was mentioned in the Paris Letter of August 5, page 569. Béclère related that the first case he treated with radiotherapy dates from 1908. The giantism and obesity were clinically cured thereby, and this good result has persisted to date. A number of others reported successful treatment by radiotherapy of headache, and of ocular and sometimes even of genital disturbances. Sainton reported the necropsy findings showing the atrophy of a pituitary tumor twelve years after the symptoms from the tumor in the pituitary body had been arrested by radiotherapy, with restoration of the earning capacity. The tumor at necropsy still weighed 60 gm. Treatment by injection of pituitary extract has yielded the most decisive results in diabetes insipidus. This result is not constant, but is usually realized, with remarkable promptness and efficacy. The extract is destroyed by the digestive juices when given by mouth, but Cushing has used it successfully by instillation in the nose.

Presse Médicale, Paris

June 17, 1922, **30**, No. 48

*Decortication of Lung in Chronic Pleurisy. C. Lenormant.—p. 517.
*Radiotherapy in Psychiatry. P. Daday, R. Bessière and L. Jaloustre.—p. 520.
Ethylhydrocuprein in Pneumonia. L. Cheinisse.—p. 522.

Decortication of Lung for Chronic Pleurisy with Fistula.—Lenormant urges to operate early, to disinfect the pleura as much as possible beforehand, draining thoroughly, perhaps rinsing out the cavity, and flushing with oxygen. All advise against operating when there is fever. He urges reducing the mutilation of the chest wall to the minimum. Incising an intercostal space its entire length and resecting at most one or two ribs generally gives as ample access as turning back a flap, provided automatic retractors and a head lamp are used. Donati carries the incision up along the sternum and divides the ribs. They are so clastic that they can be pried up without resecting. Roux-Berger advises to divide the rib just above the long incision in the intercostal space, severing the rib at each end. After finishing the decortication it is advisable to fasten the lung to the wall to prevent its collapse and arrest hemorrhage. Five cases are described, all completely successful, and the excellent results reported by others are cited. Duvergey has published forty-eight cases with recovery of all but one patient who succumbed to pneumonia. Mathieu thus cured in two and a half months a pleural fistula of six years' standing.

Thorium X in Treatment of Mental Disease.—Five weekly subcutaneous injections were made and then a second series after a month's interval. The sixteen patients were under treatment for melancholia, dementia praecox or mental confusion. No effect was apparent in the majority, but one young man with incipient dementia praecox, apparently drifting into the chronic stage, improved so much that he left the asylum clinically cured after five injections of the thorium X. In two cases of mental confusion in women of 51 and 32, the improvement was so rapid and direct that the influence of the thorium X seemed to be unmistakable. The authors are the medical director and physician in chief of the Evreux asylum. The first published attempt to apply radioactivity in treatment of acute psychoses dates from 1913.

Schweizerische medizinische Wochenschrift, Basel

June 22, 1922, **52**, No. 25

Single Exposure Roentgen Treatment of Myomas. M. Steiger.—p. 625.
Etiology of Endemic Goiter. F. M. Messerli.—p. 631. Cont'd.
*Parotitis in the Insane. L. Redalié.—p. 634.

Parotitis in the Insane.—In Redalié's five cases in this group, the refusal of the insane patients to eat, or even drink water, was evidently responsible for the parotitis. It subsided without suppuration in two of the cases, and the outcome was favorable in all.

June 29, 1922, **52,** No. 26

Squill in Treatment of Heart Disease. R. Massini.—p. 645.
*"Catching Cold." M. Gähwyler.—p. 648.
Potter-Bucky Diaphragm in Roentgen Diagnosis. J. Iten.—p. 654.
Etiology of Endemic Goiter. F. M. Messerli.—p. 656. Conc'n.

"Colds."—Gähwyler reviews the numerous experiments on animals and the experiences with troops in the war in regard to "catching cold." Schade compared the army records in Prussia from 1901 to 1912, embracing over half a million men each year. The connection between getting chilled and development of catarrhal affections afterward was abundantly proven. Yet the mere temperature alone does not explain the connection; the men in the trenches and the Arctic explorers did not "catch cold," but they became subject to "colds," like other people, on return to an indoor life. Gähwyler remarks that the skin of animals differs so completely from human skin that no conclusions can be drawn from one for the other, and human susceptibility varies widely in different persons and families. Chodounsky, for example, could take a hot bath and then sit naked in a cold draft for an hour without "catching cold." Runge, on the other hand, developed rheumatism every time he leaned against a cold wall when heated. Among the theories advanced to explain "catching cold" is that the cold draft chills the blood, and that the chilled blood injures the internal organs. Chilling of the surface induces hyperemia in mucous membranes. The mucosa in the nose and throat may grow red under the influence of chilling of the feet. But no one knows why this active hyperemia in the mucosa predisposes to "catching cold." One would think that it would have the opposite effect, protecting against "catching cold." Ruhemann insists that the cold and wet rouse the saprophytes to virulence: Prolonged lack of sunshine rouses the slumbering bacteria, and the micro-organisms of catarrh and rheumatism become actively aggressive. This theory seems to be disproved by the fact that "colds" develop in the sunny south fully as often as in bleak northern weather. Schade explains the effect of chilling as tending to gel the colloids in the protoplasm. Any change in the colloid condition, no matter how transient, must upset the normal processes more or less. This "gelosis" from the action of cold can be felt in the stiffness in the face and hands after brief exposure to severe cold, and he thinks similar changes may occur in internal tissues and may modify the defensive forces and entail "catching cold." This theory deserves consideration, but neither this nor any other theory satisfactorily explains the origin of "colds." They have a three-pronged root: a local or general predisposition to chilling; an opportunity for chilling some susceptible portion of the body; and an infectious process which develops in the tissues modified by the effect of the chilling. The predisposition seems to be entailed more by indoor life than by exposure to weather. He adds that it is futile to try to "harden" certain families. They are constitutionally predisposed to "colds" and there is no help for them except in warding off opportunities. Cold baths are contraindicated in scrofula, tuberculosis and asthma, and children in lymphatic, rheumatic and neuropathic families should be given cold baths very cautiously, if at all. Deep breathing exercises, he adds, may do harm by drawing dust and bacteria into the lungs. The tendency to repeated "colds" may be the first sign of infection with tuberculosis. In sanatoriums, reclining out of doors should be tempered for the anemic, rheumatic and catarrhal patients. Open windows at night may maintain a persisting "cold" in the tuberculous. In any event, a tuberculous patient with a "cold" should be kept in a warm room the same as for a "cold" in the nontuberculous. For the weakly, he says, cool air seems to be a poison for catarrhal conditions in the upper air passages. The tissues are left sensitive and prone to recurrence, and the weakly child allowed to go out on a sunny winter or spring day before he has recovered entirely is liable to react with a chronic catarrhal bronchitis. Children who react in this way, with exacerbation of the bronchial catarrh every time they are allowed to go out of doors, must stay indoors in an even temperature. It is difficult to decide sometimes whether too much coddling or a substandard constitution or other factor is responsible, but one thing is certain, that an indoor life is bad for both man and animals. In treatment, the vigorous may throw off a cold by any means to stimulate the circulation and sweat glands, or by "protoplasm activation" with iodin. Fink ascribes a specific action to iodin if taken in time: 8 or 10 drops of a 1 per cent. aqueous solution twice a day, fasting. But the weakly cannot throw off the "cold"; it works inevitably downward.

Pediatria, Naples

July 1, 1922, **30,** No. 13

*Addison's Disease in Infant. S. Cannata.—p. 585.
*Habitual Vomiting in Infants. A. Medi.—p. 591.
*Abscess in Spleen in Child of Six. L. La Ferla.—p. 598.
*Puncture of Spleen and Bone Marrow. G. Caronia.—p. 607.

Addison's Disease in Infant.—The infant of 16 months gave a positive response to the tuberculin test in addition to the pigmentation and other symptoms, asthenia and low blood pressure, characteristic of Addison's disease. He has found only two cases in infants on record. The asthenia in Cannata's case showed marked improvement while the infant was under observation, but the pigmentation continued a progressive course. The regions exposed to the light were affected least. There was no inherited taint, and the child had been breast fed. It had been healthy until the age of 13 months when chronic bronchitis developed, and the Addison symptoms soon followed.

Habitual Vomiting of Infants.—Medi thinks that hyperacidity is often a factor in the habitual vomiting. The seven cases he describes were cured by treatment on this basis. He ordered an alkaline potion to be taken after each feeding, with heat applied to the stomach.

Abscess in the Spleen.—The retrospective diagnosis in La Ferla's case explained the sequence of events as diplococcus infection, inducing the abscess in the spleen which took two years to develop toward the surface. The spleen in the meanwhile had become enormously enlarged in the girl of 6. He cites a similar course in a case reported by Black in a young man. In both cases incision of the abscess at the end of two years released pus and fragments of necrotic spleen tissue, followed by recovery.

Puncture of Spleen and Bone Marrow.—Caronia advises puncture of the bone marrow to start with. If this does not give sufficient information, then puncture of the spleen can supplement it. The danger with the latter is grave hemorrhage, from a hemophilic tendency, or laceration of the parenchyma. Leishmaniasis and chronic blood diseases induce a slight hemophilic tendency which enhances this danger. He uses a No. 12 needle, 7 or 8 cm. long, and pushes it through the skin, the patient lying supine, the trunk slanting from left to right, the needle held perpendicular to the skin. Once through the skin, he waits a few moments and then pushes it rapidly into the spleen. The advantage of puncturing the bone marrow is the absolute harmlessness of the measure. The disadvantages are the difficulty of piercing the hard bone and the scanty number of parasites in the bone marrow compared to the spleen. Pianese punctures with a Potain trocar in the superior epiphysis of the tibia or the inferior of the femur, and aspirates with the Potain pump. Caronia prefers to use a Weintraud needle No. 1, 3 or 4 cm. long. His illustrations show the needles, etc., in natural size.

Policlinico, Rome

July 3, 1922, **29,** No. 27

Latent Meningism in Malaria. L. Villa.—p. 869.
Arneth Blood Count in Pulmonary Tuberculosis. O. Calamita.—p. 875.
Operative Treatment of Appendicitis. R. Mesti.—p. 881.

July 10, 1922, **29,** No. 28

Ptosis of the Spleen. P. Pacchini.—p. 905.
Hernia of Diverticulum. G. Morici.—p. 908.
Thick Film Blood Test in Malaria. G. Bini.—p. 913.

July 17, 1922, **29,** No. 29

Abortive Treatment of Syphilis. P. Pediconi.—p. 937.
Case of Astasia-Abasia. P. F. Zuccola.—p. 943.
Voluntary Diplopia. O. Balduzzi.—p. 946.
Papain Extraction. G. Provera.—p. 947.

June 1, 1922, **29**, Medical Section No. 6

*Myxedema with Pluriglandular Dystrophia. E. Trenti.—p. 307.
Vital Staining of Blood-Producing Organs. A. Ciminata.—p. 319.
Blood Corpuscles During Venous Stasis. G. Aiello.—p. 330.
*Case of Chronic Leukemia. A. Ricci.—p. 339.

Pluriglandular Dystrophia.—The man had reached the age of 33 apparently entirely healthy, but then symptoms of thyroid and suprarenal insufficiency developed, with others confirming the pluriglandular dystrophia.

Chronic Leukemia.—The case described was distinguished by the number of giant cells in the blood stream, and of the blood platelets and granulated cells. The bone marrow had returned completely to the embryonal type, while the enlarged spleen had become transformed into myeloid tissue without megakaryocytes.

Brazil-Medico, Rio de Janeiro

April 22, 1922, **1**, No. 16

Bismuth in Treatment of Syphilis, etc. Astrogildo Machado and A. E. Arêa Leite.—p. 195.
*Meningo-Encephalocele. P. Palermo.—p. 198.

Meningo-Encephalocele.—The tumor was as large as the new-born child's head, and by the end of a month it measured 10 cm. more than the head in circumference. The cephalic spina bifida was in the lambdoid region, and the tumor was successfully removed. The pedicle was 13 cm. in circumference, and the gap left by its removal was covered with bone flaps taken from the neighborhood by splitting the bone. As the fontanel protruded the tenth day, and Palermo feared hydrocephalus, he had fifteen mercurial inunctions made, and the child has developed normally since.

May 20, 1922, **1**, No. 20

Roger's Disease; Two Cases. R. S. Teixeira Mendes.—p. 253.
Ultraviolet Rays in Dermatology. Damasceno Carvalho.—p. 255.
Helminthologic Notes. L. Travassos.—p. 256.

May 27, 1922, **1**, No. 21

Flagellate Parasites. M. Marques de Cunha and Julio Muniz.—p. 267.
Models for Public Health Work. G. Lessa.—p. 268.
Neurology in France in 1921. Thiers.—p. 272.

June 10, 1922, **1**, No. 23

*Bacteriophagia. J. Lemos Monteiro.—p. 297.
Medicine in the United States. Oscar Clark.—p. 301. Cont'd.
Bismuth in Treatment of Syphilis. U. Paranhos.—p. 311.

Bacteriophagia.—Lemos Monteiro reports the d'Herelle phenomenon as observed serially in old gelose cultures of the dysentery, anthrax and plague bacilli.

Gaceta Médica de Caracas

April 30, 1922, **29**, No. 8

*The Bradycardia of Infectious Diseases. L. Razetti and Villegas Ruiz.—p. 92.
*Traumatic Arterial Thrombosis. D. Luciani.—p. 96. Idem. D. Lobo.—p. 101.

Bradycardia in Acute Infectious Diseases.—Villegas Ruiz noticed that his patients with influenza or yellow fever who presented bradycardia all recovered, while all died of those with tachycardia. He queries whether the bradycardia can be accepted as indicating a favorable prognosis, but Razetti protests against this assumption. He says that bradycardia is usually transient and harmless, but it may entail permanent injury, and exceptionally may prove fatal. He ascribes it to toxic action on the bundle of His.

Traumatic Arterial Thrombosis.—Luciani refers to primary thrombosis from injury of the inner layers of the vessel wall from contusion or other trauma at the spot or at some distance. He describes a case of a revolver wound of the hand and thigh. There was no external hemorrhage or fracture, and the small bullet was found close to the skin in the trochanter region. In an hour no pulse could be felt in the femoral or popliteal artery, and the pain was intense, compelling morphin the first night. Ischemic necrobiosis developed in the leg, which had to be amputated in the lower third of the thigh by the end of the week. This case teaches the possible gravity of these civilian wounds: within an hour the obstruction was complete. This was particularly remarkable on account of the small size of the bullet, 9 mm., in comparison with the large size of the femoral artery. The collateral circulation can be depended on in the arm much better than in the leg. Experience has not realized the hopes from arteriotomy; Luciani says he does not know of a single successful case of this kind. The reason is obvious: As the lesion of the artery wall persists, the thrombus forms again when the clot is removed, for the same reason it formed in the first place. Abadie and Mathelin have reported two cases successfully treated by direct massage of the artery, but this exposes to danger of embolism. The logical treatment of traumatic thrombosis is to resect the segment of the artery involved. If this is of any extent, nothing but grafting will bridge the gap. Sencert has thus restored the permeability of the artery in dogs, implanting in the carotid artery a segment of the same artery taken from another dog and kept in alcohol for a few weeks.

Prensa Médica Argentina, Buenos Aires

June 30, 1922, **9**, No. 3

*Squamous-Zygomatic Mastoiditis. A. Tarasido.—p. 77.
*Hemoclastic Crisis in Children. F. Bazán.—p. 81. Conc'n.
Combination of Prisms. E. Dameno.—p. 84.
*Blood Pressure with Incipient Phlebitis. A. Navarro.—p. 87.
Autohemotherapy in Serum Sickness. A. A. Cetrángolo.—p. 89.

Paramastoiditis.—Tarasido declares that the process and the symptoms of involvement of the temporal bone in mastoiditis are so characteristic and differ so much from ordinary mastoiditis that it deserves separate consideration. The squamous-zygoma region may even be involved without manifestations of mastoiditis. The ordinary incision for the latter has to be carried farther, curving up around the ear, and antrotomy is the first step. Three cases are described.

Hemoclastic Crisis in Children.—Bazán was impressed with the parallel findings in the urine and the hemoclastic crisis findings in the 26 cases studied. In the 14 negative cases the urine was normal in 78 per cent. Even in the 16 positive cases the urine was normal in 5, demonstrating that the hemoclastic crisis was a more sensitive index of disease in the liver than any of the urine tests. It was positive in every case of known liver disease. The drop in the leukocytes is not so pronounced in children as in adults, a difference of only from 500 to 2,000. In dubious cases, a coincident drop in the blood pressure is instructive.

Early Diagnosis of Phlebitis.—Navarro reports a case of typhoid in which the man seemed to be doing well when a sudden and pronounced fall in the blood pressure attracted attention. Nothing could be found to explain it, but the second night acute pain in the right groin heralded the onset of femoral phlebitis. He thinks there can be no question that a drop in the blood pressure and the tonus of the vessels was the main factor in the thrombosis. The latter is never observed with a high blood pressure, he says. The blood pressure in typhoid is lower than in any other acute disease. Hence, he continues, by recording the blood pressure we can detect the onset or exacerbation of sudden vagotonia, which modifies the vessel walls, reduces the blood pressure and alters the blood—all of which tends to induce thrombosis. By supervising the vegetative system in patients liable to develop phlebitis we can thus ward off phlebitis, as we have twenty-four hours of warning.

Semana Médica, Buenos Aires

May 18, 1922, **1**, No. 20

The Circulation in Children. A. Casaubon.—p. 790.
*Cesarean Section. E. A. Boero.—p. 794.
*Correction of Balanic Hypospadias. J. Salleras.—p. 797.
Treatment of Syphilis with a French Arseñical. J. A. Ortiz.—p. 798.
*Hexamethylenamin in Typhoid. L. Ymaz.—p. 807.
*Heredity in the Human Species. V. Delfino.—p. 809.
Acute Lymphatic Leukemia in Child. J. B. de Quirós.—p. 811.

Cesarean Section.—Boero compares the different technics and the indications for them according as the cesarean section is required for a temporary or a permanent incapacity for natural delivery. The classic abdominal cesarean section, done early, preserves both mother and child, and respects the physiology of the uterus. Done late, it compromises and deranges the functions of the uterus. He has never known an instance of a late cesarean section—whatever the technic employed—in which there was not some mishap seriously compromising the future functioning of the uterus. By "late" he means several hours after rupture of the membranes, or after repeated internal examination. The classic incision in the body of the uterus does not require instruments to extract the fetus. The tissues here are so elastic that a small incision is enough; the scar heals firmly, and the region of the scar has no intimate connection with other organs.

Balanic Hypospadias.—Salleras describes another case treated by Cathelin's method, saying that few simple operations give such satisfactory results as this. The skin flap from around the abnormal meatus is turned over, the skin side inside, to make the new lower end of the urethra in its normal place.

Hexamethylenamin in Typhoid.—Ymaz recalls the curious property of this drug that the osmotic tension of its solutions cannot be compared with that of the blood serum. By dissolving it in a 4 per thousand solution of sodium chlorid, the hexamethylenamin can be used up to 40 per cent. without destruction of the erythrocytes. About 30 per cent. seems the optimum: 30 gm. of the hexamethylenamin in 100 c.c. of the 4 per thousand solution of sodium chlorid. The dose for intravenous injection is 5 or 10 c.c.

Heredity.—Delfino summarizes some recent publications on the working out of the mendelian laws in the human race.

Deutsche medizinische Wochenschrift, Berlin

June 23, 1922, **48**, No. 25

*Serodiagnosis of Syphilis by Flocculation. C. Bruck.—p. 825.
Effect of Mineral Water on Carbohydrate Metabolism. Mayer.—p. 827.
Intravenous Application of Cinchophen. B. Mendel.—p. 829.
Effect of Procain on the Tone of Skeletal Muscle. S. de Boer.—p. 831.
The Constitution in Relation to Surgery. K. H. Bauer.—p. 833.
Effect of Iron and Arsenic on Blood Formation. F. Müller.—p. 836.
Treatment of Varicose Veins and Sequels. I. Voeckler.—p. 837.
Injury of Vaginal Fornix in Attempt at Abortion. Schultze.—p. 839.
A Standard Color Chart for Recording, by Comparison, Varying Tints of the Human Skin. L. Freund and E. Valenta.—p. 839.
Mouth Breathing. B. Alexander.—p. 840.
*Treatment of Singultus. Heermann.—p. 841.
Diseases of the Male Genitalia. G. Ledderhose.—p. 841.

Serodiagnosis of Syphilis by Flocculation.—Bruck describes the technic of his flocculation test for syphilis and gives comparative results in 1,500 cases. Leaving the weakly positive differences out of account, there was complete agreement between the results of the Wassermann and the Bruck tests in 98.6 per cent. of the cases. As some of the advantages of his test over other flocculation tests, he states that: 1. It is carried out with the same, constant extract suspension, without special additions, so that the results are not affected by the accidents arising from the necessity of preparing new dilutions. 2. An incubation cabinet and special optical methods (agglutinoscope) are superfluous. 3. As there is no necessity of long incubation or keeping the serums at room temperature, the danger of nonspecific flocculations is avoided. 4. The technic is exceedingly simple and the reaction is prompt. The results are brought out sharply and—aside from the time required for inactivation—the result is obtained in less than half an hour.

Maneuver for the Cure of Singultus.—Heermann applies the thumbs beneath the costal arches of the patient, draws them apart somewhat and at the same time stretches the diaphragm. The hiccup ceases at once, even in stubborn cases.

Medizinische Klinik, Berlin

June 25, 1923, **18**, No. 26

*Radiotherapy of Uterine Cancer and Dysmenorrhea. O. v. Franqué.—p. 817.
*Influence of War on Gynecology and Obstetrics. A. Mayer.—p. 820. Conc'n.
*Spontaneous Cure of Syphilis. F. Lesser.—p. 824.
*Thrush Fungus in Gastric Ulcer. K. Cafasso.—p. 828.
*Red Noses. E. Saalfeld.—p. 830.
Ambulatory Treatment of Gonorrhea in Women. N. Cassel and L. Lilienthal.—p. 831.
*Dextrose by the Rectum. Varela and Rubino.—p. 831.
Hydrotherapy and Obesity. E. Tobias.—p. 833.
Present Status of Puberty Gland Question. Hart.—p. 836. Conc'n No. 27.

Radiotherapy of Uterine Cancer and Dysmenorrhea.—This is a graduate lecture which Franqué begins by saying that the prospect of a cure of uterine cancer seems to have grown worse instead of better in the last few years. The proportion of inoperable cases in Winter's experience, for example, was 34 per cent. in 1911 and 72.2 per cent. in 1920. His own figures are 30.4 per cent. in 1915 and 68 per cent. in the last half of 1921. The consensus of the German gynecologists in May, 1920, was to the effect that the 47 per cent. cured for five years after operative treatment could not be equaled by radiotherapy. In 150 reports from various clinics the highest proportion of five year cures with either radium or roentgen treatment or both averaged only 25 per cent. Kehrer's figures were the highest, 45.4 per cent., and this was with radium alone. The association of roentgen rays with the newer technic has not yet had the five year test. On the other hand, radium has proved impracticable for treatment of recurrence, on account of the danger of bladder and rectum fistulas, while roentgen irradiation after the abdominal radical operation has given 50 per cent. permanent cures, in contrast to the 45 per cent. without the prophylactic irradiation. Bumm's figures after four years are, respectively, 71.8 and 35.7 per cent. On the whole, Franqué remarks, operative treatment and radiotherapy are equally well justified. The decision should be made after consulting with the family physician. If Franqué had known, for instance, that a patient in a fatal operative case described had lost large amounts of blood and had had several syncopes, this would have turned the scale in favor of radiotherapy. It is important to arrange the radiotherapy to complete the course while the patients are in the hospital; it is so difficult to get them to return later. Cancer of the body of the uterus is much more promising for treatment. He has had 80 per cent. cured for five to eight years, and the operability averaged 93 per cent. Roentgen-ray treatment of myomas was followed by malignant degeneration in only one of his 200 cases; he thinks that the roentgen treatment rather tends to ward off cancer.

Gynecology and Obstetrics During the War.—Mayer's article was summarized on page 596.

Spontaneous Cure of Syphilis.—Lesser denounces preventive mercurial treatment of syphilis as overestimated, declaring that it has no scientific basis, and the serologic tests, the spirochete findings in general paresis, and the lack of reinfections all show that it does not realize a biologic cure; it has merely a symptomatic action, reenforcing the organism in its spontaneous cure. No more than potassium iodid, has it any action on the spirochetes. Air and light baths, sweating procedures and courses of massage should be used more freely in treatment of syphilis, he says, possibly also shock therapy—all to promote the "self-healing" of the disease.

Thrush Fungus in Gastric Ulcer.—Cafasso examined the gastric contents from 122 persons, including thirty-four with ulcers. In over 50 per cent. of this latter group the oidium was found, confirming Askanazy's statements. It was most common in the cases with stenosis, and was rarely found with cancer.

Red Noses.—Saalfeld reviews the different measures advisable for acne rosacea, rosacea, rhinophyma and other forms of red noses. When the redness is transient, on entering a warm room, or after a hot drink or liquor, it may be banished for several hours by laying on the nose for a few seconds a compress dipped in benzin. Measures to induce peeling or actual decortication or quartz lamp treatment are among those described.

The Sugar Content of the Blood After Dextrose Enemas.—Varela and Rubino injected into the rectum 100 or 200 gm. of a strong solution of dextrose, giving it by rectal drip in the lower part of the ampulla. They tested the sugar content of the blood and urine every hour. In their seventeen tests the sugar content of the blood kept within normal range, but in seven cases there was decided glycosuria for up to seven hours. In one case it totaled 4.6 gm. This is in marked contrast, they say, to the findings when dextrose is given by the mouth; the blood sugar runs up then by 100 per cent. or more, while there is no glycosuria. They ascribe this to the fact that the dextrose, as they gave it by the rectum, was absorbed directly into the blood without passing through the liver. It thus acted like a foreign substance and was cast off by the kidneys. When it passes through the liver, it becomes modified in some way that adapts it as part of the organism, and when it reaches the kidneys these organs do not cast it off. This assumption credits a new function to the liver, the transformation of dextrose in this way.

Münchener medizinische Wochenschrift, Munich

April 14, 1922, **69**, No. 15

*Diagnostic Value of Gastroscopy. R. Schindler.—p. 535.
Causal Psychotherapy in Neuroses of Organs. K. Westphal.—p. 537.
Relation of Bronchial Asthma to Other Diseases. Kämmerer.—p. 542.
Response of Capillaries to Light as Roentgen Unit. Welsch.—p. 546.
Treatment of Syphilis with Bismuth. H. Müller.—p. 547.
Congenital Syphilis. G. Stümpke.—p. 551.
Marked Eosinophilia with Tumors. F. Schellong.—p. 553.
Pneumothorax in Relation to Altitude. F. Petz.—p. 554.
Pneumography with Obstruction of Spinal Canal. Josefson.—p. 555.
A Simple Colorimeter for Clinical Purposes. J. de Haan.—p. 555.
Diagnosis of Pernicious Anemia. P. Morawitz.—p. 557.
Present Status of Knowledge of Muscle Tonus. P. Martini.—p. 558.

The Diagnostic Value of Gastroscopy.—Schindler thinks that gastroscopy is destined to change markedly the fundamental conceptions in regard to the pathogenesis, clinical aspects and treatment of diseases of the stomach. Many disease conditions that heretofore have not been clinically diagnosticable can now be recognized and brought under rational treatment. Gastroscopy is, to be sure, the most difficult form of endoscopy, but it requires only a little practice and technical skill to learn it. His researches were made with the Elsner endoscope, which he found excellent but was able to modify to advantage in some particulars. By far the greatest difficulty lies in the correct interpretation of the pictures thus secured. The operator must have a thorough knowledge of pathologic anatomy. If the contraindications are strictly observed, the use of the rigid type of instrument is not dangerous for the patient. Most patients do not complain much of the disagreeable features of gastroscopy, many declaring that it is less obnoxious than the stomach tube. This paradox is explained by the perfect anesthesia required for gastroscopy. It makes possible certain differential diagnoses that could not be reached in any other way; for example, the various forms of chronic gastritis. For the recognition of gastric ulcer this form of endoscopy is indispensable. The early diagnosis of carcinoma will be advanced most decidedly if patients (especially those over 35 years of age) who complain of gastric symptoms and loss of weight are subjected promptly to a gastroscopic examination. Schindler gives many interesting details in regard to his gastroscopic findings. He endeavored to demonstrate the existence of the so-called *Magenstrasse* (gastric channel or path of the food through the stomach—the danger zone for ulcer), by giving the patient beforehand a teaspoonful of an aqueous solution of methylene blue. He expected to find only the lesser curvature and the surrounding region colored blue, but found the methylene blue equally distributed throughout the stomach. Gastroscopy should always precede an exploratory laparotomy for diagnostic purposes. He opposes the type of gastroscope in which the tube introduced is of soft rubber, much preferring the rigid type. Of 120 gastroscopies, in only two cases was he unable to introduce the gastroscope, owing to senile kyphosis preventing the passage of the instrument through the esophagus. A colored plate with nine gastroscopic views adds to the interest of the article. Maaløe's experience with 500 applications of the gastroscope was reviewed in these columns, June 11, 1921, p. 1720.

Wiener klinische Wochenschrift, Vienna

June 8, 1922, **35**, No. 23

Hypnotic Analgesia in Childbirth. H. Kogerer.—p. 513. Conc'n No. 25.
Modern Treatment of Fractures and Luxations. C. Ewald.—p. 517. Conc'n.
Experimental Hyperfeminism. J. Bondi and R. Neurath.—p. 520.
Diphtheric Colitis Following Vertebral Injuries. W. Goldschmidt and A. Muelleder.—p. 522.
Intracutaneous Gelatin Reaction in Syphilis. A. Busacca.—p. 523.
Changes of the Esophagus in Lymphosarcoma and Lymphogranuloma of the Mediastinum. M. Haudek.—p. 524.
Acute Forms of Ossifying or Deforming Affections of the Spinal Column. L. Schmidt and E. Weiss.—p. 525.
Anthroposophy in Relation to Homeopathy. J. Weiss.—p. 525.

June 15, 1922, **35**, No. 24

*Tuberculosis of Peritoneum and Genital Organs. P. Werner.—p. 535.
Cheyne-Stokes Respiration and Its Connection with Pathologic Muscular and Vascular Movements. Hess and Rosenbaum.—p. 540.
Frequency of General Paresis in Vienna Insane. Pilcz.—p. 542.
Dermotropism and Ectodermoses. B. Lipschütz.—p. 544.
Experimental Respiration in the Cadaver in Research on the Circulation. S. Jellinek.—p. 546.
F. W. Lippich's "Dipsobiostatik." O. Danzer.—p. 547.

Treatment of Tuberculosis of Peritoneum and Genital Organs.—Werner advises, if tuberculosis of the peritoneum or the genital organs is suspected, that by all means the abdomen be opened, in order that the diagnosis may be confirmed. This exploratory laparotomy must be insisted on, for, as he endeavors to show by citing several cases, the diagnosis is difficult and this is the only way to establish with certainty the tuberculous nature of the disease. If an exudative type of peritonitis is present, the accumulated fluid must be drawn off. If the fluid in the abdomen reappears later, roentgen irradiation is recommended. In the dry adhesive type, roentgen rays should be used at once. In tuberculous affections of the adnexa, large suppurating tubes should be extirpated if easily removable; if firmly embedded, they should be left and roentgen irradiation employed. In case of large accumulations of pus in the pelvis and if fever is present, the vaginal route may be indicated in exceptional instances, to be followed by roentgen irradiation. Werner is convinced that if this method of management is adopted much better results will be secured than in the past.

Zentralblatt für Chirurgie, Leipzig

May 6, 1922, **49**, No. 18

*Copper Sulphate in Actinomycosis. R. von Baracz.—p. 634.
Pseudo-Appendicitis Caused by Spasms of Small Intestine. K. Vogeler.—p. 639.
*Temporary Closure of Artificial Anus. L. Drüner.—p. 642.

Parenchymatous Injections of Copper Sulphate in Treatment of Actinomycosis.—Baracz has used copper sulphate in the treatment of 35 out of 36 cases of actinomycosis occurring in his practice during the past nineteen years, and is abundantly well satisfied with the results. Of the 36 cases, 30 affected the head and neck, two the tongue, one the lungs with metastasis to the abdominal walls, two the abdomen and one the buttocks. Of the 35 cases in which (usually 1 per cent.) solutions of copper sulphate were injected, 30 patients recovered permanently, two did not receive the complete treatment and two are still under treatment. According to the size of the infiltration, varying quantities of the aqueous solution of copper sulphate are injected, at intervals of a few days, until the infiltration begins to get soft, the time required varying according to the size, depth and location of the infiltration and the degree of malignancy of the case. The two very grave cases of actinomycosis of the abdomen ended in death.

Pad to Close Artificial Anus.—An inflatable pad between a small plate inside the bowel and a small plate above outside closes the opening completely. Of course this device is only for temporary use.

Zentralblatt für innere Medizin, Leipzig

May 6, 1922, **43**, No. 18

*The Capillary System as a Peripheral Heart. E. Kylin.—p. 297.

The Capillary System.—Kylin recalls Hasebroek's pioneer work in 1914 by which he sought to prove that the peripheral vessels (arteries, veins and capillaries) by their contractions aid the heart in its work, and contribute toward the mechanism of the circulation. Through the researches of Krogh and others we now know that the capillary system has an independent regulatory mechanism, by which the capillaries are opened and closed. Krogh showed that in the mucous membrane of a frog's tongue, for example, only a few capillaries are open under normal conditions, but by mechanical, chemical or nervous irritation the remaining capillaries can be opened to the blood stream. After a time they close again. By pressure from the arterioles, however, the capillaries cannot be opened. Kylin has been studying the behavior of the capillaries around the nail-groove in man. He concludes, also, that the capillaries by alternating dilatation and contraction help to force the blood through and thus aid the heart in its work. They would seem to constitute, in other words, a peripheral heart.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

June 3, 1922, **1**, No. 22

The Medical Profession in the Lower House. G. van Rijnberk.—p. 2136.
*Treatment of Bronchial Asthma. J. Heckman.—p. 2139.
Case of Narcolepsy. J. R. Kollewijn.—p. 2155.

*History of Epilepsy. G. C. Bolten.—p. 2156.
The Oldest Work on Dentistry; 1530. G. H. Bisseling.—p. 2170.

Asthma.—Hekman admits several forms of asthma, including that for which anaphylaxis is responsible, and that traceable to irritability of the finer bronchioles, left by some infectious process or the result of abnormal nervous influences. Tuberculosis may be responsible in some cases, and these may benefit by tuberculin treatment. In one such case ten years ago a course of tuberculin cured the asthma. He has treated twenty-two asthma patients with an autogenous vaccine, and he gives the details of four cases in which marked improvement followed. No benefit was observed in two cases. Some of the others are still under treatment.

History of Epilepsy.—Bolten cites authorities to show that epilepsy has been known from the earliest appearance of man on the earth, and he traces its history and lists a number of famous persons alleged to have had the disease.

Acta Chirurgica Scandinavica, Stockholm

June 14, 1922, **54**, No. 6

*Ankylosis of Jaws. L. Imbert and J. Cottalorda.—p. 515.
*Acute Serous Peritonitis. E. Melchior.—p. 530.
*The Circulatory Failure in Peritonitis. H. Olivecrona.—p. 559.

Inability to Open the Jaws.—Imbert and Cottalorda remark that the war experiences have completely upset the former views as to the proper treatment of constriction of the jaws. Formerly entirely surgical, it is now almost entirely mechanical. When the play of the jaws is prevented by myotonic contracture, an apparatus like O'Dwyer's jaw opener will conquer the contracture if applied gently and with increasing force. Suddenly the mouth opens as if some obstacle had been overcome, but there is no rupture; the force applied is never enough to tear the soft parts. Cicatricial constriction is also amenable to mechanical measures, spreading the jaws apart with a clothes-pin or other device, repeating the stretching perseveringly day by day. The trunk of the facialis nerve crosses the condyle and is thus in the way when bony ankylosis requires operative treatment. The nerve can be drawn up out of the way with the soft parts if the straight incision is made from 2 cm. below the middle of the tragus, slanting to the lower margin of the horizontal ramus. A retractor on each side, perpendicular to the incision, gives ample access to the bone. A raspatory, working from below, separates the periosteum from the bone. The condyle is not enucleated, but the neck is resected; muscle tissue can be interposed to prevent recurrence. It may be necessary to resect the condyle on the sound side, but systematic mechanotherapy is indispensable after any such operative measures. He says that this new operative technic will correct the most inveterate cases of constriction of the jaws. The article is in French and is illustrated.

Acute Serous Peritonitis.—Melchior refers to idiopathic peritonitis with effusion as a primary affection. In a case described, an acute three day fever and symptoms of progressive peritonitis in the girl of 15 were not explained by the laparotomy. Except for the abundant effusion the abdominal findings were negative, but the fever dropped at once after the operation. In this and in nine similar cases the laparotomy had been done on the assumption of acute appendicitis, but the appendix was either sound or showed such slight chronic changes that it could not possibly be incriminated for the clinical picture. The effusion was limpid and the laparotomy was always followed by prompt recovery. The age was between 12 and 15 in five, and the oldest in the group was 24. There was nothing to indicate polyserositis in any instance. In another group of three cases the clinical picture and findings were the same except that a mild ovarian affection or appendicitis or ectopic pregnancy might have explained the condition. He has found in the literature only one instance of this nonspecific peritonitis with effusion. This was a case reported by Langemak, the peritonitic symptoms and effusion following an acute gastro-enteritis in a boy of 14 with osteomyelitis. On account of the difficulty of excluding appendicitis, operative treatment is generally indicated, and it always benefits although isolated peritonitis acuta serosa otherwise does not call for intervention. The article is in German.

The Circulatory Failure in Peritonitis.—The extensive experimental research described in this long article (in English) was done at the Physiology Institute at Stockholm. It demonstrated that in peritonitis the volume of blood circulating effectively is reduced because the capillaries dilate. The blood stagnates in them, and the plasm seeps through the capillary walls. The heart is not to blame. The measures in vogue to combat the circulatory failure in peritonitis are based on incorrect premises. We should aim to act on the capillaries. To date, the best means for this seems to be transfusion of blood, the same as in shock and hemorrhage. This commendation of transfusion of blood as the most rational treatment of the circulatory disturbance in peritonitis is Olivecrona's final conclusion from his research, but he adds that this suggestion must be tested experimentally before any definite opinion can be expressed.

Hospitalstidende, Copenhagen

June 10, 1922, **65**, No. 21

*Roentgenoscopy in Ileocecal Tuberculosis. P. Flemming Møller.—p. 333.
Present Status of Bismuth Treatment of Syphilis. H. Haxthausen.—p. 342.

June 30, 1922, **65**, No. 26

Case of Poliomyelitis with Landry's Paralysis in Adult. K. Winther.—p. 413. Cont'd.
Experimental Research on the Functions of the Labyrinth. R. Lund.—p. 425. Conc'n.

Roentgenoscopy in Ileocecal Tuberculosis.—Møller refers to Stierlin's statement that, with ileocecal tuberculosis, the contrast suspension is passed along through this segment of the bowel so rapidly that this segment does not cast a shadow, while the bowel above and below is entirely opaque. Møller has been unable to confirm his statement, and only seven cases are on record in which this Stierlin symptom was pronounced. Møller noted in a case of advanced ileocecal tuberculosis that the Stierlin symptom observed at first subsided later, although the disease continued a progressive course.

Ugeskrift for Læger, Copenhagen

June 15, 1922, **84**, No. 24

*Crippling with Arthritis Deformans. T. Nielsen.—p. 693.

Correction of Crippling of the Knee from Polyarthritis Deformans.—Nielsen remarks that no joint induces such a degree of crippling as contracture of the knee. In his 109 cases of chronic polyarthritis deformans there was contracture of one or both knees in 41, including 13 with extreme crippling from the inability to extend the knee. The necessity must be impressed on the patient from the first to ward off contracture by frequent flexing and extending of the knee. He must be warned in particular against the use of a cushion under the knee. In three of Nielsen's severest cases the use of a cushion under the knee for weeks and months as the patient lay in bed was evidently responsible, and this was in a hospital. Balneotherapy and mechanotherapy, with gentle massage, are also useful in warding off crippling of the knee. With these measures he succeeded in arresting the course of the crippling in all the cases, and improved many. When the contracture was purely muscular, the cure was often complete, but in 3 rebellious cases of extreme contracture of one knee, with normal hip joint, he resected the bone, with ideal results. He gives the details of these cases and cites Hildebrandt's 4 recent successful cases. In 19 compiled from the literature, amputation became necessary later in one case, and one patient died. In 7 cases he applied *redressement forcé* in one or more sittings, under deep anesthesia, and obtained highly gratifying results in all but one case. This exception was a young woman who developed gangrene in the foot after the forcible correction of the deformity. The after-treatment with *redressement forcé* is of prime importance, and it is possible only in a sanatorium equipped for the purpose, like the one in his charge. He adds that no one else advocates *redressement forcé,* and he is very careful not to carry the correction to overextension. Immobilization for two or four weeks must follow, and this must be succeeded by physical treatment, with daily extension, to prevent a relapse. He does not attempt to correct the contracture of the knee if the hip joint is badly diseased.

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INFECTIONS AND INFLAMMATIONS OF THE INVESTING TISSUES OF THE TEETH

GINGIVAE, PERIDENTAL MEMBRANE, CEMENTUM AND ALVEOLAR PROCESS *

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In order that we may better comprehend the pathologic changes which occur within the mouth, and the bearing which these changes may have on the more remote parts of the body, it is necessary that we review some of the embryology and minute anatomy of these parts.

As G. V. Black has given us much of the nomenclature employed in studies of these parts, and as the terse language used by him best expresses his observations concerning his studies of them, I have copied largely from his last book.[1]

The word "gum" or "gums" is the name applied to the inelastic fibrous mat which covers the hard palate and alveolar processes. Its fibers are closely interwoven with the fibers of the periosteum, which is very firmly adherent to the bone, rendering these soft tissues immobile. The word "gingiva" is applied to that portion of the gum through which the tooth erupts, and, later, to that soft tissue between the teeth, which rests on the alveolar crests.

In health, its free border thins away to a knife edge that lies close to the enamel of the crown, but which may be easily lifted away by any thin, narrow, flat instrument, disclosing the subgingival space within which, under certain conditions, serumal calculus is deposited on the surface of the enamel.

The development of the gingivae and alveolar processes is simultaneous with the growth and eruption of the teeth; and, as they are special organs, they disappear with the loss of the teeth.

With the growth of the teeth and their investing structures, the connecting organ, namely, the peridental membrane, is formed. This is a system of inelastic fibers which suspend and hold the teeth within their sockets. Of particular importance and interest are those fibers which make up the transseptal group, which are attached to the proximal surfaces of the teeth and extend through the septal gingivae over the bony septum from tooth to tooth, recurring in each proximal space, and holding the teeth together continuously from one third molar around the arch to the third molar of the opposite side. This arrangement of fibers keeps the tooth contacts tight; consequently, when, from loss of these fibers between the teeth from injury or disease, the teeth are pulled apart, food becomes packed between them, often with serious consequences in the establishment of pyorrhea.

The attachment to the bone is made possible by the osteoblasts, which lay down bone around the ends of the fibers, mortising them in, as it were; but it is the ends which are attached to the teeth which should claim special attention and study because there is nothing similar elsewhere in the body, and because in this study lies the hope of successful therapeutics.

The cementoblasts lie on the cementum of the tooth just as the osteoblasts lie on the bony wall of the alveolus between the ends of the fibers of the peridental membrane, some of them remaining in the cementum just as the osteoblasts remain in the lacunae of the bone; but there is a marked difference between cementum and bone in that the cementum, as it has no blood circulation within it as has bone, is not capable of self-repair.

All repair of cementum and all new cementum is made by the cementoblasts of the peridental membrane and not by the cells which are incarcerated within the cementum.

Of paramount importance is the fact that this repair takes place only under complete asepsis. Cementum stripped of its peridental membrane, infected and pus-soaked, is a dead tissue, and no reattachment to it by living tissue can be made.

Furthermore, when, by infection, the cemental ends of the fibers of the peridental membrane are detached from the cementum, the fibers themselves disappear and there are none left to become attached, even if repair of cementum were possible. As has been stated, repair is not made by the cement corpuscles retained within the lacunae; and, because the infection which loosened the attachment of the fibers to the cementum also destroyed the cementoblasts of the peridental membrane directly over that area, new growth of cementum is impossible.

With the disappearance of the transseptal group of fibers of the peridental membrane, there is also a disappearance of the corresponding bone of the alveolar process into which they were inserted.

To recapitulate: When, as a result of infection, the attachment of the fibers of the peridental membrane is severed, we have not only a pus-soaked cementum incapable of repair, which exerts a negative chemotaxis tendency, but also the actual disappearance of the fibers and bone into which they were inserted, and the loss of the cementoblasts which make such a repair possible.

Replacing this loss of tissues is a mass of suppurating inflammatory tissue not protected by epithelium, from

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* Chairman's address, read before the Section on Stomatology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Black, G. V.: Special Dental Pathology, Chicago, Medico-Dental Publishing Company, 1915.

which toxins and bacteria find their way into the system and through which other bacteria of the mouth may readily pass.

Concerning the cementum, it makes no difference whether the suppuration occurs at the gingival attachment or at the apex of the root, in which case, following the death of the pulp, the infection passes through the apical foramen or foramina into the tissues immediately surrounding the apex. Thus we see that these two chronic infections, namely pyorrhea and chronic alveolar abscess, both propagated by dead cementum, are the results of two factors, the first being a gingivitis, the second, following the death of the tooth pulp.

The first requisite in the conservation of healthy teeth and their investing structures is the avoidance of gingivitis, which is caused by numerous faulty conditions, among which are (1) salivary calculus and (2) serumal calculus, and which is due to (*a*) lack of contact of the teeth; (*b*) improper contact; (*c*) deviation from the normal, smooth contour of the teeth; (*d*) lack of cleanliness; (*e*) misuse of the toothpick, rubber-band, floss-silk or tooth-brush; (*f*) overhanging margins of fillings; (*g*) ill-fitting crowns, etc.

In a study made by Dr. Arthur D. Black of 500 mouths of young adults of an average age of 26 years, none of whom as yet had disease of the peridental membrane, only 5 per cent. of them were free from gingivitis; in the remaining 475 there were 4,253 areas of gingivitis, an average of 8.53 for each person of the 500 examined.

Ninety-five per cent. of all persons examined had one or more areas of gingivitis, 55.1 per cent. of these being due to trauma, 37 per cent. of which were due to imperfect dental operations, less than one third due to salivary calculus and less than one sixth to serumal calculus.

Chronic suppurative pericementitis (pyorrhea) has its beginning in a gingivitis which may result from many causes; and, while serumal calculus beginning in the subgingival space may be the primary etiologic factor, it is usually a result rather than the cause, as within the pus pocket the calculus is deposited on the denuded root from the serum which constantly bathes the chronically infected tissues. Thus, we consider serumal calculus a cause if on the enamel, and as a result if on the cementum.

Pyorrhea is probably not due to any specific organism. The greatest achievements in medicine have been in the prevention of disease rather than in its cure, and so must the greatest dental service be attained by prevention rather than by restoration. This prevention must begin with the eruption of the temporary teeth and continue at intervals, depending on the necessity of each individual, through life.

It has been shown that gingivitis is the primary factor in pyorrhea, loss of gum tissue, loss of the alveolar process and finally loss of the teeth; consequently, it is the primary gingivitis which should not be allowed to continue and become chronic.

Physicians should be able to recognize inflammation of the gums as they recognize inflammation in other parts of the body. They can be easily taught to detect ill-fitting crowns, overhanding margins of fillings, salivary calculus and even serumal calculus in pus pockets, and should refer cases to the dentist who can remedy these defects.

Because of the insidious onset and chronic course, gingivitis is frequently neglected by the dentist and is not recognized by the physician until, from a toxemia or development of an infection in some remote part of the body, the patient seeks relief, of his physician, at which time irreparable local damage has been done and distressing disease may have developed from the primary focus within the mouth.

Routine physical examination should include a more thorough oral examination, and the treatment of oral lesions should be based on a working knowledge of pathology.

In the vast majority of cases, neglected gingivitis becomes chronic, and its duration, over a period of months or years, not only leads to a destruction of normal tissues both soft and bony, but is a menace to health in two ways: (1) by the constant suppuration with absorption and swallowing of bacterial by-products, and (2) by the entrance of bacteria themselves into the lymph and blood streams, with their arrest in distant parts where they set up other foci of infection.

ABSTRACT OF DISCUSSION

Dr. Byron C. Darling, New York: What Dr. Potts has said bears out what we are about to learn from the roentgenray examination of the teeth. If one will observe the alveolar margins carefully, one will see that the little entering wedge, the swelling of the pericementum, is present in many of the teeth. In fact, it seems almost universal. What Dr. Potts has said gives me an opportunity to know that the increase in width of the black line is a pathologic condition and is so recognized by the periodontist.

Dr. F. B. Moorehead, Chicago: The fibers of the periodontal membrane are attached through the agency of the cementoblasts and, whenever the cementoblasts are destroyed in an appreciable area, there is no hope of any reattachment of the periodontal membrane; the surface thus denuded becomes, in substance, foreign matter. Any repair that takes place under these circumstances is scar tissue and is not safe.

Dr. Herbert A. Potts, Chicago: I wish to emphasize the importance of taking care of these infections and irritations which do become chronic. They cause little or no pain or inconvenience to the patient and, in the course of months or years, result in serious losses.

ANGINA PECTORIS

SOME CLINICAL CONSIDERATIONS *

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From time to time it is with some profit that we make an inventory of whatever information we can bring to bear on the study of a disease to see what progress has been made. In the study of heart disease it is unnecessary to dilate on the great aid in understanding the arrhythmias that has resulted from modern cardiography. The latter has thrown some light on diseases of the heart muscle, although there still is considerable vagueness and speculation concerning the relation of heart muscle disturbances to changes in the electrocardiogram. Likewise, the study of the vital capacity of the lungs and dyspnea of cardiac patients has afforded us some aid in following the course of our patients, in cataloguing them into various groups according to the degree of compensation, and to some extent in prognosticating as to the future course of events. It is my personal judgment, although this point is disputed by some observers, that the introduction of the Wassermann test has taught us that syphilis of the heart is comparatively rare in clinical medicine except when the disease has involved the aorta or aortic cusps; i. e., in the absence of aortic insufficiency and aneurysm of the aorta. Turning our attention to angina pectoris, the question arises as to what progress has been made in the management of this extraordinary disease.

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* From the Medical Clinic of the Peter Bent Brigham Hospital.

* Read before the American Climatological Association, Washington, D. C., May 2, 1922.

It is not the purpose in this study to discuss the theories as to the cause of angina pectoris or to give a complete clinical picture of the disease. Some points of interest that developed in the course of a study of 103 cases among patients admitted to the Peter Bent Brigham Hospital and seen in private practice will be taken up, with emphasis on those features that apparently were helpful in the clinical management of the problems that presented themselves.

TERMINOLOGY

There is a great deal of confusion in the literature and in the minds of many of us as to where to draw the line between angina pectoris and other cases of heart disease with precordial pain or even functional and vasomotor disturbances. It would be well if we could do away with such terms as false angina, pseudo-angina and juvenile angina. Unfortunately, at times it is the only recourse we have; but to use such vague terms only conceals our ignorance or uncertainty of the true state of affairs. It would be well for physicians to take the position that the diagnosis of angina pectoris is to be used in heart disease when it is meant that the patient has attacks of oppression or constriction or pain in the chest, generally in the region of the sternum (not particularly in the precordium or apical region), having a more or less characteristic distribution and radiation, especially related to effort and associated with some other symptoms, such as mental apprehension, fear of death, temporary dyspnea, immobility and vasomotor disturbances such as pallor and perspiration. It must also mean that the patient whose condition is so diagnosed is likely to die suddenly, either with little warning or after only a short illness. It is important to keep the latter connotation in mind, for other types of heart disease have repeated periods when the patient is confined to bed with increasing degrees of cardiac failure and the accompanying signs of decompensation. But the latter patients are likely to die in bed, not unexpectedly but after a lingering illness. Occasionally angina pectoris accompanies valvular disease or chronic myocarditis, and the clinical picture is thus complicated. If this attitude is accepted, there will be less confusion in our terminology. The expression, "This patient has a little angina" should mean that the diagnosis is angina pectoris, but that the pain, not the disease, is slight; for the patient with only a slight amount of pain may be dead of angina in a few days; on the contrary, another patient who has severe precordial pain may not have angina at all and may live for a great many years.

ETIOLOGIC FACTORS

The average age of this group of patients was 54.1 years; that of the males was 54.3, and of the females, 53.6. It is significant that patients with angina pectoris are comparatively more often encountered in general practice than in hospital wards, for many of them are ambulatory and do not consider themselves sick and, what is more important, are regarded rather lightly by the attending physician. To include none but hospital cases might give wrong impressions, because it seems that while women with "minor complaints" frequently reach the public wards of hospitals, men do so only reluctantly, as they try to continue at their work. Of these 103 patients there were sixty-eight males and thirty-five females, i. e., almost twice as many of the former as of the latter. This sex discrepancy is striking and deserves some explanation. It is especially significant when we consider that vascular hypertension does not affect males as often as females; in point of fact, it is much more common in women. Dr. J. P. O'Hare,[1] who has studied this disease in a large number of patients, finds that of 153 cases of vascular hypertension, 64.7 per cent. were in females and 35.3 per cent. in males. Appreciating that some hypertension is commonly associated with angina pectoris, there must be some other factor that turns the proportion in favor of males. A point of great importance in this connection, I believe, consists in physical work and muscular strength. Men are physically stronger than women and, in general, work harder. It is unusual to find angina pectoris in weak, feeble, underdeveloped or undernourished persons. Many of them are somewhat overweight and, what is more important, most of them are well set, sturdy and of the muscular type. I have been struck by the good physical development of most of the patients with angina, and with the excellent history as to general health and freedom from minor ailments. This has been so striking that it has seemed to warrant a place among etiologic factors. The weak do not have angina; it is rather the well and sturdy.

What specific diseases stand in any etiologic relation to angina pectoris? Syphilis has generally been given the place of first importance. I believe that this point is overemphasized. To be sure, it is often difficult to determine whether or not syphilis is the cause of any chronic condition. The history obtained from the patient is unreliable. The postmortem findings are often either uncertain or disputable, even when the disease may be present. At times outspoken evidence of syphilis is found, particularly when there are typical changes in the aorta or in the central nervous system. In general, however, the Wassermann reaction of the blood will come as near to the truth as any other means we have, and can fairly be used for purposes of this study. Of the eighty-one patients on whom this test was made, the reaction was positive in only six, i. e., 7.4 per cent. Thus, it follows that in about 7 per cent. of these cases syphilis was the cause of angina pectoris, and therefore the disease plays a relatively unimportant rôle as an etiologic factor. However, it is imperative to watch for this condition, for, if discovered in its early stages before the aorta and aortic valves have become extensively involved and distorted, antisyphilitic treatment may promise more than if there was no specific condition to treat. The presence of a diastolic murmur, heard best at the base of the heart, should always be carefully watched for and, if present, make one investigate more carefully for syphilis.

Among other conditions that stand in some etiologic relation to angina pectoris is diabetes. Its frequency is probably greater than is generally appreciated. Of the 103 patients in this series, seven had diabetes. Gout has long been regarded as a possible precursor of angina, and this was found to be so in five patients. There were two with hypertrophic prostate, but this probably is no more than the accidental incidence of two diseases in the same individual. The frequency of organic valvular disease associated with angina is not very striking. There were two instances of typical mitral stenosis, one of which came to postmortem examination and was there verified. This patient died very suddenly. In addition, there were two patients with rheumatic aortic insufficiency, one having typical signs of aortic stenosis as well. Both of these patients were young, 19 and 29 years old, respectively, although they suffered attacks that were typical of angina pectoris. A third patient was a woman of 48 who had typical anginal attacks and showed signs of aortic insufficiency. The Wassermann reaction was negative, and there was no history of rheumatic fever. This may have been an instance of syphilis, notwithstanding the negative serum reaction.

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[1] O'Hare, J. P.: Personal communication to the author.

By far the most common and frequently the only important accompanying condition is arteriosclerosis. Unfortunately, no careful tabulation as to the comparison of the frequency of arteriosclerotic changes in the various parts of the body is possible from this study. It would be instructive to know whether angina occurs in those patients with large blood vessel sclerosis or with changes in the finer vessels. O'Hare[2] has recently been studying this question with relation to vascular hypertension, and has found that simple hypertension is most commonly associated with sclerosis of the retinal arteries rather than with the large vessels such as the radial or brachial, and that the patients with the lower blood pressure had more sclerosis of the large vessels and less of the finer ones. It is my opinion that, since angina pectoris generally occurs with a moderate elevation of pressure, sclerosis of the large blood vessels is associated with it rather than sclerosis of the finer ones. Certainly most patients that I have examined with angina have shown few changes in the retinal vessels as compared to those with vascular hypertension. The majority of the patients in this series had definite sclerosis of the radial arteries, although there was a smaller group in whom the peripheral blood vessels did not seem to be very striking.

BLOOD PRESSURE OBSERVATIONS

A study of the blood pressure in this series has brought out some interesting figures. The average systolic pressure of ninety-nine patients was 160.6 mm., and the diastolic was 95.0 mm. The lowest systolic was 80 mm., and the highest, 260 mm. Most of them were between 140 mm. and 200 mm. There were sixty-four of such patients in this series. Eleven had a pressure over 200 mm., and twenty-four under 140 mm. Several of those who had a low pressure died in the attacks while under observation or shortly after it, and may well have had a higher blood pressure before the fatal attack. Some years ago, with Tranter,[3] I reported two fatal cases of infarction of the heart with coronary thrombosis, in both of which there was a strikingly low blood pressure. In some others of this series with low blood pressure undoubtedly the same pathologic condition was present. There were several instances, however, of normal blood pressure, i. e., from 120 to 140 mm., in patients suffering from typical angina who gave no evidence of such a serious complication as infarction of the heart.

Some observations on the blood pressure were made in relation to the attacks of angina pectoris and the administration of nitroglycerin. One patient just before an attack had a systolic blood pressure of 140 mm. and a diastolic pressure of 90 mm. During the attack it rose to 180 mm. systolic and 120 mm. diastolic, and then at one minute intervals after the administration of nitroglycerin by mouth the readings were 184/110, 158/90, 150/90, 140/90, 140/90 and 140/90. Another patient, who had a blood pressure of 110 mm. systolic and 70 mm. diastolic, showed an increase to 164 mm. systolic and 94 mm. diastolic during an attack; 0.9 mg. of nitroglycerin was then given by mouth, and at two minute intervals the readings were 155/90, 140/88 and 132/88. In a third patient, just before the attack the blood pressure was 162 mm. systolic and 88 mm. diastolic; during the attack at 7:09 p. m. before any medication was given it was 154 systolic and 78 diastolic. Then 0.0003 gm. of nitroglycerin was given at 7:11 p. m. The blood pressure was 148 systolic and 76 diastolic, and the pulse 100. Another tablet was given, and at 7:15 p. m. it was 140 systolic and 82 diastolic, and at 7:18 p. m. it was 138 systolic and 84 diastolic and the pulse was 100; at 7:20 p. m. the blood pressure was 144 systolic and 82 diastolic; the third tablet was given, and the blood pressure was 142 systolic and 78 diastolic; this was at 7:23. Finally, a fourth tablet was given, and the blood pressure was 140 systolic and 78 diastolic at 7:25 p. m. By this time the pain had disappeared. A fourth patient who had a blood pressure of about 200 mm. for some years was suddenly taken with a severe attack of angina pectoris. When seen shortly after the attack had begun, the systolic pressure was 160 mm., and during that day the pressure gradually fell to 120 systolic and 80 diastolic. On the following day it was 110 mm. He died twelve days after the onset of this attack. The observations on the first two patients disclosed a distinct increase of the blood pressure, with the development of an attack of angina and a fall in the pressure as nitroglycerin made the attack subside. The third case showed no appreciable change with the onset of the attack, but the pressure diminished somewhat as the attack subsided after nitroglycerin had been given. It is difficult to say from these observations whether the subsiding of the attack caused a fall in pressure or the reverse. The latter view seems the more likely, and probably any other factor that might reduce the blood pressure could end the attacks.

What general conclusions can be drawn from this study of the blood pressure in angina pectoris? It is evident that any pressure from subnormal to a marked hypertension may exist in patients suffering from angina. The extremely high pressure of from 200 to 250 mm., although fairly common in adult age, occurs in only about 10 per cent. of the patients with angina. Some of these patients subsequently develop a lower blood pressure, and therefore a good deal will depend on the stage of the illness during which observations are made. Furthermore, the low blood pressure needs to be interpreted carefully. Some of the patients turn out to be young persons who have rheumatic aortic disease as the underlying cause of the angina pectoris, while another group contains those patients who are seen in an attack of closure of a coronary vessel. In the latter, the pressure may be very low, 90 mm. or less, while the patient appears to be in a fair general condition.

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[2] O'Hare, J. P.: Paper read before the Interurban Club meeting, Boston, April 7, 1922.

[3] Levine, S. A., and Tranter, C. L.: Infarction of the Heart Simulating Acute Surgical Abdominal Conditions, Am. J. M. Sc. **155**: 57 (Jan.) 1918.

EXAMINATION OF THE HEART

On examining the heart, one is generally impressed by the absence of significant findings in most instances of angina pectoris, and yet it is this negative state of affairs that is very important and makes us be on our guard. Frequently the differential diagnosis is between a simple minor complaint such as indigestion, constipation or neurosis, and this most deadly disease. The heart is generally enlarged, slightly or moderately, rarely markedly. Not infrequently, on percussion, no evidence of enlargement could be made out. In some of these cases the roentgen ray or the electrocardiograms disclosed hypertrophy that was previously overlooked. In rare instances all methods failed to reveal any appreciable enlargement of the heart.

On auscultation, frequently no murmurs were heard. In this series of 103 cases, forty-seven showed no murmurs. There were forty-nine in which a systolic murmur was heard at the apex or the base of the heart or at both points. The systolic murmur heard in the forty-nine cases just referred to did not indicate a real endocarditis. Seven patients had diastolic murmurs. Two of these were definitely, and one probably syphilitic, and four had rheumatic valvular disease. Of the latter group three had rheumatic endocarditis of the aortic valve, and one of the mitral and tricuspid. It follows from these figures that valve disease in angina pectoris is unlikely unless there is in addition a rheumatic history of a syphilitic process.

The rhythm of the heart remains for the most part undisturbed in cases of angina both during attacks and during the intervals between attacks. In a small number of cases there may be heard an occasional extrasystole; but the dominant rhythm is maintained. During the more serious cases of coronary infarction, heart block may result, as was described in a previous publication,[3] and at times paroxysms of tachycardia.[4] It was quite surprising that out of 103 patients in this series only one had persistent auricular fibrillation, and yet these two types of heart disease affect individuals at the same average age. There was one patient who had transient auricular fibrillation, and in another it was a terminal event. During the same period covered in this study, 423 heart cases of persistent auricular fibrillation were observed, and about 200 of these were observed in elderly persons and were associated with chronic myocarditis, i. e., not of the rheumatic valvular type.

It seems most extraordinary that of these 200 persons suffering from chronic myocarditis with auricular fibrillation, not one had angina pectoris. The single instance of auricular fibrillation and angina that did occur was in a patient with rheumatic mitral stenosis. This incompatibility between the two conditions is of distinct practical aid. If a patient has chronic heart disease and auricular fibrillation, he is extremely unlikely to develop angina pectoris; and likewise, those with angina pectoris virtually always have a dominant regular heart rhythm.

The quality of the heart sounds is of some interest to us, particularly with regard to the first sound at the apex. In many instances this was distinctly diminished in intensity, and occasionally it was absent. In interpreting the loudness of heart sounds, due consideration must be given to the thickness of the chest wall and the amount of lung tissue in front of the heart. When sounds are distant as a result of obesity or overlying breasts, both sounds are affected; but when the second heart sound is distinct and the first muffled or barely audible, some intrinsic myocardial change is most likely the cause. In forty-nine patients, the first heart sound was considered to be diminished in intensity, while in the remaining fifty-four it was not diminished. In the group of cases with cardiac infarction to be discussed below, this feature of the physical examination was rather important. In four instances a distinct gallop rhythm was heard.

The signs of edema in various parts of the body were striking by their absence. In only thirteen cases was there any pitting edema of the legs, and in most of them it was very slight. The liver was palpable in seventeen cases, but with a very few exceptions there was no tenderness, and the edge descended only from 1 to 2 cm. below the right costal border. Râles were often found at the bases of the lungs. There were thirty-one instances in which râles were present. It is evident that not all of the patients actually had congestion from an impaired circulation, as in some there was an associated bronchitis.

ELECTROCARDIOGRAPHIC OBSERVATIONS

Recently there appeared a lengthy study of the electrocardiographic changes accompaning angina pectoris, by Willius.[5] In general, he showed that various abnormalities in the form of the electrical complex might occur. From the point of view of aiding in the diagnosis of angina pectoris, most of the changes that were observed do not help, as they occur in other persons who do not have angina. Much more study concerning the significance of changes in the Q-R-S complex (the initial ventricular complex) and the form and direction of the T wave (the final ventricular deflection) will be needed before any conclusions can be made that are based on secure evidence. There are, however, several points that at present seem suggestive and helpful. A distinct spreading of the Q-R-S complex was found in eleven patients of this series. It is generally accepted that this indicates a defective conduction of impulses through the musculature of the ventricles, and is commonly found in chronic myocarditis. A second type of change in the electrocardiograms is a marked diminution in the height of the curves in all leads. This occurred in two instances, and both patients died several days after the tracings were taken. The diagnosis of both of these patients was infarction of the heart from coronary occlusion. One of the two was examined postmortem, and the diagnosis was confirmed. A large number of the patients showed electrocardiographic preponderant hypertrophy of the left ventricle, and many showed decided inversion of the T wave in one or more leads. It is premature to attach too great importance to inversion of the T wave, as it is observed in other types of patients, and yet some of the curves make one strongly suspect myocardial or coronary disease. Finally, there are a number of patients who show essentially normal tracings or who show only minor changes. It is evident that conclusions from electrocardiograms must be made with caution. Those abnormalities which indicate myocardial disturbances may throw enough weight in the balance to decide a puzzling diagnosis, and it is quite likely that in the near future more accurate data will be available for clinical purposes.

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[4] Robinson, G. C., and Herrmann, G. R.: Paroxysmal Tachycardia of Ventricular Origin and Its Relation to Coronary Occlusion, Heart 8:59 (Feb.) 1921.

[5] Willius, F. A.: Angina Pectoris: An Electrocardiographic Study, Arch. Int. Med. **27**: 192 (Feb.) 1921.

OBSERVATIONS ON THE VITAL CAPACITY OF THE LUNGS

In recent years the vital capacity of the lungs (the greatest amount of air that can be expired after a full inspiration) has been used as a guide to the progress of patients with heart disease. Peabody and Wentworth[6] have found this to be more or less diminished in heart disease, and also that in the same patient with an improvement in the circulation, as a result of treatment, the vital capacity of the lungs is increased. Similar determinations were made in fifteen of the patients in this series, but the standards used in Peabody's work could not be used for comparative purposes. The vital capacity diminishes even in normal persons with advancing years; and since the patients we are considering are a great deal older than those used in previous standards, no accurate figures could be deduced. This will be impossible until a large series of normal elderly persons are studied and their vital capacity determined. The accompanying table gives the figures of fifteen cases in which observations were made. The percentage of normal was figured according to West's[7] method, the surface area first being determined, and the result being compared with his standards, which were made on younger persons. In general, the vital capacity was diminished, but probably not as much as the figures would indicate if we could bring to bear the age factor. An interesting feature is that the vital capacity did not increase much, if at all, under treatment in the few that were followed. The only patient who showed a decided rise in the vital capacity had rheumatic valvular disease. This would indicate that only when there is the congestive type of cardiac failure accompanying angina pectoris is much increase in the vital capacity to be expected, even when the patient improves.

VITAL CAPACITY OF THE LUNGS IN ANGINA PECTORIS *

Case	Sex†	Age, Yrs.	Ht., Cm.	Wt., Kg.	Surface Area Square Meters	Normal Vital Capacity, C.c.	Actual Vital Capacity	Percentage of Normal
1. S. C.	♂	64	164	65.7	1.73	4,330	3,200	74
2. B. B.	♂	63	162	70.3	1.77	4,430	3,150	71
3. A. R.	♂	63	160	56.8	1.59	3,980	3,200	81
4. C. H. F.	♂	61	170	91.6	2.03	5,040	3,500	69
5. M. G.	♂	56	165	63.5	1.70	4,250	3,000	71
6. M. S.	♂	55	164	74.0	1.82	4,550	1,750	38
7. C. J. S. ..	♂	54	152	65.3	1.57	3,930	1,900	48
8. M. U.	♂	52	160	71.6	1.75	4,375	2,900	61
9. S. K. G. .	♂	45	170	81.6	1.93	4,825	3,375	70
10. H. A. B.	♂	23	187	64.0	1.87	4,675	1,550 2,150 3,100	33 46 66
11. E. I. S. ..	♀	62	168	71.6	1.80	3,600	2,000	56
12. E. S.	♀	57	168	77.2	1.86	3,720	2,500	67
13. M. F. S.	♀	57	156	81.0	1.80	3,600	1,300	36
14. B. B.	♀	52	158	68.0	1.72	3,440	2,200	64
15. B. E. B.	♀	45	170	83.6	1.95	3,900	1,450	37

* Some of these observations were made by Dr. J. H. Pratt of Boston.
† In this column, ♂ denotes male, and ♀ female.

INFARCTION OF THE HEART IN RELATION TO ANGINA PECTORIS

One feature of this study remains to be considered, and this concerns itself with the importance of infarction of the heart in relation to angina pectoris. Sir Clifford Allbutt has for a long time taught that angina is always due to an aortitis and has nothing to do with the heart itself. The other more common view is that it is due to coronary disease. The outstanding fact that impresses one who studies the heart in the necropsy room is that almost every patient with angina has more or less recent infarction of the heart due to coronary closure. It seems to me that although an aortitis may well be the underlying cause of the attacks of pain, the prognosis depends on the condition of the coronary arteries. In other words, patients with angina in the great majority of instances live until a coronary artery becomes occluded. Occasionally, even after such an accident occurs, recovery takes place and the patient subsequently succumbs to another infarction. It therefore becomes imperative in any given attack of angina to try to decide whether there has been a closure of a coronary vessel.

Recently J. T. Wearn[8] has studied all the cases of cardiac infarction that came to necropsy at the Peter Bent Brigham Hospital, many of which I had the opportunity of seeing during life. His observations contain many points of practical importance. The attacks of constriction and pain that are associated with cardiac infarction are likely to last much longer than the ordinary attacks of angina. They may continue for many hours, and even a week or two. The picture is that of a patient in collapse. The pain is not likely to be relieved by nitrites, and even morphin may give only little relief. The pulse becomes small and thready, and the blood pressure falls quite markedly. Frequently the liver enlarges and may become tender. There are almost always râles at the bases of both lungs. Very commonly the temperature becomes elevated to 100 or 102, and an appreciable leukocytosis even as high as from 20,000 to 30,000 may develop. The patient can lie flat in bed and yet complain of difficulty of breathing. On rare occasions there is an icteric tint to the sclerae. Death is not likely to occur at the instant of coronary closure but rather a variable time afterward—from a few days to a week or two. In some cases the infarcted area of heart muscle eventually ruptures and the end comes suddenly, even when the patient may seem to be doing favorably. In other instances there is no rupture of the heart, and death comes more gradually, with signs of marked asthenia. Rarely the infarct heals and recovery takes place.

There is a group of cases of angina that includes some of those with cardiac infarction, in which the symptoms are practically all abdominal. Some years ago Tranter and I[3] called attention to two such cases that resembled acute surgical abdominal conditions. There is little doubt that some patients are operated on for gallstones, gastric ulcer, acute pancreatitis, etc., who are really suffering from coronary disease. The difficulty in diagnosis becomes great when the findings are severe abdominal pain, spasm, tenderness in the upper abdomen, vomiting, collapse, fever and leukocytosis. If a patient is known to have had an elevated blood pressure and is found to have a normal or subnormal blood pressure, cardiac infarction must be seriously considered. The quality of the heart sounds at the apex may help in differentiating the cardiac from the abdominal condition, for in attacks of coronary disease, the heart sounds are likely to become quite faint, particularly the first heart sound. Occasionally a pericardial friction sound develops. I have seen several patients in whom confusion between acute surgical conditions and angina pectoris arose. One had recently been operated on for gallstones, and none were found; a surgeon was called for another patient to operate for an acute intestinal obstruction. The surgeon hesitated and the patient recovered his customary health, but died suddenly a few months later. This condition will probably explain some of the negative laparotomies performed on middle aged or elderly persons.

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[6] Peabody, F. W., and Wentworth, J. A.: Clinical Studies on the Respiration, IV, The Vital Capacity of the Lungs and Its Relation to Dyspnea, Arch. Int. Med. **20**: 443 (Sept.) 1917.

[7] West, H. F.: Clinical Studies on the Respiration, VI, A Comparison of Various Standards for the Normal Vital Capacity of the Lungs, Arch. Int. Med. **25**: 306 (March) 1920.

[8] Wearn, J. T.: Coronary Thrombosis with Infarction of the Heart, Am. J. M. Sc., to be published.

SUMMARY

A clinical study of 103 cases of angina pectoris was made, on which were based the following observations:

The disease is much more common in males than in females, while vascular hypertension, which plays an important rôle in the etiology of the disease is, on the contrary, more common in women. I believe that physical work may account for this discrepancy. The typical patient with angina is a strong, muscular and well set person. The disease seems to be comparatively rare in the underdeveloped, poorly nourished and weak.

In this series, syphilis was an etiologic factor in only six patients. This would indicate that the importance of syphilis as a cause of angina pectoris has been overemphasized. There were seven who had diabetes mellitus, and five who had gout. Organic valvular disease was rarely found associated with angina pectoris. Two patients had typical mitral stenosis, and there were two young patients with rheumatic disease of the aortic valves.

The average systolic blood pressure was 160.6 mm., and the diastolic, 95.0 mm. The variations from the mean systolic pressure extended from 80 to 260 mm. About two thirds were between 140 and 200 mm. Observations on the blood pressure in a few cases were made in relation to the onset of the attack of angina and the administration of nitroglycerin. Two patients showed a marked increase with the onset of the attack, and then a fall as the attack subsided after the nitroglycerin had been given. In a third the change was not significant either as the attack developed or as it subsided under treatment.

Examination of the heart in many cases was negative. Of these 103 patients, forty-seven showed no murmurs, forty-nine had a systolic murmur at the apex or base, and seven had a diastolic murmur. Of the latter group, two had definite and one probable syphilitic aortitis, three had rheumatic aortic insufficiency, and one had mitral and tricuspid stenosis. The heart was generally found hypertrophied on ordinary examination or by orthodiagraphy or electrocardiography. An occasional patient showed no hypertrophy even after the most careful search. The dominant rhythm of the heart in angina pectoris was regular, although there were occasional extrasystoles. Only one out of 103 showed persistent auricular fibrillation. This is particularly striking, because during the same period of time persistent auricular fibrillation was observed in about 200 other patients suffering from chronic myocarditis, who in general were of the same age as those with angina. There therefore seems to be a distinct incompatibility between angina pectoris and auricular fibrillation. Patients with auricular fibrillation are not likely to have or to develop angina pectoris; and, vice versa, those suffering from angina do not develop auricular fibrillation.

The quality and loudness of the heart sounds are of practical importance in angina, especially the first heart sound at the apex. The diminution of the intensity of the apical first sound may be of aid in diagnosis and prognosis. Edema of the limbs and swelling of the liver are rare, but congestive râles at the bases of the lungs are common, especially in those patients with cardiac infarction.

The electrocardiograms were occasionally normal in appearance, and frequently showed only slight alterations. There was evidence of left ventricular preponderant hypertrophy in the great majority of cases, and many had inverted T waves in one or more leads. Eleven showed a distinct spreading of the Q-R-S complex, and in two fatal cases the amplitude of all curves was greatly diminished.

The vital capacity of the lungs was determined in fifteen patients. As there are no satisfactory standards of elderly persons with which to compare, no final conclusions could be made. Using the customary standards that apply to younger patients, the figures obtained in this study showed a decrease of varying extent in all instances. They did not show an increase in the vital capacity when they improved under treatment as did other cardiac patients, except in the one instance in which there was an added factor of cardiac failure with congestion.

It is important to distinguish attacks of cardiac infarction from those of ordinary angina pectoris, for where the prognosis of the former is generally only days, that of the latter may be years. The patient having cardiac infarction shows the picture of shock and is cyanosed; the pain may last many days, and is not relieved by nitrites, or even at times by morphin; the pulse is likely to be a little rapid and small; the systolic pressure falls sometimes as low as 90 or 80 mm.; râles develop at the bases of the lungs, and the liver may become engorged and tender. A leukocytosis of 20,000 or more frequently develops. Occasionally the violent pain is localized in the upper abdomen, and there may be nausea, vomiting and marked rigidity of the muscles in the epigastrium. There are therefore some patients with cardiac infarction who present the typical picture of an acute surgical abdominal condition.

21 Bay State Road.

An Accidental Death Every Six Minutes.—Seventy-six thousand accidental deaths—a life every six minutes—is the toll paid by Careless America during 1920, according to the report of the National Safety Council presented at the Eleventh Annual Safety Congress, which opened in Detroit, August 28. The 1920 toll of accidents represents the total population of the state of Nevada, and while it is a decrease of 3,300 over 1911, it is only 400 less than the 1919 total. The automobile fatality frequency for 1920 was 30 deaths a day, a total of 11,000 for the year. People died from falling accidents of all kinds at the rate of thirty-four a day. Burns claimed twenty-two lives a day, a total for the year of 8,088. Railroad accidents showed no decline as there were 7,769 such deaths. Over twice as many men died accidentally as did women.

THE NORMAL SELLA

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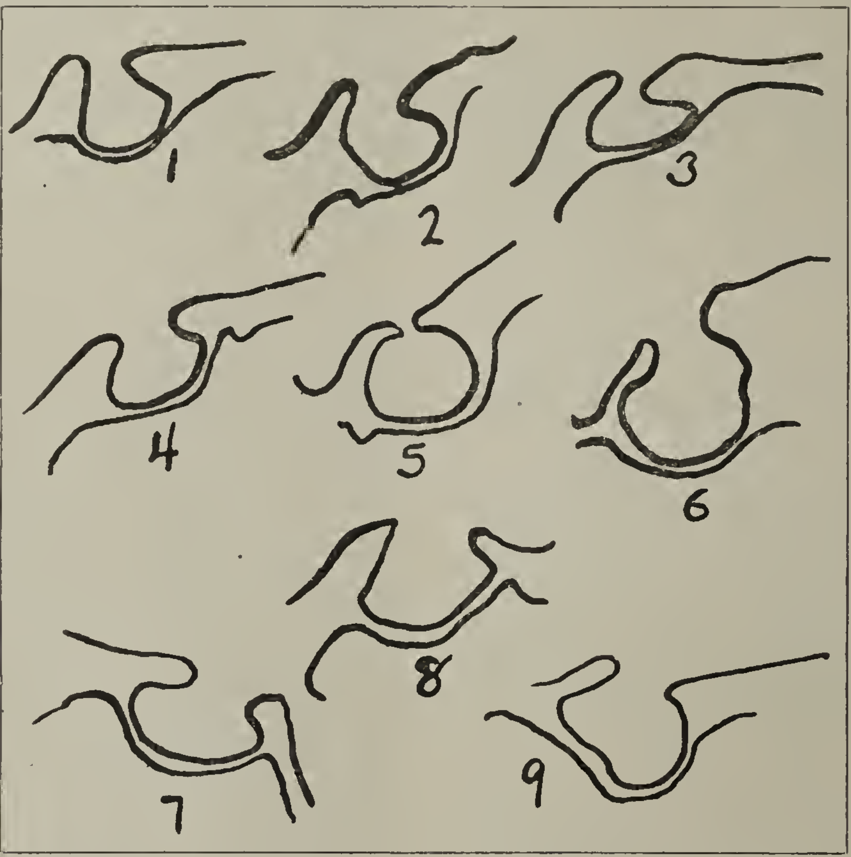
Numerous case reports and articles dealing with endocrine disorders have recently mentioned the size and shape of the sella turcica as shown roentgenographically with the inference that conclusions might fairly be drawn as to the function of the pituitary through some departure from the normal in the size or shape of the sella. The type of reference to which I refer is one which deals simply with variations in contour, and does not depend for the diagnosis of a pathologic condition on the presence of erosion, or manifest encroachment of the contents of the sella on adjacent structures. It is doubtless natural that students of endocrinology should incline to enthusiasm with regard to this field of medical research, and should hope to obtain from roentgenography of the sella some information relative to the functional capacity of the pituitary, since the only means of obtaining any information in regard to the anatomic peculiarities of the gland in the living subject is through examination of the bony chamber in which it is housed.



Tracings from roentgenograms of sella turcica in nine normal persons:

Subject	Weight Pounds	Weight Kilograms	Size of Sella Width	Size of Sella Depth
1. Man, aged 58........	180	81.6	8 mm.	10 mm.
2. Man, aged 61........	163	73.9	9 mm.	9 mm.
3. Woman, aged 24....	130	58.9	10 mm.	7 mm.
4. Woman, aged 20....	89	40.3	10 mm.	8 mm.
5. Woman, aged 25....	160	72.5	11 mm.	11 mm.
6. Woman, aged 45....	105	47.6	12 mm.	14 mm.
7. Woman, aged 26....	120	54.4	13 mm.	9 mm.
8. Woman, aged 26....	90	40.8	13 mm.	10 mm.
9. Woman, aged 43....	140	63.5	13 mm.	11 mm.

It is evident that if an abnormal finding is to be of value in diagnosis, we must first be able to establish the existence of a definite normal; and we must further be able to determine with a considerable degree of accuracy where the normal leaves off and the abnormal begins. Since the sella is, as a rule, examined roentgenographically only when some degree or type of endocrine disturbance is quite definitely suspected from the symptoms, it occurred to me that possibly a fairly extensive series of examinations of normal subjects showing no endocrine stigmas at all might throw light on the range of normal findings and should, in all likelihood, permit me to establish for my own work a set of normal limit measurements.

I have therefore taken roentgenograms of the sella turcica in 100 consecutive cases coming up for examination for all types of disease, excluding persons who were clearly suffering from endocrine disturbance of any sort, and also excluding persons of clearly marked pituitary type, even though they were without symptoms referable to the pituitary. The ages ranged from 18 to 68; 55 per cent. were women, and the weight of the different subjects varied from 84 to 230 pounds (from 38 to 104 kg.).

The technic used is of interest only in determining the amount of distortion or magnification which would occur in films taken for measurement purposes when the tube film distance is less than 6 or 7 feet. The films studied were made with a uniform technic employing a cylindric cone 3 inches in diameter, and the tube film distance was in all cases 24 inches. In order to facilitate measurement and to aid us in grouping the pictures as to type if such a proceeding proved feasible, tracings were made from the original film on a square of transparent tracing cloth, and the measurements and comparisons were made with these tracings rather than with the original films.

The width of the sella was measured at the widest point, and the depth was measured by drawing a line from the superior surfaces of the clinoid processes and dropping a perpendicular from this line to the deepest portion of the sellar outline. In width, the measurements varied from 6 to 19 mm. In depth, the variation was between 3 and 12 mm. I was unable to separate, with regard to contour, the number of distinct types that are sometimes described, the various types merging into one another without a definite dividing line. There was, however, a small group of ten of the so-called closed type in which the clinoid processes nearly met above. Of these, eight were in women and two in men, as compared with the sex percentage for the whole series of 45 per cent. male and 55 per cent. female; the extremes of age in this group were 25 and 66. Twenty-seven of the whole number of sellas examined were unusually small, and of these sixteen were in women and eleven in men; the incidence with regard to sex in this series was about the same as in the whole group. The age extremes in this division were 18 and 64. Seventeen were unusually large, and of these ten were in men and seven in women, the age extremes being 36 and 68. Forty-six of the whole number approximated the average in size and contour, and constituted the type which we have been accustomed to read as normal sellas. Of these, twenty-four were in women and twenty in men. It will be seen that the sex percentage of the whole group was fairly closely maintained in the unusually small division and in the average division, while this percentage was deviated from in the closed group and in the unusually large group, the men predominating in the last group, as might perhaps have been expected in conformity with general bony development. However, I was interested to observe that a considerable number of quite small persons had unusually large sellas, and that the reverse also occasionally occurred.

I feel justified in concluding from this rather small series that the sella turcica in the normal person may vary both in size and in contour within very wide limits; that the average sella, which has usually been interpreted from the roentgen-ray findings as being the normal type, constitutes in the neighborhood of 50 per cent. of the general run of cases, and that wide variations from the average are not necessarily accompanied by any indications of pituitary malfunction or disease. I further feel that the only definitely and positively abnormal roentgenographic finding is clear evidence of erosion of the bony structure.

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VACCINIA OF THE EYELIDS BY HOMO-INOCULATION *

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Eighty-odd cases of vaccinia of the eyelids have been recorded in the literature. Of these, however, only about 25 per cent. were due to vaccinated persons inoculating their own eyes, the remainder being due to vaccinators, mothers, nurse-girls and others infecting their eyes from the vaccination vesicle of some one under their care. It is on account of the infrequency of the cases brought about by homo-inoculation that we report the one described herewith.

Incidentally, we wish to call attention to several associated facts. In addition to the cases mentioned above, eight instances have been reported in which the cornea was accidentally the primary seat of inoculation. In eighty-odd cases of palpebral vaccinia, the cornea was involved by extension in only about 10 per cent. Several cases of a primary "vaccinal conjunctivitis" have been reported, but it is difficult to gain from the literature a clear idea as to the approximate frequency of primary vaccination of the conjunctiva. Of the ninety-odd cases in which vaccine virus was inoculated into the eye or eyelid, only two cases were due to the inadvertence of physicians. Three or more were inoculated by midwives. Of the remainder, about two thirds were traceable to mothers or nurse-girls. Thus, the class of cases brought about by the cross inoculation (hetero-inoculation) of vaccine matter from the arm or leg of one person to the eye of another occurs twenty times oftener in adults than in children, 90 per cent. of the cases being in women, on account of vaccinated children being mostly in their care. On the other hand, the class of cases brought about by homo-inoculation is found almost without exception in young children. In the latter class, sex obviously plays no etiologic rôle.

The clinical appearance of vaccinia is not quite the same on the eyelids as it is when on dry skin surfaces. The macerating effect of continuous lacrimation causes the vaccine lesion early to lose its vesiculated epidermis. During the early days of the vesicle, that is, before the vacuolated epidermis detaches, the lesion has a more yellowish or creamy tinge than is ordinarily noticed when the lesion is on other skin surfaces. After the epidermis has detached, the base does not become covered with a thick, tenacious, golden-brown crust, but rather has a diphtheritic appearance. In time, following the subsidence of lacrimation, the ulcerated base is covered with a thin, glazed, reddish-brown crust.

When the vaccine vesicle on the lid is a transplant from a primary vesicle on an arm or other part of the body, the secondary vesicle on the lid will undergo a quicker, more inflammatory but more superficial and less destructive course, than it would were it a primary inoculation. We may approximately correlate (inversely) the degree of tissue destruction with the time that elapses between the primary vaccination and the secondary homo-inoculation. The longer the time between the two, the less will be the tissue destruction. This fact is apparently dependent on the law first announced by Bryce. This law refers to the rate of growth of the secondary vesicles. The latter grow more rapidly than the initial vesicle, and the rapidity of their growth is in direct ratio with the length of time that has elapsed between the primary and the secondary inoculations. As a consequence, the primary and secondary vesicles reach maturity at the same time.

The prognosis of secondary vaccinia of the eyelids is usually surprisingly good, considering the degree of scarring caused by primary vaccinia of the skin. However, severe complications may arise in cases in which the conjunctiva or cornea are involved by secondary extension. The loss of an eye has been noted many times, and corneal opacities that interfered markedly with vision were described by Morax, Snydacker, Schmitz, Knaggs and Black. The resulting deformity of the lid or lids may consist only of a small pale area of thin, soft scar with a loss of few or many of the cilia, or it may consist of marked adhesions binding one or both lids to the globe. Marx reported a case of symblepharon, and both he and Thompson presented cases of ankyloblepharon.

We believe that physicians should habitually instruct vaccinated persons as to the ocular accidents that may accrue from the touching of vaccine lymph or vesicle.

REPORT OF CASE

V. B., a girl, born, Sept. 5, 1916, whose history was obtained from the parents, was vaccinated for the first time, Nov. 15, 1921, at 8:30 p. m. The vaccine virus, a stock commercial product, was inoculated on the outer aspect of the left thigh at about the juncture of the upper and middle thirds. The wound was covered with sterile gauze held in place with *short* adhesive strips. One or more of the latter would frequently detach from the skin, thus permitting the patient to handle the dressing and attempt to press the ends of the adhesive strips into lasting contact with the skin. The fully developed vesicle had a prolongation from its anterior border suggesting that, at an early date, it had been rather deeply scratched into. That the vaccination would be successful was first noticeable a few hours short of four full days after the time of vaccination. The primary vesicle underwent a typical course of development. The largest size that it attained was ⅝ by ⅞ inches (16 by 22 mm.); it had one large and two small indentations. The areola measured 2¾ inches (7 cm.) in diameter.

The disturbance about the eyelids was first noticed about 3:30 p. m., November 22. The patient then drew her mother's attention to the fact that a "stye" was developing on the inner end of the upper left eyelid. What was then thought to be a "stye" consisted, when first seen, of a small "pimple, tipped with a yellow head." The vesicopapule grew so rapidly that it trebled the diameter of its base within two hours. It did not, however, increase in height. By 8:30 p. m. of the same day, the physician who vaccinated the child was able definitely to recognize its vaccinal origin. The erythema (areola) about the vesicle spread rapidly and involved both eyelids during the night. The second palpebral vesicle (on the lower lid) was first noticed early on the morning of November 24. Chemosis was not noticed until the morning of November 25; it then developed rapidly. The patient was first seen by one of us (J. M. B.) on the afternoon of November 24, and the condition was diagnosed as vaccinia. Dr. Joseph Grindon and the co-author were called in consultation on the morning of November 25. It was decided to let the secondary vesicles proceed undisturbed. The conjunctival sac and lids were treated with instillations of 2 per cent. solution of mercurochrome-220 soluble, and the mother was instructed to apply cold compresses for twenty-minute periods frequently throughout the day.

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* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

Throughout the evenings of November 24 and 25, the patient had an axillary temperature of 100 (determined by the mother). On the evenings of November 25 and 26 the child perspired freely; no internal drugs had been administered. No headache, backache or other aches were noticed. The appetite remained normal and the child continued quite lively. During the wéek before vaccination, and the two weeks following, the patient had a laryngotracheitis. The vaccination had no noticeable effect on the disease of the respiratory tract.

The palpebral vesicles were slightly larger on the morning of November 27, and were then accompanied by six satellite vesicles. Preauricular adenopathy was then detected for the first time; it was at no time painful on mastication. November 27 (10:30 a. m.), colored sketches were made. Mercurochrome-220 soluble in 2 per cent. solution was instilled into the conjunctival sac twice daily from November 25 to 29, and once daily afterward until December 4; during this time the mother frequently instilled a solution of the same strength into the child's eye. Chemosis had commenced to subside by the morning of November 30. Crusts were present by the next day. They detached, December 3, leaving very shallow, healthy erosions. The eyelashes involved in the vaccinal inoculations detached from their follicles and were removed with the crusts.

Judging from present indications, there will be no scarring or disfigurement, except for a small, translucent, stellate scar over the inner eighth of the upper palpebral margin. Immediately above the scar may be seen a group of sebaceous follicles that are now more prominent than they were before the development of the vaccine vesicle on the lid. Some of the cilia of the affected areas have lately reformed.

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ABSTRACT OF DISCUSSION

Dr. George W. Jean, Santa Barbara, Calif.: I wish to refer to the typical keratitis which results when the cornea is inoculated with vaccine virus, or from a vaccine ulcer of the lid. Otto Schirmer, in 1891, first described this corneal condition and called it keratitis postvaccinolosa. This disease and keratitis disciformis, later described by Fuchs, are clinically identical—deep disk-shaped opacity with concentric rings, anesthetic cornea, permanent opacity, etc. Schirmer inoculated guinea-pigs with vaccine virus, and in one case he inoculated a guinea-pig with scrapings from the cornea of a patient affected with keratitis postvaccinolosa, and in all these cases a typical disciformis keratitis resulted. He thought that Fuchs had "stolen his thunder" in renaming as keratitis disciformis his keratitis postvaccinolosa.

Percentage of Mistaken Diagnoses.—McCrae and Funk in checking the correctness of their diagnosis in cases admitted to their wards in Jefferson Hospital from the General Medical Clinic and from the Tuberculosis Dispensary, as well as from members of the profession, found in 1,200 consecutive admissions with a diagnosis of advanced pulmonary tuberculosis that seventy-two, or 6 per cent., were nontuberculous. One hundred and thirty-four cases came to necropsy, revealing seven, or 5.2 per cent., nontuberculous, a figure corresponding very nearly to the preceding one, confirming the correctness of their own diagnoses.—Matson, *Northwest Med.*, July, 1922.

THE COEFFICIENT OF THERMAL CONDUCTIVITY OF EYE AND ORBIT

MEASURED WITH WARM APPLICATIONS *

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This paper is a continuation of one[1] which was presented at the meeting of the Section on Ophthalmology of the American Medical Association at New Orleans in April, 1920. As the terms cold, warmth and heat are relative, in this connection I shall consider that cold means any low temperature up to about 15 C.; but it is considered zero unless otherwise specified. Warmth is a more generic term, but, when limited, means a range from about 15 to 30 C., and heat from 30 C. upward.

In the present statement concerning the effect of warm applications it is well to recall a few points, but the repetitions shall be as few and brief as possible. It will be remembered that the term "coefficient" means practically the rapidity at which a given degree of warmth, applied over a given area, penetrates the eye and orbit, and especially the depth to which that warmth extends. The opportunity offered for attempting a solution of that problem was quite unusual; but as that and the method adopted were described in the first article, it will suffice here to state briefly that a young woman developed a tumor in the orbit, which, after operation, left for many months a fistula, nearly 3 cm. deep, extending from the vicinity of the lacrimal gland backward behind the globe. Into that fistula it was possible to introduce one terminal of a pair of thermocouples and thus measure the decrease in temperature behind the eye when ice was applied to the lids. From the data thus obtained graphs were made which showed, in general, that the abstraction of heat produced a gradual reduction of temperature, so that in about sixteen to eighteen minutes there resulted a fall of nearly 3 degrees centigrade at a distance of approximately 2.7 cm. beneath the lid. When the ice was removed it required about an equal time for the circulation to reestablish the former temperature.

Although these measurements of temperature with thermocouples were by no means new, they constituted apparently the first efforts to determine with them the effects of cold on the eye and orbit. For that reason attention was called to the clinical value of the method, and how it might be employed to measure the effects of cold or warm applications in the vicinity of natural orifices into which one of the thermocouples could be introduced, or where openings are made by accident or by operation.

Meanwhile, similar studies were made by Macleod, professor of physiology, and his associate, Dr. Taylor, lecturer in physiology at the University of Toronto. Their experiments[2] were made on rabbits. Openings were made at different parts of the animals' bodies, one of the couples introduced, and the results read on the galvanometer, as described also in my first communication two years ago. It was gratifying to find that, with allowance for the probable differences between the human and the animal structures, and for necessary differences of technic, the results seem to accord more closely than might have been expected.[3]

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* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Howe, Lucien: On the Coefficient of Thermal Conductivity of the Eye and Orbit Measured with Cold Applications, Tr. Sect. Ophth. A. M. A. 1920, p. 134.

[2] Macleod, J. J. R., and Taylor, N. B.: Lancet 2: 70 (July 9) 1921.

The plan adopted for making measurements of the effects of warm applications on the eye of a patient presented two factors: (1) the source of the warmth and (2) the method of its use. The first factor was quite complicated. For this it was necessary that:

(*a*) The appliance should have the degree of warmth equally distributed over its surface.

(*b*) It should be capable of variations of temperature which could be easily controlled.

(*c*) It should maintain a constant temperature, if desired.

(*d*) It should be adaptable to the shape of the lids.

If, now, we measure by this standard the means of applying heat with water bottles, coils of rubber hose, the so-called Japanese punk box or similar methods, they must all be promptly discarded. The most reliable method was evidently based on the principle of heating pads. The so-called "mastoid pad" was too large and heavy to fit over the lids, and exact measurements showed that the warmth was greater near the center than at the periphery of the pad. That was because in such pads a soft and flexible "core" is wound with a fine wire and then coiled from the center outward, the resistance offered producing the heat.

To obviate this difficulty, I had a special pad made, the entire length of the core being covered with resistance German silver wire 18 per cent. No. 32 single silk covered. Over the inner turns of this core there were only twelve turns to the inch, but the outer turns of the core had sixteen to the inch. The area covered was about 9.5 square centimeters. In this way the temperature could be kept practically constant at any point. The use of this pad and the readings from the galvanometer were in every way similar to what has been already described in connection with measurements of the effect of cold applications. One point, however, should be mentioned: the measurement of the temperature of the pad itself. When studying the effects of cold, melting ice was applied to the lids, and we were sure of a temperature of zero at that point. But when studying the effects of warmth it was necessary to find first just what the temperature was on the lids, in order to have a point for comparison. Several attempts were made to attach a thermometer to the forehead and hold its flattened bulb underneath the pad. It was found best to have another assistant steady this instrument in its proper position.

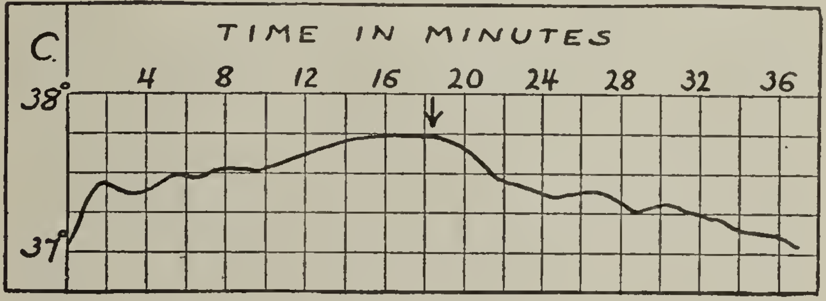
The results can be stated briefly, if the data are arranged in groups, similar to those which related to measurements of the effects of cold. Thus we find that:

1. When heat was applied over the eye of a dead hog, and one of a pair of thermocouples was passed into the orbit the gradual transmission of the heat showed itself in figures which, when plotted, gave an upward almost perfect gradient, the rapidity of the incline being in proportion to the intensity of the heat. This means, of course, simply the gradual warming of dead tissue. This result and the one which follows are mentioned simply for completeness and to show the similarity of the effects of heat with those of cold.

2. In living tissues, the rate of change of temperature and the depth to which that change extended was practically in proportion to the degree of warmth applied externally. Thus, in the earlier measurements of the effects of cold, a temperature of 15 or 20, applied over the lids, produced little or no effect on the thermocouple when in the depth of the fistula. When, however, the junction at the end of the couple was partly withdrawn to a point only 1 cm. below the surface, the effect, as shown by the deflection of the galvanometer, was distinctly perceptible. Thus, a series of graphs could be plotted from the data obtained to show the rapidity and depth of changes of temperature under changing conditions. That, however, with the necessary description of details, would have meant too long a digression.

3. Measurements were also made to determine what might be called the limit of endurance of heat for the eye and the orbit. For, if an application at a temperature of about 60 to 65 was made to the lids and retained there, that degree of heat was sufficient to produce discomfort or even pain, lacrimation, and injection of the conjunctival and ciliary vessels. After a time the discomfort reached a point which may be called the limit of endurance.

4. The heat of maximum efficiency was the next point to be determined. As the galvanometer showed that moderate degrees of heat or warmth affected the underlying tissues only slowly and superficially, and as degrees of heat approaching the limit of endurance were uncomfortable and probably also disadvantageous, it was therefore eminently desirable to ascertain the highest temperature which could be borne with comfort and safety and still have its corresponding effects on the underlying tissues—namely, on the eye and orbit.



Effect of even temperature pad at 54 C. on the lids; the couple 2.7 cm. in the orbit. At point indicated by the arrow, the pad was removed.

Of course, degrees of comfort could not be expressed in figures. But a number of trials under different circumstances showed that applications of the pad at about 52 to 56 degrees could be borne without much inconvenience. As it had been found that the efficiency of applications of heat and of cold was, in general, in proportion to the extreme degree of each, respectively, it seemed proper to consider about 52 to 56 C. as the heat of maximum efficiency. This is about the temperature at which our applications of heat should be in order to obtain a rise of temperature in the globe or orbit.

The validity of this statement can be shown best by plotting the data obtained in one of the series of measurements made on the patient referred to, Mr. Theodore Klein assisting. From this chart it is seen that when one of a pair of thermocouples was passed into the orbit a distance of 2.7 cm. and the pad at 54 C. was applied to the outside of the lids, the temperature in the depth of the orbit gradually rose, in from 16 to 20 minutes, to nearly 38 C. Then, when the source of heat on the lids was removed, the temperature in the depth of the orbit gradually fell until, in about an equal time, it returned to 37 C.

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[3] In Penetration of the Tissues by Heat, editorial, J. A. M. A. 78: 351 (Feb. 4) 1922, the clinical importance of this line of study is indicated.

SUMMARY AND CONCLUSIONS

1. In any such measurements it is necessary to have a source of heat which can be equally distributed over a given surface, capable of variations, of maintaining the same temperature if desired, and, finally, the applicator must be in a form easily adaptable to the lids. These conditions are apparently fulfilled by the heating pad devised for that purpose.

2. Application of heat from 60 C. to about 65 C. or higher to the lids caused discomfort, pain, lacrimation and some injection of the conjunctival and ciliary vessels. That represents the limit of endurance.

3. It was found that the application of heat at about 52 to 56 C. affected the underlying tissues the maximum amount, and might therefore be considered the degree of heat of maximum efficiency.

4. When all necessary precautions were observed, it was found that if one of a pair of thermocouples was passed into the tissues of the orbit a distance of 2.7 cm., and the pad at 58 C. was applied to the outside of the lids, the temperature in the depth of the orbit gradually rose, in from sixteen to twenty minutes, to nearly 38 C. If the source of heat on the lids was removed, the temperature in the depth of the orbit gradually fell until, in about an equal time, it returned to practically 37 C.

5. This brings us finally to the question with which we started, namely: What is the coefficient of thermal conductivity as measured with warm applications? Is it the same as the coefficient which was found from the data obtained by making applications of melting ice? Omitting here the tedious details of calculation given in the first paper, it was found that the coefficient or "K" = 0.007. On the other hand, a number of measurements gave an average for the conductivity of heat not much more than half as great as for the conductivity of cold.

The reason is evident. As the body temperature is everywhere controlled by the circulation, as cold tends to contract the capillaries and heat to dilate them, the effects of zero temperature are more marked than those near the temperature of even maximum heat efficiency.

6. Both cold and warm applications in reality change the temperature of underlying tissue only slowly and to a less degree than is generally supposed. Warm applications are undoubtedly useful when increased vascularity is desired especially with a view to hasten suppuration. They are often agreeable to the patient, and their psychic effect cannot be overlooked; but otherwise their value is doubtful.

7. The most important result of this entire study is, as already mentioned, that the unique condition presented by this woman made it possible for the first time to obtain anything like a numerical expression of the coefficient of conductivity of the eye and orbit. It was a condition which seemed to warrant the investigation in order to obtain the few data available concerning a problem well known but heretofore entirely unsolved.

ABSTRACT OF DISCUSSION

Dr. William E. Shahan, St. Louis: In 1913, Dr. Howe introduced to American ophthalmology the use of the thermocouple for the accurate measurement of temperature within small spaces. This has resulted in elaborating and standardizing thermotherapeutic methods of direct and definite clinical importance. I wish to emphasize as strongly as possible the fact that the thermometer or thermocouple alone will not indicate the physiologic, pathologic or therapeutic effects of heat on any tissue. It is absolutely necessary to take into consideration the conductivity of the material used for transmitting the heat into the tissues. The thermometer indicates the intensity of the heat, the heat potential, so to speak; while the conductivity indicates the amount of heat which flows through the conducting medium into the tissues, the heat amperage. If two precisely similar size masses are selected, one a brass cylinder plated with nickel, and the other a fiber cylinder such as is used for electric insulation, and each is held at 70 C. (158 F.) by a constant temperature instrument built for that purpose, very dissimilar effects will be produced. If the brass cylinder is held at this temperature in contact with a rabbit's ear for one minute the tissues will be destroyed throughout their entire thickness, and a hole will likely result. If the fiber cylinder is held against the rabbit's ear for one minute at the same temperature, no effects beyond a slight transient hyperemia will be produced. The flow of heat, the heat amperage, through the brass is large, and correspondingly large effects are produced, while the flow of heat through the fiber is small and small effects are produced. In Dr. Howe's first set of experiments, pieces of ice were used, and these had a certain definite conductivity, or rate, at which they withdrew heat from the tissues, and a certain coefficient was obtained. In the second set, a heat pad was used, probably composed of wire, rubber and felt, and a different coefficient was obtained. The pad probably had a degree of conductivity about half that of ice, and gave a correspondingly smaller coefficient. So, in any number of investigations in which different conducting materials are used, different heat effects and different degress of heat tolerance will be obtained with the same temperature as shown by the thermometer. The limits of heat tolerance for varying degrees of temperature have been quite definitely established for brass plated with nickel. But the data obtained for this conducting material hold for it only. If silver or glass were substituted, equally definite and equally exact but totally different figures would be obtained.

Dr. A. E. Prince, Springfield, Ill.: About five years ago I published a treatment for infections of the cornea by the use of a heated ball of copper which for want of a better name was termed the "pasteurizer." This heated egg-shaped mass of copper was held about one fourth of an inch from the ulcer or other focus of infection. The result was to raise the temperature of the germs several degrees, after which they seemed to lose their virulence and the phagocytic action of the tissues of the cornea became able to cope with them, thus arresting the progress of the infection. At the time of the publication of my paper, Dr. William E. Shahan was perfecting the instrument by which a permanent temperature of a desired degree was maintained for an indefinite period. The work of Dr. Howe and Dr. Shahan indicates a degree of scientific accuracy which would throw my contribution entirely into the discard were it not for the fact that its simplicity and inexpensiveness enable any physician, specialist or otherwise, to cope successfully with ulcers of the cornea. The practical application of heat in such a manner and in such a degree as not to injure the tissues of the cornea, while at the same time it is devitalizing the infection, can but add to the value of Dr. Howe's investigation. I wish to offer a method of procedure to further increase the efficiency of this little instrument. The pasteurizer is heated in any kind of a flame. The point is then immersed in water, the audible effect of which is a sizzle on account of the sudden liberation of steam. This is repeated, and the sizzling sound indicates a lower temperature. When no bubbles are produced, the temperature of the heated ball is lower than 212 F. The temperature is tested by applying the ball to the palmar surface of the hand. It should seem hot, but should not burn. It is now ready to apply directly to the ulcer or infected area. This may be done with absolute safety, and, I think, the result will be gratifying. Concerning the application of elevated temperature to the interior of the eye: A patient was suffering from a very painful form of cyclitis; everything failed to give relief from pain. With the idea of increasing the temperature of the interior of the eye a few degrees, I took the coil out of a reflector used for heating a room. I attached a cord of sufficient length to suspend the coil from the electrolier of the room and leave it hanging on the level of the patient's eye when she sat in a chair. She was directed to bring her eye toward this heated coil while protecting the face with a perforated pasteboard. At the end of thirty minutes her pain was gone. Numerous cases of iritis, cyclitis, gumma and even choroiditis have been relieved by the use of this simple device.

Dr. Lucien Howe, Buffalo: It seems evident that my part of this study has been overestimated. It was simply a fortunate opportunity which presented itself; similar opportunities occur more frequently than we realize. An important factor was the pad which we used. With that it was easy to measure the temperature. In regard to the use of heat for killing bacteria, I do not think there is much to be expected as far as treatment is concerned; but apparently these measurements give us some idea, for the first time, of the real effects produced on the temperature when cold or heat is applied over the eye and orbit, and also the idea that the same measurements are applicable to other parts of the body.

RECURRENT HEMORRHAGES INTO THE RETINA AND VITREOUS OF YOUNG PERSONS

A METHOD OF EXAMINATION *

WILLIAM C. FINNOFF, M.D., Oph.D.
DENVER

Nontraumatic recurrent hemorrhages into the retina and vitreous are due to a number of conditions. It is not my desire to discuss all types of intra-ocular hemorrhage, and this paper will be confined to the so-called recurrent hemorrhages of adolescence. It is not a new subject. The literature of recent years has contained a number of case reports, and several papers have already been written on the etiology and pathology of this interesting condition.

In reviewing the literature last year, I was able to compile 110 recorded cases of the disease. The terminology used in describing this peculiar syndrome is confusing, and it is possible that many unindentified cases were overlooked. Regardless of this possibility, there is a paucity of cases on record.

A paper on this subject is timely, because of the small number of reported cases, the lack of uniformity in examination, and the confusion in terminology.

In the short space of seven years, I can recall having seen in my practice, and through the courtesy of my colleagues, seventeen cases of unquestionable recurrent hemorrhage into the retina and vitreous in young persons. The condition is more prevalent than is commonly believed, for it is very probable that many cases are unrecognized and improperly classified. For this reason, we should all attempt to determine the etiologic factors which produce the changes which occur in these eyes. To accomplish this, we must adopt a uniform system for examination, in an attempt to eliminate or establish certain factors as a cause. We should examine each case, as far as is practicable, for every condition (and there are many) which has been advanced as a cause of recurrent hemorrhage into the retina and vitreous.

The following is a proposed method of examination, which covers the data that are necessary in these cases:

Family History.—This should cover diseases of the eye, tuberculosis, hemophilia and gout.

Personal History.—General diseases of childhood, and other illnesses.

Constipation: Its duration, and relation to the ocular hemorrhages. (This was first proposed as a cause by Eales in 1882.)

Epistaxis: Its duration, and whether it discontinued just prior to the first ocular disturbance. (It had been noticed by several observers that epistaxis had occurred frequently but had discontinued just before the first ocular hemorrhage.)

Tuberculosis: Whether the patient has ever had active pulmonary tuberculosis or tuberculosis elsewhere (history of loss of weight, appetite, etc., with night sweats).

Syphilis: History of chancre or secondary manifestations.

Hemophilia: Whether the patient had ever had difficulty stopping hemorrhages following injuries.

Sexual habits.

Menstrual disturbances.

Eye History.—(*a*) Status of eye prior to beginning of recurrent hemorrhages (trauma, inflammation, refraction).

(*b*) Date of first subjective symptoms produced by hemorrhages. (This does not always correspond to the date of the first hemorrhage, because minute hemorrhages frequently occur in the periphery of the fundus without producing symptoms in the eye first involved.)

(*c*) Nature of first eye symptoms, photophobia, lacrimation, loss of vision (degree of loss), pain, etc., and length of time for recovery.

(*d*) Number of recurrences, with distinctive subjective and objective symptoms and duration of each.

(*e*) If the second eye becomes involved, date of the first symptoms.

Examination.—This includes the recording of vision, inspection of the eyes, study of the pupils, taking of ocular tension (fingers), and ophthalmoscopic study.

Prolonged and repeated study of the fundus of the eye is absolutely necessary to obtain an intelligent understanding of the changes which have taken place or are occurring in the case at hand. There are no fundus changes which require more patience and time for examination than these. Each vessel, especially the veins, should be followed from the disk to the extreme periphery of the fundus, and if any changes are found they should be carefully recorded. (I believe that in most cases the earlier changes occur in the peripheral vessels of the fundus, and that the vessels near the disk become involved later.) If bleeding has occurred into the vitreous, the fundus details will be partially or entirely obscured, and the study must be deferred until the vitreous becomes clear.

Both fundi should always be examined carefully at each sitting, even though subjective symptoms are complained of in one eye only. Early involvement of the smaller peripheral vessels is often noted on the supposed good side, and it is from a careful study of the changes in these vessels that a knowledge of the living pathology of this condition will be attained.

The things to be noted with the ophthalmoscope are:

1. The transparency of the media; if opacities are present, their appearance, location, nature, and size. Whether they are fixed or floating should be determined.

2. The vessels. In examining the retinal vessels, we should determine whether it is the arteries or the veins which are chiefly involved. We should note the relative size of the arteries and corresponding veins, and determine whether there are variations in caliber; i. e., constriction and aneurysmal dilatations; and whether the portion of vein peripheral to apparent constriction is larger than the portion proximal to it. In many of the observed cases, this logically expected phenomenon has not been present. It should be determined, if pos-

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* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

sible, from which vessels bleeding occurs and the changes recorded which had taken place in the vessels just preceding the hemorrhage.

3. The retina. The changes to look for in the retina are exudates, hemorrhages and pigment disturbances. Here we should determine their location and nature, whether deep or superficial, and whether the choroid is involved in conjunction with the retina.

4. Hemorrhages. These are seen as oval or flame shaped hemorrhages into the retina, as subhyaloid and diffuse bleeding into the vitreous, or as a combination of two or more types. The rate of absorption of blood and whether scar tissue replaces it (retinitis proliferans) should be noted.

5. The vision. This should be recorded frequently during the period of activity.

Because of the many conditions which have been proposed as the cause of this syndrome, it is essential to go into each factor in every case. In addition to the foregoing, laboratory and physical examinations should be made. These may be grouped under several subheads:

1. Blood. Here we should determine the coagulation time (for uniformity in reports, the capillary tube is admirable for this purpose), blood pressure, blood cell counts, Wassermann reaction, and if possible, complement fixation for tuberculosis.

2. Urine. Tests should be made for indican, oxalates and phosphates, in addition to albumin and sugar.

3. Physical examination, for tuberculosis especially, active or latent, syphilis and focal infection.

If the foregoing examinations throw no light on the etiology, it then becomes necessary to determine whether a latent, undiscovered tuberculosis exists, and whether the condition is of a tuberculous character. Here, greater caution must be observed in the diagnostic use of tuberculin than in any other form of ocular tuberculosis, because the manifestation of a focal reaction is hemorrhage and increase in the exudation in the retina and surrounding the vessels. It is quite obvious that a large hemorrhage, which is often replaced by scar tissue, is to be avoided. The textbooks do not emphasize this point sufficiently. I have seen serious harm done by therapeutic doses which were too large.

The test for tuberculosis is best carried out in a hospital, where the temperature of the patient should be recorded every four hours for from forty-eight to seventy-two hours before the first injection of tuberculin. Subcutaneous injections of old tuberculin (O. T.), beginning with 0.00005 mg. as the first dose, should be given, and the vision and fundus should be carefully examined from twenty-four and forty-eight hours after each injection for any change (focal reaction). The injected area should be watched for swelling and hyperemia (local reaction), the temperature recorded every four hours, and other constitutional symptoms watched for (constitutional reaction). If no focal changes occur in forty-eight hours, a second dose of 0.0001 mg. of old tuberculin should be injected, and the same observations made. This is continued if no focal reaction occurs, giving subcutaneous injections at forty-eight hour intervals of 0.0001, 0.001, 0.01, 0.1, 1, 3 and 5 mg. If no focal reaction occurs after the last injection, tuberculosis can probably be excluded as a cause. I have three cases in which the foregoing procedure was carried through with negative results. A local or constitutional reaction is of little value; all that is proved is, that the patient is sensitive to tuberculin, or that he has recovered from an old tuberculosis. However, a focal reaction, even of the mildest character, is diagnostic.

There are some cases in which the most careful investigation proves negative, and in which we are unable to determine the etiology. Because of this fact, and because of the grave visual prognosis, it is our duty to make every attempt to solve this complex problem. This condition evidently has not been observed in animals, and the eyes of man so affected rarely come to enucleation during the period of activity. To my knowledge, no record of histologic examination of an eye during the early active period has even been published. A scientific study of the minute changes in this disease must be made with the ophthalmoscope. There is still much to be investigated and much to be learned with regard to recurrent hemorrhages into the retina and vitreous of young persons.

The terminology of this syndrome is extremely confusing and should be changed. Recurrent hemorrhages of adolescence is a poor term, for in many instances the changes do not begin until later, and in most cases, they continue over a period of many years. It occurs to me that recurrent hemorrhages into the retina and vitreous of young persons is an adequate term and differentiates it from the hemorrhages which occur from arteriosclerosis in older persons.

The term disease has been purposely avoided, because it is believed that this is not a disease, but a symptom due, possibly, to a number of conditions.

Majestic Building.

ABSTRACT OF DISCUSSION

Dr. William Zentmayer, Philadelphia: Dr. Finnoff's plea for a systematic inquiry into the family, personal and eye history in cases of recurrent hemorrhages into the retina and vitreous of young persons is valid and timely. Students should be better instructed in the important and difficult art of history taking, not only in this but in all diseases. One needs but look up the data on a mooted question in published case histories to realize the necessity for this. It is a nice point to decide how much latitude to give patients in recounting their own views, but it must not be forgotten that they may put us on the trail of a possible unsuspected etiologic factor if not restrained, and if we are receptive. Dr. Finnoff points out that in most cases the early changes occur in the peripheral vessels of the fundus. This was well exemplified in one of my cases. In the first, affected eye vision was reduced to light perception, and notwithstanding the fact that the boy stated that his other eye was becoming affected, he had been assured the eye was unaffected. An examination made on the same day that this opinion had been given revealed a corona of small hemorrhages in the extreme anterior zone of the retina. In addition to the physical examination mentioned, I would suggest that a roentgenogram of the sella be made. Fuchs said that tuberculosis of the vessels was usually assigned as the cause of these hemorrhages, but that it certainly was not always the cause. Verhoeff is of the same opinion. I have elsewhere given my reasons for believing that the disease is not always tuberculous, and that even when this is a factor, the striking outstanding syndrome of the disease suggests that there is some disturbance other than tuberculosis to account for this. What this is I do not know; but there are reasons for believing that disturbed action of the pituitary, the suprarenals or both may play a rôle in their causation. Since I first published this view, Friedenberg, Wilmer and others have given expression to the same thoughts. The term suggested by Dr. Finnoff for the disease is comprehensive and preferable to the several others we now have.

Dr. Albert E. Bulson, Jr., Fort Wayne, Ind.: These cases are very interesting, and I want to emphasize again the importance of calling the internist to our aid. So often examinations conducted in our offices, even with the aid of the laboratory men, are inadequate and incomplete. I recall a case of hemorrhage into the vitreous for which I could find no immediate cause. The report of the blood examination was negative, and the patient was referred to an internist, who insisted on making repeated urinalyses and blood examinations. The Wassermann examination of the blood and spinal fluid eventually proved that the patient had a syphilitic involvement. I venture to say that if we had taken the first blood examination as conclusive, we would even now be in doubt as to the etiologic factor in this particular case. Therefore, I believe that in these cases of recurrent hemorrhage in the young we should have the assistance of the internist, and he should make his examinations thoroughly, that the causative factor may be discovered. He also will be of great service in carrying out the treatment required.

Dr. Edward Jackson, Denver: Recurring hemorrhages of the retina may occur in several different diseases. But we do not know in how many others it may arise that have not yet been suspected. We know they arise in tuberculosis and less frequently in syphilis; we know they arise in acute infections, as influenza, and we think they arise from endocrine disturbance. The fact that this symptom—which is a very important one because of the danger of destruction of sight by excessive hemorrhage—may arise from a large number of underlying conditions is a reason for a rather wide examination for the cause. We must have the help of the internist, and we must get all the history we can from the patient and from the patient's medical adviser. The paper covers the direction in which the examination should proceed. Our knowledge will not be much improved or expanded until many cases of recurrent retinal hemorrhage have been investigated along all these different lines.

Dr. George S. Derby, Boston: There is something lacking in Dr. Finnoff's terminology. I do not think that this condition is entirely confined to young persons. I have followed several cases which could not be distinguished from a recurring hemorrhage in young persons, in people between 40 and 50, and a little over, and on repeated examinations there could not be found the slightest evidence of arteriosclerosis or kidney defect.

Dr. William C. Finnoff, Denver: I am glad Dr. Zentmayer emphasized the importance of the endocrines. I agree with Dr. Bulson that the internist should be consulted in these cases, but I meant that under physical examination that is the procedure we should follow. The internist should go over the patient carefully, especially in regard to tuberculosis, if we wish to use tuberculin as a diagnostic measure. I would not think of using tuberculin if there was active tuberculosis elsewhere in the body. The reason I proposed the title "Recurrent Hemorrhages . . . of Young Persons" was that I referred particularly to the findings in 110 cases. I probably overlooked many cases because of the confusion of terminology, but the seventeeen cases I have seen were in persons under 40 years of age.

Fighting Mosquitoes with Fish.—During 1921 fish played a most important rôle in practically all the operations conducted against yellow fever and malaria. Since 1900, when the United States Bureau of Fisheries began its investigations into the usefulness of the top minnow for destroying mosquito larvae, many experiments in the use of fish to keep down mosquito breeding have been made. Among them may be mentioned the work of the New Jersey Agricultural Experiment Station during the years 1902 to 1911; the observations of Geiger on the use of fish in rice fields near Lonoke, Ark.; and the experimental work of Hildebrand of the United States Bureau of Fisheries, near Augusta, Ga., and elsewhere. But the effectiveness of fish as a means of checking the breeding of malaria mosquitoes was first demonstrated under representative agricultural conditions by Dr. H. H. Howard in Hinds County, Mississippi, in 1918 and 1919.—*Eighth Annual Report, International Health Board,* New York, 1922.

RELAPSING FEVER IN CALIFORNIA [*]

LeROY H. BRIGGS, M.D.
SAN FRANCISCO

True relapsing fever arising from a focus in California seems important enough to warrant the reporting of two cases.

Prior to the announcement of Obermeier in 1873 that relapsing fever was a spirochetosis, a number of cases had been reported throughout the Eastern states, as well as an epidemic among the Chinese population of Oroville, Calif., in 1874. These cases were frequently associated with typhus, and no absolute diagnosis could be made. Since the demonstration of the spirochete, however, the number of proved cases in the United States has been very few, and with the exception of the Colorado instances, all limited to direct importations. Those of Ward [1] and of Tuttle [2] were in Armenians. Carlisle's [3] first patient was a ship's steward from eastern tropical America, and his second case resulted from a laboratory infection from the first. Hunter and Cope [4] reported a case in a man just arrived from Turkey and a second in an Armenian who had been living with him. Goldfarb's [5] two cases were in a mother and daughter living in New York City who had received their infection from a relative just arrived from Russia and suffering from the same disease. Christian's [6] case was in a Macedonian.

In October, 1915, Meader [7] reported before the Colorado State Medical Society five related cases arising from Bear Creek Canyon, Colo., with a doubtful contact from a band of wandering gypsies. Unquestionably, these are the first known instances of relapsing fever from an endemic source in the United States. Two years later, Waring [8] reported before the Denver Medical Society a sixth case in a young boy coming from the same locality as Meader's patients. Since then the *Index Medicus* has given no reference to relapsing fever in this country.

In the two present cases, the infection was acquired at Polaris on the Truckee River, Calif. This river, a famous fishing stream constantly visited by campers and sportsmen, is the outlet of Lake Tahoe, and runs northeast to empty into Pyramid Lake, Nevada. Its course in California is through a fairly well timbered granite country at about 6,000 feet elevation. From Truckee to Reno the main line of the Southern Pacific railroad parallels the river. Polaris is a siding 2½ miles east of Truckee where ice is cut in the winter, loaded into sheds, and used daily during the summer months in refrigerating the overland fruit cars. Many tramps, put off trains at Truckee, find a day or so of employment here, only to move on. It is quite evident, therefore, that there are great opportunities for the dissemination of vermin by a nomadic population.

REPORT OF CASES

Mr. X and his wife were seen at their home, Aug. 21, 1921, having returned that morning from a fishing and camping trip on the Truckee River. They had traveled up by automobile, stopping overnight of July 30 at Auburn, a town on the eastern edge of the Sacramento Valley where malaria is moderately prevalent. On the river they had occupied a rough cabin, used in the winter by a watchman employed by the ice harvesting company but unoccupied in the summer. The bedding was their own. On the morning of August 3, Mr. X discovered a blotch of blood on his sheet, and small urticarial marks of what were apparently insect bites on his legs. Three mornings later his wife discovered the same thing, noting blood spots on her sheets and marks of bites on her legs. A careful search for bedbugs had been made previously and was repeated, but with no results. No ticks were seen at any time during the trip.

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[*] Read before the Association of American Physicians, Washington, D. C., May 2, 1922.

[1] Ward, G. D.: Boston M. & S. J. **142:** 36, 1900.

[2] Tuttle, quoted by Carlisle (Footnote 3).

[3] Carlisle, R. J.: J. Infect. Dis. **3:** 233, 1906.

[4] Hunter, J. W., and Cope, T. A.: Univ. Pennsylvania M. Bull. **21:** 338, 1909.

[5] Goldfarb, S. J.: M. Rec. **73:** 433, 1908.

[6] Christian, H. A.: Observations on the Spirilla of Relapsing Fever, Arch. Int. Med. **7:** 1 (Jan.) 1911.

[7] Meader, C. H.: Colorado Med. **12:** 365, 1915.

[8] Waring, J. J.: Colorado Med. **15:** 148 (June) 1918; Am. J. M. Sc. **155:** 819 (June) 1918.

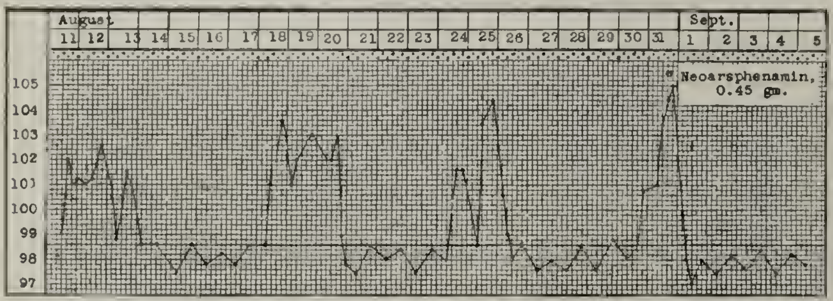

Fig. 1.—Temperature during illness of Mr. X.

On the morning of August 11, without prodromes, Mr. X awoke with a severe headache. At 3 in the afternoon he felt chilly and nauseated, and at 6 had a heavy chill. The temperatures were noted carefully by his wife, and it is from her excellent records that the accompanying charts were constructed later. For the next two days he had heavy sweats, fever and generalized aching pains. Labial herpes was present. There were no symptoms of any respiratory infection. The pulse varied from 62 to 74. He was seen, August 11, and again, August 13, by Dr. Bryant of Truckee, who found nothing except the marked disproportion between pulse rate and temperature. August 14, his fever disappeared, and frequent observations between that date and the 18th always disclosed a subnormal temperature. During this interval there was very decided weakness. August 18, fever was noted again, and that evening he had another chill. For the next three days a repetition of the previous paroxysm occurred, to be followed by another four day remission with weakness. August 14, his wife was taken with what seemed to be an exactly similar illness, except that no herpes was present, and vomiting was a marked symptom. Her paroxysm lasted three days, with six days' normal temperature following.

BLOOD EXAMINATIONS

Date	Stage of Disease, Paroxysm and Day	Leukocytes	Neutrophils, per Cent.	Large Mononuclears, per Cent.	Lymphocytes, per Cent.	Eosinophils, per Cent.	Basophils, per Cent.	Myelocytes, per Cent.	Parasites
Mr. X.									
Aug. 21	Day after 2d pxm.	12,200	55.5	8.5	36.0	0	0	0	None seen
Aug. 24	3d pxsm., 1st day	16,200	81.5	4.5	13.5	0	0.5	0	Present; 1 in 50 oil-immersion fields
Aug. 31	4th pxsm., 2d day	13,000	69.5	11.5	18.5	0.5	0	0	Present; 10 seen in differential count of 200 cells
Mrs. X.									
Aug. 23	2d pxsm., 1st day	4,600	75.0	2.0	23.0	0	0	0	Present; 1 in 200 oil-immersion fields
Aug. 24	2d pxsm., 2d day	10,000	85.5	3.0	11.5	0	0	0	None seen
Aug. 30	2d pxsm., 3d day	......	67.0	8.0	23.5	0	1.5	0	Present; very few
Aug. 31	3d pxsm., 4th day	......	64.5	6.0	28.5	0	0.5	0.5	Numerous; 18 seen in differential count of 200 cells

Mr. X is 46. Other than for a branchial cyst as a child, which was repaired, and an appendectomy, his past history is negative. He has lived in California all his life, with the exception of two short business trips to Honolulu. His work is that of an office executive. His habits are excellent. The usual weight is around 175, although he is about 15 pounds under that now. The only complaint is of weakness. Complete physical examination was quite negative. Temperature and pulse were normal. There was no herpes and no skin rash. There was no sign of any respiratory tract infection. The spleen was not enlarged to percussion, nor was it palpable. There was no tenderness anywhere. There was no icterus. The urine was quite negative. The hemoglobin was 95, and the result of the blood count is shown in the accompanying table. There was nothing remarkable in this or in any of the subsequent counts, but they are tabulated together. Although plasmodia were looked for carefully, neither they nor any other parasites were seen. The red cells showed no abnormalities.

No therapy was given. His weakness lessened daily, and he went about his business, watching his temperature twice a day. On the afternoon of August 24, a rise to 101.6 was noted, and he had a slight headache. He went to his office the next morning, but returned later in the day with a severe headache, back pains, chill and a temperature of 103.6. He was seen later that afternoon with temperature of 104, pulse 60 and respiration 18. His face was flushed, he was bright mentally, had no complaints and did not look especially ill. Examination again was entirely negative. The spleen could not be felt, nor was it tender. The leukocytes were 16,200, with a slight increase in the neutrophils. No plasmodia were found, but a moderate number of spirochetes were present. These will be discussed later. By the afternoon of August 26 he was normal again, and continued so until August 30, when he reported that he felt chilly and by evening had a temperature of 100.8. At this date the urine for the first time showed very rare hyaline casts, but no albumin. His temperature rose all the next day, until by 6 p. m. it had reached the maximum of 105. There was considerable depression and headache, but nothing else. Spirochetes were present in greater numbers, about ten being seen in making a differential count of 200 cells. Twenty cubic centimeters of blood was drawn from a vein for animal inoculation, and he was given 0.45 gm. of neo-arsphenamin intravenously in concentrated solution. The only manifestation of a reaction was an attack of vomiting during the night. The next day he felt much improved, although weak, and had a subnormal temperature. The urine on this day showed no albumin, but showers of hyaline casts. From this time on for the next three weeks his temperature varied from 97 to 98.6, and he rapidly regained his usual weight and strength. The urine promptly became normal.

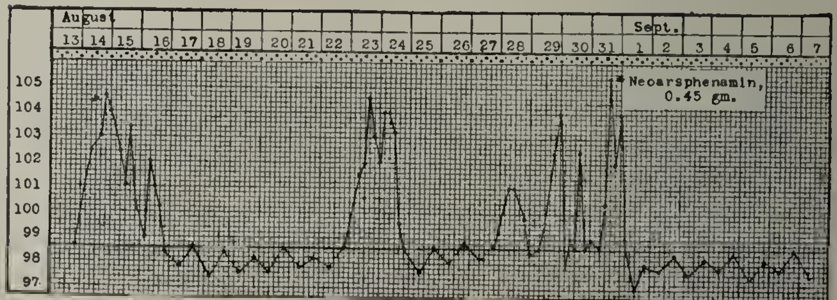

Fig. 2.—Temperature during illness of Mrs. X.

As mentioned above, Mrs. X had had a paroxysm from August 14 to 18. She had been seen at intervals for the past three and a half years. Points of interest in her past history are that she lived in Egypt from 11 to 13 years of age, and while there had what was probably typhoid fever. Her appendix and tonsils have been removed. She was first seen in 1918 for a streptococcus infection of the throat, which subsided in a week without event. During 1919 she was under observation for a slight tuberculous infection in both apexes. There had been loss of weight for more than a year, slight cough and morning sputum for a few months, but no rise in temperature was ever found. Crepitant râles were present in both apexes and persisted for many months, but for the last year she had been in excellent health.

She was not examined, August 21, except that the lung apexes were listened to and found clear. She had no symptoms, and seemed to have recovered entirely from her febrile attack of five days before. On the morning of August 23 she felt nauseated and chilly, and had a severe headache and moderate backache. When seen about noon, her temperature was 102, pulse 76, respirations 16. Her face was flushed, but she did not look especially sick. Physical examination was negative except for slight tenderness in the upper left quadrant, noticed in attempting to palpate the spleen. No enlargement of this viscus could be made out. There was no rash or herpes. The urine was normal. The leukocytes were only 4,600. As she was thought to have a plasmodial infection, an especially diligent search was made for these parasites, and it was during this that the spirochetes were found accidentally, two days later to be sought for successfully in her husband's blood during his paroxysm. At this time she was given a simple anodyne and antipyretic. The next day, August 24, there was considerable prostration and some vomiting, although the head and back pains were better. Physical examination was as before, negative except for tenderness along the left costal margin. The leukocytes had increased to 10,000. For the next three days the temperature was normal and she was up and about, although somewhat weak.

August 28, her third paroxysm started and continued four days with much nausea and vomiting, high fever of a septic type, and headache and backache. The temperature reached a maximum of 105.2 on the evening of the fourth day. The spleen could not be felt during this time, and examinations were not noteworthy in any particular. The urine on the last two days showed a few hyaline casts, but no albumin. Spirochetes were found in the blood both August 30 and 31, being especially numerous on the latter date. August 30, 20 c.c. of blood was drawn from an arm vein for animal inoculation. On the evening of August 31 she was given 0.45 gm. of neo-arsphenamin intravenously. This was followed by a moderately severe reaction characterized by vomiting and diarrhea, which continued throughout the night. The next day she was much improved and had a subnormal temperature. Her subsequent course has been exactly that of her husband, with no further relapses and a fairly prompt return to normal.

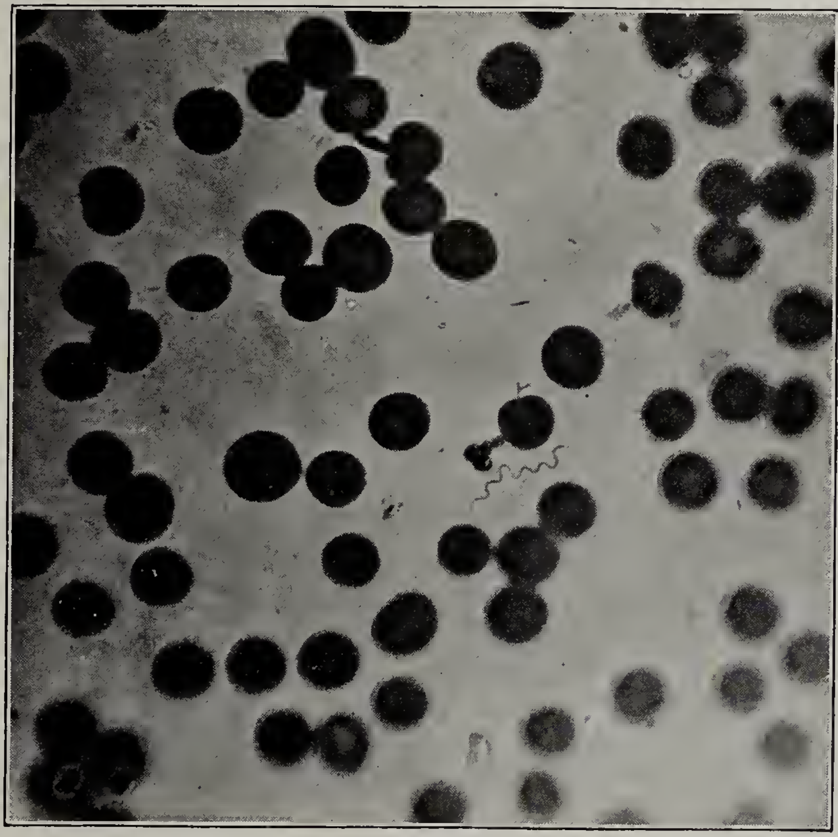

Fig. 3.—Parasite in smear of peripheral blood.

SUMMARY

A man and his wife, while camping in California, were probably bitten by some suctorial insect, presumably a bedbug or a tick, although this cannot be proved. In each case, eight days later, a paroxysm of chills, fever, malaise and prostration ensued and lasted three days. In the case of the husband, three relapses occurred, each more severe than the preceding. With the wife, two relapses occurred, also of increasing severity. During the four observed paroxysms, spirochetes were found in the peripheral blood in increasing numbers. Intravenous injection of 0.45 gm. of neo-arsphenamin promptly terminated the infection in both instances.

COMMENT

Several points demand comment.

Nature of Vector.—There can be hardly any doubt that the infection was introduced during sleep by the bite of some suctorial insect. The finding of bite marks, blood spots on the bedding, and the definite eight day incubation period in each instance points toward this. Lice, ticks and bedbugs are known to transmit this type of spirochetosis to man. From the habits of the patients, as well as the fact that the bites were on the legs, lice undoubtedly can be ruled out. There are in California a number of species of *Ornithodorus*, the genus of tick which so far has been incriminated in the transmission of relapsing fever, but from the description of the bite marks, one would suspect the bedbug rather than the tick as the offender. The infection is thought to be transmitted, not by the actual bite, but by the rubbing or trampling of infected feces and other excretions of the carrier into the abrasion. It has been definitely shown by Dutton and Todd that in ticks spirochetes may be transmitted from infected parent to offspring, and that such infected progeny are capable of passing on the disease to laboratory animals. This fact may be of importance in explaining the occurrence of the Colorado and present cases in regions where the disease has not been known before. How long the spirochete can live in the body of the vector and throughout how many generations it can be carried down are points which as yet are not definitely known. The nature of the floating population along any of the main railroad lines is such that the distribution of a vermin-carried disease may be readily accomplished over a wide area.

The Parasite.—As noted in the case reports, spirochetes were discovered accidentally in the blood of Mrs. X on the first day of her second paroxysm while malarial parasites were being searched for. They were very few, one being found to about 200 oil-immersion fields, and on the next day none were seen. One day later, at the onset of the husband's third paroxysm, spirochetes were found in his blood in greater numbers, one to about fifty fields. They became even more numerous in the other two paroxysms: from ten to eighteen in a differential count of 200 leukocytes.

Morphologically, the organism corresponds to the description of the spirochete of relapsing fever, one of the chief characteristics being the lack of constancy in length, shape and number of curves. They take the ordinary Romanowsky blood stains well, especially if overstained or if the stain is a trifle overalkalized. The length varies from one to two and a half times the diameter of a red cell. The ends practically always taper out to a near point, and occasionally in the longer forms the central portion as well seems to thin out. This was noted by Norris, Pappenheimer and Flournoy,[9] who felt that it was evidence in favor of transverse division. Three times during the examination of the blood smears, two short forms were found in close apposition, but this was interpreted as being due to simple fracture in making the preparations. No undulating membrane or flagella could be demonstrated.

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[9] Norris, C.; Pappenheimer, A. M., and Flournoy, T.: J. Infect. Dis. 3: 266, 1906.

Blood was drawn from a vein in both cases during the last paroxysms, run into citrated tubes, and injected into mice and monkeys as soon as possible. It was observed, however, that motion in the spirochetes had ceased, and as animal inoculation was unsuccessful, there is little doubt that the parasites were killed by the citrate. This was most unfortunate, as by then the patients had received their neo-arsphenamin. Furthermore, as it is impossible to say from the morphology of the parasite which of the four varieties of relapsing fever we are dealing with in a given case, it was doubly unfortunate that the animals were not taken directly to the bedside of the patients and injected, since identification depends mainly on animal inoculation. Final differentiation of the type, therefore, must remain in doubt. Dr. Karl Meyer, professor of tropical medicine in the University of California Medical School, to whom I am indebted for material help and suggestions, believes from the clinical course that it was not the European variety, *Spirochaeta obermeieri.*

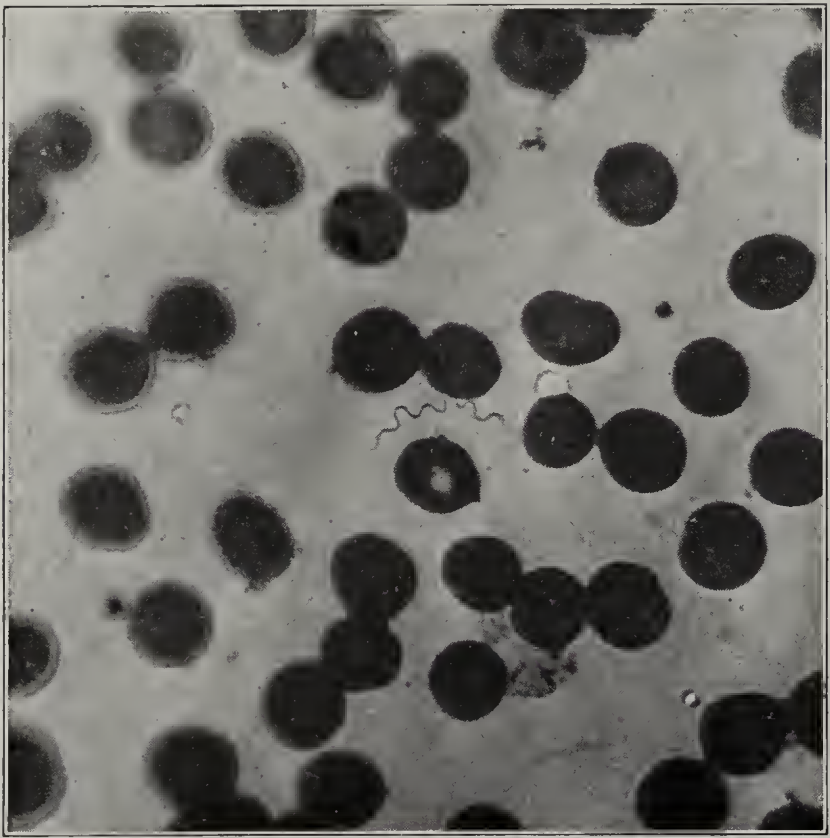

Fig. 4.—Parasite in smear of peripheral blood.

The Blood.—Except for the presence of the parasites, the blood showed little of note. The hemoglobin did not change. The leukocytes were counted in three of the four observed paroxysms, and showed a moderate increase except on the first day of the second paroxysm of Mrs. X, when there was a leukopenia. The differential picture showed the usual febrile absence of eosinophils. In three of the four paroxysms there was a slight increase in the neutrophils, although in the last one of Mrs. X the formula was about normal, notwithstanding the fact that this was the most severe of all. The red cells and platelets showed no change.

The Urine.—A number of observers have reported marked urinary changes from renal irritation during the paroxysms. This was not evident in the present cases, although in the last and most severe relapse a few hyaline casts appeared, but no albumin. Mr. X, on the day after his last paroxysm and twelve hours after the injection of neo-arsphenamin, had showers of casts, but two days later the urine was normal. This phenomenon did not occur with his wife.

Miscellaneous Clinical Features.—Splenic enlargement was never demonstrated, another fact at variance with most observations. It may be noted that there was tenderness in the region of the spleen in the case of the wife. The maximum temperature with the subsequent crisis occurred at night in six out of seven paroxysms, a fact mentioned by Strümpell and others. Even during these high temperatures of 104 to 105, the patients did not seem very ill, and were more uncomfortable than anything else. Neo-arsphenamin was most efficacious, half a dose intravenously terminating the infection immediately. In one case it was given at the start of a paroxysm, and in the other toward the end, but no difference in the result could be seen.

How extensive or permanent a focus we have in California can be determined only by a thorough medical and entomologic survey of the district, and by the discovery of other cases elsewhere. Here, where we are constantly seeing malaria, it is imperative that careful microscopic examination of the blood be made before therapy is instituted. It would be a ready assumption that the natural fall of temperature at the end of a paroxysm represented the antiplasmodial effect of quinin, had that drug been given blindly. The demonstration of any further geographic distribution of this disease depends, therefore, on the invariable use of the microscope in all cases of acute remittent fever.

240 Stockton Street.

STUDIES OF BACILLUS FUSIFORMIS AND VINCENT'S SPIROCHETE

I. HABITAT AND DISTRIBUTION OF THESE ORGANISMS IN RELATION TO PUTRID AND GANGRENOUS PROCESSES *

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AND
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CHICAGO

The association of these two organisms in the body has been noted by many observers in connection with both normal and diseased states. Many points, however, remain obscure, and the literature on the subject is scattered and more or less confusing. The relation of the bacillus to the spirochete is a subject about which differences of opinion exist. We will not discuss their identity or nonidentity here, assuming, however, their almost invariable association in certain localities and in certain processes.

In this paper, we will attempt to furnisn a background for a discussion of infections of a putrid and gangrenous character for which these organisms appear to be commonly responsible. In doing so, we shall first present data concerning their more common normal habitats about the body, a subject to which little attention has been given. Later, we shall discuss a number of disease processes with which they are intimately concerned, together with certain predisposing factors.

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* From the Department of Pathology and Bacteriology, University of Illinois College of Medicine.

* Read before the Section on Stomatology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

MORPHOLOGY AND NORMAL HABITAT

Some years ago, one of us [1] described the so-called actinomyces-like granules in the human tonsils. In this paper, it was pointed out that they have nothing to do with true actinomyces. Since then, we have confirmed these observations and have added others.[2] The granules are found in 30 per cent. or more of tonsils removed, and probably form at times in all tonsils. They are foul-smelling, small, gray or yellow, often bilateral granules, single or more often multiple, lying in the crypts, never in the tissues proper. On microscopic section, they are largely made up of filaments arranged in raylike fashion suggesting actinomyces (Fig. 1). At their margins are terminal structures which may be roughly compared to a test tube brush (Fig. 2). Filaments form a central shaft, about the end of which small fusiform, oval or large diplococcoid bodies are arranged around and perpendicular to it. Throughout the mass are many typical fusiform bacilli and coarse spirochetes; also many gram-positive diplococci. The fusiform bacilli are gram-negative and are typical in morphology, and they may be grown in pure culture under anaerobic conditions. The spirochetes are actively motile, gram-negative organisms with from four to eight or more turns. They are easily distorted in smear preparations, often becoming linear, curved or ring-shaped. Many have quite the same morphology as the organism commonly called *S. vincenti* and are probably identical with *S. macrodentium* and *S. refringens;* others are smaller and finer. In general, the spirilla forms correspond to those described by others and divided into three types. We will not go further into their morphology here. The gram-positive diplococci have been specially investigated by us [2] and shown to consist both of hemolytic and nonhemolytic streptococci, the latter being predominant and often revealing distinct anaerobic properties.

The coarse filaments making up the bulk of the granules are segmented but apparently never branched, unless possibly at their terminals. They are gram-negative, though destained with some difficulty. At their terminals are masses of the oval and elongated bodies, as described above, arranged about the terminals and easily removed, leaving a stalklike structure with fine granules along its surface. This filamentous organism has not been cultivated. The question arises as to the relation of these filamentous forms to the fusiform bodies, but we feel it cannot be answered at present. We have considered seriously the possibility of their being one and the same organism; that is, the fusiform bacilli may be simply a phase in the development of the organism. This was the view suggested in the paper referred to above, but it is purely hypothetic. Another possibility is that the fusiform bodies may be spores originating at the terminals in connection with the fruitlike structures.

Whatever their relation may be, we may recognize these several structures which are practically always found together in the tonsil granule; namely: (*a*) the segmented filaments with peculiar enlarged and brushlike terminals; (*b*) the diplococcoid and short fusiform bodies (possibly spores of the fungus); (*c*) the typical fusiform bacilli and spirochetes, and (*d*) gram-positive diplococci (streptococci). Occasionally, other forms are seen, but they are not constant. We may state, then, that this peculiar granule in the tonsil crypt has a remarkably constant structure in which these several organisms are growing together in symbiosis. The possibility exists that *a, b* and *c* are developmental forms of one or possibly two organisms.

One of us has observed that in adenoids such granules do not occur. Fusiform and spirochete forms are evidently rare. This problem is being investigated further at present.

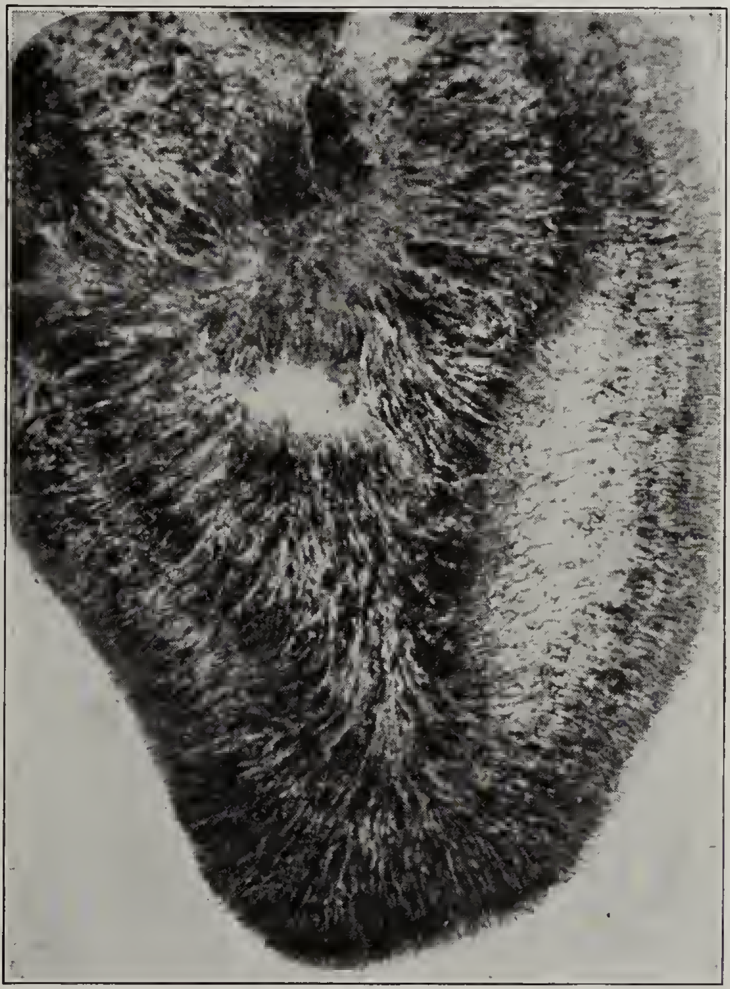

Fig. 1.—Microscopic section of an actinomyces-like granule of the tonsil, showing the raylike structure of the filaments; × 120.

It has long been known that these organisms exist in large numbers about the teeth. Indeed, spirilla forms are among the very first microscopic organisms seen by the human eye, since Leeuwenhock in 1683 observed and described them in tartar removed from the teeth. Our observations, as well as those of many others, indicate that they are constant inhabitants. Especially are they numerous on teeth with abundant tartar deposits. We have investigated these deposits with the following results: On the enamel of the teeth just at or above the gum line and especially between the teeth are accumulations of a filamentous growth attached to the surface. They may be scraped away, and when suspended in water or glycerin are seen to be composed of loose flaky granules having a radiate filamentous structure. At the margins are numerous brushlike processes with a central strand and coccoid or elongated and fusiform bodies arranged about the terminals (Fig. 3).

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[1] Davis, D. J.: J. Infect. Dis. **14**: 144, 1914.
[2] Pilot, Isadore, and Davis, D. J.: J. Infect. Dis. **23**: 562 (Dec.) 1918.

The structure is quite comparable to the tonsil granules described above, except that, as a rule, it has an attached surface. Smears of such material reveal always large numbers of coarse spirochetes, fusiform bacilli and gram-positive streptococci, these various organisms being scattered throughout the granule. The terminal strands are somewhat clublike and often divided, and the attached bodies, arranged perpendicularly, are easily removed in making the preparations. Long segmented gram-negative thread forms appear, comparable to those in the tonsil granules. Many diplococcoid and short fusiform bodies are interspersed in the smear. On the whole, it is quite impossible to distinguish a smear preparation made thus from the teeth from one made from the tonsil granule. From such material, fusiform bacilli may be cultivated anaerobically in tissue mediums which yield a most putrid and very typical odor. The streptococci are readily grown and are nearly always of the viridans type. Occasionally, a few hemolytic streptococci are found.[3] The filamentous forms and elongated terminal sporelike bodies do not appear in culture.

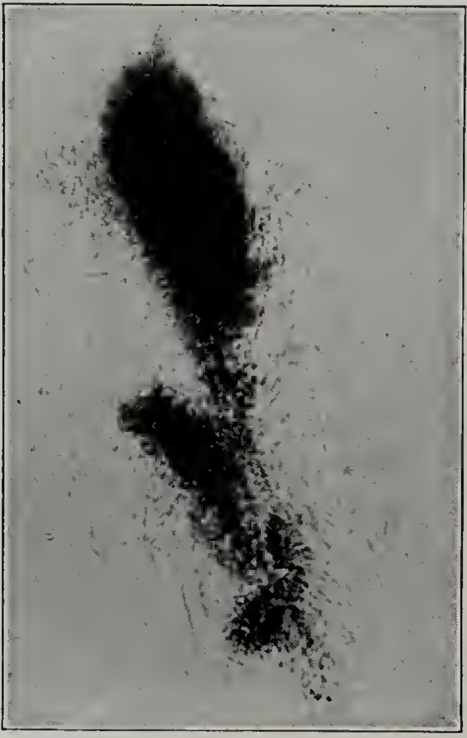

Fig. 2.—Brushlike ends at margin of a tonsil granule; × 1,000.

These filamentous organisms are the forms found so abundantly about the teeth and usually spoken of as the buccal leptothrix. Since they have not been grown, it is impossible to state clearly what their classification may be. They have been very well described by Williams,[4] and earlier by Vicentini, by whom they are referred to as *Leptothrix racemosa*. They are considered by these workers as a form of fungus, the terminals presenting spore-bearing structures. They were not able to cultivate them. Our work confirms the observations of these writers, and also leaves no doubt in our minds that the filamentous forms in the tonsil granules are the same organism. They make no mention of the latter; neither do they discuss the spirochetes, fusiform bacilli and streptococci which we find always associated and which are of primary interest to us. Here, then, is a second habitat of the latter forms, evidently growing together symbiotically, quite like the tonsil organisms.

A third locality for the growth of *B. fusiformis* and spirochetes is about the genitals: namely, in the smegma under the prepuce in the male and about the clitoris in the female. Brams, working with us, has found them in 51 per cent. of specimens of smegma taken from the preputial secretions of 100 normal uncircumcised adults. As a rule, they are found most often and in largest numbers in the secretions of persons with long foreskins who rarely cleanse these parts. They are nearly always associated with staphylococci (90 per cent.). Occasionally, hemolytic streptococci occur (9 per cent.), and more often *B. coli* and diphtheroids are found. Filamentous forms or raylike granules comparable to those of the teeth and tonsils were not seen in any instance. In anaerobic cultures, using a modified Dick plate of normal preputial secretions, long and short forms of *B. fusiformis* were cultivated.

Specimens of material from about the clitoris were obtained from twenty-four normal pregnant women for us by A. E. Kanter. In fifteen, *B. fusiformis* and spirochetes were found, together with gram-positive cocci and many gram-negative bacilli, usually *B. coli.* In aerobic cultures, *Staphylococcus albus* appeared in nine and *Streptococcus hemolyticus* in one; in anaerobic cultures, fusiform bacilli were grown in nine of eighteen specimens. No filamentous organisms or raylike bodies or clusters simulating the teeth or tonsil forms were noted. The spirochetes vary in size and form, some being coarse and wavy with several turns and others being finer. As stated, in all instances they were associated with fusiform bacilli (Fig. 4).

Observations by others have been made on the occurrence of spirochetes about the genitals. Noguchi[5] cultivated three different types from normal male smegma; namely, *Spironema refringens, Treponema calligyrum* and *Treponema minutum.* He makes no mention of the occurrence of *B. fusiformis,* though, from his photomicrographs, we believe they were present in at least some of his specimens. We know of no other observations on the presence of fusiform bacilli in normal smegma, male or female.

A possible fourth locality for the existence of these organisms is the gastro-intestinal canal. Here spirochete forms have been noted by many observers, among the earliest being Bizzozero, who observed them in the lumen of the gastric glands in the stomach of the dog. Many workers have noted them in various conditions; but we know of no observations on the existence of *B. fusiformis* in the normal intestine.

RELATION TO DISEASE PROCESSES

With the foregoing discussion of the normal habitat of these organisms as a basis, we shall now take up their relation to disease processes. For a long time, their pathogenicity has been recognized and their specific etiologic relationship to a number of infections has been quite generally admitted. We will briefly refer to some of these disease processes, discussing them in the light of the data referred to above. We shall see that the lesions may conveniently be grouped in relation to the normal distribution of these organisms in the body.

First, let us consider those necrotic and putrid conditions that appear about the mouth, throat and, in general, the respiratory passages, which we believe it reasonable to assume are usually dependent on or in relation to the tonsils and the teeth, as distributing foci for fusiform bacilli and spirochetal forms, together with pyogens, especially streptococci.

Vincent's Angina.—*B. fusiformis* and spirochete forms are generally conceded to be the cause of this condition. They are always present in large numbers and are sufficiently characteristic in smear preparations for diagnosis. During the past spring, there have been many cases in Chicago as well as in other localities.

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[3] J. Dent. Res. **3**: 63, 1921.

[4] Williams, Leon: Dent. Cosmos **41**: 317, 1899.

[5] Noguchi, Hideyo: J. Exper. Med. **27**: 667 (June) 1918.

Examination of the membranes revealed many typical bacilli and spirochete forms. In view of the fact that these organisms are so often associated with filamentous forms in the crypt granules, the exudates were examined with this in mind. From several cases, the exudate was obtained in smears; also the exudate was suspended in glycerin and examined for the raylike granules and the characteristic terminals. While a few thread forms appeared, nothing was seen indicating that in the exudate there is any tendency to form the granules referred to. Cocci, chiefly *Streptococcus viridans,* are always found scattered about in the exudate, from which they may readily be cultivated. Evidently, the exudate is formed as a result of the proliferation of the two organisms in question, no doubt at times complicated by various pyogens, especially streptococci, a fact noted by other writers. Sometimes the beginning of the exudate appears to be in intimate relation to the mouths of the crypts, though we cannot state that this is always true. The fusiform bacilli and spirochete forms present no differences from the organisms observed in the tonsil crypt granules, and naturally suggest the possibility that the infection, at least at times, arises from this source.

Acute ulceromembranous gingivitis as described by Gilmer [6] and others appears to be an infection about the gums of quite the same character as Vincent's angina. Tunnicliff [7] has established the etiology, finding fusiform bacilli and spirilla forms comparable to those found in Vincent's angina. This is in accord with the findings of other workers; while most writers on this topic are agreed that, while the two conditions are the same, it is no doubt true that the predisposing factors are different, and this, combined with the different anatomic structures involved, justifies one in differentiating them. That their epidemiology does not always correspond is further reason for so doing.

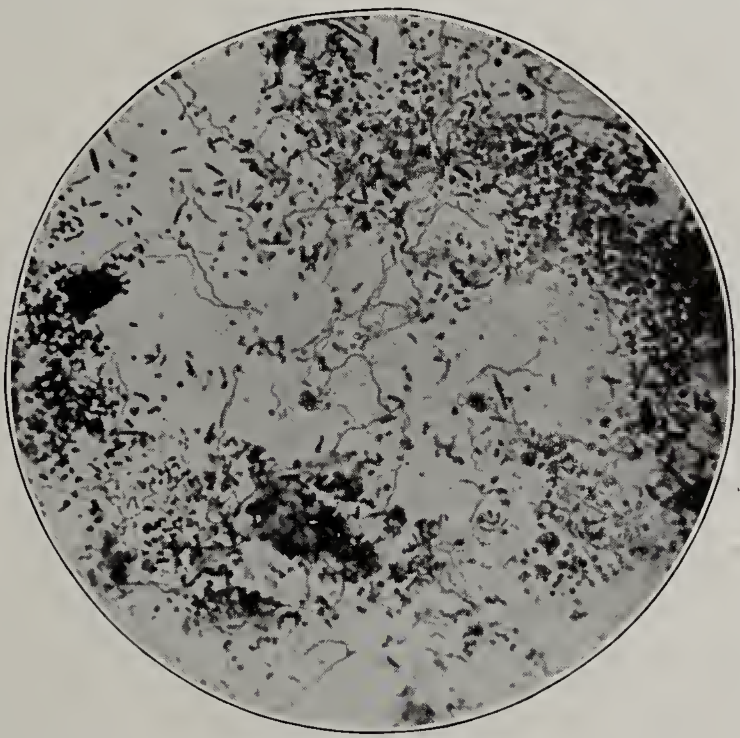

Fig. 4.—Smear of normal smegma revealing fusiform bacilli, spirochetes and cocci; × 1,000.

Noma.—With the foregoing infections is to be mentioned noma. The literature is extensive, and Weaver and Tunnicliff,[8] in a comprehensive paper, have made an analysis of it here unnecessary. They established as the direct etiologic factors the fusiform bacillus and spirilla forms, acting along with well-known predisposing factors of a preceding severe and debilitating contagious or infectious disease, especially measles. Lesions of the mucous membrane of the mouth and throat commonly, if not constantly, initiate or precede the necrotic and gangrenous processes which usually occur about the cheek and maxillary region. Streptococci and other pyogens are often associated with the spirilla forms and fusiform bacilli. We find no mention of granular or raylike bodies or organisms comparable to the filamentous structures about the teeth and in the tonsils.

Pharyngomycosis.—This is apparently a well-defined clinical condition, with a definite pathology. Leptothrix and filamentous forms have been described as composing the firm adherent exudate on the pharynx and tonsils. Through Dr. Shambaugh and Dr. Hall, we have had an opportunity to examine two cases. The exudate from one revealed, in addition to unbranched filaments, an enormous number of typical *B. fusiformis* and coarse spirochete forms. No raylike granules were seen in this case, but the exudate was not firm or dense and apparently had not been present long. In a second case, the exudate was typical. It was firm and tough and could be removed only with the greatest difficulty. Strands of the grayish growth protruded from some of the crypts of the tonsils. This material in unstained mounts, especially in glycerin, revealed many structures similar in arrangement and form to the filamentous raylike growths from the teeth and tonsil granules. At the margins were finger-like or brushlike processes, with central strands having round or oval and elongated bodies attached. Interspersed were large numbers of fusiform bacilli, coarse and fine spirochetes and many diplococci. Stained with gram, the smear preparations are practically indistinguishable from similar preparations from the crypt granules or the teeth.

In the exudate of this case were large clusters of desquamated epithelial cells among which the growths above noted appeared. We are not aware that the raylike and finger-like structures have been noted before in pharyngomycosis. The importance of this is at once evident, since, if this is true, it strongly suggests that pharyngomycosis may be caused by the excessive proliferation of the organisms which make up the crypt granules. We have never noted before that the raylike granules cause definite lesions, though for a long time we have sought for a definite pathology of the crypts, dependent on their presence. In crypts, when the granules are present, especially in large numbers, the epithelium may be denser and thicker adjacent to the masses, but we have never before observed that the organisms of the granules penetrate or even become adherent to the epithelium. The bodies may be formed deep in the tonsil tissue at times, and have so been described by others, but such instances, we feel sure, were artefacts. We are making further studies of these tonsils and of other cases.

Pyorrhea Alveolaris.—In pyorrhea, it is well known that fusiform bacilli and spirochetes occur practically constantly in large numbers, and to them has usually been ascribed a secondary rôle. This is probably correct, though it should be emphasized that these organisms are not without danger and are no doubt largely responsible for the fetid odor and for at least some of the necrosis that occurs. In mercurial stomatitis also, they have been observed in large numbers. In this connection, it is interesting to remember that, years ago, Babes[9] and others, noting these organisms in large numbers in the foul mouths of scorbutic patients, ascribed an etiologic significance to them. Cocci, especially streptococci, always occur in large numbers, a fact commented on by many. We mention it here because of the possible symbiotic relationship comparable to that observed in the actinomyces-like granules of the tonsils.

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[6] Gilmer: Dent. Rev. **20**: 459, 1906.
[7] Tunnicliff: J. Infect. Dis. **2**: 446, 1905.
[8] Weaver and Tunnicliff: J. Infect. Dis. **4**: 8, 1907.

The presence of *B. fusiformis* and spirochetes in putrid alveolar abscesses has been noted by Vincent.[10] We are under the impression that these organisms are responsible for the putridity of such lesions in most cases; but this point requires further investigation.

Putrid Pneumonia and Lung Gangrene.—The occurrence of the two organisms in these conditions has been noted. Rona[11] especially has made important observations in this connection. We have observed a number of cases, all with foul, fetid sputum teeming with *B. fusiformis* and spirochete forms, together with streptococci.

The sputum of fusiform-spirochete pneumonia has the typical putrid odor, difficult to describe but quite characteristic. It can be readily distinguished from *B. coli* odor and pyocyaneus abscess, with both of which we have had occasion to compare it. We have also encountered very foul sputum from a patient having putrid bronchitis, which did not contain the spirochetes. Other organisms besides the fusiform bacillus and spirochetes may, of course, be responsible for foul-smelling sputum.

Infection with fusiform bacilli and spirochetes may be superimposed on a pulmonary tuberculosis. This is illustrated by a patient now under observation who is in an advanced state of tuberculosis and is expectorating very foul sputum. Cocci, together with *B. fusiformis* and spirochetes, occurred in great abundance in the sputum, which also harbored many clumps of tubercle bacilli. This patient, on physical and roentgenologic examination, presented a bilateral tuberculosis involvement, with a large cavity in the right lower lobe. It should also be pointed out that syphilis is not in any way a factor in these infections.

Bronchitis and bronchiectasis are conditions often accompanied by sputum having a putrid odor. These infections are chronic, continuing for years, with recessions and exacerbations. An anaerobic flora often predominates in these cases, in which fusiform and spirochetal organisms play a prominent rôle. They have been noted by a number of workers. An interesting complication of these conditions, noted years ago, and now by many writers, is the occurrence of brain abscess.

The bronchial spirochetosis described by Castellani[13] may be here mentioned. Many observations have now appeared confirming this contribution. The question has been already raised as to the relation of Castellani's spirochetes to the spirochetes of Vincent that occur in the putrid lung conditions associated with fusiform bacilli. At the present moment, the idea prevails that the two are different, and that the former is peculiarly a tropical spirochetosis in which symbiosis with fusiform bacilli does not play a significant rôle. The sputum described in tropical pulmonary spirochetosis is usually thin, watery, and not foul-smelling.

Otitis Media.—Putrid otitis media deserves consideration here, since *B. fusiformis* and spirilla forms have been found by a number of observers in the discharges. Holt[14] described "noma" of the ear, five times, preceded by an otitis media. We are investigating this condition further, especially with reference to the normal flora of the ear passages, about which little seems to be known. Examination of foul, purulent discharges from the middle ear in six patients[15] revealed *B. fusiformis*, coarse spirochetes and varying numbers of gram-positive cocci, frequently along with diphtheroids (Fig. 6). So far, all the putrid discharges showed the fusiform and spirochete forms. These cases were of long standing, varying from ten to twenty years. In six chronic discharging ears, the discharge being nonfetid in character, the fusiform and spirochetal organisms were not found.

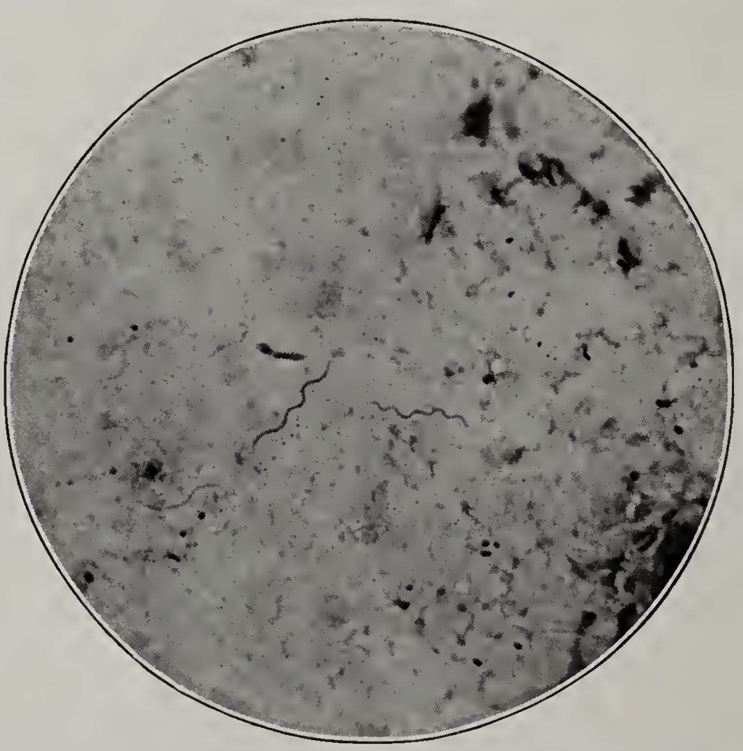

Fig. 6.—Smear from pus of a case of putrid otitis media. Fusiform bacilli, spirochetes and cocci are present; × 1,000.

Putrid and Gangrenous Infections Following Teeth Wounds.—Foul-smelling infections of the skin have been observed in which the source of infection was from the organisms about the teeth. Hultgen[16] reported acute partial gangrene of the finger of a girl who habitually bit her finger nails. *Bacillus fusiformis* and spirochetes were demonstrated in the wound and about the carious teeth. Peters[17] made a similar observation in a finger wound following a blow striking the teeth. It is also interesting to note the occurrence of "fusospirilla" organisms in gangrenous wounds which were favorably influenced by the local and intravenous use of arsphenamin.[18]

The various conditions referred to above constitute a group of infections intimately related to the buccal and respiratory tracts. Another group of infections of this type concerns the genitals and adjacent parts in both males and females. The occurrence of fusiform bacilli and spirochete forms normally in the preputial secretion and about the clitoris was noted earlier in the paper, and it appears reasonable to assume that, with proper predisposing factors, these organisms are responsible for gangrenous processes in this locality.

We have, with Brams, studied a series of five cases of erosive and gangrenous balanitis observed at the

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[9] Babes. in Kolle and Wassermann: Handbuch der pathogenen mikroorganismen, 1907, p. 280.

[10] Quoted by Babes, Footnote 9.

[11] Rona: Arch. f. Dermat. u. Syph. **74**: 171, 1905.

[13] Castellani: Lancet **1**: 1384, 1906.

[14] Holt, L. E.: Diseases of Infancy and Childhood, 1906, p. 290.

[15] We are indebted to Dr. S. J. Pearlman for this material.

[16] Hultgen, J. F.: Partial Gangrene of the Left Index Finger, J. A. M. A. **55**: 857 (Sept. 3) 1910.

[17] Peters: J. Infect. Dis. **8**: 455, 1911.

[18] Ravaut: Presse méd. **22**: 712, 1914.

Cook County Hospital. As has previously been observed in such cases, especially by Harris and by Corbus,[19] fusiform bacilli and spirochetes were found constantly and in large numbers in these cases. Associated with them were varying numbers of other bacteria, especially staphylococci. Granules or raylike bodies were not found. These cases did not give a history of saliva contact to explain the presence of these organisms, and it was this fact that led to a more detailed investigation of the flora of the normal smegma, to which reference has already been made. This comparative study of the flora of the normal preputial and clitoris secretion and the secretions and pus from cases of balanitis revealed a striking similarity in both smears and cultures, indicating that gangrenous processes in these parts are not necessarily dependent on saliva contact but may arise locally, particularly in persons with retention of these secretions from any cause. Neo-arsphenamin has been used in these cases with encouraging results. A more detailed report of these studies will be published later.

The fact that fusiform bacilli and spirochete forms exist in the mouth and tonsils in such large numbers would lead one to suspect their presence in the gastro-intestinal tract, at least at times. As stated earlier in the paper, we are not aware of observations on the occurrence of *B. fusiformis* in the normal gastro-intestinal canal, though spirochetes have been described in a variety of conditions. In pathologic lesions of the appendix, however, especially gangrenous, instances of infections with spirochetes and fusiform bacilli are recorded. This fact would suggest that, normally, such organisms exist in the bowel and appendix lumen and under certain conditions cause the gangrenous process.

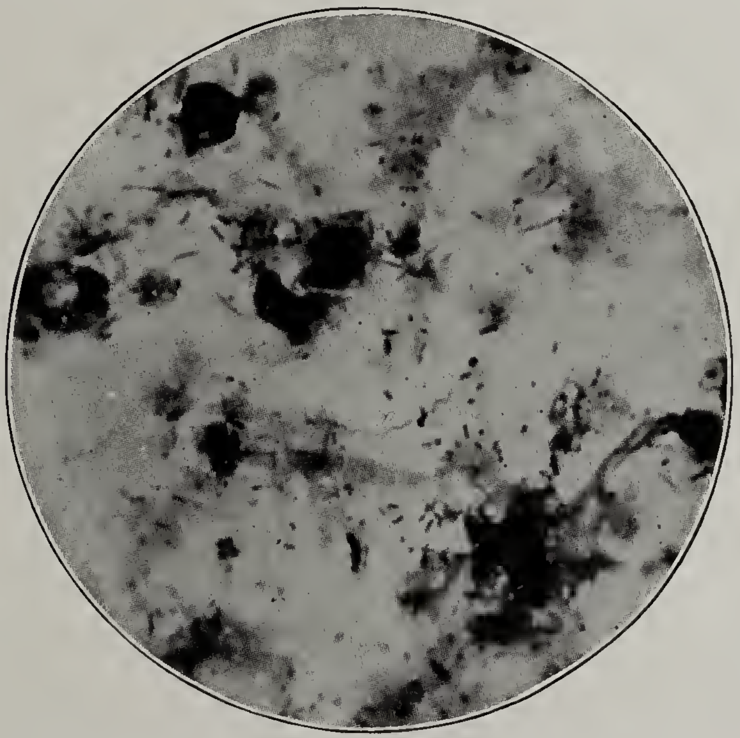

Fig. 8.—Smear from pus of pleural cavity from a rabbit with experimental putrid empyema produced by the injection of macerated tonsil granules. Three varieties of organisms are present, B. fusiformis, spirochetes and cocci; × 1,000.

In the examination of gangrenous appendixes from six patients, in one instance fusiform bacilli together with spirochetes and colon bacillus were found. In this patient, the onset was typical and occurred thirty-six hours previous to the operation. Grossly, the entire appendix was greenish-gray, and the lumen was filled with greenish-black exudate, consisting of necrotic mucosa, pus cells, bacteria, which were chiefly short, gram-negative bacilli, fusiform bacilli and spirochetes. In two other instances, fusiform bacilli occurred without spirochetes. Heyde[20] described the fusiform bacillus with the spirochete in eight of 102 instances of various forms of appendicitis.

ANIMAL EXPERIMENTS

For the experimental production of putrid and necrotic processes with these organisms, we have found the rabbit especially suitable. Introduction of the material under the skin in suitable amounts in the region of the neck or directly into the pleural cavity will result in a few days in a putrid process, should *B. fusiformis* and spirochetes be present. We have not as yet attempted to work with pure cultures. The presence of the associated cocci, especially streptococci, is no doubt an important factor in determining the character of the lesion and exudate. The cocci appear to be the more aggressive, advancing into adjacent tissue or organs; whereas, the fusiform bacilli and spirochete forms follow and cause the necrotic and gangrenous process. The streptococci will often be found in the heart's blood or in the adjacent pleural cavity, or in the peritoneum in pure culture; whereas, the other organisms tend to remain at or near the site of injection, causing there the putrid lesion.

If the dosage is large enough, the rabbit dies within a few days, and at the site of the injection will be found an extensive necrotic and putrid process. If this is the pleural sac, the entire cavity will be filled with such an exudate, the lung being compressed and the heart pushed to the opposite side (Fig. 7). Early, the exudate is serous or serofibrinous, in the course of a few days becoming less fluid, and later changing to a grayish, cheesy mass. Early in such lesions, the flora consists of cocci together with fusiform bacteria, both long and short forms, and spirochetes (Fig. 8). After several days, if the animal lives, the exudate becomes less putrid, and the spirochetes disappear first. After ten days or thereabouts, they are absent, or very nearly so. The fusiform organisms tend to remain longer, but these in nonfatal cases usually disappear before the coccal forms.

Eight rabbits were inoculated intrapleurally with macerated granules in amounts varying from one to four small granules. All these animals died in from six to ten days, with findings in accord with the foregoing statements. Material from the tartar of normal and pyorrheic gums, from Vincent's angina exudate, from sputum or pus of two cases of lung abscess, and from the purulent secretion of gangrenous balanitis, as well as normal smegmas, was likewise introduced into rabbits, with corresponding results.

PATHOGENESIS

In a discussion of the pathogenesis of these infections, it is necessary to refer briefly to certain principles involved which are important in understanding not only the origin but also the localization of the processes. Concerning the general type of bacteria known as opportunists, to which the organisms discussed in this paper belong, we recognize that they have a definite and striking distribution in the body. We[21] have called attention to this in connection with streptococci, showing that the tonsils and pharynx are the normal habitat for the hemolytic streptococci in the body and that most streptococcal infections occur at or near these sites. Distant infections may occur, but if so they may usually be traced back to these localities as ultimate sources. So with pneumococci in the throat and varieties of intestinal bacteria in the bowel, staphylococci constantly inhabit the skin, and when certain predisposing factors exist, or when virulence is enhanced, lesions appear, usually on or near the skin. Phemister,[22] for example, has recently observed that, in cases of staphylococcus osteomyelitis, he is able in most instances to find a definite lesion of the skin, such as a furuncle or slight wound infection, from which atrium the infection resulted. When these different bacteria cause infections, they almost invariably do so in the locality in which they normally live.

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[19] Corbus, B. C.: Erosive and Gangrenous Balanitis, J. A. M. A. **60**: 1769-1774 (June 7) 1913.

[20] Heyde: Beitr. z. klin. Chir. **76**: 1, 1911.

[21] Davis, D. J.: Habitat and Distribution of Streptococci in the Body, Illinois M. J. **36**: 134 (Sept.) 1919. Pilot, Isadore: Bacteriology of the Adenoids, J. Infect. Dis. **29**: 47-66 (July) 1921.

In analyzing the various putrid and gangrenous processes in which *B. fusiformis* and spirochetes play a rôle, we see that they relate themselves in an interesting way to the normal habitats of these organisms. A large number of such processes begin about the pharynx and mouth, where these organisms exist in largest numbers. Less frequently, they occur in the bronchi, lungs, pleura, middle ear, etc., parts further removed but still all more or less accessible to infected material from the foci in the mouth and throat. Also, about the genitalia occur the gangrenous processes in the male and female, in parts adjacent to the normal habitat of these organisms.

In this type of infection, we are dealing with processes in which predisposing factors no doubt play a very important and, apparently in most instances, the determining rôle. The occurrence of noma in children following various acute and chronic diseases is a well known illustration. Persons suffering with a variety of diseases, poorly nourished, and with unclean mouths, are most often attacked; and in balanitis lack of cleanliness appears to be a common determining factor.

There appear to be some exceptions, however, to the foregoing statements. In connection with Vincent's angina, especially, outbreaks and definite epidemics are well known in which large numbers of normal persons without a recognizable predisposition are infected. Epidemics of noma have been reported[23] and Holt[14] states that it may be contagious. To explain this, we may assume that, like other bacteria, *B. fusiformis* and spirochetes may take on a heightened virulence or at least take on a property which permits them to gain a foothold more readily in the tissues. We do not understand from the literature that the epidemic forms are more severe than the sporadic cases.

PROPHYLAXIS

No doubt something can be done to diminish the number of organisms of this character now since we know more definitely where they live. While it may be out of the question completely to disinfect the mouth or the tonsils, the number of bacteria harbored there may be greatly reduced by various procedures. In dealing with organisms of this general type, diminishing the dosage of bacteria generally is an important element in prevention. Removal of the tonsils and draining of the crypts containing the granules are rational procedures to pursue relative to the hygiene of the tonsil. Thorough and frequent cleansing of the teeth, especially between them and about the gums, removal of tartar and of pus pockets, and in general the establishment of a clean, normal, healthy mouth would clearly be indicated in this connection. It would appear reasonable to exercise special precaution in these directions in persons about to undergo anesthesia for any purpose, but especially in tonsillectomy or operations about the mouth or throat.

About the genitals in the male, frequent cleansing of the preputial sac would seem to be practically a sure prevention; and in females, the parts about the clitoris should receive proper attention. Here, it may be pointed out, is another reason for circumcision, for in the circumcised male these infections practically do not occur.

TREATMENT

In the treatment of fusiform bacillus-spirochete infections, arsphenamin and neo-arsphenamin have been employed. On the basis of the marked results in spirochetal diseases such as syphilis and yaws, arsphenamin has been extended in its use to other conditions, particularly infections in which the Vincent spirochete plays a rôle. Encouraging results have been obtained in the local and intravenous introduction of arsphenamin in Vincent's angina and gingivitis. Our experience is thus far limited. In cases of balanitis and pulmonary infections, arsphenamin treatment was followed by recovery or improvement. It should be remembered that, while the arsphenamin has spirocheticidal action, it may not directly influence the associated organisms, i. e., the fusiform bacillus and the pyogens. The best results may be expected in lesions which reveal the spirochetes as the predominant infecting organism.

SUMMARY AND CONCLUSIONS

There are three chief habitats of *B. fusiformis* and spirochetes in the human body, namely: (1) the crypts of the palatine tonsils, chiefly in the so-called actinomyces-like granules; (2) the teeth, especially the tartar deposits at the gum line, and (3) the smegma in the preputial sac in the male and about the clitoris in the female. To these habitats may possibly be added the intestinal canal.

In the mouth and tonsils, streptococci are always associated with the fusospirochete organisms, and in smegma staphylococci always occur with them. Other organisms may also be associated. Symbiotic relationships between these several organisms seem here to be an important factor.

These habitats evidently determine the localization of gangrenous and putrid infections of this type. Vincent's angina, ulceromembranous stomatitis, noma, putrid otitis media, putrid bronchitis and gangrenous pneumonia are lesions of the respiratory passages or parts intimately related thereto and caused usually by these organisms. The organisms presumably come originally from the mouth or tonsils, or both. The several gangrenous processes that occur about the male and female genitals presumably result from invasion by these organisms that occur normally there. Some cases of gangrenous appendicitis appear to arise similarly from the fusospirochete organisms of the intestine.

Predisposing factors are usually of first importance in determining the development of these organisms. Apparently, at times, they may, like other bacteria, develop a degree of virulence sufficient to enable them to gain a foothold in normal tissues.

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[22] Phemister, D. B.: Hematogenous Staphylococcus Infections Secondary to Foci in the Skin, J. A. M. A. **78**: 480 (Feb. 18) 1922.

[23] Am. J. M. Sc. **122**: 527, 1901.

Material containing fusospirochete organisms and pyogenic cocci from teeth, tonsils, smegma, putrid sputum, etc., when injected into rabbits intrapleurally or subcutaneously, will cause putrid and gangrenous lesions containing these organisms. The cocci, especially streptococci, are the aggressors and may alone invade adjacent cavities and the blood stream. The fusospirochete organisms tend to remain more localized, causing necrosis and gangrene in the already invaded tissues.

Proper hygiene of the tonsils, teeth, gums and genitals should greatly diminish the number of these organisms and reduce the incidence of infections of this character.

508 South Honore Street—1316 Millard Avenue.

INDUSTRIAL OPHTHALMOLOGY

A SURVEY OF TWENTY-FIVE THOUSAND CASES *

V. E. VAN KIRK, M.D.
PITTSBURGH

The series of cases on which this survey is based comes from a steel mill employing about 8,000 men. It consists of furnaces, open hearth and Bessemer, rolling mills and the various coordinating departments.

The medical and "safety first" departments were organized in this mill about twelve years ago. Before this time serious cases were sent to the hospital, and minor injuries were treated by a watchman or clerk. The equipment for the care of injured employees consisted of a few litters, bandages and such drugs as the layman in charge thought most efficient. Eye cases were handled in the same haphazard manner. Foreign bodies were removed by a fellow employee. Such a thing as organized "safety" work was unknown. When these departments were organized, the greatest trouble was to educate the men as to the value of the various means taken to prevent accidents. With difficulty the men were taught the great importance of the prompt treatment of all minor injuries. Safety devices of all kinds were looked on with scorn.

At this time, safety first work was but little known and had few facts to support its teaching. To superintendents, foremen and laborers alike it was just a "fool idea," the dream of a man who wore a white collar. But corporations are not dreamers, and the cost of accidents in money and lost efficiency forced them to adopt some method to reduce the number of injuries. Bulletin boards, slogans, "no accident weeks" and all the methods so well known today were employed to secure the cooperation of the men. In a short time the value of safety first work was proved to all. But the history of the pioneer work in safety first has been written elsewhere and can only be mentioned here.

Safety devices of various types were designed after study of the accident possibilities of each type of work. Today many concerns specialize on this type of equipment. The various types of goggles to be used in a mill should be inspected by the ophthalmologist with care, as many of them are not fit to be worn. The frames can be had in different weights for various kinds of work. The thickness of the glass varies also, but must always be a plane glass. The goggles must be in various sizes so that all the men can be comfortably fitted.

Goggles are worn by men in chipping or grinding, for example, where there is increased danger of eye injuries. Plate glass shields are used on punches and like machines to protect the worker from chips of steel. Masks are worn by men pouring babbitt metal. Special goggles of various types are worn by men using the oxyacetylene torch or electric arc in welding, furnace workers, and others exposed to intense light. Many other devices, each suited to its particular type of work, are in constant use. In twenty or twenty-five cases a year it is found that the vision of one or both eyes has been saved by the use of goggles. This alone saves the company about $50,000 or $60,000 in compensation a year. A brief history of such an accident with a photograph of the worker wearing the broken goggles makes a bulletin exhibit of great educational value. In cases in which a correcting lens is necessary, the company has the man's eyes refracted and he is furnished goggles with proper lenses.

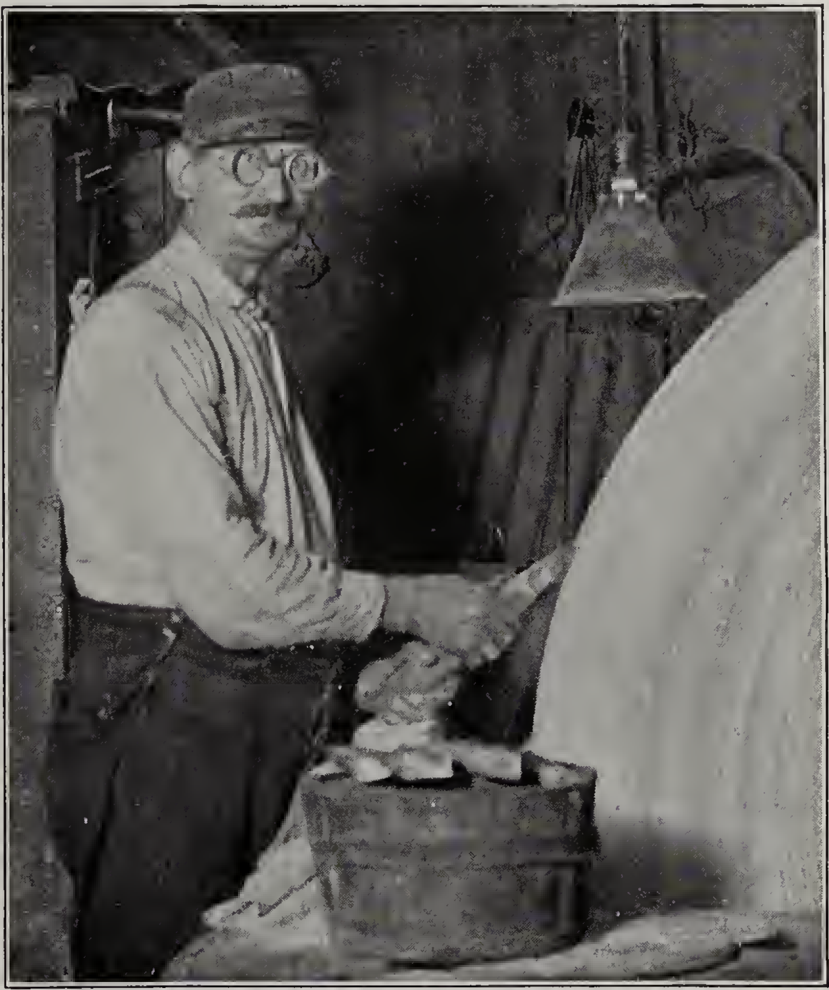
Fig. 1.—Tool grinder, properly protected.

The employees are now on an "honor system"; a man who sees a fellow employee breaking one of the rules of safety first is justified in reporting him to the foreman.

The penalty of discharge for failure to wear goggles when so ordered is rarely necessary now; the men realize the value of this protection.

Burlap screens in certain places are used to protect passers-by from flying chips. Many serious eye accidents resulted from the use of "mushroomed" tools. The use of tools in this condition is strictly forbidden, and such tools are sent to the tool room for redressing.

After any serious accident, a special study of the case is made by the safety department, and ways and means to prevent the recurrence of such an accident are

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* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

presented to the weekly meetings of the superintendents and foremen. At these weekly meetings the accident record of each department is reviewed, and any letdown in safety methods is soon discovered.

The study of light fixtures in a steel mill is not so important as in other industries. Modern indirect or semi-indirect fixtures have been installed in the offices and other departments, as necessary.

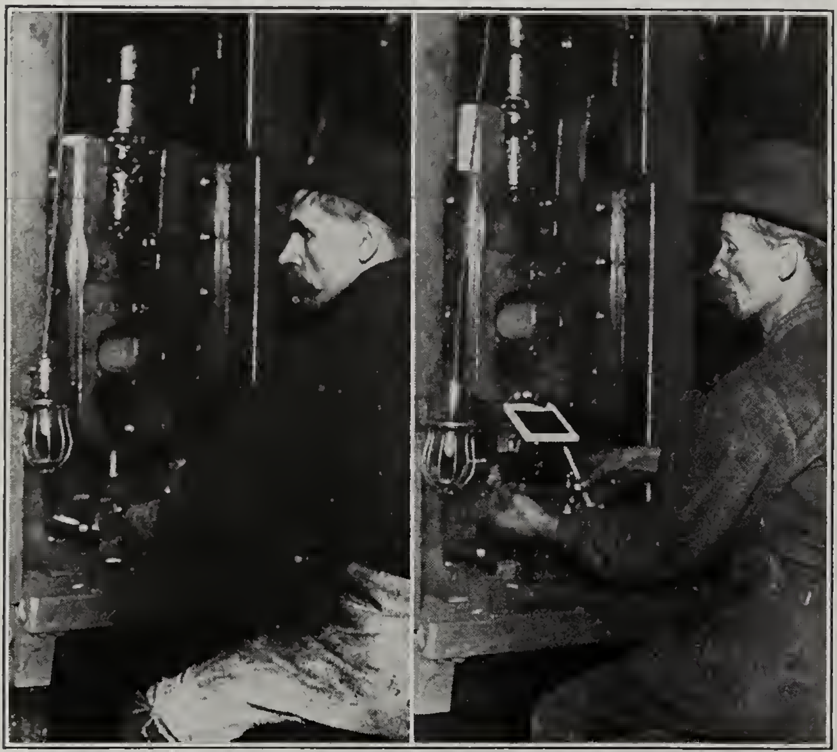
Fig. 2.—An eye was destroyed by the unguarded machine at the left; at right, plate glass guard in position. The unshaded light shown here is no longer used.

The first aid station in this mill is in charge of a graduate nurse at all hours. A physician is on duty during the day and on call at night. A complete equipment of drugs and dressings is available for the redressing of minor injuries and for the treatment of serious injuries before they are sent to the hospital. All general cases are seen by the company surgeon or his assistants. All eye cases are seen by the company ophthalmologist. For some time the eye cases that the nurse or the physician on duty could not handle were sent to the ophthalmologist, either to his office or to the hospital. At this time such work was paid for on an individual case basis.

Numerous defects were soon found in this method of handling the cases. Too often the unskilled attempts to remove deeply embedded foreign bodies did more damage than good. Sometimes serious cases, such as steel in the vitreous, were not recognized for several days. The amount of time lost in minor eye injury cases seemed too high in proportion to other injuries. Employees sent from the mill to the office or to the hospital for treatment would be away from work for hours; and, as these men are paid by the hour, the loss was considerable. The records were so divided that it was almost impossible to check up cases and discover delinquents. These, with many other defects, caused us to make a change in the system for the treatment of eye cases.

By far the greater part of industrial ophthalmology deals with the treatment of minor injuries, of which the majority are foreign body cases. Although the severe injuries and their treatment are the most interesting phase of industrial ophthalmology, the most important part of the work is the treatment of the minor injuries. The care of these patients involves several important factors. The method of handling this type of case must take into consideration the fact that nurses and general practitioners are not expected to make a close diagnosis or to remove deeply embedded foreign bodies. Nor is it possible to have an ophthalmologist present at all hours. We have found that when the foreign body cannot be removed with a cotton swab, the patient can be made comfortable by instillation of phenacain (holocain) or butyn solution, mercuric chlorid ointment and a patch.

The ideal method of handling such cases would be to have the foreign body removed at once. We have found it impossible to do this, and so have chosen the lesser of two evils. No bad results have been seen from allowing the foreign body to remain in situ when treated as above, nor do the men complain of pain. After being so treated, the man is allowed to return to work and is given some type of work suitable and safe for a man wearing a patch. He is then seen at the next visit of the ophthalmologist, when the foreign body is removed. In these cases it is found that not only the foreign body but also all stained or devitalized corneal tissue must be removed. Unless this is done, the eye remains irritated for some days and is more liable to ulceration. In all cases in which the corneal epithelium is broken, mercuric chlorid ointment is instilled and a patch placed over the eye. This patch is worn for the next twenty-four hours, when the eye is inspected by the ophthalmologist and, as a rule, it is found that no other treatment is needed. I believe that the occlusion of such eyes for twenty-four hours is of great value, and that it plays an important part in the prevention of corneal ulcers.

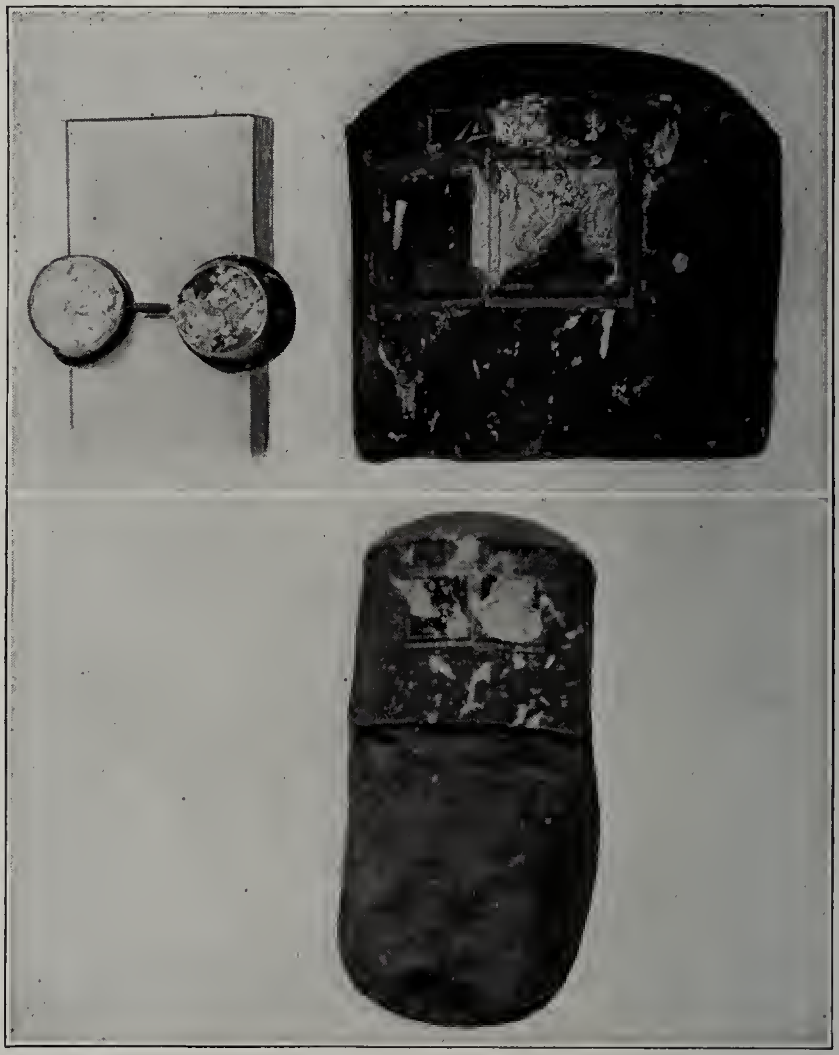
Fig. 3.—Above, goggles and mask after explosion of molten babbitt metal; below, mask that saved both eyes in explosion of babbitt metal.

We have found that sending such men to either the hospital or the office is less satisfactory and more expensive than having them report at the first aid station at a definite hour each day when the ophthalmologist is present. With little clerical work a record can be kept covering the type of injury, treatment given, number of treatments and date of next visit. In this way delinquents can be checked up easily and sent in for treatment. At each visit a card is given the patient telling him the day and hour he is to report for further treatment. This "come-back" card is turned in when the treatment is given. Less than 0.1 per cent. of such patients fail to report on the day and hour mentioned. Success in having men report promptly for treatment of injuries and for redressings depends altogether on a wide-awake safety department and on educating the superintendents and foremen to an understanding that such promptness is essential. Less than 0.5 per cent. of the patients came for treatment one day after injury; 0.3 per cent. came the second day, and 0.3 per cent. came three or more days after injury. Comparing these figures with those in a recent report in which 43 per cent. were seen one day after injury, 18 per cent. the second day and 22 per cent. waited three or more days, we can see the very small percentage which efficient safety first work has given.

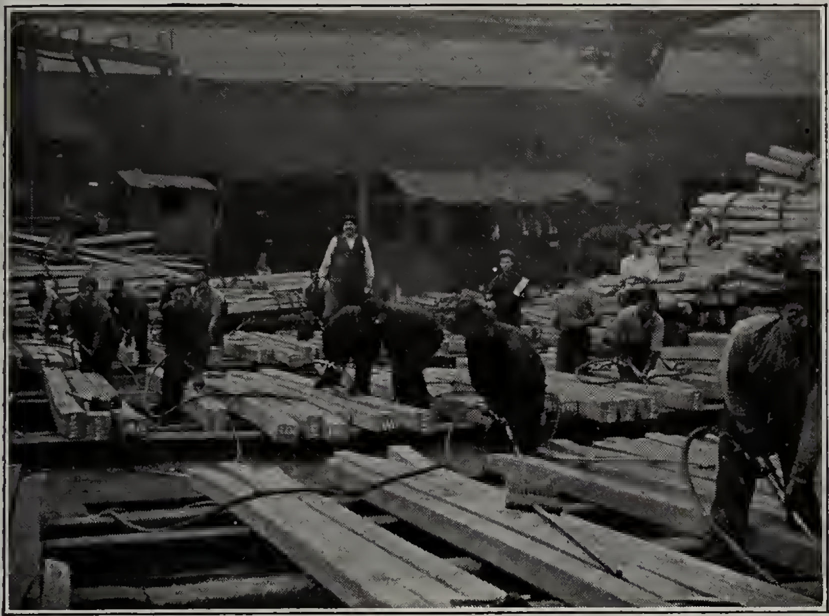

Fig. 4.—Chippers wearing goggles; the burlap screens have been removed while photograph was being taken.

With the methods outlined above, corneal ulcers developed in only seven cases, five of them in men reporting from three to eight days after injury; two of these cases developed in men who had been to the first aid station but failed to report for further treatment as ordered. In no case has a corneal ulcer developed when the men followed the orders and treatment as given.

In other industrial work of the same kind in which this system is not carried out, I find 400 per cent. increase in the number of corneal ulcers.

By reason of the mandatory wearing of goggles and the use of the various other safety devices, major injuries of all types are rarely seen by us now. In the five years covered in this report, only forty major injuries occurred.

In all cases in which the history of the accident or the appearance of the injury is such that an intra-ocular foreign body is suspected, a roentgen-ray localization is invariably made. If the foreign body is behind the lens, the magnet extraction is done through a scleral incision. In these cases, even though the vision is good for some few months afterward, we find that the great majority sooner or later lose their vision, usually as the result of a low grade choroiditis, so that a guarded prognosis must be given.

In cases in which the eyes are burned—either by hot metal or by acid—the man is sent to the hospital at once, even if it at first appears to be a minor burn. We have found that no prognosis could be made for the first twenty-four hours, for even severe cases often appear to be of minor import at first. We have found that, in cases in which the corneal or pericorneal tissues are burned, atropin can be used only with great care, as glaucoma at times sets in.

In the treatment of corneal opacities following injury, we find that the long continued use of ethylmorphin hydrochlorid (dionin) in some form gives almost unbelievable results. We have observed vision reduced to 6/30 improve to normal as the corneal haze disappeared from the persistent use of this agent.

No adequate protection that is practical has been found for those exposed to electric flashes. We find that in these cases the symptoms of photophobia, lacrimation, etc., persist for about twenty-four hours in spite of any treatment. The instillation of phenacain in aqueous or oily solution gives more relief than any other measure. No permanent effects from such cases have been demonstrated. This coincides with the facts brought out recently by Verhoeff and Bell. We do find, however, that the symptoms are more severe and prolonged in men who have previously suffered with electric conjunctivitis.

The care of injuries is not the only duty of the industrial ophthalmologist. Many nonindustrial eye conditions are also seen. Some years ago an epidemic of trachoma broke out, but was soon under control, and one or two cases of trachoma are found each year. Such patients are put under treatment and furloughed until the infectious stage is passed. They are then allowed to work, but must report to the ophthalmologist every month for inspection.

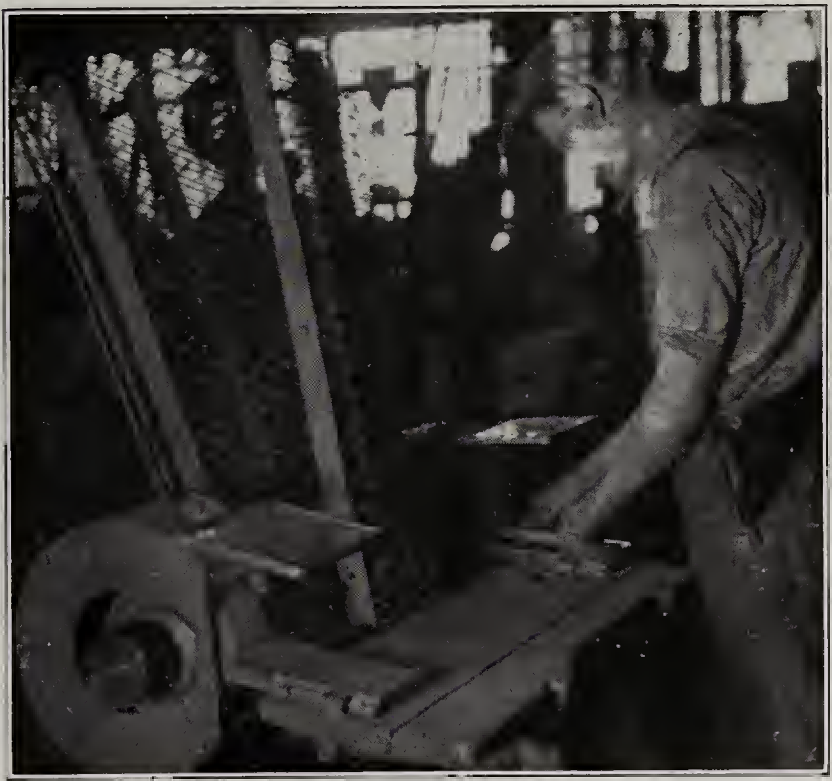

Fig. 5.—Inferior method of protection in emery grinding; goggles are much better than a shield.

From these observations, I believe that the most important part of industrial ophthalmology is the prevention of accidents and the treatment of the minor injuries. The figures given prove that such care will reduce the number of corneal ulcers to a minimum. The treatment as outlined will also return to work in the shortest possible time all the employees who have had minor injuries.

The next step to be taken in industrial ophthalmology is the refraction under cycloplegia of all employees, and furnishing them with the proper correction. The increased efficiency of the men will, it is believed, more than compensate the employer for the expense involved. I recently found in an examination of railroad employees that 10.5 per cent. had subnormal vision to such an extent that it made them unfitted for their occupation. No doubt the percentage of visual defects in mill workers would be much higher than among railroad employees.

CONCLUSIONS

1. Severe injuries to the eyes can be greatly reduced by educating the employees, and by the compulsory use of goggles and other safety devices.

2. Some such method as outlined for the care of minor injuries is essential, and will reduce the amount of lost time to a minimum. This method will almost eliminate the occurrence of corneal ulcers.

ABSTRACT OF DISCUSSION

Dr. George H. Cross, Chester, Pa.: The most important part of the work of the industrial ophthalmologist is the prevention of eye injuries. Glance at the accident reports of concerns employing large numbers of men in the so-called metal trades and note the proportion eye cases bear to the whole number of injuries. In one plant in my city there were, during 1921, a total of 13,008 accidents of all kinds. Of these 5,843, or 44 per cent., were eye injuries. In a second plant, in the last eleven months, there were 3,893 accidents of all kinds, of which 2,000, or 51 per cent., were eye injuries. A factor in this percentage of eye cases is the rule which prohibits any employee touching a fellow employee's eye, and requires in all cases, even dust in the eye, that a report be made to the first aid for examination and treatment. A deplorable practice in some plants is that of telling a man with an eye injury to "go see his family physician." These cases generally require longer time to recover, sustain more damage to the corneal tissue, and are more prone to ulcerate than those treated by an ophthalmologist. I am fully in accord with Dr. Van Kirk in believing that the greater part of the routine of the industrial ophthalmologist is the treatment of minor injuries, and as evidence of the value of constant efforts to educate men to report to the first aid hospital, in one plant, in 1921, 536 men applied for removal of a foreign body or for minor injury, in whom no foreign body or injury was found. The eye, however, was flushed, and the man was relieved. In clearing opacities of the cornea, ethylmorphin hydrochlorid (dionin) is certainly an excellent and valuable remedy. The physician is an important factor in building up the morale of the men and helping to establish and maintain cordial relations between employer and employee. The mind of an injured employee with a family to support, and on a reduced income, suffering pain and discomfort, is a fertile field in which may be sown the seeds of rebellion and anarchy. The most illuminating evidence on the value of the cooperation of ophthalmologists with captains of industry is contained in the Hoover report on "Waste in Industry," published last fall. Dr. Van Kirk refers to the education of employees in safety matters. I am firmly convinced that this education should start with the president of the company and include every person on the payroll.

Dr. Albert C. Snell, Rochester, N. Y.: In the technical schools throughout the country we do not educate pupils and instructors in the use of the various kinds of ocular protection. In the Mechanics Institute in Rochester there have been serious accidents to the students that might have been prevented if they had had proper protection. The example of wearing protecting apparatus would have an educational value. We ought to teach these men in the technical schools the proper protective methods so that when they go into the factories they will be properly trained in the correct methods of using ocular protection against injury.

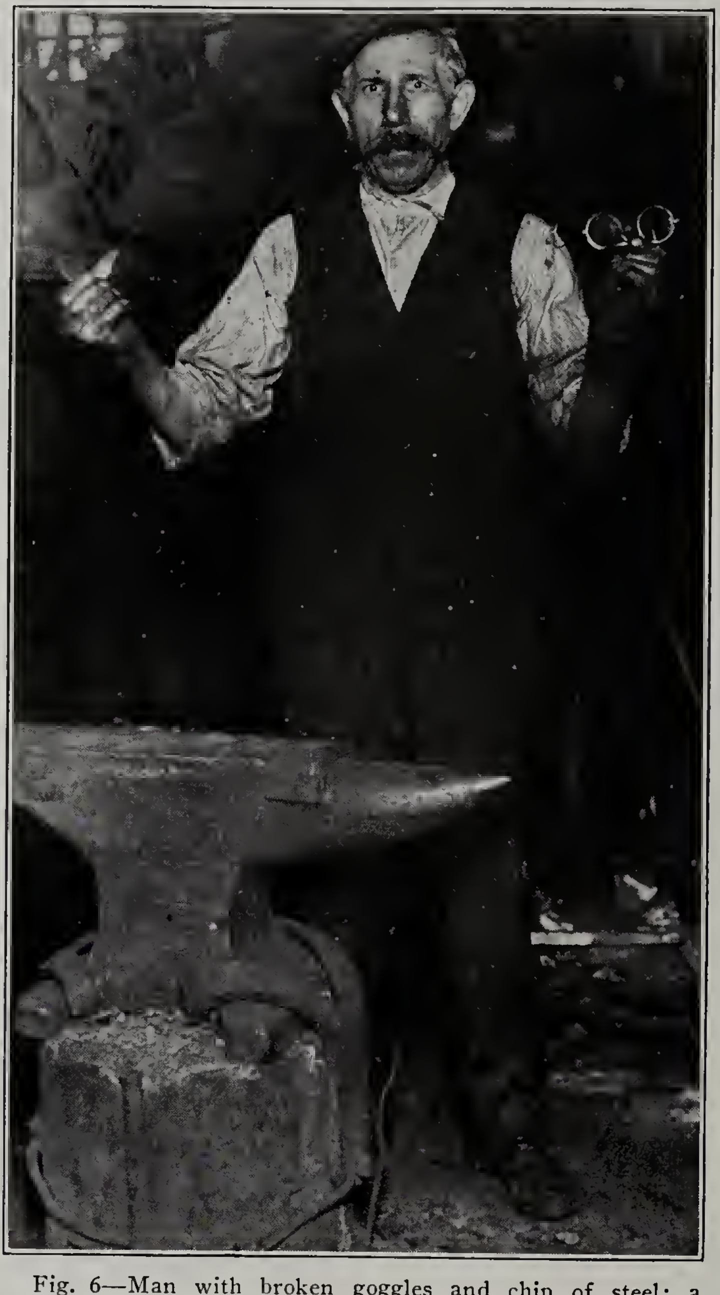
Fig. 6—Man with broken goggles and chip of steel; a good picture for a bulletin board.

Dr. John A. Donovan, Butte, Mont.: Of course, immediate treatment is ideal. I recently saw a case in which the sight of an eye was lost from a foreign body, because the injury was unattended three days. Our miners are now returning to work after a year's shutdown, and accidents are numerous with new men. We should give more time to first aid in their training. Long ago, the Cornishmen in the Pennsylvania coal mines, for their mutual benefit as workers, began a first aid, or rather safety first, campaign on account of the contributory negligence law. In 1910, the United States Bureau of Mines was organized. Six years ago, the A. C. M. Company of Butte organized safety first work. It is spending more than $100,000 a year, and now results show 200 fatal accidents out of 2,005 total accidents in sixteen and a half million working shifts, being at the rate of one death in 272 years: one accident in twenty-six years, if applied to one man. The loss of working time is reduced 65 per cent. The causes are: (1) forgetfulness; (2) carelessness, and (3) negligence. The first two are curable, but negligence is chronic. Our Boy Scout is a trained safety first man. I ask your interest in their behalf. The coming generation will be able to teach us safety first and first aid.

Dr. Gilbert E. Seaman, Milwaukee: If we are really interested in the prevention of eye injuries, our chief problem is education of the men in charge of industry. It has been my observation that, in the matter of the use of preventive measures, it is up to the men in charge of the plant. The men will wear protecting goggles and resort to other means of protection if it is a requirement of the plant, and it will only be effectively a requirement when it is shown to the men in charge of industry that it is a measure that will save money. A protective device is a matter of economy. In the railroad shops in our city, although we have been talking this matter of protection for many years, there is still a great deal of negligence, and we usually find that the difficulty is that the man just then responsible has not been impressed with the fact that it is a measure of economy. During the last year, we have been using butyn as an anesthetic almost to the exclusion of cocain, and it seems to me with fewer infections; I suppose on account of the fact that it does not disturb the cornea to the extent that cocain does.

Dr. Albert E. Bulson, Jr., Fort Wayne, Ind.: I want to emphasize what Dr. Donovan said about the instruction of heads of departments and those managing the large concerns in the effectual carrying out of first aid methods. I think attention also should be called to the fact that sometimes the first aid stations are at fault. I speak with some emphasis concerning this as I have had occasion to call the attention of first aid stations to this negligence. I refer particularly to the class of injury in which there is not a foreign body in the eye, but in which there is an abrasion of the cornea which is very painful and which is not discovered at the first aid station. I want to make a plea for the instruction of nurses and those who first see these patients that, after flushing out the eye, fluorescein should be used in every case. Many of these abrasions, if neglected, result in ulceration, but *if* fluorescein is used the nurse can determine the presence of a break in the epithelium. I recall a number of cases in which complications have occurred due to negligence on the part of the first aid station in not discovering a corneal abrasion. On the other hand, when first aid employees are instructed, we have seen fewer complications from injuries. Another thing is the necessity for having these employees keep the eye covered for the first twenty-four to forty-eight hours after removal of the foreign body, or after an abrasion of the cornea has been determined by fluorescein. I think nothing is so helpful in the prevention of infection as keeping the eye covered. I am aware of the fact that some men treat these injuries in an open manner; but you will make the patient more comfortable and keep out other infection by bandaging the eye. It has been my custom to put in mercuric chlorid salve and cover the eye in virtually every case of injury from industrial plants, and the number of subsequent corneal ulcers and other complications have been greatly lessened in consequence.

Dr. Frederick T. Hyde, Port Angeles, Wash.: A number of speakers have mentioned the matter of educating the managers. It is also our duty to teach the general practitioners that they should not attempt to remove foreign bodies from the eye. Many of our large institutions have contract surgeons. All their work is done by these surgeons, who do not refer the eye cases to ophthalmologists, but frequently do a great deal of damage by trying to remove foreign bodies from the eye. Another thing, they are not qualified to recognize abrasions; consequently these are not properly taken care of and go on to ulcerative formation.

Dr. Lewis H. Taylor, Wilkes-Barre, Pa.: I am impressed with one thing Dr. Cross said—that the employee should not touch the eye, but should go immediately to the first aid station. If he had also said that at the first aid station they should not touch the eye it would be still better, unless at that first aid station a trained ophthalmologist is in charge. I have a great many cases of industrial accidents from the mines, as I live in a mining country. I agree with what the author said about the use of atropin. I use it in many cases. I believe also that when we have taken out a foreign body we should always use fluorescein, and also use it in cases of burn. The great difficulty we have to contend with is the lack of education on the part of those who are in charge of such patients at the time of the injury. The worst cases we have to deal with, as a rule, are those that have received first aid at the mines, where an attempt has been made to take out the foreign body and part of it has been left. If such a plan as suggested by Dr. Bulson could be carried out it would be helpful, but I believe the great point is to teach the people that however slight the injury may be, an eye case should be referred at once to an ophthalmologist, who is to be held responsible.

Dr. Frank S. Auten, Belleville, Ill.: We have many of this kind of cases, and the first aid is too often of very little aid. After I have removed a foreign body, cleansed the eye and put a bandage on it, I have the patient return the next morning. That is a hard thing to do, but you can train them. I think three fourths of the men I see come back the next morning. I remove the bandage myself, and then I use fluorescein and see whether the injury has been covered by epithelium. But I want them to come back the next day by all means. I think that is a precaution well worth noting. You can thus prevent many serious ulcers.

Dr. J. W. Charles, St. Louis: I agree with what has been said about the use of fluorescein, and also about the use of a bandage in these industrial cases. Certainly, a wounded eye has less resistance to disease germs when it is open than when it is closed. I remember one case in Dr. Ewing's office in which a country practitioner had removed a cinder from the cornea. Having been hot, it did not carry in a germ; he had released the patient after the removal of the cinder, without using a bandage or using antisepsis and the eye was lost from bacillus pyocyaneus infection. I think we need a campaign of education for the general practitioner as well as for the captains of industry.

Dr. W. R. Thompson, Fort Worth, Texas: When corneal epithelium has been lost, the use of hot applications for five minutes after removal of the foreign body will relieve the patient of pain, encourage the healing process, and if a bandage is kept on for twenty-four hours there will be no corneal ulcer.

Dr. George F. Keiper, LaFayette, Ind.: One statement was made by Dr. Van Kirk with which I can hardly agree. I cannot bring myself to the point of being willing to let a foreign body remain in the eye when its removal is so easily obtained, as a rule. In fact, the quicker it is out of the eye the better it is for the patient, and for the corporation for which he labors. If it is embedded in the cornea, every movement of the eyeball or lids scratches the lids, irritating them mightily. Moreover, nature immediately institutes measures to rid the cornea of the embedded foreign body, and if given time enough will get rid of the offender by ulcerating it out with resultant damage to vision, the amount depending on the location of the foreign body in the cornea. But such embedded intruders should be removed by competent ophthalmologists, and not by the nurse in charge of the first aid station in the plant. Waste no time at all. Have the patient sent down to the office of the company's ophthalmologist. It is money in the pocket of the injured employee thus to be treated, to say nothing of the comfort it brings him. Besides, the liability of the corporation is reduced. After the removal of the foreign body, it is best to close the eye with a well fitting bandage, or the patient will declare that it is still there and pester you to search the eye for its supposed presence. If the foreign body is intra-ocular and magnetizable, the quicker out the better, after its location has been determined by roentgen ray. Yet we all have seen patients who have carried such foreign bodies for a considerable time with impunity, to have them removed later with the giant magnet. A number of years ago, I reported a case wherein the foreign body was carried for twenty-seven years in the iris, with no damage to vision. Corporations are not soulless. They are sympathetic; they desire that their injured employees be back to work as soon as possible after injury and in the meantime be made as comfortable as possible. Some aspersions have been cast at the efficiency of the first aid station. If one's first aid station is not efficient, that is a reflection on oneself. One ought to see that it is made effective.

Dr. Rufus Jackson, Baton Rouge, La.: About two weeks ago, I saw a case of pyocyaneus infection three days after it had been seen at the plant, and an effort had been made to remove the foreign body, which was apparently successful. At the time the man came, he was complaining of some pain and discomfort, but there was no evidence of advanced infection of the cornea; that is, one would think on examining the cornea that it was nothing more than a foreign body that had been incompletely removed three days before. He had moderate injection of the conjunctiva, and we used antiseptics and sent him home. He had pain all day. We took a smear of the eye and cultivated it. He came back the next morning with the eye well on the way to destruction. We had not been able to identify the bacteria from the smear, and by the time we got the returns from the culture the man's eye had been destroyed, in just thirty-six hours. The infection had simply circled the cornea. The pathologist asked if this man had had any boils, and on inquiry I found he had a small boil on the side of his neck. Hereafter, I shall look for boils as well as treat the eye.

Dr. V. E. Van Kirk, Pittsburgh: Dr. Cross thought the percentage of eye injuries is high. Men must be educated to report to the first aid station even for the most minor type of injury. We instruct them to come in, and if no foreign body is found, they return to work immediately. As to education, we see a great deal in the newspapers about "no accident" races between departments. We have found this is not a very good thing because men get so interested in having their department make a good report that they fail to come for treatment. In educating the foremen, we find the most valuable means is weekly shop meetings. There the accident reports of the departments are gone over. A safety engineer will tell them when the accidents are getting too high. The history of safety work as mentioned by Dr. Donovan is a romance. I worked in the mills when I was a boy when there was no such thing as safety first. Accidents were usually taken care of by a clerk or by the night watchman. In fact, I was guilty myself of trying this work, although I had no knowledge of what I was doing. Negligent workers should be discharged, and complete examination made to find out why a man has so many minor injuries. The importance of using the pad for twenty-four hours cannot be overestimated. The men on their discharge from the hospital are given a "come back" card showing the day and hour they are to report back to the first aid station. No department is allowed to keep a man at his work and prevent his reporting.

HEART CLINICS FOR SCHOOLCHILDREN

A PRELIMINARY PAPER *

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DETROIT

It has been a year since the survey of Detroit schoolchildren for organic heart disease was first undertaken. These children, numbering about 148,000, were first examined by their school physicians. Of the 148,000 children examined, 1,373 were found to have some cardiac defect at the first examination. Later the 1,373 children were carefully studied and classified under the classification recommended by the Society for the Prevention and the Relief of Heart Disease:

Class 1. Patients with organic heart disease who are able to carry on their habitual physical activity.

Class 2. Patients with organic heart disease who are able to carry on diminished physical activity.
  A. Slightly decreased.
  B. Greatly decreased.

Class 3. Patients with organic heart disease who are unable to carry on any physical activity.

Class 4. Patients with possible heart disease.

Class 5. Patients with potential heart disease.

Class 6. Those having no heart disease.

Of necessity it will require several years to determine what alterations and corrections may have to be made in our history sheets and records of these children; in some instances it may be necessary to change from the first classification to another. A study of our statistics shows that less than one per cent. of Detroit schoolchildren have organic heart disease, which corresponds well with the recent statistics demonstrated in other large cities. Approximately one half of the children suspected of having heart disease had signs which were abnormal but which were not believed to be due to disease. Of these, about 60 per cent. had functional heart murmurs, and the remaining 40 per cent. had respiratory arrhythmia. Whenever there was a question in the diagnosis, the child was reexamined. In addition, the occurrence of rheumatism and chorea was carefully considered in arriving at a diagnosis in each case. Of the children who had murmurs without other signs of abnormality, fully 90 per cent. had soft, blowing, systolic murmurs either at the base or at the apex of their hearts. We should emphasize the insignificance of systolic murmurs in healthy individuals. We really know very little about the causation of such murmurs; besides, there is too much confusion as to what constitutes a functional murmur and what is its significance. Furthermore, there is little justification in holding that all murmurs are organic because certain of them have been found to be associated with valvular heart disease.

We can exclude aortic insufficiency and almost all other organic heart lesions from consideration, and confine ourselves to mitral disease in counting our mistakes in the diagnosis of valvular heart lesions. The reason for this is easily explained. Functional murmurs are invariably systolic in time, and, unhappily, so is the murmur of mitral insufficiency.

Also it has been shown by Yandell Henderson and Carl Wiggers that the first part and muscular portion of the mitral first sound is crescendo in character and may easily be mistaken by any one for the murmur of mitral stenosis when for any reason the heart is excited and the first sound is accentuated. We have had a number of such cases in the clinic.

In arriving at a decision as to cardiac compensation or decompensation in any given case, the orthodox method of examination, i. e., that of stair climbing and blood pressure studies, was not used. The reason for this is quite obvious: A child's heart is extremely susceptible to stimuli of all kinds, often reacting to the least excitement under almost any provocation. We therefore have depended more on the history and on the reaction to graduated exercises over a much longer period of observation.

For purposes of study, a group of twenty-eight children was segregated at the Russell school in an open air room furnished with Kalamazoo chairs. Aside from their regular study, these children receive one-half hour of graduated exercises with dumb-bells under the supervision of a competent teacher twice each day. Also, they receive nourishment consisting of milk and graham crackers in the morning and afternoon of each day, following which they are required to rest in their reclining chairs for a period of about half an hour. Many of these children fall asleep and are not disturbed, wakening of their own accord.

We have found it difficult to control the exercises of children with heart disease outside of school hours. On inquiry, many of these children have confessed that they take more strenuous exercise outside of school, and it was only recently that one of our star patients stayed out of school one day to do the family wash. However, the exercises given in the school will check the symptoms which foreshadow heart failure, in which case measures may be undertaken for more firm control in each particular instance. Also, we feel that the particular danger to which children with cardiac disease are exposed is from infection rather than from excessive exercise. There seems to be

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* Read before the Section on Public Health, Michigan State Medical Society, Flint, June 9, 1922.

among the laity as well as among physicians an unwarranted fear of exercise for children who have heart disease. This attitude among physicians may be explained in part by the old conception that cardiac failure was due to a mechanical factor. So far in our experience exercise has been of great benefit to these children, many of them improving remarkably, not only where their hearts are concerned but also in weight increases and in their physical appearance and posture.

When we consider that more than 2,000,000 people in the United States suffer from heart disease, and that a large proportion of these people give a previous history of rheumatism or chorea, it can be seen that great benefit will be derived from measures adopted toward prevention of these two diseases, which are so common in childhood and adolescence. We must therefore of necessity begin with the child, and there is no better place for this campaign of education and investigation than in the schools throughout the United States. Heretofore we have thought of heart disease in children in terms of heart disease in the adult. It must be obvious to any one that the growing heart of a child is essentially different from the mature heart of the adult, and we may predict that such studies as are now being carried on in all the larger cities in the United States by the Society for the Prevention and Relief of Heart Disease will in the future disclose some very interesting facts, perhaps heretofore quite unknown.

Children with heart disease can be taken care of effectively in any open air schoolroom with other children suffering from divers conditions, especially malnutrition. And, in addition, cold fresh air is beneficial to children suffering from heart disease, provided they are dressed with the proper light and warm clothing, and have sufficient covering during the rest periods. The exercises to be taken may be given along with the exercises of the other children in the school. The physical culture teachers should be instructed to look for symptoms signaling cardiac distress. These symptoms are precisely the same symptoms that any person suffers when he performs work beyond his heart's capacity.

Our observations so far have taught us many interesting things in relation to heart disease in general. The examination of a heart supposed to be the seat of disease is no mere academic exercise, and it has not for its object simply the identification of a valvular heart lesion, however interesting such an investigation may be. The duty before us is to form an opinion of the exact condition of the heart, and especially as to the structural integrity of the heart muscle and its functional efficiency. It is only by a thorough knowledge—not simply of the existing state of the valves and the muscles of the heart, but also of the processes by which a given lesion has been reached, and of any tendencies, favorable or adverse, which are in operation, whether as a result of the affection of the heart or arising out of constitutional conditions—that we are in a position to advise the patient as to what restrictions are necessary. These studies have demonstrated that progressive cardiac failure is usually due to an infectious process in the heart itself, and this idea has been sufficient to indicate the importance of eradicating any foci of infection which may be present elsewhere in the body. Such a procedure may in the future prove to be the most efficacious measure we possess for preventing cardiac failure in schoolchildren.

A RING OR CONTACT PRECIPITATION TEST FOR SYPHILIS

A MODIFICATION OF THE KAHN TEST *

RUSSELL D. HERROLD, M.D.
CHICAGO

Several precipitation tests for syphilis have been described recently, the latest and simplest being that of Kahn.[1] At present I wish to describe briefly a modification of Kahn's test by using the ring or contact method employed with success in the work on specific precipitins in this institute during the last several years.

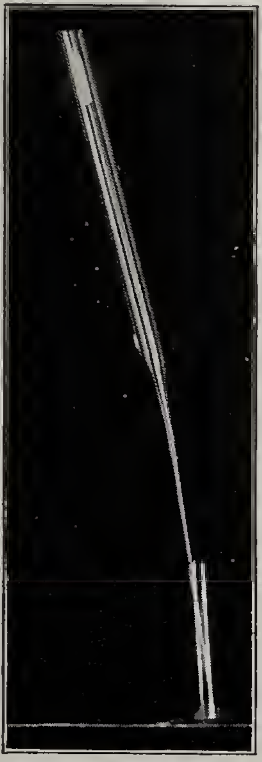

Fig. 1.—Placing antigen in tube.

This ring or contact test for syphilis may be made as follows: A small amount, say 0.1 c.c., of cholesterolized antigen prepared as described by Kahn, diluted 1 : 12 with physiologic sodium chlorid solution, is placed in a small glass tube, about 0.5 mm. in diameter and from 3 to 4 cm. in length, by means of a pipet (Fig. 1); approximately the same quantity of the serum to be tested, undiluted and unheated, is then introduced slowly in another pipet at the bottom of the tube so that a precise line of contact forms between the serum and the antigen solution. The appearance of a white ring of precipitate (Fig. 2) at the contact of the serum and the antigen is considered a positive result. The companion tube in Figure 2 shows a negative reaction. In all cases the result is more easily read against a dark background, which is true also of all ring precipitin tests. A control test of serum and salt solution is to be made with each serum, and positive and negative serum controls should be used in testing each lot of antigen dilution. As in other ring precipitin tests, the final readings are taken after one hour at room temperature. Usually, however, the precipitate appears within a few minutes in the majority of strongly positive serums.

The antigen I have used was obtained from Dr. Kahn, and made from swine heart as described by Neymann and Gager[2] and by Kahn.[1] The antigen for the series of tests in the accompanying table was diluted according to the method described by Kahn by placing 1 c.c. or less of antigen into a tube about 1.5 cm. in diameter, and physiologic sodium chlorid solution equal to three times this amount in a 25 c.c. cylinder. The salt solution is then poured into the cylinder containing the antigen, and the solution is mixed as quickly as possible. One portion of this mixture was used for the tests by the Kahn method; to the other part, which was used for the ring test, was added physiologic sodium chlorid solution sufficient for a dilution of 1 : 6,

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* From the John McCormick Institute for Infectious Diseases.

[1] Kahn, R. L.: A Simple Quantitative Precipitation Test for Syphilis, Arch. Dermat. & Syph. **5**: 570 (May) 1922.

[2] Neymann, C. A., and Gager, L. T.: A New Method for Making Wassermann Antigen from Normal Heart Tissue, J. Immunol. **2**: 573 (Oct.) 1917.

and then more physiologic sodium chlorid solution for a final dilution of 1 : 12. The purpose of the dilution is to avoid precipitation by the alcohol in the antigen and to obtain as clear a fluid as possible. More recently, the required amount of salt solution for the final dilution of 1 : 12 has been measured into a 10 c.c. cylinder, and one twelfth of this amount of antigen is added with a graduated pipet and quickly mixed by blowing through the pipet. There appeared to be no difference in the results by the two methods of mixing, as indicated by parallel tests of a number of serums. The stability and appearance of the antigen dilution are influenced, however, by the rapidity of mixing; and the size of the tube used is an important factor. A good antigen dilution remains stable, that is, free from spontaneous precipitate, for not more than three or four days if kept in a dark place at about 75 F. Special efforts should be made to produce a stable antigen that can be used at any time.

COMPARISON OF WASSERMANN AND PRECIPITATION REACTIONS

Number of Serums	Wassermann	Kahn	Ring Method
56	++++	++++	Positive
177	0	0	0
4	Anticomplementary	0	0
1	Anticomplementary	++	Positive
1	++	Doubtful	Positive
1	+++	++	Positive
1	+	0	0
1	+	++	Positive
1	0	+	Positive
1	0	0	Doubtful

The comparative results of the Wassermann and of the Kahn and ring precipitation test of 244 serums are given in the table, which shows that all tests agreed in 95.5 per cent. of the serums, which gave forty-six positive and 177 negative reactions. The reactions of the remaining eleven serums are given in detail; five serums were anticomplementary, but the two precipitation tests gave the same results; of the other six serums in the tests in which there was some discrepancy, four gave positive Wassermann reactions in low degree, and in all the two precipitation tests corresponded fairly well. The antisheep system was used in the Wassermann tests with cholesterolized and acetone insoluble antigens.

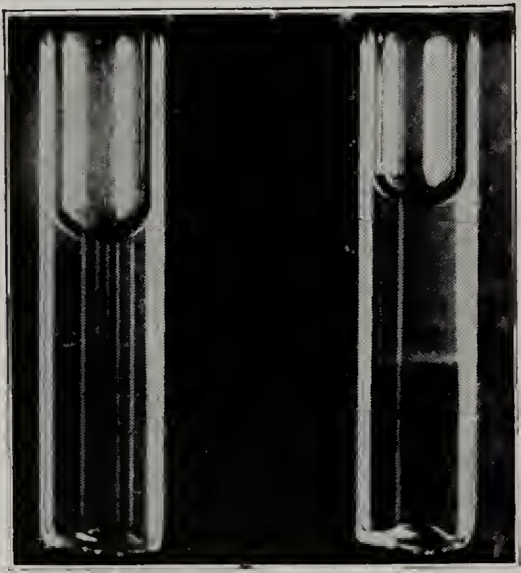

Fig. 2.—Positive ring test in tube at right; negative at left.

A quantitative test may be made by simple progressive dilution of the antigen; a large number of progressive dilutions in small tubes can be made quickly by using a small board with rows of holes, as shown in Figure 3. In view of the short time before final readings are made it is required only that the tubes and pipets be absolutely clean but not necessarily sterile. Several 4-plus Wassermann serums have given positive precipitations with antigen dilutions between 1 to 50 and 1 to 200.

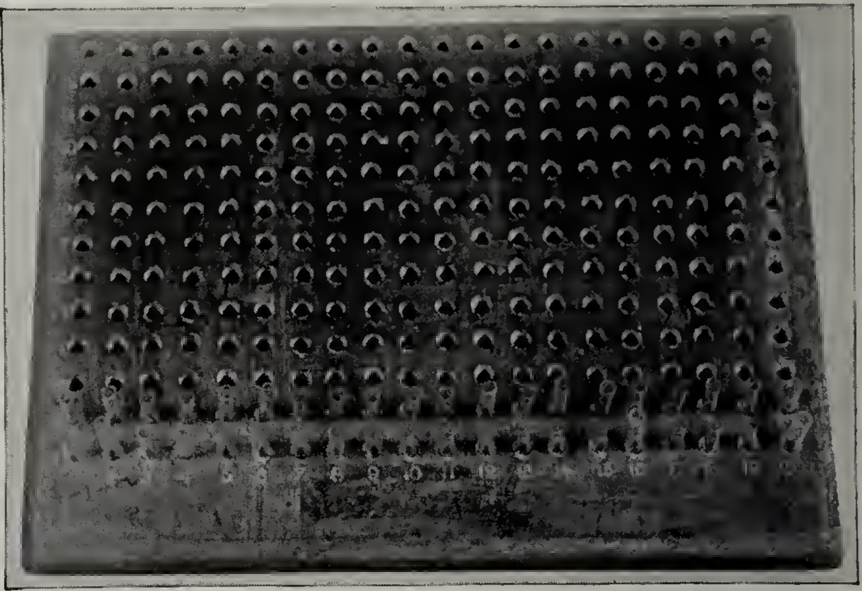

Fig. 3.—Board with rows of holes for progressive dilutions of antigen in making quantitative tests.

The extension of the precipitation test to exudates and other fluids is, of course, perfectly possible. In one case the serum exuding from a suspected gumma was taken up with a capillary pipet and tested by placing it in contact with diluted antigen; a positive reaction developed at once, which was confirmed by a positive Wassermann reaction of the blood serum.

The extreme simplicity and sensitiveness of the ring test may make it a valuable adjunct to the Wassermann test. The small amount of material and the simple apparatus needed help to render it available for physicians in general. As stated, no incubation is required. So far there appears to be uniform agreement in the results with the three tests in the table of clearly positive and negative serums. The final determination of the value of the ring test can be found only after a large number of tests have been made especially with what may be termed borderline serums, giving doubtful results with the Wassermann test.

Percentage of Oxygen Necessary in Air.—The gas in air most important to man is oxygen. Man has adapted himself to the normal amount, about 21 per cent., and does best when the air contains about that proportion. Yet he is able to live and work, though not so well, when there is a less amount. If the air contains about 17 per cent. of oxygen, a man at work will breathe a little faster and a little deeper—about the same as when he first goes from sea level to an elevation of 5,000 feet. When the amount of oxygen in the air has been decreased to 15 per cent., many men so exposed become dizzy, notice a buzzing in the ears and a rapid heart action, and frequently suffer from headache. Very few men escape these symptoms when the percentage of oxygen falls to 10 per cent. Under certain conditions consciousness may be retained even with as low as 3½ per cent., according to Haldane. However, under other conditions, consciousness may be lost at 9 per cent. or above. The flame of a candle or Wolf lamp is extinguished when there is 16½ per cent. of oxygen or less, and the flame of a carbide or acetylene lamp is extinguished when there is 13 per cent. or less.—*Reports of Investigation, Bureau of Mines,* August, 1922.

THE SHEPPARD-TOWNER ACT IN RELATION TO PUBLIC HEALTH *

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The Sheppard-Towner act provides for the current fiscal year (1922) $10,000 for each state accepting the provisions of the act, and an additional sum of $1,000,000. Of this additional amount, not more than $50,000 is to be used for federal administration, and the remainder is to be apportioned to the states and granted if matched dollar for dollar by state appropriations—$5,000 to each state, the remainder to be apportioned on the basis of population.

After the present fiscal year the authorized annual expenditure is $5,000 unmatched to each state and, to be matched dollar for dollar, an additional $5,000 plus a prorated amount of the remaining $710,000 of the additional $1,000,000, after a maximum of $50,000 has been deducted for federal administration.

The federal board was changed from a board advisory to the Children's Bureau to the Federal Board of Maternity and Infant Hygiene, composed of the chief of the Children's Bureau, the Surgeon General of the U. S. Public Health Service, and the Commissioner of Education. The board is given authority to approve or disapprove the plans submitted by the state, and to withhold further certification of the federal funds to a state if the money is not properly expended.

While certain desirable but minor provisions of the act have been omitted, and a few new stipulations added, the original purpose of the bill remains unchanged in that provision is made for federal aid to the states, administered through the Children's Bureau, for the purpose of reducing the maternal and infant mortality and protecting the health of mothers and infants, the states having complete authority to initiate plans for approval by the federal board.

NEED AND AIMS

This bill was the direct outgrowth of the series of investigations on maternal and infant mortality made by the federal Children's Bureau during the nine years of its existence. These investigations, besides dealing with the social, economic, industrial and civic conditions surrounding mothers and infants, reveal a morbidity and a mortality which, authorities agree, are to a great extent preventable.

The need for public protection of maternity and infancy, revealed by the reports of the bureau, has recently received confirmation in the report of Dr. William Travis Howard [1] of the Johns Hopkins School of Hygiene. He summarizes thus:

> The relatively highly developed knowledge concerning practical obstetrics is so meagerly diffused and so ineffectively applied to practice, that certainly in the registration area of the United States it is not brought to bear with sufficient force to prevent the occurrence of innumerable major and minor illnesses and a large number of unnecessary maternal deaths.

PRESENT STATUS OF THE ACT

Anticipating the enactment of the maternity and infancy bill, six legislative acceptances were effected prior to its final passage. One of these acceptances was good only in case the pending federal act was passed without change, and another was technically inadequate. One state accepted the act at a special session of the legislature in 1921. Of the eleven state legislatures having regular sessions in 1922, seven have accepted the act, and four—Louisiana, Massachusetts, New York and Rhode Island—did not accept its benefits. Hence, to date, a total of twelve states have accepted through legislative action. The New York legislature, though refusing to accept the act on the ground of paternalism, increased by $130,000 its previous child hygiene appropriation of $30,000 and created a division of maternity and infancy. Such action demonstrates the desirable stimulation which may be effected through federal aid.

Provisional acceptances of the act have been received from the governors of thirty states, pending the next regular sessions of their legislatures.

The funds authorized by the act did not become available until late in March. The federal board at its first two meetings, April 18 and May 5, approved plans submitted by thirty-three states. In order that actual state work might begin at as early a date as possible, these initial plans were approved along very broad and flexible lines, attention being called to the fact that such action did not establish a precedent as to future plans. The scope of the activities contemplated varied in each state according to local conditions, and was dependent on previous local developments in the field of child hygiene.

Such general, but nevertheless fundamental, projects of maternal and child hygiene as accurate birth registration, improved milk supplies, and state surveys of the medical and nursing facilities for maternal and infant care, appeared frequently in submitted plans. These were approved in the initial plans because of the realization that gradual readjustments are necessary in forward-looking programs which eventually will concentrate on the problems more specifically concerned with maternity and infancy. Unprecedented attention to the registration of midwives, as well as to their training and supervision, is contemplated in many states in which previously this problem has been entirely ignored. In states with well-organized child hygiene divisions, where the necessary pioneer stage has been passed, the increase in the numbers of county or community public health nurses whose duties are to be extended to include surveys of facilities for maternity care, and prenatal and postnatal instruction either in classes or in the home, promises marked strides toward the end to be attained. State and district supervisory prenatal nurses are in several states an innovation which will promote uniform educational standards and technic.

SPECIAL PROBLEMS ON WHICH ATTENTION SHOULD BE FOCUSED

Mortality rates, both maternal and infant, are probably our most reliable indexes of progress in raising general health standards. In 1915 the infant mortality rate in the United States birth registration area was 100 per thousand births and the maternal mortality rate 6.1. In 1920 the infant mortality rate had fallen to 85.8, but the maternal death rate was 8. The total

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* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Howard, W. T., Jr.: Real Risk-Rate of Death to Mothers from Causes Connected with Childbirth, Am. J. Hyg. 1: 197 (March) 1917.

number of maternal deaths in the death registration area in 1920 was 16,776.

While the infant mortality rate shows a satisfactory gradual decline during this period, with substantial decreases in deaths from the causes classified in the gastro-intestinal and respiratory groups, the mortality rates in the early infancy group, including deaths caused by premature birth, congenital debility and injuries at birth, show no substantial reduction. In the year 1915 the number of infant deaths during the first month of life was more than five times that of the last three months, and in 1920 it was still five times as great. Similarly, in the year 1915, the number of infant deaths during the first week of life was eight times that in the fourth week, and in 1920 it was nine times as great.

The greater part of these neonatal deaths are due to natal and prenatal causes, as shown in Chart 1.

In the study of state statistics, it is most illuminating to note the number of these early infant deaths for which no medical attendant is reported. Apparently the lack of recognition of the need for medical attention at this period corresponds somewhat to the lack of knowledge of the need and value of prenatal care for the mother.

The figures just given minimize the actual mortality rates, since stillbirths are not included. The inclusion of the records of stillbirths and their causes is important and highly relevant if adequate information is to be obtained as to the relation of prenatal and natal conditions to infant mortality. According to Census Bureau reports for 1918, the number of stillbirths recorded for the birth registration area, exclusive of three states and one city, was 48,634.

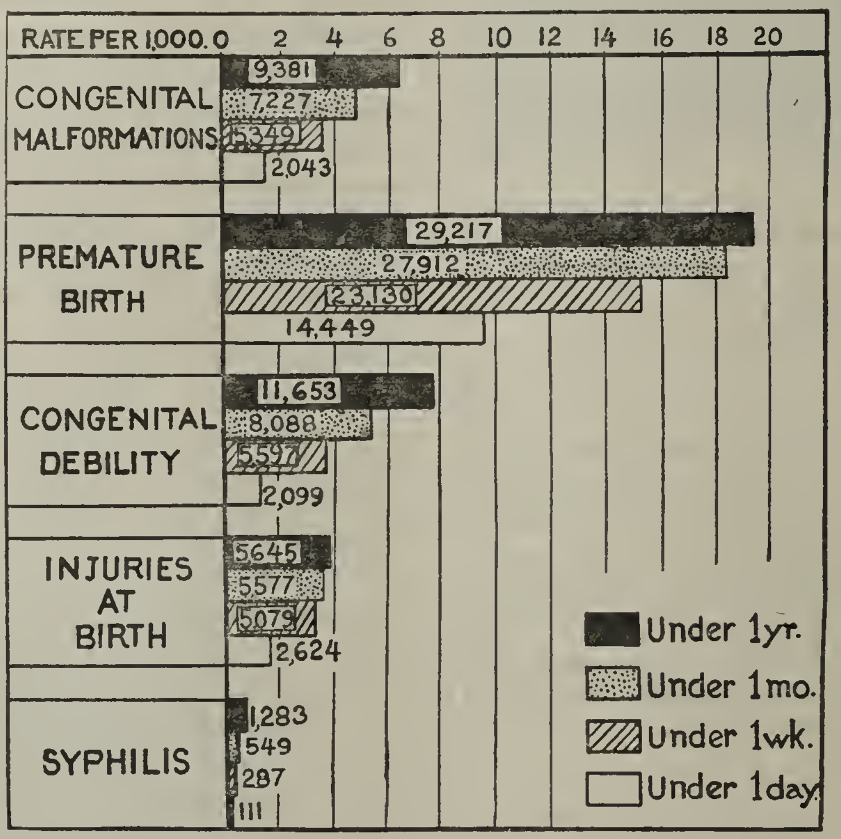

Chart 1.—Infant mortality from natal and prenatal causes in birth registration area, 1920.

There is no uniformity of definition or reporting in the various states with reference to the period of gestation which determines whether a child is stillborn. The model vital statistics law requires that separate certificates of birth and death shall be filed for a fetus which has advanced beyond the fourth month of uterogestation. While at present the standard birth and death certificate forms have been generally adopted, birth registration in only twenty-nine states and death registration in only thirty-seven states are sufficiently complete to entitle them to admission to the United States registration areas.

Maternal mortality rates show no improvement since 1900. The dominant cause of maternal mortality is puerperal septicemia, a condition known to be largely preventable. This means that modern knowledge of the causes and prevention of infection, as successfully applied to surgical practice, has not been applied to obstetric practice so effectively.

State supervision, through inspection and licensing of so-called maternity homes and institutions caring for infants, though generally recognized as essential, has to date received little effective attention, and offers a fruitful field for study of the problems connected with the hygiene of maternity and infancy.

A consideration of the information available in this country at present concerning midwives makes it apparent that one of the most important steps in the program for bettering conditions surrounding maternal care is an investigation to determine the actual numbers and qualifications of midwives throughout the country. This would logically be followed by the adoption of a policy for either training, licensing and supervising midwives, or providing adequate medical substitutes for them. The 1920 occupational report of the Census Bureau lists 4,473 midwives in this country; yet, as the result of a questionnaire sent out by the Children's Bureau in 1919, the number of midwives in each of a number of states was estimated as ranging from 1,000 to 7,000. In New York City alone in 1919 there were 1,612 midwives licensed and practicing.

In a statement made by Dr. Nicholson,[2] in 1921, he summarizes the information obtained through a questionnaire which he sent to the health officers of every state in the United States. "As far as can be judged from the replies received," he says, "New York (33 per cent. delivered by midwives in New York City), New Jersey, Connecticut and Pennsylvania are the only states at present attempting any real control of the midwife." Although a license to practice is necessary in twenty states, this so-called licensing is farcical in the great majority of instances, for several states, with considerable percentages of midwife deliveries, frankly admit that the midwifery law is not enforceable. The author points out that, in some states in which the percentage of midwife deliveries is very high, the control is in the hands of county officers and that nothing less than state control is really efficient in meeting the midwife situation.

The statement further cites conditions in states such as Kentucky, with 2,500 midwives, who are untrained and who deliver 20 per cent. of the babies in the state; and Virginia, with 7,000 midwives, untrained, who deliver 40 per cent. in the general population and 29 per cent. in the city of Richmond. Leaving out of consideration states in which the problem is evidently not a pressing one, Dr. Nicholson is doubtful whether any of the states requiring licenses for midwives exercise real control in any degree.

The extent of the problem of midwifery—the term being used in its broadest sense—is shown by what one state faces in its Sheppard-Towner plans with 6,000 midwives, 3,000 physicians and between 60,000 and 70,000 births annually.

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[2] Nicholson, W. R.: An Anachronism of the Twentieth Century, the Midwife, Nathan Lewis Hatfield Lectures delivered before the College of Physicians of Philadelphia, Lecture III, Feb. 18, 1921.

That the training, licensing and careful supervision of midwives is one method of attack on the problem has been demonstrated in a few communities in this country and in England.

Dr. S. Josephine Baker[3] writes:

> This satisfactory reduction of the maternal death rate from puerperal diseases in New York City (the rate for 1919 being 11.41 per 10,000 labors, as compared with 14.41, which is the combined rate for five years 1915 to 1919, inclusive) is believed by the department of health to be due to the administrative measures which have been carried out for the better protection of women during the puerperal period, and for raising the standards of obstetrics as practiced by midwives. Measures of this type have been carried out in New York City for the last twelve years and are considered by the department to be essential in any well-rounded public health program.
>
> Control of the practice of midwifery in New York City includes refusal to issue a license to any midwife who had not practiced in the city prior to 1907 unless she is a graduate of the Bellevue Hospital School for Midwives, which is maintained by the city of New York and has an eight-months course of instruction, or unless she is a graduate of an accredited European school of equal or higher standing. In addition, the Bureau of Child Hygiene carries on a systematic and widespread supervision of the practice of these women who, at the present time, report about 37 per cent. of all births. It can hardly be claimed that the general type of obstetric practice by physicians and the conduct of the lying-in hospitals of New York City are on a higher plane than obtains in Baltimore, Philadelphia or Boston. While there is no question that an advance in obstetric practice has been noticeable in the last decade, the fact still remains that New York is the only one of the cities of the United States mentioned in this report which has instituted and maintained a vigorous and far-reaching control of the practice of midwives. This department believes that it is reasonable to infer that these administrative measures have been a prominent factor in the reduction of the death rate from puerperal diseases.

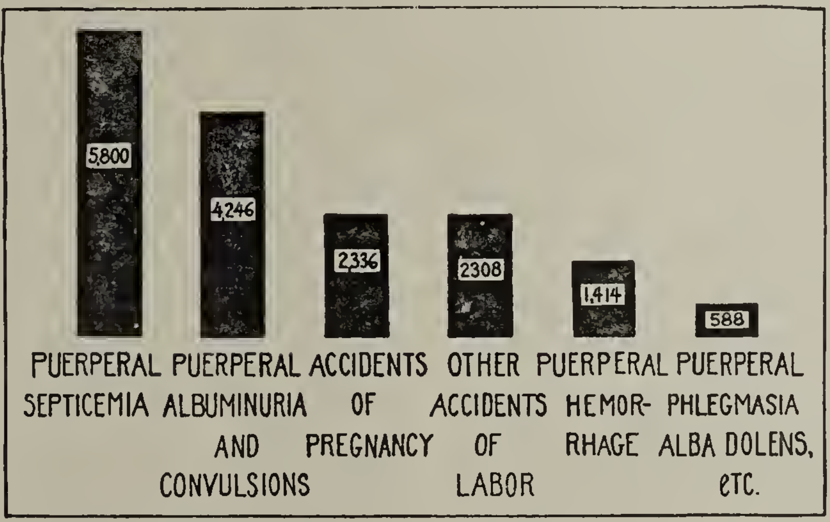

Chart 2.—Maternal mortality by cause of death, birth registration area, 1920.

The second annual report of the Ministry of Health of Great Britain for 1920-1921 states that "midwives now attend the majority of births in England and Wales. In 1919 . . . the percentage of births notified by midwives was 51 in London and 69 in the county boroughs." Midwives in England have been trained and licensed since the Midwives Act became a law in 1902. Between 1902 and 1914, the maternal mortality from puerperal septic diseases in England and Wales has decreased from 118 to 75 per million female population.[4]

The fundamental importance of accurate birth registration scarcely needs comment; but it is interesting to note that the Sheppard-Towner Act seems to have given new impetus to the interest in the subject, and many states include in their plans provision for more effective registration of births.

One phase of birth registration which is especially important in connection with the reduction of the early infant mortality rate, and also in connection with the prevention of ophthalmia neonatorum, is the question of the time which is allowed to elapse between the birth and its registration. Chart 2, giving the time at which births are reported in the various states, indicates that fourteen of the states within the birth registration area do not require the reporting of births early enough to make it of value in the prevention of ophthalmia neonatorum. According to present accepted standards of successful infant care, the early reporting of births is essential, not only in the prevention of blindness but also in instituting proper care as soon after birth as possible, and in establishing breast feeding, etc. The importance of the early reporting of births is strongly indicated by the fact that in the United States death registration area in 1920, one third of all the deaths of infants less than 1 year of age occurred in the first week of life.

The period within which the reporting of births is required varies in the different states. The state laws and regulations specify:

Twenty-four hours in Delaware.

Thirty-six hours in California and Indiana.

Forty-eight hours in Massachusetts and Rhode Island.

Three days in North Dakota.

Four days in Maryland.

Five days in Arizona, Michigan, New Jersey, New York, North Carolina, Texas and Wisconsin.

Six days in Maine and New Hampshire.

Ten days in Alabama, Arkansas, Colorado, Connecticut, Florida, Georgia, Idaho, Illinois, Iowa, Kansas, Kentucky, Louisiana, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Mexico, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Utah, Vermont, Virginia, Washington, West Virginia and Wyoming.

Thirty days in South Dakota.

The states that are not in the birth registration area are Alabama, Arizona, Arkansas, Colorado, Florida, Georgia, Idaho, Illinois, Iowa, Louisiana, Missouri, Nevada, New Mexico, North Dakota, Oklahoma, South Dakota, Tennessee, Texas and West Virginia.

Postal notification, with certificate in ten days, is required in Delaware and Massachusetts.

In Montana the law states that if the birth is reported within ten days the person reporting is entitled to a fee.

The availability of hospital facilities for maternity care is a very vital problem, as it is an admitted fact at the present time that the hospital is a necessary adjunct, at least for the abnormal obstetric case, and that it is often safest for the normal case, especially for a primipara.

The situation with regard to hospital facilities for maternity care in this country is very interesting. In 1921 a questionnaire was sent by the federal Children's Bureau to every hospital in the United States of which the name and address could be obtained, in order to determine the adequacy of present hospital facilities for maternity care. While replies were received from only 76 per cent. of the hospitals circularized, the figures are interesting and significant.

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[3] Baker, S. J.: Report of Status of Maternal Mortality in New York City (prepared at the suggestion of Senate Committee on Education and Labor).

[4] Carnegie United Kingdom Trust: Physical Welfare of Mothers and Children, England and Wales **1**: 30, 1917.

Of the 3,497 hospitals reporting, 2,645 admitted maternity cases in 1920. Of these, ninety-seven were exclusively maternity hospitals and 2,548 were general hospitals. The total number of hospitals reporting by state as admitting maternity cases varied from four in Delaware to 198 in New York. Fifteen states reported no exclusive maternity hospitals. One state reported as many as ten. A total of 27,405 beds was reported available in the 2,645 hospitals. For the year 1920, 2,575 hospitals reported 323,175 confinements. If one computes hospital capacity for confinements on the basis of twenty-six patients to one bed each year, allowing two weeks' hospital stay for each patient, the number of possible confinements in hospitals in the United States in 1920 was 712,530. This is more than twice the number of confinements which actually took place in the hospitals reporting.

On the basis of these figures it is estimated that approximately 13.6 per cent. of the total births during the year 1920 occurred in hospitals. This percentage varied from 1.7 in Arkansas and Mississippi, to 40.1 in Illinois. Though these figures are only approximate, because of the admitted limitations of the questionnaire method, they at least point significantly to several phases of the hospital problem in relation to obstetrics. They show that there is hospital provision for approximately 40 per cent. of the births in the United States, but that only 14 per cent. of the births during 1920 occurred in hospitals. In this lack of utilization of available hospital facilities for confinement care are involved three important problems: (1) cost of hospital care; (2) inaccessibility of hospitals, and (3) lack of knowledge concerning the advisability of hospital care.

Many other equally important problems await solution in connection with the hygiene of maternity and infancy. The Sheppard-Towner Act authorizes an appropriation for a five-year period. Its fundamental purpose is to enable states to demonstrate for themselves the value of such work in terms of life saving and improved health, and to stimulate them to develop more complete programs for making such work effective. It is apparent that the protection of maternity and infancy is not the function of one isolated group, but is dependent on the obstetrician, the pediatrician, the general practitioner, the public health nurse and the social worker in cooperation with the public health authorities. In addition, it is dependent on the cooperation of an enlightened public.

ABSTRACT OF DISCUSSION

Dr. Mary Riggs Noble, Harrisburg, Pa.: In the baby work in Pennsylvania, the Sheppard-Towner money will be of value. We shall receive $73,869.99 from the federal fund. This will enable us to enlarge our nursing force. We have eighty state-controlled health centers, and forty centers in which the state is cooperating with some other agency. Others are under private or community control. All told, we have between 375 and 400 well baby centers. The extra money will mean more nurses and more supervision for health centers. It gives us also an opportunity to undertake prenatal work. The establishment of prenatal centers has progressed very slowly. It does not take much money to start such work. The expectant mother has four rights. If we can serve her by educating her as to those rights, we ought to do so: 1. She should have regularly repeated urinalyses. 2. She should have a complete physical examination early, including pelvic measurements. 3. She should have her blood pressure taken at regular intervals. 4. She should have a Wassermann test made, not once, but more than once to ascertain the presence of syphilis. Our clinics are supplied with blood pressure instrument, facilities for making urinalysis, gloves, and a few other small pieces of apparatus. This the state sends to any prenatal clinic that is about to be opened. We hope to start twenty-four prenatal clinics in the state. I do not know whether we shall be able to do this, but we are going to make the effort. Again, regarding the control of midwives, the money has never been adequate; we have never been able to carry out any comprehensive plans. Now we propose to set aside from $10,000 to $15,000 of the Sheppard-Towner fund to demonstrate what can be done in the rural districts, as has been demonstrated in Philadelphia. One or more full-time nurses will be needed. A young woman who has received the proper training and who perceives the dramatic possibility of getting the midwives interested could do a really great work. I have seen it done where there was more difficulty than in this country or in Philadelphia. We demonstrated then that the midwife can become interested in doing better midwifery and in the use of safe, clean methods.

Dr. Taliaferro Clark, Washington, D. C.: The solution of the health problems relating to the mother and the infant constitutes the very foundation of all public health work. Beginning one generation ahead of disease, and concerned as it is with the causes rather than with the effects of bad health, child health work offers a most certain way of assuring a healthy adult generation. The Sheppard-Towner law is of too recent enactment for one to say with certainty what has been the direct effect of its provisions. However, in an indirect way the propaganda for the passage of this important and beneficent law has resulted in a more general interest in the problems of maternal and infant welfare. Furthermore, its passage has caused the health officers to take more careful stock of their resources and give more intensive consideration to this special form of health work, in order that in carrying on the work under provisions of the law there may be no imbalance between these and the problems of general sanitation and public health. We should be gratified that Congress has been generous even to the limited extent of the present law. However, I do not feel that we should expect too much of its operation, because the funds provided are hardly sufficient to make any very great impress on these problems. The best we can do is to utilize these funds to the greatest advantage and make such showing during the time that the law is in operation as to create a more general public demand for ample funds to carry on this important form of health work in the future.

Dr. W. C. Woodward, Chicago: Massachusetts has refused to appropriate money for work under the Sheppard-Towner act, and the attorney-general of the state has reported that in his judgment the act is unconstitutional. Opposition to the act, it seems to me, is based on the fact that in its ultimate analysis the act represents a system of penalties imposed and the rewards granted by the federal government on and to the several states, according as the federal government may or may not be pleased with their conduct. First, the federal government demands of the people of the several states, in proportion to their respective taxable resources, an amount equal to what is required for the execution of the act. The federal government says to the several states: "If you conduct yourselves in a way that meets with the approval of certain of my officers, whom I have named, you may have back some of the money I have taken from you, after I have reserved some of it for my own administrative expenses—maybe all that remains—and, possibly, I may even add a bonus from money that I have taken from other states; but if you do not so conduct yourselves, you get nothing, not even the money I have taken. It matters not what your other needs may be—prevention of malaria, prevention of typhoid fever, the care of the mentally defective, the education of the rising generation—it matters not how much you are already spending for maternal and infant welfare and what your actual needs may be in respect to it—the money that I offer to return, and even the additional amount that you must appropriate in order to get it, must be spent for maternal and infant welfare and nothing else. Lest you judge unwisely—that is, differently from the way I would judge—as to your needs in this respect, you must have my paternal sanction of your plans and my approval of the way you carry them out, not only so far as relates to the work done with the money I have taken from you and returned, if you get any, but also as relates to the work done with the money that you have appropriated directly from your own treasury." It must be apparent to any one that if the federal government can lawfully pursue such a course with respect to maternal and infant welfare within the several states, and with respect to other of their internal affairs which may in a general way affect the welfare of the nation, as every internal affair of every state does affect the welfare of the nation, the power of the states may soon be a thing of the past and our system of dual government near its end. And the principle of self-determination of small nations—and every state is in substance a small nation that has surrendered certain of its power to the federal government—for which we have contended so strongly abroad, will in our own country vanish. The fact that the federal government has followed such a course with respect to road making, agricultural education, vocational education and other matters, without objection, and has now proceeded to follow the same course with respect to maternal and infant welfare does not justify or excuse the step, but serves merely to indicate the gradual growth of a dangerous practice that may lead to the destruction of the very principles on which our government is founded.

DR. C. HENRY DAVIS, Milwaukee: I do not believe the points made by Dr. Woodward come into the discussion. The courts will decide the legality of the act. It is being discussed from the present health view. At present we must view it as we do the Volstead act. Whether we agree or not, we must accept it because it is here. The medical profession has had little to do with maternity except during a period of four or five centuries. In a twenty-year period ending in 1680, London statistics showed that one woman out of every forty-four died after childbirth. By a physician's being called early, this was reduced so that by 1840 one death occurred after every 168 births. Since 1840 the maternal death rate has remained stationary. As in all conditions in which we try to reduce the incidence of death, the earlier simple procedures will produce marked improvement. After reaching a certain point it is only by much greater expenditure of time and money that further improvement can be demonstrated. We feel that this should be considered a community proposition and worked out from that point of view by education of both the laity and the profession. Education of the profession means better instruction in obstetrics and the providing of better facilities for work. Until the physician demands better conditions under which to labor he will not secure them. The laity must learn that the present death rate is too high and that safety is possible to a much greater extent when there is proper cooperation between the laity and the medical profession. Increased safety always costs money, and the laity must spend more money if it is going to have greater safety in maternity.

DR. S. W. WELCH, Montgomery, Ala.: I come from that section of the United States which, about sixty years ago, started an uphill pull over state rights. My recollection is that Massachusetts was on the opposing side and, if I mistake not, won out in her contention. I have heard that the disagreement over this issue of state rights arose over the possession of certain properties, which the forefathers of my distinguished friend sold to my forefathers. The hard money of the South went to the East in payment for these purchases. When the award was rendered by the methods of arbitration mutually agreed on, no money came back to us for our property, and as a consequence the South has been very poor ever since. The conscience of Massachusetts did not appear to get tender on this issue until the business ceased to be profitable, nor does it appear to have become tender on federal subsidies, until Massachusetts had all she wanted. No protest seemed to have been entered against the high tariff, the deepening of water ways, the road subsidies nor the testing or treating of cattle. The rumor must be true that it is a hard climate on babies. Since babies are the chief asset of the poor, the South has them in large numbers. The climate suits them, and now, when we have a look in on a federal subsidy, let us have a share in it, while Massachusetts lays off, so that we may catch up with her. Alabama needs it. If the questions of constitutionality and state rights are to be raised, let them begin on live stock or some commercial question, and not on questions involving the lives of our children. The South needs the money to help furnish the nation with stronger men and women. If Massachusetts does not need it, very well; but let her keep her hands off of Alabama's share.

DR. W. C. WOODWARD, Chicago: Perhaps Dr. Welch can name some instance in which Massachusetts has received the cream of federal aid. I know of no such instance, and without such knowledge I cannot intelligently discuss the suggestion that an undue share of some federal grant of money has at some time or other come to Massachusetts. If money to pay for the execution of the federal government's part of the cost of the Sheppard-Towner act be collected from the several states on the basis of their respective taxable resources and then be distributed among such states on the basis of population, the states in which the per capita taxable resources are high will financially be the losers. Danger exists in federal subsidies for special lines of activity, when the line selected is determined, as in the Sheppard-Towner act, on the basis of the supposed relative importance of that line of activity to the nation, as a whole, and not on the basis of its relative importance as compared with other internal needs of the particular state. I saw in print some time ago that, in one state, the legislature, lured by the bait of the federal subsidies dangling before it—bribed, some would have expressed it—made such appropriations for vocational and agricultural education that it was with difficulty that enough money could be obtained for the proper support of the general school system. So if a state be seduced into the making of disproportionate appropriations for maternal and infant welfare, it may be unable to provide adequately for other needs—such as milk inspection, prevention of the spread of communicable diseases and medical inspection of schools —and the last state of the community may be worse than the first. Incidentally, attention may be called to an interesting situation that has arisen out of federal bonuses granted states for the purpose of stimulating them to appropriate money for the construction of good roads, which situation may possibly be duplicated under the Sheppard-Towner act. Federal bonuses stimulated road building in some places, it has been said, to such an extent that state money was not available for road maintenance, and the good roads constructed through the artificial stimulus of the federal bonuses were allowed to go into a state of decay. It is to be hoped that the mothers and babies whose health, it is claimed, will be built up and whose lives will be saved by the federal bonus provided by the Sheppard-Towner act will not be allowed to drag out enfeebled existences and to come to premature ends after the puerperium and the age of infancy have passed, because of the inability of the particular state in which they live to provide money necessary for proper sanitation, hygiene and health education, in the interest of the people as a whole.

DR. D. B. MCEACHERN, Chicago: I want to apologize for our profession in its efforts to refute the activities that this bill will make possible. I will not say all the profession. Apparently, according to the newspapers, it has taken an attitude that I would consider reactionary. There was opposition years ago to the establishment of the manual training departments in the public school. Every advance that is made is opposed. They have used every argument against the bill. Of course, the economic condition of the medical profession is endangered by a further extension of public health activities. Yet the medical profession must know that it has to get in line with the changing conditions. Failing to do so, it loses the representative position it should occupy in society.

Dr. A. N. Creadick, New Haven, Conn.: While there may have been opposition to the Sheppard-Towner act on the part of certain obstetricians, this feeling was based on the wording of the original bill. The operation of the present act should improve obstetric teaching and obstetric practice, largely by education of the people whether living in Massachusetts or Alabama, resulting in a demand for better care during the child-bearing period. A second and more serious objection to the bill is based on the risk of a large reduplication of agencies with an overlapping of their work. This will be obviated if the members of the board will utilize acceptable agencies already existing for accomplishing the purposes of the act.

Dr. Anna E. Rude, Washington, D. C.: Regarding the constitutionality of the act which Massachusetts seems to be questioning, I wish to state that there have been precedents for this type of legislation in this country since 1862. Massachusetts has also discovered that it is receiving funds from twenty-two federal agencies, so one is naturally interested to learn why the health protection of mothers and infants is so peculiarly paternalistic. All of us interested in the success of the measure know that, while the small appropriations carried in the act may limit its activities, at least a beginning toward better protection of motherhood and infancy is assured. There are now forty-two states ready to work as soon as the money is available. This means that in states which have heretofore not had a state child hygiene division, such a division will be established and work begun even if only through the medium of one public health nurse. The sincere effort and thought which have been put into state plans insure, I am confident, splendid progress in the field of maternity and infancy during the next five years; but unless the measure is educational and stimulating to the states, it will not be a success.

DEATH FOLLOWING THE ADMINISTRATION OF THYMOL *

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For many years thymol has had a deserved repute as a relatively safe and efficient anthelmintic drug. In the numerous campaigns conducted for the relief and control of hookworm infestation it has been extensively, and in some campaigns exclusively, employed. The number of doses administered in these campaigns, as reported, probably surpasses one and a half million. In the limited literature available to me for reference, I can find reports of less than twenty fatalities. No doubt fatalities occur which are not reported, but the total number must be exceedingly small. During experience in antihookworm work in Ceylon, Java and Siam and covering a period of six years, I myself have known of only three deaths which were even remotely connected with the administration of thymol. One of these fatal cases occurred in Ceylon, when a planter forgot instructions and administered a liberal dose of brandy to a coolie who was weak and dizzy from the absorption of thymol. The other fatal cases are described below.

It is well to call attention to the large number of cases of safe administration, lest the real value of the drug be overlooked when its toxicity is emphasized. On the other hand, the large number of safe administrations is liable to cause laymen and even medical officers to grow somewhat lax, and to forget or ignore the fact that they are dealing with a drug which, when absorbed, is highly toxic.

In the antihookworm campaigns in Siam, the oil of chenopodium is the preferred drug in dealing with hookworm and roundworm infestation, because of its greater efficiency in small doses, and because it is less expensive. In dealing with patients infested with tapeworms, thymol is the drug of preference because of its greater efficiency as a tenicide. More than 82,000 treatments with thymol, in all, have been administered in Siam with two resultant fatalities.

The majority of patients treated with thymol show some signs of its toxic action, such as flushed face, slight dizziness, and drowsiness. These symptoms usually disappear rapidly after the administration of the final purge. In some countries the drug is dispensed to the patients, who are permitted to take it in their own homes without medical supervision. This practice is not followed in Siam, where the entire course of treatment is personally administered by the medical officer in charge or by his trained dispensers. These rules have been adopted for the administration of thymol:

1. A preliminary small dose of magnesium sulphate is taken by the patient the evening before treatment.
2. No breakfast is permitted on the day of treatment.
3. At 7 a. m., 20 grains (1.3 gm.) of thymol mixed with an equal amount of lactose is administered in capsule.
4. At 9 a. m., an additional dose of 20 grains of thymol is given.
5. At 10 a. m., a final purgative dose of magnesium sulphate in hot water is administered.

Among selected cases which can be carefully observed, as in the military hospitals, a total of 60 grains (4 gm.) is occasionally given in two or three divided doses; but for field work the maximum of 40 grains (2.6 gm.) in divided doses has been considered to be perfectly safe for adults. In one of the cases reported below, the medical officer on his own responsibility administered the 40 grains in a single dose.

REPORT OF CASES

Case 1.—*History*.—In an interior province, a woman, aged 34, applied to the government medical officer for treatment for tapeworm infestation. She had not taken the preliminary dose of salts, and applied at the hour when the second dose of thymol was being administered. The medical officer examined her and considered her to be well able to take the treatment. As she had eaten no breakfast, he administered in a single dose 40 grains (2.6 gm.) of thymol in capsule as described above. Twenty minutes after taking the medicine she complained of feeling slightly dizzy, so the medical officer gave her a purgative dose of magnesium sulphate in hot water. The patient soon felt much better, and requested permission to return to her house, which was about 100 yards distant. The medical officer made her wait for another half hour, but as she seemed to have recovered from her dizziness he allowed her to go, accompanied by a neighbor. She walked about 80 yards, when she suddenly became weak and fainted. The officer went to her at once. She was unconscious, very pale and in a cold perspiration. The pulse was fairly strong and regular, and the respirations were not increased. She was carried to the office, where an enema was given, hot applications were applied to the body, and hypodermic stimulation was employed. She did not regain consciousness. Within half an hour the pulse became irregular and weak, and the respirations labored. Artificial respiration was begun and was continued for over an hour, until her death. She died three hours after taking the thymol.

Comment.—After her death, the relatives stated that it was not unusual for her to faint. Possibly a cardiac or thyroid involvement existed which escaped the notice of the medical officer. Even so, the death of an adult three hours after the administration of 40 grains of thymol has not heretofore been reported, so far as I can determine. The absorption of thymol may have been increased by the fluid of the saline purge, or the depressing action of the magnesium sulphate may have hastened her collapse. There can be little doubt, however, that thymol poisoning was the direct cause of her death.

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* The observations which form the basis of this paper were conducted with the support and under the auspices of the International Health Board of the Rockefeller Foundation.

CASE 2.—*History.*—A woman, aged 40, applied for treatment for tapeworm infestation. The medical officer found that she suffered from pulmonary tuberculosis, although the disease was not in an advanced state. With the hope that the removal of the tapeworm would increase her chance of combating the tuberculous infection, he decided to treat her. She was given 20 grains (1.3 gm.) of thymol at the first dose, and as this made her slightly dizzy he gave her only 10 grains (0.65 gm.) of thymol in the second dose. After the final purge, the slight dizziness entirely disappeared. The next day, however, she again felt dizzy and drowsy. The medical officer repeated the catharsis and gave her stimulants. The symptoms persisted for several days without improvement, and she was confined to her bed. Everything possible was done to relieve her, but by the seventh day pneumonia had developed, and on the ninth day after taking the treatment she died.

Comment.—The total dose of thymol administered in this case was 30 grains (2 gm.), an amount which caused no symptoms whatsoever in her father (aged 70 years), who took treatment the same day. Although the immediate cause of her death was pneumonia developing in tuberculous lungs, there is little reason to doubt that the absorption of thymol was a contributory cause.

SUPERNUMERARY URETER WITH ABNORMAL ORIFICE

REPORT OF CASE

W. G. HAYWARD, M.D.
JAMESTOWN, N. Y.

The comparative paucity of reports of cases in which there is a supernumerary ureter, together with the great relief afforded the patient after proper diagnosis and correction, makes a brief review of the subject of interest.

As this is a developmental defect, a thorough understanding of the subject requires a review of the embryology. The ureter is formed from the lower part of the wolffian duct. Its distal end divides, to become implanted into the kidney protoplasm. Later the proximal end or end opening into the wolffian duct draws away, and opens separately into the sinus urogenitalis. The important theories advanced to explain bifurcated and double ureter are:

1. Sappey: The ureteral anlage, instead of branching near the kidney, branches sooner, thus forming a bifurcated ureter.
2. Caudmont: The condition is brought about by the partial fusing together of two kidneys.
3. Deubierre: There is a double evagination from the wolffian duct.

Any of these theories is acceptable for a bifurcated ureter. In the case of double ureter, the division must have taken place early in fetal life (third or fourth week).

From the wolffian duct in the female, Gartner's duct is all that remains. If the ureter does not separate as it should from the wolffian duct, the ureter will open into Gartner's duct. If it becomes attached to the müllerian duct, it will open into the uterus or the vagina. If after the sixth week of fetal life the ureter does not become detached from the wolffian duct but follows it in its downward course, it will open into the urethra or vaginal vestibule. In the female genito-urinary apparatus, cases are reported of ureteral orifices in the urethra, vagina, vestibule of the vagina, Gartner's duct, uterus or tubes.

SYMPTOMS

One symptom, that of urinary dribbling associated with voiding of normal quantities of urine at intervals, should make one suspicious. In some cases, as in mine, the ureteral orifice seems to be provided with a sphincter which allows the urine to gush out at intervals or during exertion. The skin may become excoriated, owing to the ever present urine. An infection may ascend along the ureter, causing pyonephrosis and death.

REPORT OF CASE

O. N., a woman, aged 34, married, was referred to me with a history of urinary incontinence, dating from birth. Further questioning elicited her opinion that the incontinence had been worse since the birth of her one child. No instruments were used, at this time, the baby weighing only 5½ pounds (2.5 kg.). No smarting or burning was present before, during or after urination. Exertion or coughing cause urine to leak freely. Urination occurred normally at intervals, at which time a fair amount was voided. The past history was negative except for there having been a pain on the left side of the pelvis for which an operation removing the left tube and ovary was performed. The appendix was also removed at this time. Menstruation began at the age of 14 and had always been normal. There had not been any miscarriages. Physical examination was negative except for a reddened urethral meatus and a slight cystocele. Cystoscopic examination disclosed a normal bladder, with prominent ureteral orifices.

As the leakage appeared in spurts after coughing and the patient thought that the incontinence had been greater since the birth of her child, a diagnosis of poor sphincteric control was made and the Kelly mattress suture operation was performed, May 25, 1922. The following day, however, the perineal dressings were wet with urine, as they also were on the succeeding morning.

May 27, consent was obtained to reexamine the patient, and she was returned to the operating room. The bladder was filled with a methylene blue solution, and the patient was instructed to cough. As she did so, clear urine, instead of the stain, gushed out. The bladder was then emptied and filled with boric acid solution. Indigocarmin, 5 c.c., was injected intravenously, and appeared from both ureters in four minutes. The leakage remained clear, however, and the discovery of the orifice was not aided by this test. The patient was anesthetized, and a thorough search was made after the sutures of the previous operation had been removed, and the vagina and the entire course of the urethra were inspected. Finally the orifice was seen about one-third inch (8 mm.) posterior to the urethral meatus in the vaginal vestibule. A valvelike structure closed it and made it invisible except while urine flowed from it. A probe was passed for a distance of about 7 inches (18 cm.). Because of the extensive manipulation and chance for infection, it was thought inadvisable to attempt dissection and transplantation from the perineal side, for fear that a fistula might result; hence the abdomen was opened. The ureter was located on the right side by aid of the inserted probe. It was dissected free, severed and transplanted into the bladder. Catherization was ordered to be done every four hours for two days. At the end of this time the patient was voiding normally, and continued to make an uneventful recovery.

COMMENT

In this case the extra ureter must have come either from a distinct part of the right kidney or from a supernumerary kidney which had insufficient function to excrete the indigocarmin. Had it been from the same kidney pelvis as that of the normal right ureter, there is no reason why the indigocarmin should not have appeared at its orifice simultaneously or shortly after. The second theory, that of Caudmont, that the condition is brought about by the partial fusing together of two kidneys would explain it better than either of the other two. Unfortunately, a sample of this urine was not collected to determine whether or not its characteristics varied from that of the normally excreted urine.

410 Wellman Building.

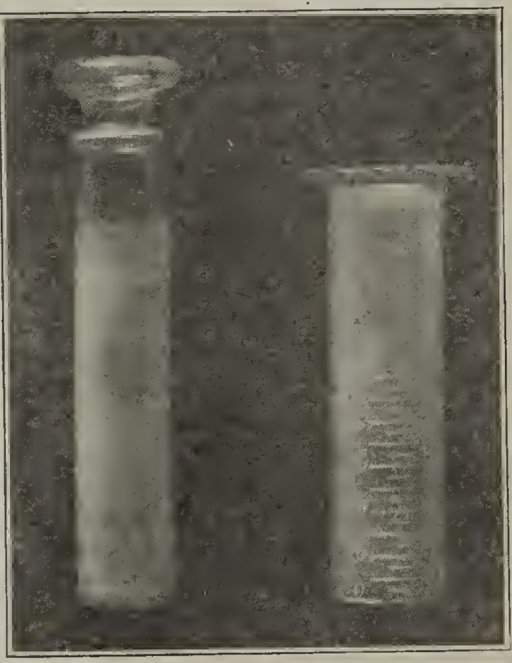
Clinical Notes, Suggestions, and New Instruments

A SIMPLE AID IN THE DIAGNOSIS OF SYPHILIS FROM THE PRIMARY LESION

William D. Gill, M.D., Edgewood Arsenal, Md.
Captain Medical Corps, U. S. Army

A simple, efficient and easily made instrument which assists greatly in obtaining serum from the primary syphilitic lesion for dark field examination is pictured in the accompanying illustration. It consists of an ordinary all glass syringe of either 2, 5 or 10 cubic centimeter capacity, from which the tip and lowermost portion of the barrel are removed. This removal is accomplished by holding the tip of the syringe at a right angle against the side of a revolving emery wheel, and moistening the surface in contact with the wheel occasionally to diminish heating and insure a finer finish. Different sized instruments are advisable for use on lesions of varying magnitude.

When the instrument is to be used, the suspected lesion is cleansed in the customary manner and the open end of the instrument placed over the ulcerated area, surrounding it like an inverted cup. Slow withdrawal of the piston results in the creation of a vacuum in the barrel, and small beads of serum appear on the base of the ulcer which may be utilized for the examination. This withdrawal of serum takes place from the deeper tissue, and it is possible thus to obtain a positive dark field from a lesion which shows no spirochetes on its surface. In the event that the instrument does not adhere satisfactorily to the skin surface surrounding the ulcer, this difficulty may be overcome by dipping the tip of the instrument into water or saline solution before applying it.



All glass syringe from which the tip and lowermost portion of the barrel have been removed. The two parts are fitted together and the instrument is then ready for use.

Traumatism from squeezing the lesion as it is usually practiced in obtaining serum for dark field examination is avoided by using this instrument. It is self-evident that such an instrument is not adaptable to all types of lesions, as their situation may be such as to render its employment difficult or impossible. It is believed that the use of this instrument will greatly facilitate the usual examination and lead to a higher percentage of positive diagnoses from the primary lesion.

A feature worthy of note is that such an instrument may be prepared from a syringe that has had its tip broken off in use and which is generally discarded as being of no further value.

Puberal Mammary Hypertrophy.—Hypertrophy other than puberal may occur in either sex with general obesity, and there is a probability of some of these cases being associated with hypopituitarism. Large, voluminous breasts may be an individual peculiarity or may be hereditary.—Greig, *Edinburgh M. J.*, April, 1922.

LEAD POISONING, FROM DRINKING "MOONSHINE" WHISKY

Warren T. Vaughan, M.D., Richmond, Va.

Case 1.—J. B. M., a man, aged 37, was admitted to St. Elizabeth's Hospital, Nov. 8, 1920, complaining of pain in the upper portion of the abdomen, with nausea and vomiting. The illness had begun about October 1, with severe epigastric pain, nausea and vomiting, which were relieved only by the administration of morphin. After the third day the symptoms had been partially relieved, and during the three weeks following, the patient had remained very nearly symptom-free. October 30, however, following two or three days of severe constipation, the abdominal symptoms had returned. Once again they were partially controlled by morphin, but six days later the condition had apparently become critical. The bowels did not move in spite of brisk catharsis. The patient had vomited no blood, nor had he noticed any in the stools. Pain was localized just above the umbilicus, and did not spread to the back, to the shoulder blades, or to the lower abdomen.

The patient had had a similar attack in August of 1917 or 1918. The illness at that time had lasted for about two weeks. His appetite had been good until the onset of the present illness, and the bowels had been regular, without cathartics. He had formerly been subject to spells of diarrhea with bloody stools every spring, but had been free from such attacks for three or four years. There was no history of jaundice. The patient had at times suffered from hemorrrhoids.

There was little further of interest in the patient's general history. He customarily drank one cup of coffee daily, whisky occasionally, smoked a package of cigarets each day, and occasionally chewed tobacco. He took no drugs. He was a road-worker, and had been at this occupation for the last eight years, working from ten to fifteen hours a day. Previous to that time he was a farmer.

The general physical examination was negative except for some tenderness in the epigastrium, and distinct tenderness over McBurney's point. There was no rigidity. There was no lead line present in the gums over the incisor or canine teeth, but considerable pigmentary deposit was present in the tissues of the gums around the molar and premolar teeth. The teeth themselves were dirty, worn and carious, and there was considerable pyorrhea. The urine showed 2-plus albumin on a scale of 4-plus, but was otherwise negative. The renal function was good, as indicated by a phenolsulphonephthalein excretion of 58 per cent in two hours. The blood urea nitrogen was 23 mg. for each hundred cubic centimeters. Routine blood examination revealed a moderate leukocytosis (14,400), with a normal differential count. The red cell count was 4,304,000; hemoglobin, 64 per cent. The erythrocytes showed considerable stippling, and an occasional normoblast was found. The blood Wassermann reaction was negative.

Gastric analysis disclosed a delayed rise in acidity to normal figures at the end of two hours. Feces examination, including microscopic examination, was negative. After a few days in the hospital, the albumin disappeared from the urine. A two-hour renal test for fixation of volume and specific gravity revealed 360 c.c. night output, with a specific gravity of 1.019, and normal variation in volume and specific gravity throughout the day. Barium studies were essentially negative. The patient was so tender over the region of the appendix that examination was incomplete as regards that organ.

The diagnosis in this case was (1) lead poisoning and (2) chronic appendicitis. The latter was subsequently corroborated at operation, at which time a Lane band was also found.

The interesting feature of this case lies in the source of the lead poisoning. The patient denied all contact with lead in any form, in his work as a road-builder, and he stated that he had built his own home and knew that there was not a lead pipe in the house. Repeated conversations with him in attempts to discover some point in his daily routine which would bring him in contact with soluble lead were unsuccessful. Finally, one day while reperusing the history it occurred to us that the "moonshine" whisky which the patient admitted having drunk in moderate amounts might be lead-containing. He was questioned on this point, and then admitted that he was a heavy drinker and that he was in the habit of drinking only "moonshine" whisky. A specimen of the whisky was obtained from his home, and was examined by Dr. Herbert W. Emerson of the University of Michigan Medical School. The sample of liquor contained 52 per cent. by volume of alcohol, and lead determined as lead acetate to the amount of 1 grain (0.065 gm.) in 500 c.c.

Case 2.—R. L. S., a man, aged 31, a stenographer, was admitted to the hospital, Feb. 4, 1922, complaining of pain in the pit of the stomach. During the preceding week he had suffered from intense abdominal cramps, radiating around the navel. The pain was constant, and was associated with attacks of nausea and vomiting. Codein had been necessary for the relief of pain. Constipation had existed only since the onset of the illness, and had been controlled by magnesium citrate. There was nothing of importance in the past history. The patient admitted having taken an occasional drink, but denied drinking corn whisky.

Examination of the respiratory tract was negative. Cardiovascular examination detected nothing noteworthy. The blood pressure was 120 systolic and 78 diastolic. Neurologic examination was essentially negative. Examination of the gastro-intestinal tract disclosed a heavy grayish coated tongue, some pyorrhea alveolaris, a narrow though distinct lead line on the gums, distinct tenderness in the epigastrium and beneath the right rib margin, and considerable spasm of the right rectus muscle with some general abdominal rigidity. There was also a moderate right costovertebral tenderness. Jaundice was absent.

The remainder of the examination was negative except for a patch of choroiditis in the fundus of the right eye. A diagnosis of lead poisoning was made. There was some question as to whether a cholecystitis was also present. A contrast meal was given, with negative roentgen-ray findings. Plates of the gallbladder region were negative. Gastric analysis revealed an absence of free hydrochloric acid, and a low total acidity. The urine was negative except for 1-plus albumin. Renal function was normal, as estimated by the phenolsulphonephthalein test. The red count was 3,240,000; hemoglobin, 85 per cent.; color index, 1.3; white count, 7,500; differential count, normal. There was considerable stippling of the red cells; otherwise the blood smear was negative. Feces examination was negative. The blood Wassermann reaction was negative.

In view of the experience in the first case, whisky was immediately suspected as a source of the patient's lead poisoning, and on closer questioning and after explanation of the diagnosis, the patient admitted that between Dec. 25, 1921, and Feb. 4, 1922, he had drunk between 2 and 3 gallons of corn whisky. A specimen of this liquor was obtained and examined by Dr. James M. Whitfield of Richmond, who found lead equivalent to 1.9 grains of metallic lead per pint, or 2.1 grains of lead oxid per pint, or 3.8 grains of crystallized lead acetate per pint.

This patient, like the former, was placed on appropriate treatment, and convalesced uneventfully.

Case 3.—G. C., a man, aged 28, a farmer, admitted Sept. 17, 1921, complained of abdominal pain localized chiefly in the region of the umbilicus. He had had a somewhat similar attack in March, 1921, and again in July. The last attack had begun two weeks before admission, with gas on the stomach and cramplike pains spreading across the abdomen. He was nauseated and vomited frequently. During the days just prior to admission he had suffered much from cramping pains in the arms and legs. The patient was constipated, and as a rule used some cathartic every other day. There was nothing remarkable in the remainder of the history other than a story of breathlessness with precordial throbbing and substernal pain on exertion, during the preceding three years.

The general condition was good. Examination of the respiratory and cardiovascular systems was essentially negative The heart borders were within normal limits; the sounds were of good quality, and a faint soft systolic blow was heard over the apex. This was not transmitted to the axilla. The blood pressure was 130 systolic and 70 diastolic. The positive points in the enterologic examination were a foul breath, a heavily coated tongue, carious teeth with worn articular surfaces and many snags, considerable pyorrhea alveolaris, and a distinct lead line on the gums, especially posteriorly. Abdominal examination was essentially negative, there being little spasm and no tenderness to palpation. Neurologic, urologic, orthopedic, ophthalmologic and otologic examinations were all essentially negative.

There were rather numerous stippled red cells in the blood. The white count was 5,400; the hemoglobin, 80 per cent. The differential count disclosed a neutrophilia of 80 per cent. The blood Wassermann reaction was negative. Urinalysis was entirely negative except for a very slight trace of albumin. The feces examination revealed nothing noteworthy.

Once again whisky was suspected, and the patient admitted having been a heavy drinker of whisky during the past three years. Throughout this entire time he had been making the liquor himself, and he recalled that the worm in the still was made of lead piping. He admitted having often taken as much as a quart of whisky daily. A sample of "moonshine" whisky was obtained from the patient's still. The following qualitative test for lead was applied: The specimen was acidified with hydrochloric acid, and an equal amount of ammonium sulphid was added. A black precipitate formed, indicating that a metal was present belonging to the first part of Group 2. The black precipitate was easily redissolved in acetic acid. The addition of potassium dichromate quickly formed a "chrome yellow" precipitate, indicating the presence of lead. The same solution treated with one drop of potassium ferrocyanid did not show a red precipitate, thereby ruling out copper.

SUMMARY

The three cases reported are all typical of acute or subacute lead poisoning.

In all a lead line was recognized in the gums, and stippled cells were present in the blood.

In all three cases careful questioning failed to reveal any source of lead poisoning other than whisky obtained from "moonshine" stills.

All three patients had been drinking this whisky to excess, over periods varying from five weeks to three years.

Lead was shown by test to be present in relatively large amounts in samples of whisky obtained from each patient.

Under appropriate treatment and by the avoidance of further ingestion of suspicious whisky, these patients recovered uneventfully, and have remained well. No other change was made in either their occupation or their environment.

617 West Grace Street.

The Urine Test in Tuberculosis.—After a trial of Wildbolz' urine test, I. Villarreal de la Garza (Tesis, Mexico, 1922) is very skeptical as to its value in the diagnosis of tuberculosis. He applied it in 26 cases of tuberculosis, 22 cases of suspected tuberculosis and 16 clinically healthy with these results: Tuberculosis cases, positive, 77 per cent.; doubtful, 3 per cent; negative, 19 per cent.; suspected tuberculosis: positive, 79 per cent.; negative, 8 per cent.; doubtful, 12 per cent.; clinically well cases: positive, 75 per cent.; negative, 19 per cent., and doubtful, 6 per cent. Villarreal also tried, with similar uncertain results, Roger's complement fixation test, a hetero-urine test and the tuberculin test. In his opinion the skin reaction in Wildbolz' test is due to irritation caused by the urine salts.

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SATURDAY, SEPTEMBER 16, 1922

MILK CALCIUM FOR CHILDREN

As was noted in The Journal[1] at the time, experiments completed about two years ago established the average calcium requirements of normal maintenance, and showed that a considerable proportion of American dietaries fail to meet this requirement and must therefore be considered subnormal as regards their calcium content. The calcium requirement of growth being relatively larger than that of maintenance, it follows that there is real and frequent danger that children's dietaries may fail to furnish as much calcium as is needed for the support of normal growth and the optimal development of the bones and the teeth; hence the need of an abundance of calcium-rich food in the diet of growing children. That adequacy of calcium intake is an extremely important, and may often be the crucial, factor in the feeding of children has been recognized by students of nutrition, but a satisfactory definition of the child's needs in this respect has heretofore been lacking because the quantitative relationship between the needs of growth and of maintenance had not been worked out.

This has now been done. In accordance with its excellent policy of establishing by its own research when necessary the scientific standards to guide its work of rehabilitation and relief, the New York Association for Improving the Condition of the Poor has cooperated with Columbia University in an extended series of experiments to determine the dietary conditions which induce an optimal storage of calcium, and presumably therefore the best development of bones and teeth in growing children from 3 to 14 years of age.[2] On an ordinary mixed diet containing daily 750 gm. of milk, and furnishing a total of from 0.74 to 1.02 gm. of calcium a day, these children stored calcium about in proportion to their body weights, the average being 0.01 gm. of calcium stored for each kilogram of body weight, daily. When the allowance of milk was increased to 1,000 gm. a day, the storage of calcium was improved. Experiments in which the calcium intake was systematically raised or lowered step by step by increasing or decreasing the amount of milk led to the definite conclusion that optimal calcium storage requires an intake of virtually 1,000 gm. or, in household measure, 1 quart of milk daily for each child.

The only other foods whose calcium content is high enough to make them a possible alternative to milk as the chief source of calcium in children's dietaries are the vegetables. Many experiments were made in the attempt to supply the needed calcium, chiefly in the form of vegetables; but when vegetables replaced even half of the milk as the source of calcium, the calcium assimilation was always unfavorably affected. Evidently children do not utilize the calcium of vegetables as efficiently as they do that of milk. The net result of all the experiments, covering twenty-one different children and a total of 417 experimental days of complete quantitative determination of intake and output of calcium, is to show that optimal storage of calcium is to be expected only when the child's dietary contains about 1,000 gm. of milk daily, which standard ought to be maintained whenever possible up to puberty. The dietary rule of a quart of milk each day for every child is much more than a precept based on individual opinions or drawn by analogy from the results of feeding experiments with lower animals; it now rests on scientific evidence obtained by extensive and intensive experiments directly on the children themselves.

BUFFER SYSTEMS IN BLOOD

Within the last twenty years, the importance of a uniform hydrogen-ion concentration in the body fluids, and the mechanism whereby this constant is maintained, have been given considerable attention, and much useful fundamental information has resulted from investigations along this line. The significance of the reaction of the liquid medium in respiration, in enzyme action, in the swelling of colloids and in other vital phenomena of cells has been given detailed attention in the recent literature. Methods of measuring with extreme accuracy and of expressing the reaction of body fluids have been so well developed that the terms have become common in physiologic parlance.

The regulation of this constant is entirely chemical, and there are several systems available in the blood for accomplishing it. L. J. Henderson of Harvard University was one of the first to set forth clearly the part which the phosphates in the plasma could play in neutrality regulation by acting as "buffers" against increased acidity or alkalinity. The importance of the carbonate-bicarbonate system in transporting carbon dioxid, and incidentally in resisting a change in hydrogen-ion concentration, has been elaborately set forth by Van Slyke and his colleagues. Loeb's recent experiments have again emphasized the plasma proteins as possible regulators of reaction.

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[1] The Calcium Requirement of Man, editorial, J. A. M. A. **75**: 1649 (Dec. 11) 1920.

[2] Sherman, H. C., and Hawley, E.: Calcium and Phosphorus Metabolism in Childhood, J. Biol. Chem. **53**: 375 (Aug.) 1922.

The red corpuscles, likewise, take part in maintaining neutrality. Although there are no authentic reports of movement of basic ions into or out of the red cells, numerous investigators have shown that there is a migration of acid ions from the plasma into the erythrocytes under conditions of increased acidity such as occurs with higher concentrations of carbon dioxid. The wandering acid ion thus leaves the molecular equivalent of base free in the plasma to combine with the invading acid. There are, therefore, the phosphate and protein systems, which belong strictly to the plasma, and the corpuscle-carbonate system, which may be said to be lent to the fluid portion of the blood.

The extent to which these various factors cooperate to maintain the optimal hydrogen-ion concentration has recently been indicated by Doisy, Eaton and Chouke.[1] As a result of investigations on man and the dog under carefully controlled experimental conditions, they conclude that the buffers occurring in the serum and acting independently of the corpuscles account for 16 per cent. of the basicity available for the neutralization of carbon dioxid acidity. Of this amount the phosphates furnish from 1 to 3 per cent., while the remainder is presumably provided by the serum proteins. The base set free by the movement of acid ions into the corpuscles accounts for 84 per cent. of the available buffer of the blood. Of this amount, 80 per cent. is due to the base derived from the chlorids, the rest coming from the dissociation of other salts in the serum.

These results represent pioneer studies in the evaluation of the quantitative relationship of the blood buffers. Here there is again emphasized, from a new point of view, the importance of chlorids in the physiologic economy of the body. The significance of the protein factors in neutrality regulation has been minimized; but if they account for as much as 12 per cent. of the buffer value of the blood, as indicated in this recent contribution, we must add to the already long list this important function of the serum proteins.

MILK SECRETION AND DIET

If the urgent admonition to mothers to nurse their infants is justified—and who will gainsay this advice—it becomes obviously important to secure adequate information regarding the physiology and pathology of lactation. Our knowledge of the phenomena of milk production in woman is far from extensive. Personal circumstances make it difficult, if not always impossible, to conduct experiments on the human being in order to learn the factors which modify the volume and quality of the secretion of the mammary gland, despite the evident need of first-hand evidence as to the possible variations in health and in disease. Consequently it has become necessary to depend on the outcome of studies on other species during lactation, and to apply these to human conditions so far as the analogies seem justified.

For evident reasons, the foremost observations on milk secretion have been made on cattle. That the volume of milk produced each day is subject to variations dependent in some way on diet has long been appreciated. The newer knowledge of nutrition, however, has necessitated some new formulations of the problems involved. The foodstuffs are no longer conceived to be circulating as such in the organism. Proteins reach the blood stream in the form of their constituent amino-acids; carbohydrates are transported as simple six-carbon sugars; and even the fats are altered by digestion so that they may be carried to the tissues in the form of phosphatids, such as lecithin. In fact, Bloor [1] has recently asserted that considerable evidence of an indirect nature may be brought to the support of the thesis that lecithin in the blood is the main form of transport of fat, and the precursor of fat in the tissues, and conversely, that fat from the tissues on entrance into the blood is changed to lecithin.

Meigs [2] of the Bureau of Animal Industry, himself an active investigator of the origin of milk constituents, has recently summarized the still fragmentary knowledge in this field by pointing out that milk secretion is preeminently affected through changes in the quality and quantity of the amino-acid mixture circulating in the blood. Of course, in ultimate analysis such variations are brought about by changes in the quantity or quality of the protein fed and also, as now becomes evident, by marked changes in the quantity of the nonprotein part of the ration. However, the immediately responsible factors could not be suspected before the advent of refined methods of microchemical analysis of the blood which enables us to know something more exact about the pabulum carried to the glandular tissues. The changes referred to tend to affect the whole amount of milk yielded rather than the concentration of protein in the milk. It is eminently important to bear in mind, therefore, that volume rather than composition is the foremost variable in milk secretion.

Meigs has further pointed out the improbability that milk secretion is affected by any changes in the concentration of the blood sugar which can be brought about under ordinary circumstances. The sugar content of milk is notably almost invariable; but the amino-acid mixture circulating in the blood plasma seems, under certain circumstances, to have an effect on secretion of milk fat. How the latter can continue to exhibit a reasonable constancy of make-up despite great diversity in the food intake was not easy to understand prior to the suggestion that milk fat is presumably derived from the blood phosphatids.[3] These contain phosphorus as well as fatty acid groups; consequently both the fat and the phosphorus in the diet play some part in the genesis of the factors on which the milk fat depends. Of the other important nutritive components of milk, the calcium is fairly constant in amount, as is the plasma calcium from which it is derived; and the vitamin content of milk has been the subject of frequent comment in these columns.[4]

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[1] Doisy, E. A.; Eaton, Emily P., and Chouke, K. S.: Buffer Systems of Blood Serum, J. Biol. Chem. **53**: 61 (July) 1922.

[1] Bloor, W. R.: Fat Transport in the Animal Body, Physiol. Rev. **2**: 92 (Jan.) 1922.

[2] Meigs, E. B.: Milk Secretion as Related to Diet, Physiol. Rev. **2**: 204 (April) 1922.

[3] Meigs, E. B.; Blatherwick, N. R., and Cary, C. A.: J. Biol. Chem. **37**: 1 (Jan.) 1919.

THE GASTRIN THEORY

The fundamental conception involved in the theory of hormone activity in the organism has proved to be popular and fruitful in its applications. Instead of ascribing all sorts of physiologic performance to the effect of stimulation through nervous channels, the possibility that chemical substances poured into the blood stream may travel through the body in the circulation and, reaching specific organs and tissues, may act directly as stimuli to receptive structures, has become recognized. That hormones may thus act as excitants of the secretory glands discharging into the alimentary tract has been demonstrated beyond question; and it has become customary to speak of secretins or secretagogues which promote flow from such glands. The latter may be influenced in their physiologic activities, therefore, by both nervous and chemical stimuli.

One of the early demonstrations of such possibilities was furnished by the English physiologist Edkins,[5] who discovered that acid extracts of the pyloric mucous membrane, when injected into the circulation, provoke a secretion of gastric juice. He believed that a specific hormone—gastric secretin—is formed by the contact with the mucosa, and he assumed that under such conditions it is regularly absorbed and consequently acts as an important factor in maintaining gastric secretion after meals. Subsequent investigators, notably of the Chicago school,[6] have shown that there is nothing specific about extracts of the pyloric mucosa in this respect; for many other tissues yield extracts which, on intravenous injection, function as secretagogues.

The direct application of the findings to secretion as it occurs normally in life has been wanting. Will extracts and solutions demonstrated to act by Edkins' procedure also provoke secretion if they are put into contact with the stomach rather than injected directly? The crucial test has recently been made by Ivy and Whitlow[7] of Chicago. They failed to obtain an increased secretion in isolated stomach pouches, produced experimentally in animals, when various substances, including food extracts of reputed potency, were applied to the mucosa of the pyloric pouch. The gastrin theory postulated that food substances in contact with the mucosa of the pyloric antrum causes the formation of a hormone which is absorbed into the blood stream and carried to the glands of the fundal mucosa so as to stimulate them. In the hands of the latest Chicago investigators this gastrin theory has failed to receive support. Incidentally, the slowness of absorption from the pyloric mucosa has been demonstrated anew, confirming the well established conviction that the stomach is not primarily an organ for absorption.

Current Comment

THE DOCTORATE OF PHILOSOPHY IN SCIENCES RELATED TO MEDICINE

The influence of the war on higher education is strikingly shown by the number of Ph.D. degrees granted by American universities since 1916, for this fell off as the size of the American army increased (1917, 372; 1918, 293; 1919, 180). This is a confirmation of the acknowledged fact that the scientific men of the country played an increasingly important part in the activities of the army and navy. In 1921 there were 332 doctorates conferred in the natural sciences by thirty-two institutions, as compared with 323 by the same number of institutions in 1920. With the larger number of college trained men now entering medical schools, and the increasing provision for graduate courses in medicine, larger numbers of higher degrees in the sciences related to medicine may be expected. The accompanying table, taken from the report of the National Research Council,[1] gives data of interest in connection with medical education. It will be seen that chemistry retains its position at the head, this year having more than one third of the total, which fact perhaps makes it somewhat surprising that physics has failed to advance, and remains behind zoology and botany. Of the sciences directly part of the medical curriculum, bacteriology maintains a healthy growth,

DOCTORATES DISTRIBUTED ACCORDING TO SCIENCES

	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921
Chemistry	78	68	71	85	115	108	75	54	96	134
Zoology	20	26	25	32	33	30	33	24	38	36
Botany	30	28	34	40	36	37	39	23	48	29
Physics	30	22	23	31	35	32	17	18	19	28
Psychology	29	24	12	22	19	32	30	21	38	26
Bacteriology	6	3	6	4	4	11	11	6	7	19
Mathematics	22	21	25	23	34	30	23	7	19	16
Geology	23	14	13	26	17	24	14	5	17	11
Physiology	12	2	8	8	14	18	11	1	13	8
Astronomy	2	11	2	7	6	5	0	1	4	5
Geography	0	1	0	3	3	3	1	0.	3	5
Anatomy	6	1	2	5	1	3	5	0	3	4
Anthropology	0	3	2	6	1	4	2	0	2	4
Agriculture	11	8	9	9	6	19	18	12	8	3
Metallurgy	0	0	0	1	1	0	1	1	0	2
Engineering	2	0	4	2	2	5	4	1	5	1
Pathology	2	2	1	2	2	6	8	6	3	1
Mineralogy	0	0	0	1	0	0	0	0	0	0
Meteorology	0	0	0	0	0	1	1	0	0	0
Paleontology	0	0	4	2	3	4	0	0	0	0
Totals	273	234	241	309	332	372	293	180	323	332

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[4] Relation of Feeds and Diet to the Vitamin Content of Milk, editorial, J. A. M. A. **75**: 747 (Sept. 11) 1920; Food Proteins and Breast Milk, ibid. **77**: 1340 (Oct. 22) 1921; The Nutritional Variability of Milk, ibid. **78**: 1540 (May 20) 1922.

[5] Edkins, J. S.: J. Physiol. **34**: 133, 1906.

[6] Keeton, R. W., and Koch, F. C.: Am. J. Physiol. **37**: 481, 1915. Luckhardt, A. B.; Keeton, R. W., and Koch, F. C.: Ibid. **50**: 527, 1920.

[7] Ivy, A. C., and Whitlow, J. E.: The Gastrin Theory Put to Physiological Test, Am. J. Physiol. **60**: 578 (May) 1922.

[1] Science **55**: 271 (March) 1922.

having now passed mathematics and geology. Examination of the titles of the theses in bacteriology shows that nearly all of them relate to medical problems, and some are strictly immunologic. Physiology would show a larger number but for the inclusion of some of the degrees in biochemistry under the chemistry group. We even find in chemistry a thesis on "Prematurely Senile Rats"! Others belong equally clearly to pathology and pharmacology. Among the theses in psychology we notice one on "Adenoids and Diseased Tonsils: Their Effect upon General Intelligence." As yet the doctorate in the clinical medical sciences does not appear in the list, but it soon will, since in recent years a larger interest has been taken in the teaching of the clinical branches of medicine, and greatly improved methods have been developed. With the dearth of trained teachers in the fundamental branches, it is to be regretted that so few higher degrees are being granted in anatomy, physiology and pathology. Let us hope that the efforts that are now being made to relieve this situation will soon bear fruit.

TETHELIN FAILS

Endocrinology appeared to have scored a new conquest when, in 1916, T. Brailsford Robertson, then of California but now of Australia, isolated from the anterior lobe of the pituitary glands of cattle a substance to which he gave the name of tethelin and which he regarded as an active growth-controlling principle.[1] The earliest intimations of its supposed properties were obtained from observations of the effects produced by feeding growing mice. Before long tethelin was hailed as a product capable of accelerating the healing of wounds [2] and promoting recovery after inanition. A specific of this sort was certain to receive a hearty welcome into the small category of known compounds with demonstrated definite potencies in the direction of promoting cell activity. Biochemists have been slow to accept the substance as something deserving of their serious consideration, however, for even superficial study of the mode of preparation outlined for the patented product suffices to indicate that tethelin is likely to be "a very impure mixture of substances of the lipoid class." This is what the English physiologist Drummond [3] has, in fact, demonstrated. But he has further reported criticisms of the growth experiments made by Robertson as to the effect of the pituitary constituent; and since new feeding trials conducted at the Institute of Physiology in University College, London, fail to point to any influence of the oral administration of anterior lobe substance on the growth of test animals, the burden of proof now rests with the proponents of the much advertised tethelin. When the manufacture of tethelin was taken up in 1918 by a pharmaceutical firm, under license from the University of California which controlled the patent, the Council on Pharmacy and Chemistry considered the product. It was found that there was no adequate evidence for its value as a therapeutic agent. The Council postponed definite action on the product to await confirmatory evidence. Now however, in part because of the negative results of Drummond and Cannan, the Council has concluded the consideration of tethelin and declared it inadmissible to New and Nonofficial Remedies. It may seem unfortunate to record such reverses of the judgment of men of science; but mere publicity must not be allowed to lead to therapeutic hopes until they are justified by sound logic and demonstrable results.

CULTURAL METHODS IN CHRONIC GONORRHEA IN WOMEN

As a public health measure in controlling the period of detention of infected women, it is of great importance to substantiate a clinical diagnosis of chronic gonorrhea by isolation of gonococci from the infected genital tract; but this is often difficult because of the great predominance in cultures and smears of other organisms. A comparative study of the relative values of smears, cultures and complement fixation tests in the diagnosis of chronic gonorrhea in women has recently been made by Torrey, Buckell and Wilson.[1] For obtaining cultures they transported swabs in a mixture of "vitamin agar" and ascitic fluid, and later seeded the material on plates of "ascitic-veal-urine-glycerol-agar," "ascitic-salt-free-1.5 per cent. peptone-vitamin-agar," and on similar mediums to which a solution of methyl violet or iodin-green had been added.[2] In nine of twenty-nine culturally positive cases, there was no clinical evidence of gonorrhea; in nineteen of twenty-six culturally positive cases, no gonococci were found in the smears; in seven cases in which the clinical diagnosis of gonorrhea was doubtful and which were culturally negative, complement fixation was definitely positive, and in two of these cases, smears contained gonococci; gonococci were present in smears from eight of forty-one patients that were culturally negative, and thirteen other patients of this group gave a positive complement fixation test; and in four of sixteen cases that were culturally positive, complement fixation was negative. From these observations the authors are led to believe that clinical observations, cultural tests, gram-stained smears, or complement fixation cannot be relied on alone as guides to the diagnosis of actual infection with gonococci. In recent years, many mediums and procedures for cultivating gonococci have been advocated, and there is now no uniformity of opinion as to the most useful method. In several of the cases studied by Torrey and his co-workers, successful isolation of the gonococci was obtained with one of the four mediums used by them, while there was no growth of gonococci on the other three. It is generally accepted that an abundance of moisture in the air of the incubator is essential for growth of gonococci, but there is still a difference of opinion as to the most favorable amount of amino-acids, the best source of growth-stimulating substances, the degree of hydrogen-ion concentration, the oxygen tension and the value of selective dyes. It is important that these problems be solved, because dependable and standardized cultural results will be of the greatest value; but until this is accomplished, smears, cultures and complement fixation should be carried out whenever possible, the limitations of each being borne in mind.

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[1] Robertson, T. B.: J. Biol. Chem. **24**: 385 (March) 1916.

[2] Robertson, T. B.: The Effects of Tethelin, J. A. M. A. **66**: 1009 (April 1) 1916.

[3] Drummond, J. C., and Cannan, R. K.: Tethelin—the Alleged Growth-Controlling Substance of the Anterior Lobe of the Pituitary Gland, Biochem. J. **16**: 53, 1922.

[1] Torrey, J. C.; Wilson, M. A., and Buckell, G. T.: Comparative Value from Standpoint of Public Health of Smears, Cultures and Complement Fixation in the Diagnosis of Chronic Gonorrhea in Women, J. Infect. Dis. **31**: 148 (Aug.) 1922.

[2] Torrey, J. C., and Buckell, G. T.: Cultural Methods for the Gonococcus, J. Infect. Dis. **31**: 125 (Aug.) 1922.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Branch Laboratories to Be Established.—Branch state laboratories will be established in three cities by the state board of health. This was made possible by an appropriation from the International Health Board of the Rockefeller Foundation. Laboratories in Birmingham and Mobile will be opened immediately and another later in the Tennessee Valley. The laboratories, cooperating with the municipal laboratories, will engage in bacteriologic work and diagnosis and control of communicable diseases.

ALASKA

Personal.—Dr. William A. Borland, Hoonah, who has been taking a graduate course in New York, has returned to Alaska.——Dr. George S. Lesher, La Conner, Wash., has accepted a position with the U. S. Public Health Service at St. George Island.

ARKANSAS

Hospital News.—A hospital and bath house were dedicated at Hot Springs, August 30. The buildings were erected by a negro fraternal organization at a cost of $200,000. More than 2,000 delegates from the organization attended the dedication ceremonies. Dr. Ellis A. Kendall gave an address.——An ordinance appropriating $300,000 for the completion of the new city hospital at Little Rock was passed recently by the city council.

CALIFORNIA

Hospital Conference.—The second annual conference of the hospitals of California was held in Pasadena, September 5-8. Dr. William E. Musgrave, San Francisco, was chairman of the conference.

Public Health Broadcasted.—The health department of the county of Los Angeles is broadcasting public health lectures every two weeks from Station K U Y, located at El Monte. In addition to the regular series, special lectures will be broadcasted from the El Monte station from time to time.

International Health Exposition.—The field of public and private health will be covered at the International Health and Safety Exposition to be held in the Oakland Auditorium, November 17-26. There will be charts and lectures, with special emphasis on the idea of disease prevention and health education among children. The exhibit will show how the health center works from a central headquarters surrounded by the treatment and neighborhood centers and by the centers in the outlying towns of the country.

Personal.—Dr. James Marion Dillon, El Monte, has been issued a permit to erect a twelve-room office building, to be used either for a county health center or for professional offices. The building will be erected at a cost of $12,000.——Dr. John J. Miller, San Jose, has returned from a trip to England, Ireland and France.——Dr. Clarence O. Sappington, San Francisco, assistant surgeon, U. S. Public Health Service, has been appointed to a fellowship in industrial hygiene at the Harvard School of Public Health, Boston.

Hospital News.—A new navy hospital, erected at San Diego at a cost of $1,000,000 was commissioned, August 24.——Work has been started on an addition to Ahwahnee Sanatorium, Ahwahnee. This institution is maintained by Merced, Stanislaus and Madera counties for tuberculous patients. The nurses' home and the vocational building are among those to be enlarged.——A new hospital, to cost approximately $60,000, will be erected at the Paradise Valley Sanatorium, National City. The new hospital will contain fifty rooms.

CANAL ZONE

Institute of Tropical Research.—At a meeting of the executive committee of the Institute for Research in Tropical America, it was decided to concentrate the efforts of the institute on the establishment of a research station near the Gorgas Memorial Institute at Panama. Thomas Barbour, Harvard University, Boston; H. E. Crampton, representing the New York Academy of Sciences; A. S. Hitchcock, Smithsonian Institution; A. G. Ruthven, University of Michigan, and Witmer Stone, Philadelphia Academy of Science, are the members of the committee.

COLORADO

Physician's License Revoked.—An official report from the state board of medical examiners states that the license of Dr. James B. Clymer, Mead, has been revoked on the charge of habitual intemperance and the use of spirits, narcotics and stimulants, and on the ground that he had performed several criminal abortions.

CONNECTICUT

Bequest to University.—Under the will of the late William Sloane, $100,000 has been bequeathed to Yale University, New Haven, and $10,000 to the Yale Foreign Missionary Society for the Hunan-Yale College of Medicine, Changsha, known as Yale in China.

DISTRICT OF COLUMBIA

Smithsonian Institution.—A meeting of the scientific staff of the institution was held recently to discuss promotion of research. A committee on research was appointed with Dr. Walter H. Merrill, chairman. Mr. Frederick V. Coville, Dr. Fewkes, Mr. Fowle, Dr. William H. Hough, Mr. Nelson and Mr. Leonard Stejneger are the other members. The committee will hear reports on proposed research projects from various persons and consider means for taking them up.

FLORIDA

Prisoners Aid Malaria Control.—Prisoners from the city stockade in Tampa are employed in cleaning out city dumps in the antimosquito campaign now being conducted in that city.

Personal.—Dr. Frederick F. DuPree, Tampa, has been appointed assistant superintendent of the Arizona State Hospital for the Insane, Phoenix. Dr. DuPree was formerly acting assistant surgeon in the U. S. Public Health Service. Dr. William S. Gramling, Miami, gave an address on "The Physics of Radium and Radioactive Substances" before the Dade County Medical Society, August 17.

Scholarships in Medicine.—Florida has established seven free scholarships in the state medical college, one for each congressional district, the governor making the appointments. Selections are based on three conditions: (*a*) the excellence of the student's previous class work; (*b*) the attainment of the standard of qualifications required by the medical school, and (*c*) the financial need of the individual. A similar number of scholarships is available also in pharmacy.

ILLINOIS

Physician Fined.—It is announced in the Davenport *Times* that Dr. Prudens Sterck, Moline, arrested several weeks ago in Davenport on a statutory charge, was fined $200 and costs, August 22.

Hospital News.—The Holden Hospital, Carbondale, has been appraised with the idea of issuing bonds for new buildings and improvements. An expenditure of $50,000 is contemplated.——Miss Blanche Easton, Chicago, has succeeded Sidney G. Davidson as superintendent of Rockford Hospital.

Dr. Sloan on Health Board.—Dr. Edwin P. Sloan, Bloomington, has been elected secretary of the state advisory health board to succeed Dr. C. W. Lillie of East St. Louis, who died recently. An effort will be made to place Illinois in the birth rate area by having stringent laws passed compelling the registration of all births.

Poliomyelitis Decreasing.—According to a report of the department of public health of the Public Health Bureau, Washington, D. C., it is stated that infantile paralysis is on the decrease in Illinois. In July and August, 1921, there were a total of 558 cases, and in July and August of this year, only twelve cases have been reported.

Medical Examinations at State Fair.—At the state fair held in Springfield, free physical examinations were made by experts of the state department of public health, under the direction of Dr. Isaac D. Rawlings. Blood pressure tests were made and registration cards with height and weight were given out. An annual examination was urged for every one. At the Pageant of Progress, in Chicago, more than 15,000 persons were so examined in a booth in charge of physicians. Free examinations were made at the Central States Fair at Aurora, and will be conducted at the fair at Kankakee also.

Chicago

Former University Professor Dies.—Prof. Alexander Smith, formerly professor of chemistry and director of general and physical chemistry at the University of Chicago, died recently at his home in Edinburgh, Scotland, aged 56.

Personal.—Dr. J. Edwin Rhodes has returned to the United States after a tour of England, Scotland and France.——Dr. William L. Baum returned recently from a trip abroad.——Dr. Herman N. Bundesen has been appointed a member of the advisory committee of the state board of health by Governor Small to succeed Dr. John Dill Robertson.——Dr. Daniel N. Eisendrath, Chicago, read a paper on "The New Aspects of Kidney and Ureter Surgery" before the Scott County Medical Society at Davenport, Iowa, September 5.

IOWA

Personal.—Dr. William S. Norton, Muscatine, has been reelected school physician by the board of education.——Dr. Frank Radcliffe Senska, Iowa City, has arrived in West Africa, where he will do medical missionary work. Dr. Senska is the first physician to be stationed at Sakbayeme, it is announced. He will have a temporary dispensary building and hospital.——Dr. and Mrs. Taeke Bosch have returned, on furlough, to Iowa City from China. They have been engaged in medical missionary work in that country during the last seven years.

KENTUCKY

New Building at Memorial Hospital.—A new building, with accommodations for 100 patients, is under construction at the Booth Memorial Hospital, Covington. This institution is under the direction of the Salvation Army.

Personal.—Dr. Albert Stewart, Georgetown, has been appointed director of the Scott County Health Department, to succeed Dr. H. V. Johnson.——Dr. Annie Veech, director of the bureau of child hygiene, with the assistance of Dr. Alice Pickett and a nursing staff, is conducting a series of child hygiene conferences and schools for midwives in the southeastern part of Kentucky.

LOUISIANA

Child Welfare.—The twelfth station of the Child Welfare Association was opened, August 24, at New Orleans. This station was a memorial gift from an anonymous donor. Dr. Rena Crawford will be in charge of the baby clinics.

Fund for Tulane University.—A fund of $60,000 for establishing a chair at Tulane University, New Orleans, for teaching methods of combating tropical diseases and hygiene, and one amounting to $30,000 for constructing an isolation building for the Charity Hospital will eventually be available to these institutions under the will of the late William G. Vincent. The chair will be known as the William G. Vincent professorship of tropical diseases and hygiene.

Hospital News.—The St. Luke's Private Sanatorium, New Orleans, will be ready for the reception of patients about September 20. Dr. B. F. Gallant has been appointed medical director of the institution. St. Luke's recently acquired the building and grounds of the St. Simeon School.——The contract has been awarded for the erection of a new addition to the clinic of the Charity Hospital, New Orleans, to be erected at a cost of $70,140. The clinic will be completed in six months.——A physiotherapy department has been installed at the Charity Hospital under the direction of Miss Marion Bentley.——A new two-story brick sanatorium will be erected at Ponchatoula by the Benevolent Knights of America.

Physicians Resign from Hospital.—Charging that the Rev. J. C. Barr, president of the managers of the Presbyterian Hospital, New Orleans, was interfering with the internal affairs of the institution and that he had made the position of Dr. Henry L. Stickney, superintendent of the hospital, formerly of Dwight, Ill., untenable, Drs. Marcy J. Lyons and Hiram W. Kostmayer, members of the board's advisory committee, submitted their resignations to the board of managers, August 27. Dr. Stickney resigned, August 22. The hospital board has been requested to oust the Rev. Mr. Barr, as he is an untrained man, unfamiliar with medical affairs, and if this is not accomplished an effort will be made to close the hospital altogether. Mrs. Garnier is at present acting superintendent. Many other members of the staff are preparing to resign unless the conditions are altered, it is announced.

MARYLAND

Malaria Outbreak in County.—Malaria has been unusually prevalent in Wicomico County, on the eastern shore of Maryland, the total number of cases reported to the state department of health since September 1 being seventeen, eleven of these in Salisbury, the county seat. Dr. John S. Fulton, secretary of the state department of health, has returned from Salisbury after investigating conditions and conferring with the city and town authorities in regard to controlling the disease.

MINNESOTA

State Medical Meeting.—The annual meeting of the Minnesota State Medical Association will be held in Minneapolis, October 12-14, under the presidency of Dr. James Frank Corbett of Minneapolis.

Epilepsy Colony Planned.—The state board of control will petition the next legislature for the establishment of a colony for epileptics, near the Twin Cities, to be separate from the school for feebleminded at Faribault. It is stated that the Minnesota School for the Feebleminded is congested, there being 1,900 inmates in the school, and a waiting list of 200. Three hundred of the inmates are epileptics. The superintendent of the Faribault institution asked the board for $724,700 for new buildings and repairs, but this amount was reduced by $213,000 by the board of control.

Hospital News.—A new hospital building is to be erected for the use of the students in the Agricultural School of the University of Minnesota in St. Paul, at a cost of $12,000.——The North Central Minnesota Hospital Association has purchased the old St. Anthony Hospital building at Bemidji, formerly operated by the Benedictine Sisters. The institution will be remodeled for use as a city hospital at a cost of $75,000.——The Menahga Hospital, Menahga, has been closed by Dr. R. H. Sweetman and the equipment removed to Sauk Centre. The new institution will be known as the Sauk Centre Hospital.

Personal.—Dr. John S. Abbott, St. Paul, has sailed for Europe to visit hospitals.——Dr. Charles E. Caine, Morris, has been appointed a member of the University State Board of Medical Examiners.——Dr. Otto W. Scholpp, Hutchinson, has returned from Vienna, Austria.——Dr. John A. Thabes, Brainerd, has been appointed a member of the state board of health to fill the vacancy caused by the resignation of Dr. Egil Boeckmann.——Dr. Reginald Fitz, professor of medicine in the Mayo Foundation, Rochester, has been appointed associate professor of medicine at Harvard University, Boston, and visiting physician to the Peter Bent Brigham Hospital.

NEBRASKA

Maternity Department at Hastings Hospital.—The Mary Lanning Memorial Hospital, Hastings, will erect a maternity building at a cost of $40,000 in the near future.

Personal.—Dr. W. Eugene Wolcott, Omaha, recently returned from a European trip.——Dr. James S. Foot, professor of pathology, Creighton Dental College, was voted a research fund by the Nebraska State Dental Society, recently. Simultaneously came a report that he had suffered a cerebral hemorrhage and partial paralysis while on his vacation at Bass Rocks, Mass.

NEW YORK

Veterans' Bureau Officers Adopt Resolutions on Death of Dr. Spitzka.—The officers of the second district of the U. S. Veterans' Bureau adopted resolutions regarding the death of Lieut.-Col. Edward A. Spitzka, in charge of the district.

Railway Surgeons' Association.—The thirty-second annual session of the New York and New England Railway Surgeons' Association will be held at the Hotel McAlpin, New York, October 28, under the presidency of Dr. Donald Guthrie, Sayre, Pa.

Hospital News.—A new $150,000 building will be erected at the Middletown City Hospital to replace buildings destroyed by fire, it was recently announced.——The Blythdale Home for Convalescent Tuberculous Crippled Children has purchased a 20-acre farm, 3 miles north of White Plains, and the occupants will be removed there shortly. This will double the bed capacity of the institution.——An appropriation of $100,000 has been made for the erection at Kings Park State Hospital, Kings Park, L. I., of a diagnostic and curative building, where suspected, incipient and advanced cases of tuberculosis can be treated. Dr. William C. Garvin is superintendent of the institution.

New York City

Montefiore Hospital has New Roentgen-Ray Machine.—A roentgen-ray machine which has a voltage of 350,000 and is said to be as modern as any in the United States has been installed at the Montefiore Hospital, through the generosity of Samuel Sachs, a member of the board of directors of the institution. The machine is portable and can be used at the bedside. A clinic will be started at once for the treatment of outpatients suffering from cancer.

Report of Jewish Hospitals.—The Federation for the Support of Jewish Philanthropies has recently issued a report of the work done last year at dispensaries maintained at four hospitals, Mount Sinai, Fifth Avenue, Beth Israel and the Hospital for Joint Diseases, showing that in these dispensaries 129,189 persons received treatment. A total of 398,176 treatments were given during the year, a daily average of 1,381 treatments. The federation also maintains social service groups in connection with each of these hospitals.

Eye Conservation Councilors.—The Eyesight Conservation Council of America has elected a number of prominent educators to the board of councilors, following a recent visit of Dr. John J. Tigert, U. S. Commissioner of Education, to Columbia University, where classes in eye conservation are being held this year for the first time. Among the new councilors are Sidney E. Mezes, Ph.D., president of the College of the City of New York; Prof. Joseph E. Roe of New York University; Charles H. Judd, Ph.D., of the University of Chicago and Francis C. Caldwell of Ohio State University.

Personal.—Dr. James Ewing has been appointed a member of the state board of medical examiners, to take charge of the department of pathology.——On August 31, a welcome home dinner was tendered at Lebanon Hospital to Drs. Abraham J. Rongy and Lipman M. Kahn, who recently returned from Europe.——Dr. Rosalie Slaughter Morton has returned to New York from Serbia, where her medical labors received the highest decorations from the government.——Dr. George E. Davis read a paper before the International Otological Congress at Paris in August.——Drs. Abraham, A. Brill, Louis Hauswirth and Bradley L. Coley sailed recently for Europe.——Dr. Harold S. Vaughan returned from Europe, September 8.——Dr. Mary K. Isham sailed for Europe on the Cunarder *Saxonia*, September 9.

Deaths from Accidents.—According to the records of the New York City Department of Health, during 1921, 3,483 persons died as the result of accidents. This is a decrease of 400 over the number of accidental deaths three years ago. About 75 per cent. of all victims of accidents were males. Persons at the extremes of life suffered most heavily from accidents; that is, those least able to take care of themselves. The most important cause of accidental deaths, from the numerical point of view, was the automobile. During 1921, 849 persons were killed in this city as the result of automobile accidents; this is a ratio of about fifteen per hundred thousand of the population. The heaviest mortality was between the ages of 5 and 14 years, the rate during this period of life being thirty-one per hundred thousand. During 1921, 864 persons died as the result of falls, a ratio of almost twelve per hundred thousand. The health department asserts that it should be possible to prevent this type of accident. Burns and scalds furnish another cause of death numerically important; almost half of the 323 deaths from this cause occurred during the first five years of life. Accidental deaths from gas poisoning have been steadily decreasing during several years past. During the last three years, there has been a substantial decrease in the number of deaths from drowning. During the last year, fifty-three boys between the ages of 5 and 14 were drowned in the waters surrounding the city, and eighty between the ages of 15 and 24. The department of health, in commenting on the figures, calls attention to the fact that most accidents are the result of carelessness, and that children should be educated, from the time they can walk, to exercise care, and that this education should be continued through school life.

NORTH CAROLINA

Child Welfare Campaign.—Under the auspices of the North Carolina Tuberculosis Association, with the cooperation of the state board of health, an intensive campaign will be conducted for malnourished schoolchildren in several counties of the state. It has been found, following a survey, that 30 per cent. of the schoolchildren in the state are under weight for their age and height. Proper treatment will be given to those who are handicapped by physical defects and diseases.

OHIO

Health Commissioner Resigns.—Dr. Kirke R. Teachnor, Hamilton, has resigned as health commissioner of Butler County, owing to ill health. Dr. Clifford J. Baldridge, Cincinnati, will succeed Dr. Teachnor.

Hospital News.—Health Commissioner Ilford and the council committee have recommended the purchase of an apartment building to be remodeled as a contagious disease hospital. Bonds for $200,000 will be issued for this purpose.——A new tuberculosis hospital will be erected at Newburg, in the near future, at a cost of $250,000.

OKLAHOMA

Fund for Physician.—Following a special meeting of business men at Kenton, recently, a fund is being raised to induce a physician to locate in that city. Kenton has been without a physician for several months and much anxiety is felt for the welfare of the community during the coming winter.

PENNSYLVANIA

Personal.—Dr. Robert P. Elmer, Wayne, with the exception of 1921, national archer champion since 1914, recently established a unique record in archery. At a recent tournament, Dr. Elmer scored 1,230 points. In addition to winning the double York and the American rounds he won the Robin Hood Cup presented by Douglas Fairbanks.——Dr. Harry A. Spangler and Dr. Edward R. Plank have been appointed medical inspectors of the Carlisle School Board for the coming year.

Philadelphia

Personal.—Dr. Charles Custis Harrison has tendered his resignation as chairman of the board of trustees of the University of Pennsylvania. He had been chairman of the board since the resignation of Dr. Edgar Fahs Smith, provost and a trustee of the university for the last forty-six years.

Hospital Contracts Awarded. — St. Agnes Hospital has awarded a contract to William R. Dougherty for a two-story laboratory, at an estimated cost of $44,000.——Contract for the building to be erected by the city at Byberry for tuberculous patients has been awarded to George H. Evans, Inc., at an estimated cost of $119,430.

Building Italian Hospital.—Work on the new Italian Hospital at 1307-1309 South Broad Street is well under way. The hospital will be ready to receive patients late in December. For twenty years, Italians of Philadelphia, individually and through their societies, have been collecting money for the erection of their own hospital. Through the aid of Cardinal Dougherty, the ground was purchased by the Missionary Sisters of the Sacred Heart, who will conduct the institution. The cardinal, in sanctioning the project, also presented the hospital with a piece of ground adjacent to the Broad Street property, facing on Juniper Street. The Missionary Sisters are taking an active part in planning the building and are directing the work of construction from their convent. The hospital, when completed, will be the first institution to be conducted by Italians only. It will be open to all denominations and will have thirty-five beds.

SOUTH CAROLINA

Personal.—Dr. Francis A. Coward, director of the South Carolina State Laboratory at Columbia since 1908, has accepted a position with the Montana Board of Health and will have charge of the state laboratory. Dr. Herbert M. Smith has been appointed to succeed Dr. Coward.——Dr. Clough H. Blake has been appointed a member of the board of health of Greenwood.

TENNESSEE

Personal.—Dr. George R. McSwain, Paris, has gone to Rochester, Minn., to take a graduate course at the Mayo Clinic.——Dr. William S. Quinland has been appointed head of the department of pathology at Meharry Medical College, Nashville.——Dr. Marion L. Bingham has resigned as director of the Women's Hygienic Department at the University of Tennessee and has accepted a position with the medical department of Vassar College, Poughkeepsie, N. Y.

Sanatorium for Drug Addicts. — Drs. Arthur R. Porter, John L. Jelks, Walter R. Wallace and Thomas C. Graves were appointed on a committee in Memphis recently to formulate plans for a campaign to raise funds to obtain a site and erect a sanatorium for drug addicts near Memphis. The patients would be given free treatment. Several subscriptions of $100 have already been received toward the erection of the institution, which the city will help to support and maintain.

TEXAS

New Buildings for University.—A meeting of the board of regents of the University of Texas, Galveston, was held, August 23, to make arrangements for the purchase of real estate opposite the medical college in order to enlarge its facilities. Efforts have been under way for some time to acquire the nine lots opposite the medical college for the purpose of constructing additional buildings. It is hoped to start actual construction work by November 1. Extensive improvements to the medical college building and the John Sealy Hospital are also being planned.

UTAH

American Association for the Advancement of Science.—The sixth annual meeting of the Pacific division of the association was held in Salt Lake City, recently, in conjunction with the summer session of the national association, and under the presidency of Barton Warren Evermann, director of the California Academy of Science. E. C. Franklin, Ph.D., professor of chemistry, Stanford University, San Francisco, was elected president of the Pacific division.

VIRGINIA

Criminal Mental Hygiene.—Dr. William F. Drewry, Petersburg, Dr. Robert Finley Gayle, Richmond, Dr. James K. Hall, Richmond, and H. D. Coghill, Richmond, have been appointed on the board of criminal mental hygiene.

Provision for Physicians in Rural Districts.—A bill introduced in the Virginia legislature offers twenty scholarships plus $250 each in the University of Virginia Medical Department to students who, after graduation, shall practice medicine for at least five years in the rural section of the Congressional district from which they were appointed.

WISCONSIN

State Medical Meeting.—The seventy-sixth annual meeting of the State Medical Society of Wisconsin was held at Green Lake, September 6-8, under the presidency of Dr. Sidney S. Hall, Ripon. The first annual physicians' golf tournament was held, September 8. The following officers were elected for the ensuing year: president, Dr. Frank Gregory Connell, Oshkosh; vice presidents, Drs. A. J. Wiesender, Berlin, John L. Yates, Milwaukee, and Eugene E. Tupper, Eau Claire, and Dr. L. Rock Sleyster, Wauwatosa, secretary. The next annual meeting will be held in 1923, at Milwaukee.

PHILIPPINE ISLANDS

New Licenciates.—Of eighty-one candidates who took the examination of the Medical Board of Examiners of the Philippine Islands, forty-two passed and eighteen were conditioned. Those who passed under condition will have to practice six months in any creditable hospital before receiving their licenses.

PORTO RICO

Tuberculosis Survey.—As the result of an appeal from the Porto Rico Chapter of the Red Cross and from Governor Reilly, the U. S. Public Health Service has sent Dr. Frederick C. Smith of the tuberculosis division to San Juan for a preliminary survey of the tuberculosis situation in the island. The Red Cross states that there are no special clinics for the diagnosis or treatment of this disease and that only about 125 hospital beds are available on the island. There is a great deal of tuberculosis in San Juan and throughout the island. The Red Cross has found in many cases as many as ten persons living in a single room with a tuberculous patient.

CANADA

Hospital News.—The need of a hospital in Montreal for drug addicts was emphasized by Dr. John A. Amyot, deputy minister of health, who was among the speakers at the formal opening of the hygiene section of the congress of French-speaking physicians at Montreal recently.

Medical Meeting.—At the annual session of the Canadian Pacific Medical Association, held in Vancouver recently, Dr. D. A. Munro was elected president for the third consecutive year. Dr. J. Carmichael was elected vice president and Dr. A. M. Innes, secretary-treasurer. This association looks after the medical and surgical work of the railway employees of British Columbia.

Public Health News. — The provincial board of health figures for infantile paralysis show an alarming increase over last year. The epidemic center is Hamilton, Ont., where fifty-two of the ninety-four cases are reported. There were ten deaths during the month of August, half of them occurring in Hamilton. Deaths from tuberculosis head the communicable diseases list, with 109 out of 113 cases. On the whole, the month's record compares very favorably with that of the corresponding month of 1921.

Public Health News.—Coincident with "Cancer Week" in the United States, the medical profession throughout the Dominion of Canada will cooperate in a brief educational campaign designed to draw the attention of Canadians to the ravages of this disease. It is estimated that in the province of Quebec alone, more than 1,200 deaths occurred from this cause last year. "Cancer Week" will begin, November 12, and the following provincial chairmen have been appointed: Alberta, Dr. F. H. Newman, Calgary; Ontario, Dr. Alexander Primrose, Toronto; Nova Scotia, Dr. John Stewart, Halifax; Manitoba, Dr. Robert J. Blanchard, Winnipeg; British Columbia, Dr. Gilles, Vancouver; Quebec, Dr. Fred J. Tees, Montreal; New Brunswick, Dr. Murray McLaurin, St. John; Prince Edward Island, Dr. Stephen R. Jenkins, Charlottetown; Saskatchewan, Dr. Hugh E. Munroe, Saskatoon.

Personal.—Dr. Charles K. Clarke, medical director of the Canadian National Committee for Mental Hygiene, and professor of psychiatry at the University of Toronto, has been asked to deliver the Maudsley lecture on psychiatry at the congress of the British Medico-Psychological Association in London in 1923.——Dr. Marcel Pinard, chief medical consultant of the Hospital Boucicault, Paris, Dr. Paul Gaston, chief of the central laboratory of the St. Louis Hospital for Skin and Syphilitic Diseases, Paris, and Dr. Desmarets, Paris, representative of the French ministry of education, recently addressed a meeting at Toronto, under the auspices of the Canadian Social Hygiene Council.——Dr. L. Ombrédanne, Paris, and Dr. Camille Laviolette, St. Jean de Dieu Hospital, Montreal, delivered addresses before the convention of French-Speaking Physicians of North America, in Montreal recently.

The Regional Reunion at Nicolet.—The *Union médicale du Canada* gives the details of the recent meeting at Nicolet, continuing the series of regional reunions inaugurated by the Trois-Rivières Medical Society. A large number of physicians from the region and beyond were present, and Dr. J. H. Leduc presided. Prof. A. Rousseau of Laval delivered an address on "Malignant Endocarditis," which, he said, "is often the despair and sometimes the disgrace of the physician." He described ten cases in detail to show the points to guide in the difficult differential diagnosis. "Pure septicemia kills early or soon disappears. . . . The protracted forms of septicemia indicate that there is some focus of infection where the septicemia keeps renewing itself. All the other foci are more readily found than that in the heart. The localization in the endocardium is the most insidious and the hardest to detect." The next regional reunion will probably be held in Portneuf County, in connection with the county medical society.

GENERAL

American Academy of Applied Dental Science.—The fourth annual meeting of the academy will be held, January 8-11, at Miami, Fla., under the presidency of G. D. Laymon, D.D.S. All students in both the medical and the dental profession are invited to take the course in orology.

American Veterinary Association.—At the fifty-fifth annual session of the American Veterinary Medical Association in St. Louis, W. H. Welch, Lexington, Ill., was elected president. Governor Hyde of Missouri gave the address of welcome at the opening meeting of the convention, August 28. Dr. Veranus A. Moore, Ithaca, N. Y., was among the visiting physicians who spoke at the meeting.

American Chemical Society. — The American Chemical Society, through its committee on national policy, expresses its appreciation of the cooperation of the American Medical Association in its work on behalf of chemistry in the United States, and commends the American Medical Association for its efforts to insure that whisky furnished for medicinal purposes on prescription shall be of high standard.

National Safety Council.—At the eleventh annual congress of the National Safety Council held at Detroit, a letter was received from the President endorsing the work. The president of the council announced that a large sum of money had been made available by a group of insurance companies, to aid the council in its campaign against automobile accidents. One sixth of all deaths from accidents in 1921 were due to automobiles, and 1,702 persons were killed at railroad crossings, of whom 1,276 were occupants of automobiles.

Medical Examination of Postal Employees.—It has been announced by the Postoffice Department, Washington, D. C., that the employees of the postal department in fifty-seven of the largest cities throughout the United States will be given free medical examinations whenever required. This plan has been authorized by the Treasury Department and will be conducted by members of the U. S. Public Health Service in the cities designated by the postal officials. This project, it is stated, marks the beginning of a movement to provide free medical examinations for all postal employees.

American Psychological Association.—At the meeting of the association in 1921, there was constituted a section of consulting psychologists, to represent persons able to carry on the applications of psychology at a recognized scientific level. This section was restricted to members of the section of clinical psychology until recently, when it was announced that applications for membership to the section of consulting psychologists would be accepted from all members of the American Psychological Association. Communications should be addressed to Dr. F. L. Wells, 74 Fenwood Road, Boston.

National Cancer Week. — The director of the American Society for the Control of Cancer has submitted his initial reports to the society's headquarters in New York. National Cancer Week will be conducted by the society, November 12-18, during which facts concerning cancer will be broadcasted so that the general public may recognize the symptoms in the early stages of the disease. Literature, lectures, newspaper and magazine publicity will be used to tell the public how to recognize this dread disease. Last year, as a result of National Cancer Week, more than 10,000,000 persons were reached with cancer facts.

Regulation on the Use of White Lead.—The government of Tunis has recently informed the International Labor Office (League of Nations) of a recent decree regulating the use of white lead. This decree prohibits, after one year from the date of promulgation, the use of white lead, of plumbiferous oils and of all specialized products containing white lead, in both the internal and the external painting of buildings. White lead may not be used in other operations except in the form of paste. Hand work is forbidden as well as dry scraping and dry rubbing down, and in all painting operations in which white lead is used, the workers must be provided with clean overalls. Violations of this order will be subject to penalties.

Meeting on Child Hygiene.—Child hygiene workers from all parts of the United States will gather in convention in Washington, D. C., October 12, for the twelfth annual meeting of the American Child Hygiene Association, of which Herbert Hoover, Secretary of Commerce, is president. The convention will last three days, and among those who will speak are Mr. Hoover, Sir Auckland Geddes, Dr. L. Emmett Holt, and Miss Elizabeth Fox of the Red Cross. The convention will be given over to subjects relating to child hygiene in its various phases, including the training of nutrition workers, the preschool child and nursing, social and maternity work.

Physicians in Rural Districts.—A survey was recently made by the professor of rural problems at the Ohio State University regarding the country doctor. It is stated that in the remote country districts there are plenty of country doctors to take care of patients, but that, in the regions near a larger city, the physician often forsakes his rural practice for the broader opportunities of the city. It was also stated that the average country doctor practicing in Ohio today has to care for about twice as many patients as does his city colleague. In the fifteen Ohio counties that have the largest urban population, every rural doctor now has to take care of an average of 1,512 persons. In the fifteen counties of the state which are most thoroughly rural, there is one physician for every 887 persons.

U. S. Bureau of Mines.—A report outlining the history and development of the bureau, its legal authority, organization, personnel, appropriations and cooperation with other agencies, has recently been issued by the U. S. Bureau of Mines. The report is the ninth in a series concerning those activities of the U. S. government which deal directly or indirectly with public health. Previous reports of the council include reports of the division of vital statistics of the bureau of the census; the children's bureau of the department of labor; the women's bureau of the department of labor; the government health activities (with a chart); the division of school hygiene of the bureau of education; the health section of the bureau of Indian affairs of the department of the interior; the division of welfare of the postoffice department, and the bureau of animal industry. It is planned to combine all of these reports in a single printed pamphlet, to be issued in the near future.

Personal.—Surgeon Margaret R. E. Stewart, U. S. Public Health Service, has been directed to proceed to Oteen and Biltmore, N. C., and Greenville, S. C., to study facilities for the care and treatment of tuberculous patients in the U. S. Veterans' hospitals at those places.——At the annual meeting of the National Medical Association, Dr. John P. Turner, Philadelphia, former president of the association, was elected chairman of the Colored Medical Inspectors of Schools of the United States.——Major Garfield L. McKinney, M. C., U. S. Army, sailed for America, August 26, on the U. S. liner *Susquehanna,* from Bremen.——Dr. George W. McCoy, U. S. Public Health Service, will sail shortly for Europe, where he will visit the various cities to obtain information in regard to the regulation and manufacture of viruses, serums, toxins and analogous products in the interstate traffic.——Dr. Henry Adsit, Buffalo, has been appointed chairman of the national hospitalization committee of the disabled American veterans of the World War, and will represent the disabled ex-service men on the federal hospitalizations committee, in charge of Brig.-Gen. Charles Sawyer.——Dr. R. J. Reece and Dr. Philip G. Stock of the ministry of health, London, arrived in New York, September 1, on the *Berengaria.* They will study the American methods of handling epidemics.——After three and a half years' research work in pathology at the University of Oxford, for the British Medical Research Council, Dr. H. F. Pierce has become associate in physiology in the medical department of Columbia University, New York.——Dr. Roy Upham, Brooklyn, Dr. Walter E. Welz, Detroit, and Dr. Alexander DeWitt, Detroit, sailed, September 2, on the *America,* for channel ports and Bremen.

LATIN AMERICA

Elephantiasis in Venezuela.—Elephantiasis, or *infundia,* as it is called in Venezuela, is very prevalent in that country, as shown by Dr. P. D. Rodríguez Rivero, in his illustrated report submitted to the Third Venezuelan Medical Congress. Few of the Venezuelan cases seem to be actually caused by filariae. In one of Rodríguez Rivero's cases, the appearance of the disease apparently was related to bites by a very large ant (bachaco), the bite of which usually causes fever.

Personal.—Prof. Bonorino Udaondo is being congratulated on the new lecture hall which now completes his course on semeiology and his service at the Alvear Hospital, Buenos Aires.——The Dr. E. Wilde prize for 1921 was recently awarded to Dr. R. Rey of Buenos Aires for his thesis, "Prevention of Scoliosis in the School."——Dr. A. Noceti, professor at the University of Buenos Aires, has been granted a year's leave of absence for a trip to Europe.——Dr. Paulo Parreiras Horta is on his way home to Rio de Janeiro after several months abroad.——Dr. Carlos Domínguez of Buenos Aires was the guest of honor at a luncheon recently to celebrate his appointment as chief of the service at the Hospital Rivadavia.

FOREIGN

Roentgenology Compulsory in Roumania.—The *British Medical Journal* states that roentgenology has recently been made a compulsory subject for the medical curriculum in Roumania.

Plague in Palestine.—An outbreak of plague, with fourteen cases and two deaths, was reported from Jerusalem during the week ending July 10. The outbreak occurred in the native quarter of Jaffa.

New Chinese Medical Journal.—The *Caduceus* is the name of a new medical journal recently published in China and edited by C. Y. Ng. It is the official organ of the Hongkong University Medical Society and will be published three times yearly.

New School of Nursing at Lille.—It has been announced that the new hospital nursing school is to be opened at Lille in October. The urgent need of nurses in this industrial area led to the formation of a committee who developed plans for a nursing school and collected the necessary funds. The school is being organized under the name of the Maison Ambroise Paré. Instruction in nursing will be given by nurses from the Florence Nightingale School in Bordeaux.

Russian Surgical Congress.—The fifteenth Russian Surgical Congress will be held, September 25 to October 1, at Petrograd, it has been announced by Prof. J. Grekow, president of the Pirogoff Surgical Society of Petrograd. Accommodation will be provided for foreign visitors to the congress, and steps taken to secure lodgings, food and reduced railway fares. A meeting of welcome will be held, September 24. All communications should be made to the secretary of the surgical society, Dr. (Docent) Melnikoff, Petrograd 33/35, F. Nishegorodskaja.

Chinese Society News.—The Peking Branch of the National Medical Association of China was recently organized in that city with the following officers: president, Dr. S. P. Chen; vice president, Dr. Fong; English secretary, Dr. A. W. Woo; Chinese secretary, Dr. Chi Po, and treasurer, Dr. George Char.——The Scientific Terminology Association held its annual conference, July 4-12, at Kiangsu. Dr. C. V. Yui is chairman of the terminology committee, and has prepared a petition to the ministry of the interior, asking recognition of the new nomenclature passed by the committee. This was one of the resolutions passed at the last medical conference in Shanghai.

Epidemics in Shanghai.—The *National Medical Journal of China* states that, since last fall, Shanghai has been in the grip of an epidemic of communicable diseases, which has caused a marked increase in the death rate of the community. Smallpox in November caused 43 per cent. of the deaths in Shanghai, scarlet fever and measles following closely on the epidemic of smallpox. Both of these diseases have occurred this year in virulent form. The Shanghai Health Department has issued a report warning against measles and other respiratory diseases. During the epidemic, the National Medical Association of China and the Shanghai Medical Society held monthly meetings for discussion of the subject.

Type for the Blind Which Others Can Read.—Our French exchanges mention that the recent annual congress in France for the amelioration of the condition of the blind unanimously voted in favor of the Cantonnet-Nouet system of writing as a means of communication between the blind and the seeing. A resolution was adopted urging that this system be taught in the schools for the blind in addition to the Braille system. Cantonnet gives a fully illustrated description of his method in the *Journal des praticiens* **36**:520, 1922. It is printed like the Braille, with a punch, but the holes are made to correspond to the outlines of the letters, so that the words can be read at a glance. It does not take the place of the Braille, but supplements it for those who do not understand the Braille.

International Vocational Conference.—The *Policlinico* gives the details of the Third International Conference on Tests to Aid in Choice of a Vocation. This conference is to be held at Milan, October 1, and a permanent exposition has been arranged of instruments, films, etc., to aid, it is said, in the application of *psicotecnica all' orientamento professionale.* Five subjects have been appointed for discussion: "Professional Attitudes," "Natural and Acquired Attitudes," "Psychologic Analysis of Work," "Professional Guidance in Choice of a Trade and Taylorism," and "International Standardization of Tests and Individual Card Records." The address of the secretary is Via S. Barnaba 38, Milan, Italy, Segretariato dell III Conferenza Internazionale de Psicotecnica. Dr. J. M. Lahy is secretary of the international committee.

International Research Council.—The annual meeting of the council was held at Brussels, July 25-29, under the presidency of M. E. Picard, secretary of the Académie des sciences, Paris. Twenty countries have now joined the International Council, the following seventeen being represented at the meeting: Belgium, Canada, Denmark, France, Great Britain, Greece, Holland, Italy, Japan, Norway, Poland, Spain, Portugal, Sweden, Switzerland, Czechoslovakia and the United States of America. At a previous meeting of the council, it had been provisionally agreed to unite medical and biologic science. This decision did not find favor, and the intention now is to separate medicine from physiology, zoology and botany. Proposals will be submitted to the countries belonging to the council and the ultimate formation of this union will depend on the number of countries willing to join. M. E. Picard was elected president, and Sir Arthur Schuster, general secretary, of the executive committee appointed by the general assembly.

The French Academy of Medicine and Proposed Resolution on Alcoholism.—Monsieur Bordet recently proposed that the Academy of Medicine should pass a resolution condemning categorically the sale of alcoholics. It is well known that the restrictive measures that have been in force since the armistice were seriously opposed by a certain parliamentary group. The resolution, the importance of which is considerable, was passed unanimously. We quote these lines from the proposed resolution to show that the campaign against alcoholism is in the forefront of public thought and endeavor:

> At the present time, when, under the domination of interests that are quite evidently commercial, a very active campaign is being waged against all forms of legislation looking toward the suppression of alcoholism, the Academy of Medicine regards it as its duty to emphasize anew the necessity of strictly prohibitive measures. Alcohol is a poison. The only thing that, strictly speaking, can be alleged in excuse of its use is that, like other poisons, the smaller the dose the less dangerous it is, and that we can, therefore, without our health suffering gravely, tolerate a very moderate consumption of beer and wine; that is, diluted alcohol. If the time is not opportune to prohibit the use of beer and wine (which has never been planned as yet), provided these beverages do not contain a higher percentage of alcohol than the law might reasonably establish, at least distilled alcohol should be absolutely prohibited, since it is a veritable social scourge and a formidable factor in physical and moral decadence, as well as in poverty and crime. The relationships between alcoholism, on the one hand, and mental troubles and criminality on the other, are too well attested by demonstrations that we see all about us and by indisputable statistics to require further argumentation. The academy holds that existing legislation should be modified by suppressing the unfortunate provision which takes all the force out of the law; namely, the clause that authorizes the sale of distilled beverages in quantities of two liters as a minimum. The prohibition of distilled alcohol should be absolute and complete.

Personal.—Dr. Ruth E. Conway, Manchester, England, was recently awarded the Ashby memorial research scholarship in diseases of children of the University of Manchester. Dr. Conway will undertake an investigation of the reaction of the blood and its relation to the bicarbonate content in cases of clinical acidosis, in relation to (1) anesthesia and (2) diabetes in children.——Dr. Claude M. Lee of St. Andrew's Hospital, Wusih, recently arrived in America, on leave. Dr. Mervyn Cooper of the American Church Mission, Shanghai, will have charge of the work during Dr. Lee's absence.——Sir Humphry Rolleston has been elected president of the Roentgen Society of London.——Dr. Michael C. Grabham, Madeira, has gone to Porto Santo, the northern island of the Madeira group, to study the conditions under which the local race of Portuguese inhabitants are said to be completely immune from dental caries. The inhabitants possess huge, ugly, yellow, but sound teeth. Dr. Grabham will take specimens to London.——Prof. G. Faraci of Palermo was assaulted by bandits in front of his home but escaped without serious injury.——A committee has been formed to collect subscriptions for a fund which will enable Prof. Pio Foa to continue his scientific research when he reaches the age limit for his university position next year. The secretary of the committee is Prof. C. Gamna, via Pietro Giuria 15, Turin.——Prof. Pio Colombini has presented the University of Modena with important works on dermatology and syphilology, including the works of Morgagni in a rare and magnificent antiquarian edition.——The *Klinische Wochenschrift* states that Professor Lichtwitz, the physician in charge of the city hospital at Altona, is appealing to physicians who have gout to send him a report on their condition. He is preparing the chapter on gout for a new edition of a standard textbook. His address is Städt. Krankenhaus, Altona (E.), Germany.——It is announced that the director of the physiology institute at Berne, Professor Asher, is to be an interchange lecturer in the United States this year.——Prof. A. Depage has been awarded the five-year prize in the medical sciences offered by the Belgian Académie de médecine.

Deaths in Other Countries

Surg.-Com. **James G. Wallis,** Royal Navy, who received the prize for tropical diseases at Haslar, died recently at Plymouth, England.——Dr. **Marriot L. Rowan,** superintendent of Derby County Asylum, England, aged 51.——Lieut.-Col. **James Young,** Bengal Medical Service; veteran of four wars; in England, July 13, aged 76.——Dr. **Arthur M. Sheild,** dermatologist and consulting surgeon to several London hospitals; author of "Diseases of the Breast"; August 4, aged 64.——Dr. **E. H. E. Stack,** ophthalmic surgeon; recently, aged 55, at Bristol, England.——Dr. **Andrew M. Neethling,** veteran of the South African and World War; member of the first Union Parliament of South Africa; July 6, at Pretoria, aged 67.——Dr. **Rintaro Mori,** president of the Imperial Museum of Japan, surgeon and author; in Tokio, following a long illness.——Dr. **Juan Santos Fernández.** No mail has been received this week from Cuba, but our Argentine exchanges mention the death of the internationally known ophthalmologist and hygienist of Cuba, Dr. Juan Santos Fernández, aged 75. He founded the monthly *Crónica Médico-Quirúrgica* and was co-founder of two other journals. He founded further various scientific institutes and laboratories and is said to have been the pioneer in introducing Pasteur treatment for rabies into America. He was a frequent contributor to medical and other periodicals and to international medical gatherings, and an honorary member of various ophthalmologic and other societies. The list of his publications counts up to over a thousand. His seventieth birthday was celebrated at Havana in 1917 with great ceremony, and a gold medal was presented to him with tributes from far and near.——Dr. **G. Udaondo,** of Buenos Aires, at one time professor of pathology and later governor of the province of Buenos Aires.——Dr. **Juan Guglielmetti** of La Plata, a leader in experimental medicine and instructor in physiology at the University of Buenos Aires, and professor at La Plata, author of important reports on the action of emetin, curare, epinephrin, quinidin and snake poison, aged 33.——Dr. **Ramón Gil Barros,** professor of histology and gynecology at the University of Córdoba, of which he was dean for several terms, besides serving three terms as mayor.——Dr. **E. Cucchiari** of Milan, victim of a motorcycle accident, aged 24.——Dr. **T. Panzer** of Vienna, author of numerous works on medical chemistry.——Dr. **Alvaro de Barros,** professor of nervous and mental diseases of the Bello Horizonte faculty of medicine.——Dr. **Durval Fernandes de Castro.** The *Brazil-Medico* mentions the death at Nictheroy from epidemic encephalitis of this officer of the public health service, inspector general for the state of Rio de Janeiro.——Dr. **H. Rorschach,** a prominent psychiatrist of Zurich, author of the Rorschach experiment in diagnosis of mental disease. The *Schweizerische medizinische Wochenschrift* in the obituary, July 20, describes this new diagnostic test.

CORRECTION

Film Treatment of Burns.—In the summary on page 858 of de Moraes' favorable report on film treatment of burns, the formula advocated should read: "Equal parts of paraffin and petrolatum, with a melting point of 40 C., and perfumed."

Government Services

Surgeon-General Ireland Reappointed

Announcement is made that Major-General Merritte W. Ireland has been reappointed Surgeon-General of the Medical Corps of the U. S. Army.

Hospital for Veterans in Virginia

Director Forbes has announced that a new $1,500,000 hospital for disabled veterans will be erected at either Goshen, Va., or Penn Springs, W. Va. The new institution will care for disabled ex-service men of the Veterans' Bureau district comprising Maryland, Virginia, West Virginia and the District of Columbia.

Major Fraser Resigns

Major Leon Fraser, Ph.D., assistant director, U. S. Veterans' Bureau, now in Europe, has resigned. Major Fraser sailed from New York, June 24, to make a survey of Veterans' Bureau beneficiaries in Europe and to make arrangements with the American consular officers relative to the care and treatment of disabled American ex-service men on the continent. The French government recently decorated Major Fraser with the Order of the Silver Poilus, and he was also made an Officier d'Académie.

Retirement of Medical Officers

It is stated at the office of Surgeon-General Ireland that the recent legislation passed by Congress for the benefit of Army officers about to be retired does not apply in any respect to officers of the medical department of the Army. It is estimated that, under the Army reduction program, 144 medical officers will be reduced or retired. Many must go out of the service with a year's pay or go on the retired list with inadequate compensation. The recent remedial legislation applies only to line officers of the Army. It is helpful to such line officers only to the extent that it materially reduces the number that will have to be eliminated by retirement or discharge by a total of 500. Unless there is further legislation, which is already in contemplation, it is generally recognized that the elimination program is certain to work unwarranted hardships and eliminate medical officers and others who, by reason of long and faithful service and efficiency, should be retained in the service.

New Units in Reserve Corps

The Surgeon-General of the Army announces the establishment, as a new unit in the organized reserves, General Medical Laboratory No. 1 (Slee Laboratories, Swiftwater, Pa.). The following appointments are also announced: Col. Richard Slee, Swiftwater, Pa., commanding officer, General Laboratory No. 1; Major Carl Boettiger, Forest Hills, L. I., epidemiologist, First Army Medical Headquarters; Major Graeme Monroe Hammond, New York, neuropsychiatric consultant, First Army Medical Headquarters; Major W. J. Highman, New York, urologic consultant, First Army Medical Headquarters; Col. F. H. Albee, New York, orthopedic consultant, First Army Medical Headquarters; Col. Hans Zinsser, New York, sanitary inspector, First Army Medical Headquarters; Col. H. F. Swift, New York, medical consultant, First Army Medical Headquarters; Col. W. H. Davies, Jamaica, L. I., assistant sanitary inspector, First Army Medical Headquarters; Col. H. H. M. Lyle, New York, surgical consultant, First Army Medical Headquarters, and Capt. O. R. Sevin, St. Louis, chief of surgical service, General Hospital No. 21.

Memorial Tablet for War Dead

In the new Army Medical School Building, which is now in course of construction at Walter Reed General Hospital, Washington, D. C., a large bronze memorial tablet will be erected. Necessary funds for this purpose will be received by voluntary contribution, each contribution being limited to

$1 and the list of contributors restricted to those who saw service as officers, nurses or enlisted men of the medical department during the World War. Each subscriber to this memorial will receive an official acknowledgement and receipt.

The placing of this tablet in this great building, which is located in a medical center, cannot fail to prove of vital interest to thousands of physicians, dentists, veterinarians, nurses and enlisted men who took part in the recent world conflict, and the fact that the cost of the tablet is to be borne exclusively by those who engaged in medical department activities, and the further fact that it is in memory of those who fell while so engaged, will possibly incite the feeling that a contribution of $1 toward this beautiful memorial is more of a privilege than duty.

The tablet reads:

In Memory
of the
Officers, Nurses
and Enlisted Men
of the
Medical Department
United States Army
Who Lost Their Lives
During the
World War
This Tablet is Erected
by Their Coworkers of
the Medical Department

Former medical department workers are invited to subscribe an amount not to exceed $1 for its purchase and installation. Fellow workers who desire to contribute $1 toward this memorial are invited to forward this amount to Lieut.-Col. Paul C. Hutton, M. C., Office of the Surgeon-General, Washington, D. C.

Foreign Letters

PARIS

(From Our Special Correspondent)

Aug. 25, 1922.

Vaccine Therapy in Otorhinolaryngology

Among the subjects discussed at the congress of the French Society of Otorhinolaryngology, which was held recently in Paris, vaccine therapy was one of the most interesting. The report was made by Drs. L. Baldenweck of Paris, M. Jacod of Lyons, and Moulonguet of Paris.

They stated that the best results are obtained in furunculosis of the nose and ear, and, in fact, in furunculosis in general. Vaccine therapy in such cases is curative when furuncles are in evolution, and preventive by hindering the growth of new lesions. To obtain this result, when treating recurring or multiple furuncles, it is necessary, after incision of suppurating points, to inject immediately staphylococcic stock vaccine in high doses, frequently repeated, and then to use an autovaccine to check the affection and to obtain prolonged immunization. In hay-fever, the authors did not touch upon pollen desensitization, the subject being outside the limits of their report. Bacterial vaccines should be employed only in the infectious complications of hay-fever, either at the onset of an intense attack or during the course of the affection to quiet down general symptoms. They do not advise their use as a curative treatment, as pollen desensitization is the treatment of choice, and of course they should not be used as preventive treatment. In ozena, atrophic rhinitis, they recommended the use of an autovaccine made from cultures in both aerobic and anaerobic mediums, and they report in cases treated with this method 20 per cent. failures, 45 per cent. improvement, and 35 per cent. cures; in other words, 80 per cent. favorable results in cases in which all other treatments had failed.

In recurring coryza, they based their report especially on American observations, and it shows that results are variable. However, vaccine therapy during the course of acute coryza should be cautious. In chronic mucopurulent rhinopharyngitis without sinusitis, results are more encouraging, especially when the staphylococcus is to blame, whether alone or associated. In this case autovaccines are best. Vaccine therapy is not indicated in frank acute sinusitis. It is better indicated in dragging acute sinusitis to activate the tardy recovery. In chronic sinusitis, results may be expected only when the affection is of recent date and when the lesions are localized in the mucous membrane, and provided there is no acute purulent retention. In acute otitis media suppurativa, not taking into account the abortive method by intravenous injections, which is still in course of study, results are not encouraging. We must be very cautious in the first phases of acute otitis, as vaccine therapy seems to increase the chances for complications without influencing the duration of cases without complications. Thus, vaccine therapy may be dangerous, they reiterate, in these particular conditions.

In chronic otitis media suppurativa accompanied by osteitis, granulations or cholesteatoma, vaccines were a complete failure. On the other hand, 63 per cent. of cures were realized with autogenous vaccines in tubal otorrhea. As regards mastoiditis, they believe that vaccine therapy must give the precedence to surgery, and that operative indication should not be modified. The same is true in intracranial and general complications of otitis. In such cases it is difficult to appreciate the influence of vaccination on very grave manifestations with irregular clinical evolution.

Dr. Portman of Bordeaux stated also that vaccine therapy should never delay surgical intervention. As regards furunculosis, stock vaccine and Delbet's bouillon should be given a prominent part in its treatment. The reactions may be violent, but they are harmless, provided vaccines are used with patients who are not cachectic and not suffering from serious septicemia, and the heart and kidneys are in perfect condition. On the other hand, Dr. Brindel of Bordeaux is not in favor of vaccine therapy in ear affections, except for furunculosis of the external auditory canal. Drs. Worms and Delater of Paris, impressed with the importance of the streptococcus in the infections of mucous membranes connected with the rhinopharynx, tried an antistreptococcus vaccine. Results were variable in simple or complicated acute sinusitis, chronic sinusitis, and acute otitis media and their complications; consequently they insist on the importance of surgical treatment.

Visits of Spanish Physicians to French Universities

I mentioned in a previous letter the visits made by a group of French physicians to various Spanish universities (The Journal, April 1, 1922, p. 985). In turn, several Spanish physicians will visit French universities. The first trip will be organized by the director of the *España Médica,* and the Spanish physicians will visit Paris and probably Lyons. A second tour will take place under the direction of Professor Recasens, dean of the Faculty of Medicine of Madrid. Professors Marañon, Tapia and Pittaluga will be included in the party. They will visit Bordeaux, Paris, Strasbourg, Lyons and Montpellier.

The Diploma of Veterinary Physician

There are in France three veterinary schools, situated in Alfort (near Paris), in Lyons and in Toulouse. The course of study in these various schools is of four years' duration. They are under the direction of professors, of whom some have attained scientific eminence. We could name among those who have passed away Nocard of the Alfort school, well known for his works on tuberculosis; Arloing at Lyons, and many others. Unfortunately, up to the present time, these schools awarded only a diploma of "veterinary," without the degree of doctor, and this was an obstacle to the recruiting of students. To remedy such conditions a bill has been introduced for the creation of the degree of veterinary doctor. Certain rules will determine the guarantees required for the conferring of the diploma and conditions under which it will be awarded to those who have already a veterinary's diploma. The bill provides a fine of from 500 to 10,000 francs for those who assume illegally the title of veterinary doctor or who, without being a doctor of medicine, do not mention the title of veterinary after that of doctor. In this way all confusion will be avoided.

The Examination for Hospital Interns

The recent examination for admission as intern in the Paris hospitals has been the subject of lively discussions. For the first time the new selective system was in operation from which is published a list of candidates for final tests. This selective system requires the written examinations to be handed to the jury anonymously. This system has been introduced to prevent favoritism, and when the list of candidates admitted to the final examination was read before the judges they were surprised to learn that the names of certain candidates known by them as capable of passing the examination were not included. Protests were made against the anonymous system of examinations, but an inquiry among hospital physicians and surgeons revealed that most of them were in favor of this method.

Appeal to Scientists for the Reduction of Chemical Warfare

The commission for the reduction of armaments sent to the commission of intellectual cooperation a request concerning the cooperation of the scientists of the world for the publication of discoveries pertaining to toxic gases and the development of chemical warfare. The commission of intellectual cooperation decided that an appeal to scientists requiring them to publish discoveries concerning toxic gases would be useless, for it would not be heeded, and no means could be devised to make it effectual.

Monument to Monprofit

A monument is to be erected in honor of the surgeon, A. Monprofit, professor of the Angers faculty of medicine, who died several months ago.

Relief for Russian Children

Monsieur Gilson, lecturer at the Sorbonne and director of studies at the Ecole des hautes études religieuses, left recently to inspect the French relief stations organized in the region of the Volga by the French relief committee for children, and to visit places at present preyed upon by famine, particularly in Ukraine, and study conditions under which new relief stations could be opened. The soviet government gave the necessary authorization to facilitate the accomplishment of his mission.

French Scientific Delegation to Brazil

The French delegation sent to Rio de Janeiro for the celebration of the centenary of Brazilian independence comprises, among others, Dr. Pierre Janet, professor of the Collège de France; Dr. Georges Dumas, professor of experimental psychology at the Sorbonne, and Dr. Chiray, associate professor of the Paris faculty of medicine.

Another Victim of the Roentgen Rays

Dr. J. Bergonié, professor of clinical medical electricity and biologic physics of the faculty of medicine of Bordeaux, has had to have his right arm amputated. Several years ago two fingers of his right hand were removed on account of radiodermatitis of the hands.

The Library of Professor Lacassagne

Dr. Lacassagne, who was formerly professor of medical jurisprudence (Faculté de médecine, Lyons), has bequeathed to the city of Lyons his library, containing more than 12,000 volumes, which is especially rich in criminal anthropology, the argot of thieves, tattooing, peculiar customs of prisoners, etc.

LONDON

(From Our Regular Correspondent)

Aug. 21, 1922.

Report of the War Office Committee on Shell Shock

In August, 1920, the army council appointed a committee to consider the different types of hysteria and traumatic neurosis commonly called shell shock; to collate the expert knowledge derived by the service medical authorities and the medical profession from the experience of the war, with a view to recording for future use the ascertained facts as to the origin, nature and remedial treatment of shell shock, and to advise whether by military training or education, some scientific method of guarding against its occurrence can be devised. The committee consisted largely of military and naval medical officers who themselves had considerable experience with shell shock in the war, and included neurologists, such as Mott and Turner. They held forty-one sittings and heard evidence from a number of distinguished men, representing opinions on the military, medical and legal aspects of the subject. They also received the evidence of officers and men who had suffered from shell shock. They have made a lengthy and exhaustive report, which must long remain the most authoritative work on the subject.

At the outset, they decided to treat shell shock under the heads: 1. (*a*) Commotional disturbance and (*b*) emotional disturbance. 2. Mental disorders. They found that the term shell shock has been a gross and costly misnomer and should be eliminated from the nomenclature. The war produced no new nervous disorders, but, owing to special conditions, these disorders appeared in some cases in an aggravated form. They are divisible into three main classes: 1. Genuine concussion without visible wound as a result of shell explosion. Such cases were relatively few. 2. Emotional shock, either acute in men with a neuropathic disposition, or developing slowly as a result of prolonged strain and terrifying experience, the final breakdown being sometimes brought about by some relatively trivial cause. 3. Nervous and mental exhaustion, the result of prolonged strain and hardship. In many cases the three factors of commotional and emotional shock and exhaustion were combined.

CAUSATION OF SHELL SHOCK

Any type of person may suffer from one or another form of neurosis if exposed for sufficient time to the conditions of modern warfare. It is extremely difficult to say beforehand what type of man is most likely to break down. But there are certain persons who are unlikely ever to become efficient fighting men. Much can be done through training. The more gradual the training, the better the staying power. In prevention, the inculcation of morale and discipline stands first. Included under morale are pride of regiment, belief in the cause, confidence between officers and men, and the feeling that a man is part of a corporate whole. Physical comfort, so far as circumstances allow, adequate rest and recreation are important adjuncts. But no human being, however constituted or trained, can resist the direct effect of the bursting of high explosive shells. A large proportion of soldiers who were blown up or came into the class of commotional shock showed exactly the same symptoms as those suffering from the emotional form. There was no evidence of organic injury of the nervous system, and the same causes that are at the root of the emotional form were found. There was, for instance, a family history of tuberculosis or of nervous disease, or a personal history of previous shell shock or of neurosis.

EMOTIONAL SHELL SHOCK

Emotional shell shock is a term used to imply that the exciting cause is emotional. Though common on the battlefield, it may be acquired elsewhere. It was common on home service and, in its hysterical form especially, often developed after weeks of absence from the scenes of fighting. It formed about 80 per cent. of all cases, and was brought about by a variety and combination of causes. There was first some kind of mental or physical exhaustion of a cumulative nature; then some emotional disturbance acted as an exciting cause. The conditions determining exhaustion included noise, loss of sleep, fatigue, discomfort, insufficient food, immoderate use of alcohol, infectious diseases, the pain of wounds and sores, and poison gases. All soldiers have fear, but this state is generally controlled. In the large majority of cases of emotional shell shock, there was in the family or personal history evidence of weakness or instability of the nervous system.

COMMOTIONAL SHELL SHOCK

The bursting of a shell may cause commotion of the nervous system by direct aerial percussion and repercussion in closed spaces. Most of the witnesses stated that they had seen men lying dead from a shell explosion without any visible injury, but few of them could give evidence proving that death had been caused by aerial percussion. In such cases, postmortem examination of the brain detected no changes visible to the naked eye, but microscopic examination revealed ruptures of small vessels, with hemorrhage. This may be correlated with the finding of blood in the cerebrospinal fluid in some cases, on lumbar puncture. Similar punctiform hemorrhages have been found in carbon monoxid poisoning in civil life, and this cause may have been in play in the war cases, men rendered unconscious by the explosion being buried or blown into a sap where this gas was present. The immediate effect of commotional shock is loss of consciousness, which may last from a few minutes to several days. There is complete loss of memory of the accident and of the period immediately before and after it. Evidences of physical injury, such as rupture of the tympanum, epistaxis and signs of organic injury of the central nervous system, are often found. As consciousness is regained, various symptoms may be present—headache, pain and stiffness of the neck, vertigo, drowsiness. In the early stages, the reflexes are usually depressed, but they later become brisk or even exaggerated, and there may be fine tremors of the limbs. The most important symptom in the distinction from the more common neuroses of emotional origin is the absence of emotional instability.

With regard to the question whether shell shock should rank as a battle casualty, the committee make the following recommendations: 1. Concussion or commotion attended by loss of consciousness and evidence of organic lesion of the central nervous system or its adjacent organs (such as the tympanum) should be classified as a battle casualty. 2. No case of psychoneurosis or mental breakdown, even when attributable to a shell explosion, should be classified as a battle casualty, any more than sickness or disease is so regarded. 3. In all doubtful cases, it is desirable to have the classification determined by a board of expert medical officers, after observation of the patient in a neurologic hospital.

COWARDICE AND SHELL SHOCK

As to the distinction between cowardice and shell shock, the committee contents itself largely with quoting evidence. The question is of great importance, as cowardice is a military crime for which the death penalty may be exacted. The committee describes cowardice as lack of, or failure to show, requisite courage; but the brave, after much stress, may temporarily fail to show their wonted courage without deserving the opprobrious term. Fear is the chief factor in both cowardice and emotional shell shock; it is an emotion common to all, and very brave men, who gave evidence, frankly acknowledged it. It is obvious that fear alone does not constitute cowardice. Prof. G. Roussy of the French army, who gave evidence, noted the difficulty of distinguishing between cowardice and emotional shell shock. He defined cowardice as lack of self-control in the presence of danger; but Dr. E. Mapother, medical superintendent of the Maudsley Neurological Hospital, was "not prepared to make a decision between cowardice and shell shock." Shell shock he regarded as "persistent and chronic fear." Dr. W. Johnson, a neurologist, thought that when symptoms of fear—tremors, sweating and tachycardia—persisted or revived on slight emotional stimulation, a psychoneurosis was present.

COURT MARTIAL CASES

As regards expert medical advice and evidence in court martial cases, the system pursued in France in the late war seems to have been satisfactory. When any medical question or doubt arose before or at a trial, or on subsequent review of the proceedings, the best possible expert advice available was placed at the disposal of the authorities. The committee conclude that: (1) The military aspect of cowardice is justified; (2) seeming cowardice may be beyond the individual's control; (3) experience and specialized medical opinion are required to decide in possible cases of war neuroses of doubtful character; (4) a man who has proved his courage should receive special consideration in case of subsequent lapse.

Does the Unconscious Exist?

The unconscious mind figures largely in the flood of books and articles on psychotherapy marking the last few years, and the apparent contradiction of terms which the expression involves has proved a stumbling block to some students of the subject. In Manchester, a congress of philosophers and psychologists has recently been held, at which a discussion took place on the topic "Does the Unconscious Exist?" As many of the speakers were eminent men unconnected with the medical profession and therefore, with a purely philosophic standpoint, a new light was shed on this difficult question. Mr. G. C. Field, in opening the discussion, denied all value of the conception of the unconscious, first, on the negative grounds that it was neither necessary nor useful, and that its functions could equally well be fulfilled by speaking of physical processes; secondly, on the positive grounds that its use led to sham explanations and confused things which should be kept distinct, such as "the storehouse of memories" and "mental dispositions." Dr. Aveling, on the other side, maintained that psychology as a science must not appeal to causes beyond its own realm, such as physical processes. We are aware of no processes save mental ones and, therefore, the "beyond" must be of a similar character, even if it is paradoxical to speak of "conscious unconsciousness." The alternative explanations by traces in the brain or by "tendencies" were much less adequate than the unconscious. Two medical psychologists, Dr. Mitchell and Dr. William Brown, insisted that experience in nervous cases forced on them, as on Dr. Morton Prince, the hypothesis of the "unconscious." Only the philosophers could afford to be lighthearted about it. The hypothesis, obscure as it might be, worked better than any alternative, and that was why they used it. The librarian of Harvard University, after a warm tribute to English psychologists, ranged himself on the side of those who wished to banish the unconscious into the limbo of false science. Dr. Aveling, in reply, admitted that the term unconscious was inappropriate, but held the field. He could not appeal to physical processes, because whatever other sciences were interpenetrable, he could not believe that physics and psychology were. He drove home the point, raised by Dr. Mitchell: the undeniable activity of the unconscious. Sir Leslie Mackenzie pointed out that Freud used psychologic terms only because physiologic proved inadequate.

Fatal Botulism Due to Potted Meat

The death of eight persons after eating sandwiches made from potted meat, while on a holiday in the Scottish Highlands, has caused a great sensation and for a time dealt a serious blow to the trade in canned and potted foods. They were staying in a hotel at Loch Maree, Gairloch, and had started on a fishing expedition. The sandwiches, which were made at the hotel, were eaten for lunch, August 14. The earliest symptom, diplopia, was observed in one of the victims before breakfast on the 15th. The seven others began to suffer in the course of the day, and two, both women, died on that day. The remaining six were men, of whom two died on the 16th, two on the 17th, and two on the 21st. Thus, notwithstanding prompt and skilled medical aid, every case proved fatal. In addition to diplopia, which in all cases seems to have been the first symptom, there were ptosis, dizziness, paralysis and a feeling of constriction of the throat, vomiting and collapse. The meat is said to have been supplied by a large firm of manufacturers. As soon as the outbreak was reported, the Scottish board of health despatched medical officers to the spot. Laboratory investigations are proceeding, but a preliminary announcement has been made that *Bacillus botulinus* is undoubtedly responsible.

In order to insure that materials from such outbreaks shall be fully investigated, the Medical Research Council has specialists available. It has arranged with the laboratory of Bristol University for investigations there by an expert whom it has appointed. Some time ago, the council established a canned foods committee. Antitoxins, both for diagnostic and therapeutic purposes, have been prepared, but, as in the case of tetanus, these are of little use after the symptoms of botulism are well established.

VIENNA

(From Our Regular Correspondent)

Aug. 21, 1922.

Observations on Monkeys in the Zoological Gardens of Vienna

Mr. Widholz, who for many years has been one of the chief managers of the Vienna zoo, recently published a short paper on his experiences in the acclimatization of wild animals, chiefly from the tropical zone. It had been known for a long time that monkeys especially and their near relatives were unable to live many years in captivity, as they usually fall a victim to tuberculosis. It was believed that this was due to the cooler climate, and therefore they were kept in well heated, stuffy cages and wards. It occurred to Mr. Widholz that monkeys kept in private families scarcely ever suffered from tuberculosis. A large number of postmortems on apes, conducted in the Vienna anatomic institute under Professor Tandler, demonstrated that privately kept monkeys as a rule died from diseases of the digestive organs. Among animals in the zoos, on the contrary, tuberculosis was the prevalent cause of death.

Mr. Widholz emphasizes the fact that since it has become a routine measure with him to provide the monkeys with an abundance of fresh air by allowing them to ramble freely in a garden and keeping them outdoors, their health is satisfactory. The chief problem now is the matter of nourishment. All wild animals kept in captivity suffer from want of certain substances which are necessary for maintaining good health. It is not only the adequate caloric supply and ingestion of albumins and mineral salts that must be thought of, but also certain vitamins which are derived from the food obtained by the animals in their natural state. Thus, for instance, certain mandrils did not thrive on leaves and grass, but they improved at once when grasshoppers and other locusts which had been feeding on grass were added to their menu. Furthermore, rapid change of temperature is not at all harmful to apes. In their native state, they often experience very cool nights, and days of stifling heat. Therefore, one need not be afraid of their catching cold easily. As in human beings, the open-air factor is of chief importance; in prisons or slums, man is just as prone to contract tuberculosis as is the ape in a cage without proper air supply.

As regards pathology as applied to apes, nervous conditions are noted frequently, often due to disorders of digestion; although, of course, there may be other causes. In case of a marikina (silky Tamarin), true epileptic seizures were noted. The postmortem examination revealed cerebral hemorrhage. Under favorable conditions, monkeys gave birth to healthy babies. The young ones frequently suffered from rickets; and they are cured just as human babies are by cod liver oil, fresh air and sunshine. In fact, the zoo must have a small dispensary containing sodium bicarbonate, pepsin, lime juice and astringent remedies, just as in a nursery for human beings. Other interesting observations were made on wild birds. Numerous species normally showing very bright colors became dull-feathered in spite of care, and although they were otherwise well. The bright hues, if they once disappear, seldom return in captivity. Here, too, it seems that the fault lies with the nourishment, which manifestly lacks some factor necessary for producing the "wild" color. It is known, for instance, that the ordinary canary, which should be greenish, but in captivity is yellow, turns red if fed on red pepper.

Mr. Widholz calls the attention of physiologists and breeders to the necessity of applying the rules of modern scientific observation to wild animals in captivity in our climate.

Coming Scientific Congresses

In September, the convention of the German Botanic Society and that of the German Society for the Study of Heredity will be held in Vienna. The two societies have agreed to unite for the present sessions. A large number of papers will be presented, and representatives from Sweden, Switzerland, the United States, Norway, Italy and Czechoslovakia have already announced their intention to be present. Special attention centers in the procedings of the German Society for the Study of Heredity, as reports on the latest achievements in this line will be made by Goldschmidt (Berlin), on the problem of mutation, Spemann (Freiburg), on the activation of the heredity-mass, and Rüdin (Munich), on the hereditary transmission of mental disturbances. Professor Wettstein will preside over the joint convention.

Bathing Beaches as Source of Infection

With the advent of the swimming season, there has been a recurrence of some untoward conditions complained of last year. Quite a number of persons have sought medical treatment for a sort of conjunctivitis, the characteristic features of which are swelling and hyperemia of the eyelids, with soreness of the conjunctiva and at times of the preauricular glands. Vision is much interfered with for a few days. In some instances, there is also a purulent catarrh of the nasal passages. The infection was traced to two or three of the swimming ponds frequented by working people;

but in the River Danube also, which is a favorite bathing place for the Viennese, infective material was found.

In many pools and ponds the matter of scrubbing the walls and renewing the water is not given proper attention. Although every visitor is expected to make use of the shower bath before entering the water, this prophylactic measure is not strictly adhered to. Closure of the contaminated pond was strongly advised, to prevent the spread of the conjunctivitis. Similar occurrences have been reported from Germany and France during this and the previous swimming season.

Swedish Help Against Tuberculosis in Austria

When, about two years ago, the Swedish society Rädda Barnen (Save the Children) took up its charitable work in this country, the officials were struck by the extent of tuberculous infection among the children and the poor means to fight these conditions. By contributing nearly all the funds required, all classes of the Swedish people took part in the noble enterprise initiated by this society. The result is a large, modern sanatorium, treating all sorts of surgical tuberculosis cases. It can accommodate 450 children, and is prepared to provide treatment for months or years, as necessary. Opportunities for schooling are also provided. The staff consists of two internists and four surgeons, and consultants are called in when necessary. Heliotherapy, with open-air treatment (Rollier's system), is employed widely, and it is the aim of the institute to avoid all procedures likely to result in subsequent crippling. People are encouraged to give their suffering children a chance of recovery, for the institute welcomes the poorest guest.

A booklet published by the institution contains several popular articles by competent specialists emphasizing the fact that permanent cure is a probability if the disease is attacked early enough, and that the sacrifice on the part of the parents in sending their children away for a year or so is a boon to the poor creatures, otherwise sure to become cripples.

The institute is one of the finest and largest of its kind in the whole of Europe.

Regulation of Medical Fees

The constant drop in the value of Austrian money has placed the medical profession, among other classes, in a very serious position. While all wage earners, laborers, state officials, in short, the recipients of periodic payments, have received increases in their incomes offsetting the depreciation, physicians are not able to command fees raised in proportion to the rise in the cost of living. Especially handicapped are those who are accustomed to send out yearly or half-yearly bills; for when they finally get the money, it has only a fraction of the buying value it had at the time when they rendered their services; and there has been no legal possibility of charging increased fees equivalent to the value of the money at the time of payment.

Therefore, the medical councils had to settle this problem, and a system has been adopted whereby patients are charged fees differing according to the country they come from. Foreigners are expected to pay fees equal to or nearly as high as they have to pay in their own country. For Austrians, a certain index is being fixed every month, showing how many times the prewar fee, paid in full-valued money, is to be multiplied when charging the present fee. As a rule, the index was and is much below the average proportion of the rise in the cost of living. When this system was first put in force, the index was fixed at eighty, i. e., a physician who in prewar times charged 5 kronen for a consultation at his office was expected or rather advised to charge 400 kronen for the same service; but at that time the dollar was worth more than 1,600 kronen here. It is true that the index was meant to serve as a minimum below which no physician was expected to go in his charges.

Since that time, the medical organization has undertaken the task of publishing monthly the index figure, bringing it to the knowledge of both the profession and the public. This index has been constantly going up; it went at first to 100, 150, 200; later on, it went to 500, 800, 1,200; and for the month of August 2,000 has been fixed. This means that a man who in peace time charged 5 kronen should charge now at least 10,000. But what in peace was equivalent to one dollar is now only a fraction of it; for the depreciation of money is so great that a dollar is here worth 70,000 kronen, and it is impossible for an Austrian patient to pay the equivalent of the present value of an American dollar as a regular fee.

Specialists are expected to charge double this amount, or 20,000 kronen, as their fees were in peace about 10 kronen ($2), and operations now cost between 150,000 and 800,000 kronen, equivalent to the present value of from $2 to $11. These figures show the hardships which the medical profession is suffering from as the after-effects of the war. For the physician must pay for his food and clothing and his fuel and general upkeep the full exchange rate, or between 10,000 and 14,000 times the peace price; but he earns only one fifth or one seventh of his peace fees. To make both ends meet, he must work many more hours than before, and thus time which might be devoted to study or research is taken up by sheer "bread work," to the detriment of his scientific advancement.

In order to do away with the system of belated payment of bills, the public is repeatedly informed, through the press, that physicians have decided to send their bills after the final treatment; at the latest, at the end of each calendar quarter. Bills not paid a fortnight after being sent will have to be paid according to the index in force at the time of actual payment. This stand taken by the organization has lately received the approval of law courts, for, in several instances, when physicians refused to accept payment of older bills in the present deteriorated money, and claimed a proportionately higher amount, the question came before the court, which decided in favor of the physician. Gradually, the public is awakening to the conviction that the physician has to be paid for his services, just as well as tradesmen or lawyers or craftsmen, and, as they ask for their own payment, according to the depreciation of the currency.

Marriages

GRANT EBEN WARD, Baltimore, to Miss Lillian Anderson Hersperger of Buckeystown, Md., August 16.

KENNETH VAUGHAN, Yakima, Wash., to Miss Esther Dollenbacher of Yakima, July 26.

DEAN WENTWORTH MYERS to Miss Eleanor Sheldon, both of Ann Arbor, Mich., August 19.

JOSEPH HAUCK, Terre Haute, Ind., to Miss Jessie Leasure of Oakland, Calif., June 26.

REUBEN H. D. BITTER to Miss Marie Klees, both of Oshkosh, Wis., in August.

JOHN W. NUZUM to Miss Mary Louise Smith, both of Chicago, September 2.

BIRD MCPHERSON LINNELL to Miss Julia G. Zenos, both of Chicago, September 9.

JUDGE P. STANLY, New Bern, N. C., to Miss Rosie Annie Farrington, recently.

WILLIAM H. FINNEY to Miss Elsie Luebke, both of Clintonville, Wis., recently.

HELENE DOETSCH to Rudolph Michel, both of Baltimore, August 30.

Deaths

William Stewart Halsted ⊕ professor of surgery at the Johns Hopkins Medical School since 1889, died, September 7, aged 70, following an operation for gallstones performed August 25. Dr. Halsted was born in New York, Sept. 23, 1852. He received his A.B. degree from Yale University in 1874, and his M.D. from the College of Physicians and Surgeons of Columbia University in 1877. Following his graduation in medicine he studied at the Universities of Vienna, Leipzig and Würzburg. In 1881 he was attending physician at the Charity Hospital of New York, from 1885 to 1887 attending surgeon at the Bellevue and Presbyterian hospitals, at the Roosevelt Hospital and the Emigrant Hospital, New York. In 1889 he went to Baltimore to accept the chair in surgery in the Johns Hopkins University. In 1913, when the Johns Hopkins school put the chair on a full-time basis, Dr. Halsted accepted the position, giving up an extensive private practice.

During his career, Dr. Halsted reported many surgical discoveries of importance. In 1884 he first performed refusion of the patient's own blood after defibrination in carbon monoxid poisoning; he ligated the subclavian artery in the first portion with success; he devised the well known supraclavicular operation for cancer of the breast, and, coincident with Bassini, the well known operation for hernia. In experimental surgery he reported methods for suture of the intestines, occlusion of the aorta, transplantations of the parathyroid, experimental surgery of goiter, and many other procedures. He was a conspicuous example of the great surgical teacher. Among others who came under his guidance were Drs. Finney, Bloodgood, Cushing and Heuer. He is credited with the introduction of gutta-percha in 1880; rubber gloves, 1890, and silver foil dressing, 1896. Professor Halsted was a fellow of the American Surgical Association, the American Academy of Arts and Sciences, and the American Society of Pathologists and Bacteriologists. He was also an honorary fellow of the Deutsche Gesellschaft für Chirurgie; of the Association Française de Chirurgie; of the Royal Swedish Academy of Science; of the Societas Medicarum Sveeana, Stockholm, and of many other foreign surgical societies. He was made honorary fellow of the Royal Society of Surgeons of England, in 1900, and received the LL.B. degree from Yale and the D.Sc. from Columbia, in 1904, and the LL.B. from Edinburgh, in 1905.

Dr. Halsted was one of the "old guard" at Johns Hopkins; a man of quiet, modest, unassuming personality; of great surgical ability, and with the intellect which marks the scientific surgeon.

Edward Anthony Spitzka, New York; College of Physicians and Surgeons in the City of New York, 1902; demonstrator of anatomy, 1904-1906, professor of general anatomy, 1906-1914, Jefferson Medical College, Philadelphia; member of the American Association of Anatomists, American Philosophy Society and fellow of the American Association for the Advancement of Science; editor of the eighteenth American Edition of Gray's "Anatomy"; Dr. Spitzka performed necropsy and examined the brain of Czolgosz, the assassin of President McKinley, and had attended many electrocutions, recording detailed observations on electric deaths and anatomic variations of criminals; served as lieutenant-colonel in the M. C., U. S. Army, during the World War; at the time of his death Dr. Spitzka was chief medical referee, rating section of the U. S. Veterans' Bureau; died September 4, aged 46, from cerebral hemorrhage.

Charles W. Lillie ⊕ East St. Louis, Ill.; Beaumont Hospital Medical College, St. Louis, 1888; city and state health officer; formerly professor of chemistry and toxicology at St. Louis College of Physicians and Surgeons, St. Louis; at one time president of the St. Clair County Medical Society; died, August 31, aged 74, at St. Mary's Hospital, following an appendectomy.

James Conger Dunn, Franklin Park, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1910; member of the Medical Society of New Jersey; aged 39; died, August 29, at St. Peter's General Hospital, New Brunswick, following an automobile accident, in which he suffered a fractured skull.

John Wesley Cunningham, Clinton, Iowa; State University of Iowa College of Medicine, Iowa City, 1897; member of the Iowa State Medical Society; aged 49; was drowned in the Mississippi River, at Camanche, August 30, when the boat in which he was crossing the stream sank.

James Merritt Corkran, Centerville, Md.; University of Maryland School of Medicine, Baltimore, 1887; president of the county school board; died, August 11, aged 62, at the University of Maryland Hospital, Baltimore, from carcinoma of the sigmoid flexure.

Charles Francis Bingaman, Pittsburgh; Hahnemann Medical College of Philadelphia, 1871; president of the medical board and on the staff of the Homeopathic Medical and Surgical Hospital and Dispensary of Pittsburgh; died, August 20, aged 74.

George A. Cameron ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1887; on the staff of the Germantown Dispensary and Hospital; died, August 24, aged 57, from heart disease, while on his vacation at Sharon, Conn.

Edward P. Weddell, Scottdale, Pa.; Medical Department of Western Reserve University, Cleveland, 1884; aged 66; was instantly killed, August 28, when the automobile in which he was driving was struck by a passenger train.

William T. Lindley ⊕ Hamilton, Mo.; Missouri Medical College, St. Louis, 1881; formerly president of the Grand River District Medical Society and the Caldwell County Medical Association; died, August 19, aged 66.

Elon N. Carpenter, New York; Medical Department of the University of the City of New York, 1884; member of the Medical Society of New York, and the New York Neurological Society; died, September 5, aged 63.

Samuel Jackson Steiner, Montgomery, Ala.; Vanderbilt University Medical Department, Nashville, Tenn., 1878; member of the Medical Association of Alabama; died, August 5, aged 65, from chronic interstitial nephritis.

William R. Roedel, Lebanon, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1895; member of the Medical Society of the State of Pennsylvania; died recently, aged 61, from cerebral hemorrhage.

Joseph William Kelley, Newark, N. J.; College of Physicians and Surgeons, Baltimore, 1897; served during the World War in the M. C., U. S. Army, with the rank of captain; died, August 20, aged 48.

Thomas J. Merryman, Long Beach, Calif.; Hahnemann Medical College and Hospital of Chicago, 1868; died, August 21, aged 77, at the Murphy Memorial Hospital, Whittier, from cerebral hemorrhage.

Augustus Milton Anderson, Atlanta, Ga.; Atlanta College of Physicians and Surgeons, Atlanta, Ga., 1895; member of the Medical Association of Georgia; died, August 9, aged 58, from angina pectoris.

Frederick Taylor Bond, Vallejo, Calif.; Medical Department, University of California, San Francisco, 1890; member of the Medical Society of the State of California; died, August 23, aged 57.

John Chiles Edwards, O'Fallon, Mo.; University of Virginia Department of Medicine, Charlottesville, Va., 1853; died, August 27, aged 90, at the home of his daughter in Highland Springs.

Patrick Henry Griffin, St. Louis; Missouri Medical College, St. Louis, 1880; member of the Missouri State Medical Association; died, August 25, aged 62, at St. John's Hospital, from carcinoma.

John Carson Moore, Jearoldstown, Tenn.; Lincoln Memorial University Medical Department, Knoxville, Tenn., 1912; died at the Greenville Hospital, Greenville, June 19, aged 35, from uremia.

Manasses G. Lynch, Como, Texas; Medical Department University of Louisville, Louisville, Ky., 1892; member of the State Medical Association of Texas; died, August 26, aged 55.

Calvin R. Lightner, St. Louis; Bellevue Hospital Medical College, New York, 1880; member of the Missouri State Medical Association; died recently, aged 70, at Rochester, Minn.

Jesse T. Holbrook, Bold Springs, Ga.; Atlanta Medical College, Atlanta, Ga., 1869; Civil War veteran, formerly a member of the state legislature; died, August 7, aged 77.

John Thomas Quinlan, New York; Jefferson Medical College, Philadelphia, 1919; on the staffs of Bellevue Hospital and St. Vincent's Hospital; died, August 25, aged 27.

⊕ Indicates "Fellow" of the American Medical Association.

John W. Meacham, Denver; Medical Department University of Louisville, Louisville, Ky., 1884; member of the Colorado State Medical Society; died, August 27, aged 64.

Charles Galloway, Mississippi City, Miss.; Medical Department of the Tulane University of Louisiana, New Orleans, 1889; died, August 10, aged 56, from angina pectoris.

Gotthilf Blech, Dubuque, Iowa; University of Erlangen, Germany, 1886; member of the Iowa State Medical Society; died, June 6, aged 70, from pulmonary tuberculosis.

Samuel F. Hance, Minneapolis; Albany Medical College, Albany, N. Y., 1854; Civil War veteran; died in July, at the home of his daughter in Fairport, N. Y., aged 97.

Enos Musser Hoover ⊕ Elkhart, Ind.; College of Physicians and Surgeons, Chicago, 1906; died, August 25, aged 52, at Van Wert, Ohio, from cerebral hemorrhage.

Orville Clark Baker ⊕ Brandon, Vt.; University of Vermont College of Medicine, Burlington, Vt., 1879; died, August 24, aged 71, from carcinoma of the stomach.

A. L. Parish, Tenaha, Texas; Memphis Hospital Medical College, Memphis, Tenn., 1892; aged 40; was found dead, June 30, with a bullet wound in his head.

Robert Hall Morrison, Mooresville, N. C.; Louisville Medical College, Louisville, Ky., 1881; died, August 7, aged 79, from chronic interstitial nephritis.

John A. W. Fernow, Chicago; College of Physicians and Surgeons, Chicago, 1901; died, September 2, aged 59, from generalized carcinoma of the abdomen.

George Henry Whaley, Crawford, Ohio; College of Physicians and Surgeons in the City of New York, 1870; died, June 25, aged 76, from endocarditis.

Robert P. Morehead, Weldon, N. C.; College of Physicians and Surgeons, Baltimore, 1895; died, August 15, aged 52, at Tucker Sanatorium, Richmond, Va.

Sarah H. Phillips, San Francisco; St. Louis Woman's Medical College, 1894; died, July 31, aged 66, at the Lane Hospital, from chronic nephritis.

John A. Knighten, Springfield, Mo.; Flint Medical College of New Orleans University, New Orleans, 1900; also a druggist; died, August 24, aged 70.

Russell Bertman Chachere, Opelousas, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1904; died, August 26, aged 42.

William B. Rohmer, Bay St. Louis, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1866; died, August 21, aged 80.

Wallace G. Randell ⊕ Florence, Ariz.; National Medical University, Chicago, 1897; aged 45; was shot and killed, August 30, by a nurse.

Nelson Ward, Burlington, Wyo.; College of Physicians and Surgeons, Keokuk, Iowa, 1892; died recently, at Greybull, aged 86, from senility.

Henry Slater Wilcox, Little Falls, N. Y.; Rush Medical College, Chicago, 1919; died, August 23, aged 47, from retroperitoneal carcinoma.

William W. Power, Buford, Ga.; Georgia College of Eclectic Medicine and Surgery, 1882; died, August 22, aged 76, from carcinoma.

Francis Orlando Nash, Hollister, Calif.; Medical School of Maine, Portland, 1868; veteran of the Civil War; died, August 19, aged 80.

Frederick Clayton Burt, Hammonton, N. J.; University of Buffalo Department of Medicine, 1897; died, September 3, from pneumonia.

Albert S. Mackey, North Enid, Okla.; College of Physicians and Surgeons, Keokuk, Iowa, 1879; died, August 23, aged 77.

Julius G. Ehrhardt, St. Louis; St. Louis Medical College, St. Louis, 1869; also an oculist; died, September 3, aged 73.

Richard W. Hazelwood, Bengal, Ky.; School of Medicine, Louisville, Ky., 1860; died, August 1, aged 84, from senility.

Francis Marion Fitton ⊕ Hamilton, Mo.; Miami Medical College, Cincinnati, 1887; died, August 31, aged 63.

Wilton H. Palmer, Los Angeles; Homeopathic Hospital College, Cleveland, 1879; died, August 24, aged 72.

Penuel Harrod, Avon, Ill.; Medical College of Ohio, Cincinnati, 1866; died, August 30, aged 77.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

SOME ANALYSES FROM NEW HAMPSHIRE

There has recently been issued a "Food and Drug Inspection Number" of the *Bulletin of the New Hampshire State Board of Health.* It contains much information of interest and evidences intelligent activity on the part of the health authorities of that state. The following information regarding certain nostrums, both for internal and external use, will, doubtless, be of interest to many readers of The Journal:

Potion Antilaiteuse (N. A. Sirois, Kamouraska, P. Q., Canada).—The *Bulletin* states that a variety of medicinal claims was made for this preparation, most of which were fraudulent. Analysis showed the preparation to consist of a mixture of Epsom salt and powdered juniper berries.

Chipwa Indian Root Blood Purifier (Lucy Royer of Manchester, N. H.).—This product was sold under the fraudulent claims common to such preparations. Analysis showed it to consist of Epsom salt with two or three simple herbs such as mandrake, spikenard and sarsaparilla.

Best Catarrh Remedy.—This also was a Lucy Royer product and was found to consist of a solution of tannic acid in glycerin.

Nervtone Tablets (A. F. Schambier, Manchester, N. H.).—These were recommended for various ailments. The label contained the claim, "no dangerous drugs," although the New Hampshire chemists found both arsenic and strychnin present. The *Bulletin* reports that the falsity of this labeling was responsible for the deaths of two children in Augusta, Maine.

Angiolymphe du D'Rous (L'Angiolymphe Laboratory, Dr. P. Roux, Angiers, France).—This was examined at the request of the superintendent of the State Sanatorium for Tuberculosis. The formula for this alleged remedy for tuberculosis was given as "glycoside d'iridee, 5 centigrams; distilled water, 2 c.c. in each ampoule." It was represented as being a "vegetable extract for intramuscular injection" and sold for sixteen dollars an ounce. The New Hampshire chemists reported that analysis showed it "to consist of a one and one-half per cent. solution in water of what is almost wholly sugar with a possibility of the presence (not definitely demonstrated) of a small amount of some glucoside." As the *Bulletin* states, even if the extractive matter consisted wholly of two grains of this principle from iris, as represented, it is obvious that it could be of no possible value in the treatment of tuberculosis.

Noonan's Hair Petrole (T. Noonan & Sons Co., Boston, Mass).—Was found to contain 17.02 per cent. of alcohol, salicylic acid and about 12 per cent. of refined mineral oil.

Newbro's Herpicide (Herpicide Co., Detroit, Mich).—Was found to contain 28.39 per cent. alcohol, salicylic acid and borax.

A La Corbeille Fleurie Eau de Quinine Compound Hair Tonic (Ed. Pinaud, Paris).—Found to contain 65.75 per cent. alcohol and a small amount of quinin.

Parker's Hair Balsam (Hiscox Chemical Works, Patchogue, N. Y.).—This preparation, sold "for restoring color to gray or faded hair," was found to consist of a strong solution of lead acetate with sulphur. The *Bulletin* states that no caution appeared on the label.

Hay's Hair Health (Philo Hay Specialties Co., Newark, N. J.).—This also was a solution of lead acetate with sulphur.

Dr. Durand's Acme Hair Rejuvenator (Parisian Hair & Corset Stores, Manchester, N. H.).—This, according to the *Bulletin*, was grossly misrepresented as: "Not a dye. Not injurious. Prevents hair from turning gray." It was found to be a solution of lead acetate with sulphur.

La Toilette Francaise (Elite Restorer Co., Worcester, Mass.).—This preparation, represented as "the only successful, safe and scientific hair color restorer," was found to contain 1.66 per cent. alcohol and to be an ammoniacal solution of silver nitrate.

Inecto-Rapid Gray Hair Remedy (Inecto, Inc., New York City).—This hair dye was one of the two-solution-preparations type, having hydrogen peroxid for one solution and paraphenylendiamin for the other. There is no excuse for the sale of paraphenylendiamin as a hair dye. The Journal has published records of many cases of poisoning due to the use of other hair dyes containing this particular chemical.

Gillespie Scalp Invigorator (Gillespie Mfg. Co., Boston, Mass.).—This preparation was sold for eczema, dandruff, etc., and found to contain 20.88 per cent. alcohol, together with glycerin, borax and red pepper.

Westphal's Auxiliator (Paul Westphal, New York City).—This preparation, "for the preservation, beauty and growth of the hair," was found to contain 45 per cent. alcohol, glycerin and borax.

Woodbury's Combination Hair Tonic (John H. Woodbury Inst., New York City).—Found to contain 26.49 per cent. alcohol with resorcin.

Mme. Fried's Henna (Mme. Fried, New York City).—Sold as a "vegetable" hair coloring and found to consist of "henna or a similar herb with considerable copper and iron salts."

Farr's Gray Hair Restorer No. 1 (Brookline Chemical Co., Boston, Mass.).—The labels for this product stressed the fact that it contains no lead or sulphur. It does, however, contain an ammoniacal solution of silver nitrate.

Wyeth's Sage and Sulphur Compound (Wyeth Chemical Co., Inc., New York City).—This was found to be a solution of lead acetate with sulphur.

Ess-Tee-Dee (Smith T. Dustin).—This was sold under the claim that it stops dandruff. It was found to be a solution of arsenic with borax.

Victor's Antiseptic Liquid Shampoo (T. Noonan & Sons Co., Boston, Mass.).—This was found to be essentially a solution of soap.

Danderine (Knowlton Danderine Co. Chicago).—This preparation was found to contain 8.77 per cent. alcohol, together with salicylic acid and borax.

Flora de Lille Complexion Preparation (Flora de Lille Co., Boston, Mass.).—This was described as "a liquid powder"; it was found to be a suspension of bismuth subcarbonate, and calcium carbonate, with borax.

Champlin's Liquid Pearl (Champlin Mfg. Co., New York City).—This product, which contained 2.35 per cent. alcohol, was a suspension of bismuth subcarbonate and calcium carbonate.

Cooper's Complexion Beautifier (Cooper & Co., Boston, Mass.).—This also was a suspension of bismuth subcarbonate and calcium carbonate.

Pompeian Hair Massage (Pompeian Mfg. Co., Cleveland, Ohio).—This was found to contain 15.03 per cent. of alcohol, with arsenic, borax, quinin and capsicum. Although the package was labeled "For external use only. Keep out of children's reach," the *Bulletin* questions whether, in view of the arsenic present, this cautionary labeling is adequate.

Philippine Antileprosy Society.—Prof. Shirley E. Roberts, vice president of the society, on his recent return to Manila from Culion, where he spent a month among the lepers of the island, stated that more than 3,900 lepers out of the 5,000 in the colony are receiving the ethyl-ester treatment and about 300 the Mercado treatment. About 700 are beyond medical aid and the other 300 not receiving treatment live at a distance from the main colony making treatment impracticable. Six months ago only about 300 of these people were receiving treatment. Professor Roberts states that Governor Wood is responsible for this further improvement.

Correspondence

SHALL THE BOY STUDY MEDICINE?

To the Editor:—Regarding the requirements for medical education, as it appears from the standpoint of a young man preparing to enter the study of medicine, a little personal experience I have had lately has much impressed me, and I think it worth while to tell the readers of The Journal of it.

Rev. A. B. is pastor of a flourishing congregation in a small village. He is an educated man, highly respected in his community, and he is married and has four children. His salary is $1,600 yearly. His eldest child, a son aged 19, has finished his freshman year in one of the small colleges of Pennsylvania, and has a strong desire to study medicine and thereafter do laboratory work. His father consulted the dean of one of our best medical schools, and was informed that the boy must finish his college course before he can enter the medical school; that the medical course requires four years, and that his expenses could hardly be kept below $900 a year with the most rigid economy.

This good pastor laid the whole matter before me for suggestions and advice. I pointed out to him that if the boy finished his college course and took the medical course and spent one year in a hospital, he would then be 27 years old before he could begin his life career, and that before he could earn enough to make him self-supporting he would probably be 30 years of age. I told him I thought the boy might make something to support himself while he was in college, but that medical studies were so exacting and so time-consuming that he ought not to count on earning any money during his course in the medical school.

Since the pastor and his wife are without means except his salary of $1,600, it was evident that he could not withdraw so much as $900 a year from his income to keep the boy in medical school. The thing could be accomplished only by borrowing, if he found some one willing to lend such an amount; and I pointed out to the pastor that such a loan would be more or less a source of worry and anxiety to himself, to his wife and the boy. All things considered, I told him that the boy ought to abandon the idea of studying medicine in justice to his father and his brothers and sisters.

I advised the pastor that since the boy had some love for laboratory work he might finish his second year at the small college which is near home and that he could then take his junior and senior years at Lehigh University following a technical course and thus finish at the age of 23, and doubtless obtain a position whereby he could begin to earn his living. The boy, being honest and intelligent and possessing fair ability, he could expect that he could be fully self-supporting by the age of 25.

I am wondering, Mr. Editor, whether I advised this father wisely. If I have not done so, I should like to hear from you as to some better plan for this boy.

Theodore Diller, M.D., Pittsburgh.

[Note.—The problem of how the poor boy is to obtain entry into the medical profession is as old as medical education itself. If a boy is anxious to secure a medical education and has the grit he can do so, just as many poor boys have done in the past and are doing today in our best medical schools. It is the boy, not the father, who is the determining factor in this matter. After he has once demonstrated his sincerity and his ability, he will receive encouragement from the faculty of the institution he has selected, and easy access to employment which will carry him along. As pointed out in the last Educational Number of The Journal, 534 scholarships were available this year for worthy students in forty-six medical schools, and thirty schools provided loan funds for deserving and needy students.—Ed.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DOSAGE OF DIGITALIS

To the Editor:—All writers now agree that general practitioners as a rule prescribe digitalis in too small amounts; hence the lack of results in a great many cases. But they give no indication as to what the dosage, approximately, should be. Kindly give dose of the tincture in drops, not minims, and interval between doses, for an adult of medium weight, with moderately severe decompensation of heart, no digitalis preparation having previously been given. If you intended to depend on one massive initial dose, how much would you give?

H. S. Geiger, M.D., Kissimmee, Fla.

Answer.—The modern tendency toward large dosage of digitalis may be illustrated by the Eggleston method of dose calculation which, among other places, has been described in The Journal (March 13, 1920, p. 733), to which it might be well to refer for details. To answer the question briefly, the patient's weight in pounds (minus edema) is multiplied by 0.15, which will give the number of cubic centimeters of standardized tincture in the total dose. If, for instance, the patient weighs 150 pounds, we have 0.15 × 150 = 22.5 cubic centimeters. It is hardly advisable to give this amount as a single dose. From one third to one half the amount (in this case from 7 to 11 c.c.) would be given as the first dose; after six hours, one fourth of the amount may be given, one eighth more six hours later, and so on, until saturation is evidenced by action "on the kidneys, the stomach, the pulse or the bowels," to use the words of Withering. It is obviously better to measure these doses accurately rather than to trust to measuring by "drops," which are of notoriously unequal size.

SULPHATES IN MINERAL WATER

To the Editor:—The analysis of water from a well at one of our mines shows that it is a sulphate water containing 119.74 grains per gallon of sulphates. The residue on evaporation is made up almost entirely of sulphates of lime and magnesia, with considerable sodium chlorid. Is a water containing so heavy a charge of lime and magnesia salts as 119 for each gallon unfit for drinking purposes? Would such a dose of salts prove harmful if taken daily? The average amount of water a miner takes into the mine for daily consumption is from 2 to 4 quarts.

Max Herschleder, M.D., Mount Olive, Ill.

Answer.—The quantity of sulphates contained in this water is as great as or greater than in some of the mineral waters that make a pretention at therapeutic activity. A man who drinks 2 liters (2 quarts) of this water each day would ingest about 4 gm. (60 grains) of sulphate. This is the quantity contained in 100 c.c. of such definitely purgative mineral waters as the Hungarian "Apenta Water," which contains about 4 per cent. of sulphate. While the cathartic action of so dilute a mineral water may not be marked, one would still hesitate to pronounce the water entirely harmless for prolonged consumption. It would certainly be undesirable for those in whom it causes looseness of the bowel, as chronic purgation has a depleting effect on the system and a tendency to reduce weight, hemoglobin content, and blood pressure.

TRAUMATIC ARTHRITIS

To the Editor:—Is it possible for acute articular rheumatism to arise as a result of an injury, and would you attribute the rheumatism in the case mentioned below to the antecedent accident? A patient of mine was kicked on the knee with considerable violence by a horse. One week later he developed acute rheumatism. He never had this illness in his life before. The malady has incapacitated him for four months. Your opinion would be greatly appreciated.

William J. MacDonald, M.D., Boston.

Answer.—Acute articular rheumatism, as the term is now understood, is generally believed to be the result of an infection. Conceivably, on the hypothesis within which an injured joint would constitute a point of lowered resistance, the disease might develop primarily in a joint damaged as the result of an injury, when but for the injury it would not have developed at all. In the case described, in which the patient was kicked on the knee by a horse and one week later developed what is termed "acute rheumatism," unless joints other than the injured knee became involved, it would seem that the inflammatory process is best described as a simple traumatic arthritis.

GOAT'S MILK

To the Editor:—1. What is the average composition of goat's milk, and how does it differ from cow's milk? 2. What advantages or disadvantages has it over cow's milk? Please omit name.

S. J., Oklahoma.

Answer.—1. The difference in the composition of goat's milk and cow's milk is as follows:

	Sp. Gr.	Water	Casein	Albumin	Total Proteins	Fat	Sugar	Ash	Total Solids
Goat	1.0305	86.88	2.87	0.89	3.76	4.07	4.64	0.85	13.12
Cow	1.0313	87.27	2.88	0.51	3.39	3.68	4.94	0.72	12.73

2. Goat's milk, under certain circumstances, appears to be a valuable food for infants. Until the various supposed advantages of goat's milk have been proved by careful investigation, it is safe to say, however, that the main advantage is that a goat can be kept on a small plot of grass.

POISON FROM IVY ACCIDENT OR DISEASE?

To the Editor:—Is the reaction to contact with poison ivy classified as a disease (that is, a sickness) or an accident?

F. L. Watson, M.D., McAlester, Okla.

Answer.—The *reaction* to contact with poison ivy is a dermatitis, which is a disease or sickness. The *contact* itself is virtually always an accident, as the word "accident" is commonly understood. Whether it is an accident within the meaning of an insurance policy or workmen's compensation act depends on the definition of the word "accident" as set forth in the particular policy or act under consideration.

CHROME ULCERS

To the Editor:—May I suggest to "Subscriber," who asks about chrome ulcers in The Journal, July 29, that he will probably be able to cut down their incidence greatly by having the workers use a prophylactic wash of 5 per cent. barium chlorid after exposure to chromic acid and its salts. That plan was adopted in a chrome plant where the men were subjected to chrome liquor, the bichromates and soda ash, purely on the basis of the chemical incompatibility of barium and chromic acid, and it proved very effective. Sodium thiosulphate (hyposulphite) is also recognized as an effective agent in treating chrome holes. For the purpose of softening and loosening the slough, a compress of a saturated solution of basic lead acetate for several days, I understand, is effective, though I have had no experience with it. I found that the problem of the chrome ulcer resolved itself into (1) prevention, and (2) after the ulcer appeared, getting rid of the slough and then patiently dressing the granulating wound until it healed.

O. T. Schulze, M.D., Napa, Calif.

Plague in Manchuria.—The first case of pneumonic plague reported in Manchuria occurred in Manchouli on Oct. 12, 1910. The last case was reported Dec. 25, 1910, two and one-half months after the outbreak. Owing to the energetic action of the Russian authorities only about 400 died. (Officially registered 392, p. 28.) In Harbin (or Fuchratein) the first cases were reported on Nov. 7, 1910. They were two tarbagan hunters, who had come from Manchouli. From both the Russian and Chinese records, small epidemics of pneumonic plague had occurred here before, but this time, within three months, over 5,000 persons in a population of 30,000 were killed by this disease. Harbin is closely packed and built on a low-lying swampy plain. It has narrow streets, and is inhabited principally by coolies. The majority of the houses are low, dark, dirty and overcrowded. On the other hand, Shuangchengfu, which is situated on the railroad line, 30 miles south of Harbin, is a finely planned city with wide streets and is famed for its large, well constructed houses. Yet, within seven weeks, there were 1,500 deaths in this city of 60,000 inhabitants.—*Report of International Plague Conference.*

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arizona: Phoenix, Oct. 3. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.
California: Sacramento, Oct. 16-19. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.
District of Columbia: Washington, Oct. 10. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.
Florida: Tallahassee, Oct. 10-11. Sec., Dr. W. M. Rowlett, Tampa.
Georgia: Atlanta, Oct. 10-12. Sec., Dr. C. T. Nolan, Marietta.
Hawaii: Honolulu, Oct. 9-12. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.
Idaho: Boise, Oct. 3. Director, Mr. Paul Davis, Boise.
Illinois: Chicago, Oct. 10-12. Supt. of Registration, Mr. V. C. Michels, Springfield.
Kansas: Topeka, Oct. 10. Sec., Dr. A. S. Ross, Sabetha.
Michigan: Lansing, Oct. 10-12. Sec., Dr. Beverly D. Harison, 504 Washington Arcade, Detroit.
Minnesota: Minneapolis, Oct. 3-5. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.
Missouri: St. Louis, Sept. 25-28. Sec., Dr. Cortez F. Enloe, State House, Jefferson City.
Montana: Helena, Oct. 3. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
New Jersey: Trenton, Oct. 17-18. Sec., Dr. Alexander MacAlister, State House, Trenton.
New Mexico: Santa Fe, Oct. 9-10. Sec., Dr. R. E. McBride, Las Cruces.
New York: Albany, Buffalo, New York and Syracuse, Sept. 25-28. Ass't, Professional Examinations, Mr. Herbert J. Hamilton, State Education, Albany.
Oklahoma: Oklahoma City, Oct. 10-11. Sec., Dr. J. M. Byrum, Shawnee.
Porto Rico: San Juan, Oct. 3. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.
West Virginia: Huntington, Oct. 10. State Health Commissioner, Dr. W. T. Henshaw, Charleston.
Wyoming: Cheyenne, Oct. 9-11. Sec., Dr. J. D. Shingle, Cheyenne.

Georgia May-June Examinations

Dr. C. T. Nolan, secretary, Georgia State Board of Medical Examiners, reports the written examinations held at Augusta, May 31-June 2, 1922, and at Atlanta, June 7-9. Fifty candidates were licensed at Atlanta and thirteen candidates were licensed at Augusta, by examination, all candidates passing. The following colleges were represented:

AUGUSTA EXAMINATION

PASSED

College	Year Grad.	Per Cent.
University of Georgia	(1922)	88.5, 88.7. 89.5, 91.1, 91.8. 92, 92.1, 92.2, 92.5, 93.3, 93.4, 94.9, 98.3

ATLANTA EXAMINATION

PASSED

College	Year Grad.	Per Cent.
Emory University	(1922)	81.3, 85.9, 86.3, 86.4, 87.2, 88.3, 88.3, 88.3, 88.5, 88.9, 89, 89.2, 89.3, 89.3, 89.5, 89.6, 89.8, 89.9, 89.9, 90.1, 90.3, 90.3, 90.3, 90.4, 90.4, 90.5, 90.5, 90.7, 91.1, 91.3, 91.5, 91.8, 91.8, 91.9, 91.9, 92, 92.4, 92.6, 92.9, 93.1, 93.3, 93.4, 93.5, 93.6, 93.8
Harvard University	(1921)	87.8
Cornell University	(1919)	93
Jefferson Medical College	(1922)	89.5, 93.8
Meharry Medical College	(1922)	90.8

Dr. Nolan also reports that from October, 1921, to July, 1922, twelve candidates were licensed by reciprocity. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Medical College of Alabama	(1892)	Alabama
Baltimore Medical College	(1901)	New Jersey
Johns Hopkins University	(1919), (1920)	Maryland
University of Maryland	(1919)	Maryland
Harvard University	(1906)	Mass.
University of Michigan Medical School	(1917)	Michigan
Missouri Medical College	(1887)	Virginia
Medical College of Ohio	(1904)	New Jersey
Jefferson Medical College	(1919)	N. Carolina
University of Pennsylvania	(1919)	Tennessee
Medical College of Virginia	(1920)	Virginia

Rhode Island January Examination

Dr. Byron U. Richards, secretary, Rhode Island State Board of Health, reports the written and practical examination held at Providence, Jan. 5-6, 1922. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Twelve candidates were examined, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Boston University	(1921)	85.5
Harvard University	(1918) 88.5, (1920)	91.1
Tufts College Medical School	(1919) 89.4, (1920) 80.6, 87, (1921) 86.5	
Long Island College Hospital	(1915)	89.1
University and Bellevue Hospital Medical College	(1920)	89.1
Jefferson Medical College	(1920)	85.1
University of Naples	(1900)*	86.7
University of Geneva	(1915)*	80.7

* Graduation not verified.

Arizona July Examination

Dr. Ancil Martin, secretary, Arizona State Board of Medical Examiners, reports that 7 candidates were licensed by reciprocity, July 6-7, 1922. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Georgetown University	(1915)	Dist. Colum.
Illinois Medical College	(1910)	Washington
Rush Medical College	(1899)	Iowa
University of Pennsylvania	(1898)	Penna.
Medical College of the State of South Carolina	(1916)	S. Carolina
Meharry Medical College	(1915)	Texas
Marquette University	(1918)	Wisconsin

Vermont July Examination

Dr. W. Scott Nay, secretary, Vermont State Board of Medical Registration, reports the written examination held at Burlington, June 21-23, 1922. The examination covered 12 subjects and included 90 questions. An average of 75 per cent. was required to pass. Fifteen candidates were examined, all of whom passed. Two candidates were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Baltimore Medical College	(1907)	87.2
University of Vermont	(1911) 80, (1921) 89.2, (1922) 86.1, 86.5, 87, 87.5, 88.1, 88.4, 89.6, 89.8, 89.8, 90, 91.5, 91.6	

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Columbia University	(1908)	Maine
University of Virginia	(1919)	Virginia

Miscellany

SPIRIT PHOTOGRAPHS

"There is a society or club known as the Magic Circle which consists of professional conjurers, but admits a few approved amateurs, to the kindness of one of whom, a distinguished member of the medical profession, we are indebted for a copy of a report, dated May 31, issued by the Occult Committee of the Circle. This committee, which consists of expert conjurers, has been appointed to investigate what are called 'spiritualistic phenomena,' and at the suggestion of Sir Arthur Conan Doyle appears to have turned its attention first to spirit photographs. The report deals with the inquiries made by the committee into the claims of two people—a man and a woman—who it was alleged were producing spirit photographs of a remarkable nature in unopened packets of photographic plates. Neither of the mediums came out of the ordeal unscathed. When a fraud-proof packet was sent to the male operator he obtained no results. He stated that the packet had twice been 'held,' but that the 'usual sensation' had not been felt. As soon, however, as a packet that could be tampered with was submitted, a 'psychic extra,' as it appears to be called, was obtained on one of the plates. Unfortunately for the performer, the conjurers had tampered with the packet first. In addition to other tests, a straight line of red varnish (invisible in the red light of the dark room) had been painted across the top left side of the edge of the stack of six plates. On the return of the packet by the medium three of the red marks were found at the bottom, showing that these plates had been reversed. When the operator was asked for an assurance that the packet had really been returned unopened, he replied in the affirmative.

He said that it was quite usual to get adverse remarks from persons who did not understand, and that such remarks were not worthy of notice. Shall we admire the power of spirits, or deplore the frailty of human nature? The lady medium was vouched for by Mr. and Mrs. Hewat McKenzie, who conduct an institution known as the British College of Psychic Science. Three sittings were held with this medium. First, two members of the committee secured a private sitting. It was required that the plates, enclosed in a sealed packet, should be sent for 'magnetization' some days in advance, and at the sitting these plates were exposed, and on development 'extras' were on most of them. On one a face was visible in the midst of a cotton-wool effect; the other had crude markings, ascribed by the medium to unformed 'ectoplasm' or to 'spirit lights.' As will be observed, she had acquired some of the latest spiritualistic terminology. At the second sitting, arranged by Mrs. McKenzie, a sealed box of six plates, forwarded in accordance with instructions, was produced by the medium. The box was opened and the plates were transferred to metal dark slides; a service was then held, hymns being sung, and the Lord's Prayer recited. The plates were then exposed, and an 'extra' appeared on one of them—on No. 1 plate—which the investigators satisfied themselves had been substituted for the first plate of the original package. The medium had by this time become suspicious and nervous, and in fact she was not equal to holding her own with professional conjurers. She, however, consented to a third sitting, and for this an unopened box of unprepared plates was sent. It therefore became necessary that the plates should be secretly marked before being placed in the dark slides. One of the investigators, having placed the open stack of plates before the medium under the ruby light, secretly attached a small pad of pink material, chemically prepared, to the ball of his right thumb, and in handing the plates one by one to the medium an invisible mark was impressed on each. The medium gathered up the slides, and going into the studio took them to a small table on which her handbag was standing. The ostensible object was to obtain the hymn-books for the service; but the move being anticipated, the members of the deputation placed themselves in convenient position to observe her actions. The hand holding the slides was seen to be placed inside the bag; one slide was dropped into a side pocket and a duplicate slide picked up with the hymn-books. Four plates were developed, and on one which did not show the mark a 'spirit extra' appeared. All this may be amusing to the cynic, but the conclusions the committee of the Magic Circle draw are that although spirit photographers, like conjurers, meet changing conditions by the adoption of new methods, there are at present at least two methods in general use by some, at least, of the mediums who devote themselves to obtaining photographic 'extras.' In the one case, when the plates are accessible before the sitting, the spirit form is impressed, in advance, by contact with a selected transparency. In the other, when the packet is not available beforehand, the exchange for a prepared plate is made by a subtle move after the original plates have been loaded into the dark slides. The committee assert that they have never imposed a test which would not have served to demonstrate the straightforwardness and honesty of the medium, and conclude with a promise to extend to any honest medium fair, impartial and courteous treatment, and to give him a free hand to carry out the experiment in his own way."—*British Medical Journal.*

SYPHILIS IN URUGUAY

Of 14,072 patients examined from August, 1900, to Sept. 30, 1917, in the Skin and Syphilis Clinic of Montevideo, in charge of Dr. José May, who analyzes the records in his book "La Sífilis en el Uruguay," 2,771 had syphilis, and 2,182 of the 2,771 were in the secondary stage. Syphilis affected 11.83 per cent. of the patients in the year 1900, reaching its maximum, 30.30, in 1903, from which year it showed a progressive reduction until 1911, when it showed again an increase following the introduction of arsphenamin. The 1917 percentage was 17.52. From 1918 to 1921, out of a total of 10,000 patients, about 10 per cent. were syphilitic. As this clinic is only one of the six free dispensaries in Montevideo, the prevalence of syphilis is shown to be unusually high. This is in spite of the fact that reglementation is in force. Extragenital chancres were very rare. Of 1,933 cases, there were chancres on the lips in fourteen, on the tonsils in eight, on the canthus in two, and on the forefinger in one. From 1918 to 1921, 7,000 Wassermann tests were made for the clinic at the Central Laboratory of the Prophylactic Institute Against Syphilis, being positive in 100 per cent. in secondary syphilis, in 95 per cent. in tertiary syphilis, and in from 20 to 40 per cent. in nerve, cardiovascular and ocular syphilis; in cases of enlarged epitrochlear glands, 5.80 per cent. were positive in men and 25 per cent. in women. Among persons without a history of syphilis, 7.70 per cent. in male patients and 19.20 per cent. among female patients gave a positive test. In a large proportion, 10 per cent. in men and 40 per cent. among women, having only some diffuse or local pain, the Wassermann test proved positive. In other affections than syphilis, the Wassermann test proved positive in 5 per cent. of cases as follows: vitiligo, 9 cases, two positive tests; psoriasis, 24 cases, one positive test (suspected history of syphilis); eczema, 49 cases, two positive tests, local chancre; varicose ulcer, 34 cases, eleven positive tests (two suspected syphilis); leprosy, 8 cases, one positive (suspected syphilis); tuberculid, 1 case, positive; Recklinghausen's disease, 3 cases, one positive; acne, 30 cases, two positive (one suspected syphilis). In primary syphilis the blood Wassermann test becomes positive in from twenty to forty-five days from the date of the infection. Two undoubted cases of reinfection were observed. According to the author, syphilitics having a minimum of two lymphocytes per cubic millimeter in the cerebrospinal fluid must be treated and another lumbar puncture practiced. The observations in two groups of six patients each with tabes showed that treatment in some cases brings about the subsidence of serologic signs. This, however, does not imply the disappearance of tabetic symptoms. As regards phagedenic chancres, May thinks that autovaccines yield some promise. In a separate chapter, A. Prunell comments on the value of the Wassermann test with the exudate from the initial lesion in the early diagnosis of syphilis, it being more intense than in blood serum, and being obtainable two or three weeks earlier.

GAS MASK FOR ENGINE CREWS

The development of a pocket canister to alleviate the discomfort of engine crews when passing through railroad tunnels is announced by the U. S. Bureau of Mines. Details of the experiments are given in Technical Paper 292 by Fieldner, Katz and Kinney, which may be obtained from the Bureau of Mines, Washington, D. C. The canisters, which fit conveniently into a coat pocket, are filled with an absorbent mixture of activated charcoal and soda-lime, and contain filters of Turkish toweling. They may be cheaply made and are a great improvement over the sponge respirators, handkerchiefs, and towels now used by engineers and firemen when passing through unventilated tunnels.

The extreme discomfort caused by breathing sulphurous locomotive smoke is familiar to any one who has ever been a passenger in a coach near the locomotive when passing through a tunnel. Bad as these conditions are for the coach passengers, they are almost intolerable in the engine cab, where hot smoke and exhaust steam envelop the cab and fill it with hot gases. The temperatures in locomotive cabs while passing through tunnels have been found to range up to 162 F. Aside from the question of extreme discomfort, locomotive smoke contains poisonous and asphyxiating constituents which have occasionally been fatal to members of the crews of engines stalled in poorly ventilated tunnels. The tunnel crown directs the smoke from the smoke-stack upon and around the locomotive. Mixed with air and exhaust steam, it enters the cab, surrounding the engineer and fireman. Discomfort produced by the sulphurous smoke is intensified by the heat and humidity from the flue gases and exhaust steam. Slow, heavy freights going up grade through long, unventilated tunnels cause the most discomfort, especially when two or more locomotives are used. When such trains are stalled the crews are in danger of their lives. Carbon monoxid, augmented by the high temperature, is the probable cause of danger.

Respirators of the "pig-snout" type containing wet sponges afford some relief by cooling the gases and absorbing some of the irritating constituents of smoke, but protection is not complete, and most men will not bother with such respirators, preferring to tie handkerchiefs over the nose and mouth.

The experiments of the Bureau of Mines were conducted in twenty-three tunnels of the Baltimore and Ohio Railroad between Grafton and Parkersburg, W. Va.; in the Gallitzin tunnels of the Pennsylvania Railroad near Altoona, Pa., and in the Schenley tunnel in Pittsburgh. The Bureau of Mines has investigated the army type of mask also to determine whether that type could be modified to be of service about smelters, blast furnaces and possibly mines. This investigation showed that while the army mask afforded protection against all the gases met in warfare, it does not afford protection against all gases met in industrial life. More especially, it does not protect against carbon monoxid, or against such common industrial gases as illuminating gas, natural gas, ammonia, and the products of combustion found in burning buildings. For this reason, the bureau has sought to impress the public with the limitations of the army gas mask, and at the same time to develop special types of masks suitable for different industries or occupations, that will serve to protect the wearer from the gas hazards encountered in his particular field of work. The bureau has done work also on a "universal" mask that will serve to protect the wearer against all of the poisonous gases commonly met. A light weight form universal mask has been developed for the use of city firemen.

The charcoal and soda-lime canister protects against certain acid gases and organic vapors. It should not be used in gasoline vapor. It affords no protection against ammonia, carbon monoxid, producer gas, coal gas, water gas and blast-furnace gas. The pocket canisters afford protection against the coarse smoke particles of locomotive smoke, but give very little protection against wood smoke, very fine dust, or such fumes as those of tin tetrachlorid, silicon tetrachlorid or sulphur trioxid.

Book Notices

Vaccins et Sérums. Par le Dr. Apert, Médecin de l'Hôpital des "Enfantes malades." Paper. Price, 7 francs, 50 centimes. Pp. 282. Paris: Ernest Flammarion.

Dr. Apert is attending physician to the Hôpital des Enfants malades. He has published several other works on pediatrics and pathology. This book is written for the practicing physician rather than for the immunologist, and is especially valuable to the pediatrician. In discussing immunity, the terminology of Bordet and the French school is used. The first chapters contain much of historical interest, and the following chapters give a concise account of the diseases in which vaccines and serums are used in prevention or cure. The value of the work is enhanced by the incorporation into it of the results obtained in the Hôpital des Enfants malades and in the armies of the Great War. In addition to the description of the uses of vaccines and serums, the chapter on intestinal infections contains an account of the recent work on bacteriophages.

The Etiology and Pathology of Typhus. The Main Report of the Typhus Research Commission of the League of Red Cross Societies to Poland. By S. Burt Wolbach, John L. Todd, and Francis W. Palfrey. Cloth. Pp. 222, with 102 illustrations. Cambridge: Harvard University Press, 1922.

This is an important contribution to the study of typhus fever. Lice, reared from uninfected stock and free from rickettsia-like organisms and disease virus of all kinds, when allowed to feed on typhus patients became infective and acquired *Rickettsia prowazeki,* which the authors regard as the cause of typhus. The experiments yielding these results appear flawless. To mention just one detail: To insure that the lice used would be free from all such organisms, nits were obtained from a dispensary in Montreal and hatched out on members of the expedition. The causal rôle of the rickettsia bodies is indicated further by their presence in the lesions of human and guinea-pig typhus, but the attempts to cultivate these bodies all failed. The illustrations are excellent. The book is printed on heavy calendered paper; the size is large octavo, 7½ by 10½ in., but the printed page covers only 4½ by 7 inches—a waste of good paper. The report is dedicated to investigators of typhus who died from typhus: Conneff, Cornet, Jochmann, Lüthje, von Prowazek, Ricketts and Schüssler. Since this list was written, Weil of Prague has joined this noble band of victims to typhus contracted while studying the disease.

Psychiatrie du Médecin Praticien. Par M. Dide & P. Guiraud, Médecins de L'Asile D'Aliénés de Braqueville. Paper. Price, 20 francs net. Pp. 416, with 8 illustrations. Paris: Masson et Cie, 1922.

The various mental disorders are described, under more or less conventional titles, in simple language which is often little more than a series of definitions of technical terms in common use. The chief point of distinction from most other works of the kind lies in the classification, which is based on the anatomopathologic views of the authors. The various named disorders are conceived as clinical syndromes due to the location of the lesion, rather than as disease entities, even though the location is often extremely vague and hypothetic. Such an effort seems hardly wise, though it is in keeping with modern trends. The influence and significance of "the unconscious" in determining disturbances in feeling, thought and action are briefly, but simply and intelligibly, outlined in the first chapter, and it is unfortunate that more use is not made of these dynamic factors in the later portions of the book. Especially is this true when it is remembered that the book is intended for the general practitioner, on whom will rest the responsibility for early diagnosis and treatment at a time when prevention of more serious disorder is possible. The outline for the examination of patients is well chosen and not too detailed. Medicolegal notes and the chapter on commitment under French law are of practical value. Treatment is dealt with briefly and summarily in connection with each type of "syndrome," but, owing to the strong emphasis placed on constitutional and hereditary factors, leaves with the reader a decidedly pessimistic impression.

Obstetrical Nursing. A Text-Book on the Nursing Care of the Expectant Mother, The Woman in Labor, The Young Mother and Her Baby. By Carolyn Conant Van Blarcom, R. N. Cloth. Price, $3. Pp. 558, with 208 illustrations. New York: The Macmillan Company, 1922.

Miss Van Blarcom has prepared one of the most valuable contributions on obstetric nursing that have been published in late years. In many ways it reflects the influence of the chief under whom she served at Johns Hopkins. The lucid diction, the human touch manifested in many places, and the completeness of exposition of the subject make the book not only for the nurse, as avowedly intended, but also for the physician and all those who are associated with him in the care of the mother during the expectant period, and later when her hopes have been realized. The merits of the introduction, the chapters on prenatal care and on the mental hygiene of the expectant mother, and those chapters devoted to the care of the mother and her child in sickness and in health stand out preeminently as the fruits of a wide experience, a clarity of vision, and a saneness of purpose which are refreshing. The illustrations adequately supplement the text, and add much to the worth of the volume.

The Writing of Medical Papers. By Maud H. Mellish. Cloth. Price, $1.50 net. Pp. 157. Philadelphia: W. B. Saunders Co., 1921.

In this booklet, Mrs. Mellish has collected numerous excellently chosen quotations from various authorities on writing, and has supplemented the text by some condensations and summaries. The result is a reference work which should give many excellent hints to the medical writer. If there is any criticism to be made, it is that the author advises certain methods which she has adopted but which have thus far not met with general acceptance.

Medicolegal

Liability as Partners—Administration of Anesthetic by Nurse—Evidence

(Cook v. Coleman et al (W. Va.), 111 S. E. R. 750)

The Supreme Court of Appeals of West Virginia, in reversing a judgment for $10,000 damages rendered against three physicians and remanding the case for a new trial, says that they were sued as partners doing business under the name of a hospital. The plaintiff entered the hospital and was operated on for a laceration of the neck of the uterus due to childbirth three or four years previously. The operation also included an attempt to remedy a laceration of the perineum suffered at the same time. To negligence or unskilfulness in the operation the plaintiff attributed a fistula that shortly thereafter made an opening between the vagina and the rectum. Moreover, the plaintiff contended that an operation in the region of the fistula was neither necessary nor authorized, while the defendants contended that it was both authorized and necessary, and that the fistula was the result of unavoidable infection. After an unsuccessful effort to remedy the fistula, the plaintiff was taken to another hospital, at which, after the infection was eliminated and the tissues were strengthened, the trouble was remedied in the third or fourth operation performed there. The court is unable to say that the jury could not properly have returned a different verdict on the question of liability.

The court holds that, in what is termed an action of trespass on the case, for recovery of damages for breach or violation of a duty arising out of a contract alleged to have been made between the plaintiff and the defendants, the latter being sued as partners, the defendants, though not actual partners, may be held to liability as if they were, on proof of their having held themselves out, or knowingly permitted themselves to be held out, as such, and knowledge of and reliance on the representation, by the plaintiff, in the making of the contract. Evidence of separate admissions of the partnership relation, of close association in business, of general reputation of the existence of the partnership known to and relied on by the plaintiff, and billheads used in the business, such as those of a hospital designating one of the defendants as "surgeon in charge," another as "resident surgeon," and the third as "associate," is admissible to prove liability as partners.

The anesthetic was administered by a nurse, and the plaintiff contended that imperfect administration of the anesthetic had contributed to or caused the injury which she alleged had been inflicted on her in the performance of the operation. Being blindfolded when the ether was administered, she could not say whether the physicians were then present or not, but she thought they were not. They said they were, and that the ether was properly given under the supervision of one of them. She claimed that she was sufficiently conscious at one time to know that she felt pain and flinched or flounced, while on the operating table. In connection with this evidence, an expert witness was permitted to say over objection that, in his opinion, administration of ether by a doctor of medicine is legally required. As neither the common law nor any statute of West Virginia requires such administration, the ruling was clearly erroneous. In respect of the evidence of another expert witness, as to the propriety of administration of ether by a nurse, undue limitation of cross-examination was complained of. The nurse was shown to have had considerable experience in such administration and to be competent in the opinion of her employer. A question substantially reciting her experience and the quality of her work in that line and asking the opinion of the witness, based thereon, was excluded. He might have adhered to his opinion, but he might have qualified it or admitted that it was not in accord with uniform practice. Manifestly, he should have been required to answer the question. His evidence on that point, taken in connection with the testimony of the plaintiff, was strongly probative in her favor, and the defendants should have been allowed to test the soundness of his opinion thoroughly.

A female plaintiff in an action for damages for an injury alleged to have been negligently done in a surgical operation, working malformation of some of her organs and general debility, is not competent to testify that, by reason thereof, she is incapable of childbearing. Nor can she testify to an opinion expressed by her physician, to the effect that she is so incapacitated. But her testimony to her loss of sexual inclination, in consequence of the injury, is admissible. The professional opinion testified to by her would be mere hearsay, while the physical incapacity to carry and deliver a child is a question of medical and surgical science, as to which she is obviously incompetent to express an opinion.

Absence of Attending Physician in Emergency—Expert Testimony

(Browning v. Hoffman et al. (W. Va.), 111 S. E. R. 492)

The Supreme Court of Appeals of West Virginia, in reversing a judgment for $5,000 damages that was rendered in favor of the plaintiff on the second trial of this case, which is remanded for a new trial, says that the action was one for alleged malpractice by physicians and surgeons who operated a private hospital in which the plaintiff, a boy, was treated for a compound comminuted fracture of one leg. Within forty-eight hours after the wound was properly dressed and the broken bones set, gangrene developed, rendering amputation necessary, while the attending physician was temporarily absent, though the patient was attended by competent nurses, and there was a competent assistant physician whom the nurses were instructed to call, if necessary. Evidence to the effect that the leg was gangrenous to the knee and discolored for a space of 2 or 3 inches above the knee at 2 or 3 o'clock p. m. of the second day, and that, in the opinion of a physician who saw it then, it could not have been in good condition at 10:30 a. m. of that day, taken in connection with proof that, in the morning, there was evidence of a lack of circulation but no constriction nor gangrene and that efforts by approved methods on the part of the nurses and the assistant physician to restore or increase circulation had been constantly made throughout the forenoon and development of the trouble carefully watched until 2:30 p. m. did not appreciably tend to prove negligence on the part of the attending physician, in temporarily leaving the patient, or providing for his care in emergencies in his absence, nor on the part of the nurses and assistant physician, in respect to care and treatment of the patient.

To say that a surgeon, even in a critical case, after skilfully treating a wound and doing all that seemed to be necessary for the time being, may not temporarily substitute a competent associate or assistant, for purposes of overseeing the case, and provision against possible emergencies, would amount to prescription of a harsh and unreasonable rule. Ordinarily, a physician is unable to devote his entire time to a single patient, or to stay within instant call. On him as well as other citizens, public duties are imposed, and the necessity of his professional services to others renders it impossible at all times to keep in immediate touch with a single patient. Of course, he cannot abandon his patient nor neglect necessary attention and treatment. But, if he temporarily provides competent attention and treatment under his personal direction, though not in his presence, there is neither abandonment nor neglect. While the implied covenant in this case was personal and unassignable, such delegation as took place did not amount to an assignment. It was a means or method of performance, such as may reasonably be deemed to have been within the contemplation of the parties, and, therefore, within the contract of employment.

Nor, assuming that the operating physician, before leaving late in the evening of the first day, visited the patient or should have done so and, if he did, saw or should have seen the chart disclosing a slight rise in temperature, pulse and respiration, could the court properly instruct the jury, on that fact and the nature of the wound, that he was negligent in temporarily absenting himself on a business mission, because such facts, taken in connection with the later developments, constituted no appreciable evidence of such negligence. A physician is not liable for mere errors of judgment. Although, in many instances, the evidence of expert witnesses is entitled to much greater weight than that of nonexperts, the jury are presumptively as thoroughly cognizant of the fact as the court, it being one of common knowledge; wherefore, there is no impropriety in the giving of an instruction, in a case in which the issue is largely dependent on expert testimony, advising the jury to consider it and all of the other evidence and give it such weight as they think it is entitled to; and, further, that its value depends on the circumstances of each case, to be ascertained by the jury. Variance of the testimony of an expert witness in a second trial from his evidence in the first and from that of other experts does not render it inadmissible. Its weight is for the jury.

Liability for Second Accident Aggravating Injury

(Wagner v. Mittendorf (N. Y.), 134 N. E. R. 539)

The Court of Appeals of New York says that plaintiff Wagner, 18 years of age, had his right leg broken in a collision with a touring car owned by the defendant. Two actions were brought, one by Wagner to recover for his personal injuries, and the other by his mother to recover for her loss of his services, which resulted in judgments for the plaintiffs, in moderate sums, which are affirmed. The court allowed an appeal to it on exceptions taken to the admission of evidence bearing on the injury and damages, deeming that the evidence presented a question of sufficient importance to review, as it had not theretofore been directly passed on by this court.

After the accident, the plaintiff was taken to a hospital, where his leg was set in a plaster cast. When he was able to get around on crutches, he was taken to his home, where, about two weeks later, a physician removed the cast. The physician testified that he found the leg in good condition, except that the upper part, the tibia, projected just a trifle beyond the lower part. There seemed to be good union, but the leg was not absolutely straight. He advised Wagner to walk around and take a little exercise to strengthen the muscles of the leg. Then, one day, when Wagner was stepping over a doorsill, one of his crutches slipped, and he fell halfway, and hit his leg against a desk, refracturing the leg at exactly the point where it had been broken before. The jury were instructed:

> Now on the question of damages, the question arises as to what effect the second injury that he received had on the damages. The law is this: If a person is injured, as the plaintiff was, and proceeds in accordance with the doctor's instructions and in a reasonably careful manner in getting about, and another accident happens to him which results in aggravating his injury, without negligence on his part, then the injury may be added to the original injury, and the damages may be compensation for all of the injury. If, on the other hand, the second injury was the result of the negligence of the plaintiff, disobedience of the instructions of his physician, for example, lack of care in going about; if the second injury results from lack of care, then the defendant may not be charged with the added injury so received. The defendant in any event is only liable for the injuries naturally resulting from the accident.

The testimony regarding the second fracture of the leg and the consequences resulting therefrom was competent and properly admitted by the trial judge. The charge of the court correctly stated the rule of law applicable to these circumstances.

Suit Board of Medical Examiners Could Not Maintain

(Bentley v. State Board of Medical Examiners et al. (Ga.), 111 S. E. R. 379)

The Supreme Court of Georgia says that the petition in this case was filed by the board in order to enjoin the defendant from illegally practicing medicine in the state; to cancel his medical diploma, on the ground that it was fraudulently obtained or was a forgery, and to have expunged from the records of the superior court in which it was recorded the license under which he claimed the right to practice medicine. The question was: Had this board, as such, the power to file this suit for these purposes? The supreme court holds that it did not have the power, and that the trial court erred in not sustaining a general demurrer to the petition.

This board, the supreme court says, is an administrative body, and has only such powers as the legislature has expressly or by necessary implication conferred on it. This is the rule which is well established as to other administrative bodies, and this rule applies on principle and reason to the board of medical examiners. Such a body has such implied powers only as are reasonably necessary to execute the express powers conferred. The act of the legislature creating this board, as amended in 1918, does not expressly confer the power to file such a suit, and such power is not reasonably necessary to execute the express powers conferred on the board by these acts; and for this reason cannot be implied. Even if the language found in the caption of this act, "to protect the people from illegal and unqualified practitioners of medicine and surgery," were contained in its body, the proper construction thereof would not confer the power claimed by the board in this case, as the methods of protecting the people in the state from illegal and unqualified practitioners of medicine and surgery are fully outlined and defined in these acts; and, when such means and methods are prescribed for protection, they must be followed by this board. The board cannot resort to any other methods of protecting the people of the state. Certainly no other power of protection will be inferred from the acts creating this board.

This court has held that a court of equity, at the instance of the state, cannot enjoin a person from illegally practicing medicine in the state. If the state cannot in equity protect the people of the state by enjoining one from illegally practicing medicine, then, of course, this board cannot maintain a petition for such injunction. Injunction would afford swift, full and complete protection to the people of the state against illegal and unlawful practitioners of medicine. If equity cannot grant such relief, it cannot grant the other relief of cancellation of the defendant's diploma and the expurgation of the record of his license, which would have the effect, indirectly, of the grant of an injunction. So the supreme court thinks that this board was without power, express or implied, to file the petition in this case.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Minneapolis, Sept. 19-23. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Sec'y.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Albany, N. Y., Sept. 19-21. Dr. James E. Davis, 111 Josephine Ave., Detroit, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. Louis J. Mitchell, 29 E. Madison St., Chicago, Secretary.

American Child Hygiene Association, Washington, D. C., Oct. 12-14. Miss G. B. Knipp, 111 Cathedral St., Baltimore, Md., Secretary.

American Electro-Therapeutic Association, New York, Sept. 19-22. Dr. Richard Kovacs, 223 E. 68th St., New York, Registrar.

American Public Health Association, Cleveland, Ohio, Oct. 16-19. Mr. A. W. Hedrich, 370 Seventh Ave., New York, Secretary.

Association of Military Surgeons of the United States, Washington, D. C., Oct. 12-14. Col. James Robb Church, M. C., U. S. Army, Medical Museum and Library, Washington, D. C., Secretary.

Central States Pediatric Society, Cincinnati, Oct. 16-17. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.

Colorado State Medical Society, Colorado Springs, Oct. 3-5. Dr. F. B. Stephenson, Metropolitan Bldg., Denver, Secretary.

Delaware State Medical Society, Dover, Oct. 9-10. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Indiana State Medical Association, Muncie, Sept. 27-29. Dr. Charles N. Combs, Terre Haute, Secretary.

Kentucky State Medical Association, Paducah, Oct. 16-19. Dr. J. A. McCormack, 532 W. Main St., Louisville, Secretary.

Medical Association of the Southwest, Hot Springs, Ark., Oct. 4-6. Dr. W. H. Bailey, 115 West 21st Street, Oklahoma City, Okla., Sec'y.

Minnesota State Medical Association, Minneapolis, Oct. 12-13. Dr. Carl B. Drake, Central Bank Building, St. Paul, Secretary.

Mississippi Valley Medical Association, Rochester, Minn., Oct. 10-12. Dr. Henry Enos Tuley, 244 Francis Bldg., Louisville, Ky., Secretary.

Missouri Valley, Medical Society of the, St. Joseph, Mo., Sept. 21-22. Dr. Charles W. Fassett, 115 E. 31st St., Kansas City, Mo., Secretary.

Nevada State Medical Association, Reno, Oct. 6-7. Dr. Horace J. Brown, Goldfield, Secretary.

New England Surgical Society, Burlington, Vt., Sept. 22-23. Dr. P. E. Truesdale, 151 Rock Street, Fall River, Mass., Secretary.

Pennsylvania, Medical Society of the State of, Scranton, Oct. 2-5. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Tri-State District Medical Society, Peoria, Ill., Oct. 30-Nov. 2. Dr. William B. Peck, Freeport, Ill., Managing Director.

Vermont State Medical Society, Burlington, Oct. 12-13. Dr. W. G. Ricker, St. Johnsbury, Secretary.

Virginia, Medical Society of, Norfolk, Oct. 31-Nov. 3. Mr. G. H. Winfrey, 104½ W. Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Chicago

August, 1922, **12**, No. 8

*Relation of Contaminated Rations to Presence of C. Botulinum in Milk of Lactating Animals. R. Graham, H. Schwarze and I. B. Boughton, Urbana, Ill.—p. 659.
Diagnostic Chemistry a Routine Function of State Laboratory. S. DeM. Gage and E. Earle, Providence, R. I.—p. 665.
*Proper Cleansing of Glassware and Other Utensils in Public Drinking Places. A. I. Van Saun, A. W. Bancroft and J. J. O'Gorman, New Haven, Conn.—p. 669.
Some Fundamentals in World Health Work. G. E. Vincent, New York.—p. 674.
Public Health Nursing Service in State Department of Health. R. G. Paterson, Columbus, Ohio.—p. 675.
Public Health Conserved Through Enforcement of Postal Fraud Laws. L. F. Kebler, Washington, D. C.—p. 678.
Health Bookkeeping in Harlem Health Center. M. M. Hulst, New York.—p. 683.

C. Botulinum in Milk.—Preliminary evidence reported by Graham et al. suggests that *C. botulinum* may, under certain experimental conditions, gain entrance to the milk via the animal host. The negative results in examining milk from experimental animals during the ten day period preceding the feeding of toxin and spores obviously suggest that the avenues of invasion are related to the contaminated rations, while the part played by a contaminated soil or other extraneous fomites is not excluded. The presence of the spore in fresh milk for immediate consumption is probably of no toxicogenic significance to the human family, if the negative results in guinea-pigs, following injection of fresh milk contaminated with spores, are a reliable guide. However, an experimental teat canal or udder infection was repeatedly transmitted in the milk, as demonstrated in guinea-pigs and possibly in calves. The production of minimum amounts of toxin in the udder could not, however, be demonstrated. The mammary secretion of an artificially infected udder proved positive to *C. botulinum* for several days, following the initial infection. The presence of free toxin in milk filtrate from an infected udder was suggested in only one instance. Repeated examinations failed to demonstrate free toxin in other milk samples from infected udders. In view of the negative results in guinea-pigs, the possibility of *C. botulinum* toxin being excreted in the milk of lactating animals consuming contaminated feed is remote, though the contamination of milk from feces or other sources is not to be disregarded, since milk furnishes a favorable medium for the development of toxin in vitro.

Proper Cleansing of Glassware and Other Drinking Utensils.—It is advised by Van Saun et al. that wherever possible, hot water of a temperature of at least 145 F., in which a sufficient quantity of an easily dissolved soap powder has been placed should be used for the washing of glasses or other containers, which should be submerged in the solution and left there for at least three minutes. For places not equipped for washing glasses with hot water the saturated solution of chlorinated lime is suggested. Glasses disinfected with this solution should, of course, be rinsed thoroughly. Glasses should be dried thoroughly. Experiments have shown that clean, dry glasses do not usually harbor bacteria.

Annals of Surgery, Philadelphia

August, 1922, **76**, No. 2

Plastic Surgery of Face. E. D. W. Highsmith, Atlanta, Ga.—p. 129.
Harelip and Cleft-Palate Deformities. Some Types and Their Operative Treatment. W. B. Davis, Philadelphia.—p. 133.
Operative Treatment of Complete Double Harelip. V. Veau, Paris, France.—p. 143.
*Experimental Reconstruction of Esophagus with Autogenous Fascia Lata Transplants. D. S. Allen, St. Louis.—p. 157.
*Extirpation of One (Left) Suprarenal for Cure of Epilepsy. H. Fischer, New York.—p. 176.
Surgical Value of Estimation of Bile Pigmentation (Icterus Index) of Blood Serum. D. W. Stetten, New York.—p. 191.
*Surgical Treatment of Cholelithiasis, Cholecystectomy and Choledochotomy: Continuous Outdoor Treatment. J. O'Conor, Buenos Aires.—p. 201.
Malignant Neoplasms of Extrahepatic Biliary Ducts. K. Renshaw, Rochester, Minn.—p. 205.
Perforation of Duodenal Ulcer Following Gastro-Enterostomy. F. M. Douglass, Toledo, Ohio.—p. 222.
*Lymphosarcoma of Intestine. P. L. DeNoyelles, Albany, N. Y.—p. 229.
Metaplasia in Ovarian Dermoids and Cystadenomas: Report of Three Cases. W. C. MacCarty and H. D. Caylor, Rochester, Minn.—p. 238.
*Primary Tumors of Urethra. A. J. Scholl, Jr., and W. F. Braasch, Rochester, Minn.—p. 246.
Malignancy of Undescended Testis—Associated with Hydrocele. B. Lipshutz, Philadelphia.—p. 260.
*Results of Treatment in Forty-Eight Cases of Sciatica. W. O. Ott, Rochester, Minn.—p. 272.

Use of Fascia Lata to Reconstruct Esophagus.—Allen describes a method of reconstructing portions of the entire circumference of the esophagus with fascia lata transplants. The result is said to be a tube lined with squamous epithelium derived from the epithelium which normally lines the esophagus.

Extirpation of One Suprarenal to Cure Epilepsy.—Fischer reviews the work done by Heinrich Fischer, who proved that the capacity of the body to react with convulsions is dependent on a sufficient amount of functionally active suprarenal substance. The suprarenals belong, probably inclusive of the whole chromaffin system in the body, to the convulsive mechanism. His experiments have also shown that there exists a peripheral component of the cramp mechanism in the body. The peripheral component joins with the central component in the musculature by means of the peripheral nerves. On the other hand, there exists a direct continuation between the cerebral sympathetic system and the suprarenals by means of the sympathetic nerves. The cortex of the suprarenals, as part of the chromaffin system, is directly derived from the sympathetic. A complete cycle of the cramp mechanism is hereby formed. The author reports a case of epilepsy of long standing in which he removed the left suprarenal. Before the operation this patient had from ten to fifteen epileptic attacks every night. The convulsions were so severe that his three brothers had to hold him down to prevent him from falling out of bed. Although the patient has not been entirely cured, there is noticeable, however, a distinct improvement. The attacks which he had before the operation are now less in frequency and in intensity. He has intervals of complete freedom from convulsions.

Cholecystectomy and Choledochotomy.—O'Conor describes a method of cholecystectomy and of choledochotomy which is simple in execution, which admits of operative rapidity in a zone in which indefinite manipulation is likely to cause shock, which reduces hemorrhage to a minimum, and which from start to finish permits of one being able to see what one is doing. On the fourteenth day after operation the patient is put out of doors.

Lymphosarcoma of Intestine.—Two cases of lymphosarcoma of the intestine are described by Denoyelles, one of tumor of the jejunum, the other of the ileum. In one instance the tumor was a diffuse infiltration of the intestinal wall, an annular type of growth. In the other case a lymphosarcomatous polyp was found which gave rise to an intussusception. The predominant cell is one which resembles a great deal the transitional large mononuclear cell of the blood.

Primary Tumors of Urethra.—Three cases of epithelioma of the female urethra and one of the male urethra and a case of fibroma of the female urethra are reported by Scholl and Braasch from the Mayo Clinic. Benign solid tumors are only rarely seen in the urethra. The majority of these belong to the group of fibromyomas. One case of fibroma of the female urethra is reported.

Epidural Injections in Sciatica.—In forty-eight cases of sciatica in which no definite causative factor could be found, repeated epidural injections, combined with the removal of possible foci of infection in a large percentage, resulted in permanent cure in 29 per cent., and permanent amelioration of symptoms so that the patient was able to continue his occupation with a fair degree of comfort in 37 per cent.; in the remaining 34 per cent. no permanent beneficial results were obtained.

Archives of Dermatology and Syphilology, Chicago

August, 1922, **6**, No. 2

Dermatologic Training and Practice. O. S. Ormsby, Chicago.—p. 129.
*Serologic Studies on Exudate of Syphilitic Chancres. C. Fuentes, Havana, Cuba.—p. 136.
Clinical Evaluation of Wassermann Reaction. R. A. Kilduffe, Pittsburgh.—p. 147.
*Potassium Permanganate as Curative Agent in Dermatologic Diseases. S. Feldman and B. F. Ochs, New York.—p. 163.
Dermatoscopy. J. C. Michael, Houston, Tex.—p. 167.
Ulcer of Leg. Its Localization as Point of Differential Diagnosis. H. Goodman, New York.—p. 179.

Serologic Study on Exudate of Syphilitic Chancre.—In the exudate from chancres which are clinically syphilitic Fuentes has found a substance that acts as amboceptor in the Wassermann test. In the exudate of the same chancres he has found another substance that acts as antigen in the Wassermann test. In the exudate from chancres which are clinically negative with no spirochetes, no antigen or amboceptor has been found. While only one mixed chancre was studied, both antigen and amboceptor were found besides spirochetes. The substance that acts as amboceptor and the substance that acts as antigen were found together when their presence was demonstrated. While both substances appeared together, it has been possible to demonstrate their presence independently using the Wassermann test for this purpose. In all the exudates from the chancres examined which contained spirochetes both antigen and amboceptor have always been found. No case was positive for spirochetes and negative for antigen and amboceptor. Exudates from chancres that were clinically positive but in which no spirochetes were found contained both antigen and amboceptor. The amount of complement in these exudates is not sufficient to change the positive or negative reaction.

Potassium Permanganate in Epidermophytosis.—Potassium permanganate has, so far, given Feldman and Ochs better results in the treatment of epidermophytosis than any drug or combination of drugs hitherto employed. It can be used in strengths ranging from 1:5,000 to the full saturated solution, the former in early, moist and irritated lesions, the latter in those associated with deep infiltration and lichenification. Cases of intertrigo of the mammary folds and on the upper thighs yield readily to very dilute solutions (1:5,000), while in the intertrigenous type of epidermophytosis occurring between the fingers and toes stronger solutions may be employed with equally good results. Unmistakable results are obtained in eczema marginatum by wet dressings and, in old lesions, by painting with strong solutions of the drug. Patches situated on the flat surface of the body are occasionally resistant to treatment. In eczematoid ringworm, far better results are obtained by this method of treatment than is seen with the use of Whitfield's ointment. These cases require a longer period of treatment in order to obtain a cure than those enumerated in the foregoing and the treatment must be kept up a long time after the disappearance of the lesions in order to make the results permanent. The dyshidrotic form is the most resistant to treatment, especially in the presence of deep-seated vesicles and a thickened epidermis. Even here good results are obtained after the lesions are prepared by some keratolytic agent.

Archives of Neurology and Psychiatry, Chicago

August, 1922, **8**, No. 2

Interrelations of Domain of Neuropsychiatry. A. Meyer, Baltimore.—p. 111.
*Subacute Epidemic (Lethargic) Encephalitis. J. H. Globus and I. Strauss, New York.—p. 122.
*Cranial Hyperostoses Produced by Meningeal Endotheliomas. H. Cushing, Boston.—p. 139.
*Histopathology of Cerebral Carcinoma. G. B. Hassin and H. D. Singer, Chicago.—p. 155.
*Metabolism Studies in Dementia Praecox and Manic Depressive Insanity. T. Raphael and J. P. Parsons, Ann Arbor, Mich.—p. 172.
*Determination of Sodium, Potassium, Calcium and Magnesium in Blood and Spinal Fluid of Patients Suffering from Manic Depressive Insanity. P. G. Weston and M. Q. Howard, Warren, Pa.—p. 179.
*Sugar Tolerance in Dementia Praecox and Other Mental Disorders. W. F. Lorenz, Madison, Wis.—p. 184.

Subacute Epidemic Encephalitis.—The lesions of the small vessels from such an uncommon and most prominent feature in the six cases of the acute form of lethargic encephalitis studied by Globus and Strauss that they believe that the primary attack of the virus is on the small and medium sized vessels, and that these are affected to a degree proportionate to the virulence of the virus.

Cranial Hyperostoses Produced by Meningeal Endotheliomas.—In a series of more than 700 verified tumors reported on by Cushing, there have been eighty endotheliomas, their ratio to the gliomas being about one to four. At least 25 per cent. of the endotheliomas are accompanied by an overlying hyperostosis cranei which is either palpable externally or demonstrable by the roentgen ray. This process is due to invasion of the bony canals by tumor cells, with resultant stimulation of osteoblasts and the production of new bone.

Histopathology of Cerebral Carcinoma.—Hassin and Singer have studied eight cases of intracranial carcinoma. From their studies they believe it possible to establish certain features as common to all cerebral carcinomas. The brain lesions caused by carcinomatous growth are both focal and diffuse. The focal lesions are due to direct invasion by carcinoma cells. The diffuse lesions are of the type of a toxic (noninfiltrative) encephalitis. Reactive phenomena are mainly of connective tissue and may result in the formation of a demarcation zone. In the absence of a demarcation zone, a transition zone is constant and indicates destruction of the adjacent parenchyma prior to invasion by carcinoma cells. Propagation of the tumor takes place by infiltration and along perivascular spaces. Reactive phenomena occur in the pia-arachnoid and in the choroid plexus.

Metabolism in Dementia Praecox and Manic Depressive Insanity.—On the basis of the data secured by Raphael and Parsons in a study of three normal persons and fifteen psychotic subjects (dementia praecox and manic depressive insanity), it appears that in normal persons the blood sugar rise following the intramuscular injection of 1 mg. of epinephrin is maximal in from thirty minutes to one hour with subsidence in three and one-half hours. This is in accord with the findings reported by Hamman and Hirschman and by Cowie and Beaven. The reaction pit or point of minimal glycemia is definitely below the initial fasting level following which there is a definite rebound to approximately this level. Further, it appears that among the psychotic subjects the general contour is essentially the same as among normal persons for the first three and one-half hours, following which, however, the depressed and dementia praecox patients become variant in that a further gradual drop is noted with slight or no indication of rebound, a deviation which conceivably may be of basic metabolic import.

Metallic Elements in Blood and Spinal Fluid in Manic Depressive Insanity.—In order to determine whether the manic and depressed phases of manic depressive insanity are associated with an alteration of the normal balance of sodium, potassium, calcium and magnesium in the blood and spinal fluid, analyses were made by Weston and Howard of these two fluids in seventeen cases of mania and in ten of depression. The average of these elements was practically the same in both states, and the individual variations from the average were small. The average sodium content of the blood and fluid in mania was 332 and 333 mg., respectively, and in depression, 330 and 328 mg., respectively. The results with potassium were also constant—mania, blood and fluid, 21.7 and 12.8 mg., respectively; depression, 22 and 12.7 mg., respectively. The blood and fluid calcium in mania was 10.4 and 5.2 mg., respectively, and in depression, 10.6 and 5.4 mg., respectively. Magnesium in mania showed 2.4 mg. for the blood and the same amount for the fluid; in depression the figures were 2.4 and 2.5 mg., respectively.

Sugar Tolerance in Dementia Praecox.—Except in cases of active catatonia, certain cases of simple deteriorating dementia praecox and several cases in which evident emotional upsets existed at the time of the test, Lorenz' investigation points to a blood sugar concentration in mental disease that is practically normal when the test is made while the patient is fasting, the average being 0.105 per cent. The response of patients with mental disease to sugar feeding is generally within normal range. Patients in the active stages of catatonic dementia praecox responded to glucose feeding with a hyperglycemia that resembles the response obtained in hyperthyroidism. Several patients with simple deteriorating dementia praecox responded to glucose feeding in a manner that resembles the responses obtained in certain endocrine disturbances, such as dyspituitarism. Patients suffering from manic depressive insanity—depressed phase—responded to the sugar test with a curve higher than that found in normal subjects.

Boston Medical and Surgical Journal

Aug. 17, 1922, **187**, No. 7

Diagnosis of Diseases of Urinary Tract. W. C. Quinby, Boston.—p. 229.
Diagnosis of Early Breast Tumors, Based on Their Clinical Picture or Their Gross and Microscopic Picture at Exporatory Incision. J. C. Bloodgood, Baltimore.—p. 243.
Varicose Veins and Ulcer: Methods of Diagnosis and Treatment. J. Homans, Boston.—p. 258.

Endocrinology, Los Angeles

July, 1922, **6**, No. 4

*Studies on Parathyroids. III. Two Cases of Combined Enlargement of Thymus and of Lower Parathyroids. H. Bergstrand, Stockholm, Sweden.—p. 477.
*Nature and Diagnostic Significance of White Line of Sergent ("Ligne Blanche Surrenale"). S. Wright, London.—p. 493.
*Relation of Suprarenals to Muscular Activity. F. A. Hartman, Buffalo.—p. 511.
*Case of Spontaneous Disappearance of Diabetes. G. L. Rohdenburg, New York.—p. 519.

Enlargement of Thymus and Parathyroids.—In a woman, aged 22, with a curious and unexplained record of illness, who died suddenly, there were found, besides slight signs of an infection in the air passages, two parathyroid glands showing extreme enlargement, due most probably to autonomous growth. The thymus showed a similar extreme enlargement caused by a supranormal amount of parenchyma and interstitial tissue quite different from that of the juvenile type. It differed from the hyperplastic thymus in exophthalmic goiter in that only the values for cortex and medulla were supranormal, while the total number of Hassall's corpuscles was considerably lower than normal for a corresponding age. There was probably not only a relative but also an absolute decrease in the new formations of Hassall's corpuscles. There was a striking similarity to the thymus in a case of "lymphatismus" described by Hammar. The case affords further support of Hammar's theory that the different components in the thymic parenchyma may independently vary in amount. In a woman, aged 58, who had an attack of hemiplegia and died about a month later from a second attack, the two lower parathyroids showed enlargement due in all probability to autonomous tumor growth. The thymus was markedly enlarged with a parenchyma value more than ten times the normal. As in the preceding case, the thymus was taken to be hyperplastic, not subinvoluted. All the parenchyma components were increased, cortex and medulla to the same degree, but the Hassall's corpuscles to a smaller extent. The values for the Hassall's corpuscles per milligram parenchyma and medulla, respectively, were therefore low. In spite of the differences between them, the cases fall into a sharply defined group in which the hyperplastic thymus differs from that of exophthalmic goiter.

Significance of Sergent's White Line.—The white line of Sergent is described and the literature of the subject is reviewed by Wright. It is shown by an investigation of 100 healthy persons that the white line is a phenomenon occurring in a large proportion of normal subjects and is without pathologic significance. A number of analogous physiologic responses are described. The white line is not related to suprarenal insufficiency nor to abnormally low systolic or diastolic pressure. The white line is produced by local emptying of the capillaries due to the active contraction of some elements in their walls, and is quite independent of the condition of the arterioles. A nervous mechanism of the nature of an axon reflex may be involved. The bearing of this investigation on the clinical recognition of suprarenal insufficiency is discussed.

Relation of Suprarenals to Muscle Activity. — Hartman states that in normal animals, except in rare instances, there is an increase in the output of epinephrin accompanying exercise. This increase is greater, the more vigorous and the more prolonged the exercise. The increased output of epinephrin persists for some time after the exercise ceases, the duration of the increase depending to some extent on the amount of work performed. Injections (intramuscular) of epinephrin improve the output of work in many normal cats and in cats with epinephrin deficiency. An animal can go farther and travel faster when there is an increase in the epinephrin output during exercise. Epinephrin may hasten the onset of convulsions due to exercise.

Spontaneous Disappearance of Diabetes. — Rohdenburg reports a case of glycosuria accompanied by the usual clinical symptoms of diabetes, in which the glycosuria disappeared and in which, at necropsy, fibrosis of the thyroid was found, accompanying which there was partial fibrosis of the glandular elements of the pancreas associated with hypertrophy of the islands of Langerhans.

Journal of Medical Research, Boston

June-July, 1922, **43**, No. 3

Proposed Method for Estimating Capacity of Left Ventricle of Heart. H. E. Robertson and P. H. Duff, Rochester, Minn.—p. 253.
*Repair and Activation of Thyroid in Hypophysectomized Tadpole by Parenteral Administration of Fresh Anterior Lobe of Bovine Hypophysis. P. E. Smith and I. P. Smith, Berkeley, Calif.—p. 267.
*Periarteritis Nodosa with Classification of Pathology. W. H. Harris and A. V. Friedrichs, New Orleans.—p. 285.
*Pathologic Lesions Produced in Kidney by Small Doses of Mercuric Chlorid. M. L. Menten, Pittsburgh.—p. 315.
Microchemical Distribution of Potassium in Normal Kidneys and in Those in Which Pathologic Changes Have Been Produced by Mercuric Chlorid. M. L. Menten, Pittsburgh.—p. 323.
Spontaneous Agglutination of Bacteria in Relation to Variability and to Action of Equilibrated Solutions of Electrolytes. R. R. Mellon, Rochester, N. Y.—p. 345.

Activation of Thyroid.—The experiments made by Smith and Smith indicate that in order to establish a successful therapy in cases of hypopituitarism it will be necessary to inject the active principle of hypophysial anterior lobe substance and not to administer larger oral doses. Such treatment should be successful since one of the factors necessary for the best use of anterior lobe substance is already present, namely, a "physiologic deficit."

Periarteritis Nodosa.—The augmented name of "periarteritis nodosa aneurysma thrombotica" is suggested by Harris and Friedrichs as a means of aiding in the diagnosis of the gross pathology presented at the necropsy table. The name periarteritis nodosa alone does not conform with the lesions usually found, although it is representative of the microscopic picture presented. The failure to diagnose the gross lesions when fresh material is available has no doubt accounted for the small amount of etiological investigation reported. It is for this reason that an addition to the name is suggested.

Effect of Mercuric Chlorid on Kidney.—Intravenous injections of mercuric chlorid made by Menten in amounts as low as 0.00002 gm. per kilogram of weight, cause microscopic pathologic changes in kidney and liver of the rabbit. These lesions are well defined five minutes subsequent to the termination of the injection.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

August, 1922, **20**, No. 1

Influence of Colloids on Action of Noncolloidal Drugs. V. Further Analysis of Augmentor Effect of Lecithin on Action of Pilocarpin. W. S. Van Leeuwen and A. V. S. Gyorgyl, Leiden.—p. 1.
*Rhododendron Poisoning. S. W. Hardikar, Edinburgh.—p. 17.
*Relation of Histamin to Intestinal Intoxication. II. Absorption of Histamin from Intestine. J. Measkins and C. R. Harington, Edinburgh.—p. 45.
*Evaluation of Hormone of Infundibulum of Pituitary Gland in Terms of Histamin, with Experiments on Action of Repeated Injections of Hormone on Blood Pressure. J. J. Abel and C. A. Rouiller, Baltimore.—p. 65.

Rhododendron Poisoning.—Hardikar states that andromedotoxin, the active principle of the rhododendron, acts on the terminations of the vagus which it first stimulates and then paralyzes. It paralyzes the motor nerve ends in striped muscle; while the paralysis is developing, the muscle and nerve are more easily fatigued, but regain their excitability after a period of rest. Death from andromedotoxin occurs in two forms: with very large doses it supervenes rapidly and is due to a direct action on the heart, the ventricles being arrested in diastole or partial systole. With smaller doses, it is due to failure of the respiration through a paralysis of the phrenics and often of the diaphragmatic muscle also. There is a narcotic action on the higher centers in the brain; the spinal cord is not affected. It produces a condition of arrhythmia in the heart dependent on a direct depressant action on the conducting tissue between the auricle and ventricle leading to heart-block, or upon the excitability of the ventricle itself. The poison has a slight vasoconstrictor effect of peripheral origin on the blood vessels. Involuntary muscle which is not supplied by the vagus is not affected. The seat of the emetic action of the poison has not been determined. At least a third of the poison injected hypodermically leaves the body unchanged in the urine.

Absorption of Histamin from Intestine.—Measkins and Harington have determined that the rate of absorption of histamin from the intestine, as measured by the rate of fall of blood pressure produced, is greatest from the ileum, somewhat less from the duodenum, and very much less, though still perfectly definite, from the cecum and stomach. Absorption experiments with an Eck fistula in operation indicate that the liver exercises a protective function, probably more mechanical than chemical, against heavy doses of histamin. With the mucous membrane damaged by cutting off the blood supply for from five to fifteen minutes the fall of blood pressure would indicate that absorption takes place at first with a rush and then almost ceases.

Evaluation of Hormone of Infundibulum of Pituitary.—A method is described by Abel and Rouiller which yields a preparation of the pressor-oxytocic principle of the infundibulum, which is actually equal in oxytocic activity to from twenty to thirty times its weight of the acid phosphate of histamin or from twelve to eighteen times its weight of histamin dihydrochlorid. It is estimated that when the active principle is freed entirely from the accompanying inert material, it will be found to be weight for weight from forty to fifty times more powerful in its action on the guinea-pig's uterus than histamin. The powerful solution with its extremely low content in organic matter, which is obtainable by the method described, exhibits all of the really characteristic physiologic activities of ordinary saline extracts of the infundibulum. The results obtained with relatively pure solutions and with the salts obtained from them lead the authors to believe that the vasomotor, oxytocic and renal action of their preparations are only the expression of the manifold physiologic properties of one and the same hormone. In addition to this principle the infundibulum also contains depressor substances which have been described in previous papers. The methods described in this paper effect a clean separation of the pressor-oxytocic substance from these depressor substances.

New Orleans Medical and Surgical Journal

August, 1922, **75**, No. 2

*Surgical Aspects of Benign Lesions of Breast. W. E. Sistrunk, Rochester, Minn.—p. 47.
*Cesarean Section Under Local Anesthesia, in Puerperal Eclampsia. J. A. Hendrick, Shreveport, La.—p. 57.
Importance of Vaginal Drainage in Pelvic Infections. J. F. Dicks, New Orleans.—p. 60.
*Intravenous Injections of an Organic Calcium Salt in Treatment of Tuberculosis. J. B. Lobenhoffer, New Orleans.—p. 65.
*Acute Infections in Spasmophilic Child. L. Von Meysenbug, New Orleans.—p. 78.
Why Radium Is Looked on with Disfavor by Some of Our Profession. C. H. Voss, New Orleans.—p. 82.

Improving Operative Results in Breast Lesions.—Further improvement in the results from operation for cancer of the breast from a change in the technic of the radical operation as it is performed by most surgeons at the present time, Sistrunk says, need not be looked for. Recurrences in early cases come mainly in positions which will never be accessible to the knife and the only chance of bettering results lies in earlier operation. If all cancers could be discovered through exploratory operations before definite clinical diagnoses are possible, a very high percentage of patients would be cured permanently. Certainly the results now obtained will not be improved by the "watching and waiting" policy. As the public becomes better educated, surgeons will no doubt be consulted oftener for tumors of the breast which in reality do not exist. After careful examination in these cases, the surgeon must be able to say that no tumor is present. These patients should be kept under observation until it is certain that the trouble complained of has completely disappeared. The conservative policy in dealing with conditions of the breast in which the question of malignancy enters at all will, even in the hands of the best surgeons, tend only to increase the number of deaths from cancer.

Cesarean Section Under Local Anesthesia in Eclampsia.—Ten cases are reported by Hendrick which were full-term pregnancies, presenting the symptom complex of eclampsia, profoundly toxic, convulsions frequent and severe, labor not set in and no dilatation of the cervix, rendering the condition so grave that delivery by some method was frankly indicated on admission. Cesarean section under local anesthesia was done with no loss of life to the mothers or babies, except in one case, that of a fetus which had been dead for several days.

Calcium Chlorid in Pulmonary Tuberculosis.—Lobenhoffer injects a 5 per cent. solution of calcium chlorid beginning with 100 c.c. in adults increasing the following doses to 150 c.c. Even 200 c.c., representing 10 gm. of the dry salt, was repeatedly tolerated without difficulty. About 200 patients have been treated by Lobenhoffer but he is not yet ready to make a report on results except to say that they have not been bad and that comparatively large doses of calcium are well tolerated.

Acute Infections in Spasmophilic Child.—For the immediate relief of the convulsions, von Meysenbug says, nothing works so well as chloral hydrate given by rectum. To a child of 2 years, 10 grains may safely be given. These cases have a lowered blood calcium and this can be raised by the administration of calcium by mouth. Perhaps the best form of calcium to use is calcium bromid in from 5 to 10 grain doses every three hours. This may be combined with a little sugar of milk. It should not, however, be given in combination with sodium bicarbonate, for the calcium ion and the sodium ion have an antagonistic action.

New York Medical Journal and Medical Record

Aug. 16, 1922, **116**, No. 4

Serpent Worship and Dawn of Medicine. J. Wright, Pleasantville.—p. 185.
Action of Various Substances on Liver. M. Einhorn, New York.—p. 188.
Hay-Fever and Pollen Therapy. R. O. Clock, Pearl River.—p. 193.
Successful Treatment of Hay-Fever and Causes of Failure. W. Scheppegrell, New Orleans.—p. 196.
Immunization Therapy in Hay-Fever. A. I. Rubenstone, Philadelphia.—p. 198.
Hay-Fever: Desensitization by Ingestion of Pollen Protein. M. G. Touart, New York.—p. 199.
Locating Fetal Heart Sounds. L. Drosin, New York.—p. 200.
Theory and Practice of Steinach Operation. H. Benjamin, New York.—p. 203.
Roentgen-Ray Treatment of Diseases of Generative Organs. I. S. Hirsch, New York.—p. 208.
Malnutrition in Infancy: Its Various Phases in Relation to Treatment. L. H. Dembo, Lancaster, Pa.; and H. R. Litchfield, Brooklyn.—p. 216.
Artificial Infant Feeding for General Practitioner. R. J. Melman, Philadelphia.—p. 221.
Drug Addict. J. A. Hamilton, New York.—p. 223.

Ohio State Medical Association Journal, Columbus

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Spontaneous Evolution in Transverse Presentation. S. J. Goodman, Columbus.—p. 541.
Chronic Infectious Arthritis (Still's Disease). S. D. Foster, Toledo.—p. 543.
Physician, Health Official and Cooperation. M. F. Hussey, Sidney.—p. 545.
Dermatoses of Present Day Interest. J. W. Miller, Cincinnati.—p. 547.
Eye and Nasal Symptoms in Pituitary Disease: Report of Case of Acromegaly. F. W. Alter, Toledo.—p. 550.
Differential Diagnosis and Treatment of Some Pulmonary Diseases with Special Reference to Artificial Pneumothorax. L. Mark, Columbus.—p. 554.
Phenol and Cresol Poisoning. R. Isaacs, Cincinnati.—p. 559.

Philippine Journal of Science, Manila

April, 1922, **20**, No. 4

New or Noteworthy Philippine Plants, XVII. E. D. Merrill, Manila.—p. 367.

Public Health Journal, Toronto

July, 1922, **13**, No. 7

Municpal Control of Milk Supply. A. G. Fleming.—p. 289.
Production of Clean Milk. E. H. Stonehouse.—p. 293.

Rhode Island Medical Journal, Providence

August, 1922, **5**, No. 8

Rickets and Tetany in Infancy. W. T. Buffum, Jr., Providence.—p. 287.
Some Aspects of Treatment of Diabetes. A. M. Burgess, Providence.—p. 290.

Surgery, Gynecology and Obstetrics, Chicago

August, 1922, **35**, No. 2

*Traumatic Asphyxia. T. M. Green, Wilmington.—p. 129.
*Hyperplasia of Rudimentary Lymph Nodes of Prostate. N. Fukase, Hakodate, Japan.—p. 131.
*Syncytioma (Atypical Chorioma) of Uterus Terminated by Acute Peritonitis. H. E. Meleney, Peking, China.—p. 137.
Meckel's Diverticulum. A. McGlannan, Baltimore.—p. 142.
Some Experiences with "Meltzer-Lyon" Test in Gallbladder Disease. E. C. Cutler and F. C. Newton, Boston.—p. 146.
Lipoma of Tendon Sheaths. Report of Case and Review of Literature. A. Strauss, Cleveland.—p. 161.
Splenectomy in Banti's Disease, Third Stage. Report of Two Cases, One with Positive Wassermann Due to Jaundice. D. Fisher, Ohio.—p. 171.
*Cancer of Prostate: Comparison of Results Obtained by Radium and Surgical Treatment. H. C. Bumpus, Rochester, Minn.—p. 177.
Leukocytosis Following Gynecologic Operations. R. A. Scott, Evanston.—p. 181.
Endeavor to Evaluate Chronic Sepsis in Pregnancy. J. E. Talbot, Worcester.—p. 187.
Bandl's Ring and Difficult Labor. P. T. Harper, Albany, N. Y.—p. 198.
Efficiency in Diagnosis of Neoplasms. W. C. MacCarty, Rochester, Minn.—p. 209.
Round Worm (Ascaris Lumbricoides) in Gallbladder. A. P. Butt, Elkins, W. Va.—p. 215.
*Radiotherapy in Carcinoma of Breast. G. E. Pfahler, Philadelphia.—p. 217.
Surgical Diathermy and Radiotherapy in Cancer of Uterus. G. Kolischer, Chicago.—p. 227.
Simplified Apparatus for Transfusion of Blood by Citrate Method. W. H. Byford, Chicago.—p. 229.
Production of Temporary Paralyses in Treatment of Difficult Cases of Congenital Dislocation of Hip Joint. G. Robertson, Dunfermline, Scotland.—p. 230.
Clinical Method of Determining Adhesions Between Stomach and Gall Tract. B. B. V. Lyon, Philadelphia.—p. 232.

Traumatic Asphyxia.—Green's patient went down in a diving suit to ascertain the damage to a vessel. While at a depth of 37 feet, his air connection became interfered with for a period of ten minutes and when taken out of the diving suit he showed the characteristic appearance of traumatic asphyxia. He was never unconscious, but was having small hemorrhages from the mucous membrane of the eyes, nose, mouth and rectum. Respiratory function was very shallow and irregular, but improved immediately with artificial respiration and oxygen. His mentality seemed to be normal after the accident. His face was swollen and markedly discolored. The discoloration went as low as the third rib in front and on the back outlined the double triangle formed by the trapezius muscles. This discoloration began at the margin of the hair as a deep red and gradually merged into a dark purple. It disappeared rapidly and was practically all gone at the end of the fourth day, except the eyes, which faded very much more slowly. He was discharged from the hospital at the end of the fifth day. There was never any permanent disability as a result of the accident.

Hyperplasia of Lymph Nodes of Prostate.—Fukase asserts that small, primitive, or rudimentary lymph nodes occur normally throughout the prostate in the form of very small aggregations of lymphocytes located beneath the glandular and duct epithelium, most marked toward the outlets of the ducts. They are analogous to the rudimentary lymph nodes found in other organs, such as the liver, kidneys, uterus, etc. Hyperplasia of these rudimentary lymph nodes of the prostate occurs chiefly in chronic hyperplastic prostatitis and in primary carcinoma of the prostate. In both conditions, the hyperplasia is essentially an inflammatory one due to chronic infection or irritation, and possesses the same significance that such hyperplasias have in other parts of the body. In the absence of chronic inflammation, a hyperplasia of the primitive lymph nodes of the prostate occurs in the lymphatic constitution, and may be found also in other generalized diseases of the lymphoid system, as Hodgkin's disease, lymphocytoma and leukemia. In both inflammatory and noninflammatory hyperplasias well developed germinal centers may be produced in the hyperplastic node. Other evidences of functional activity by these hyperplastic nodes are shown in the metastasis of pigment, tubercle bacilli and carcinoma cells to them.

Atypical Chorioma: Syncytioma.—A case of atypical chorioma is reported by Meleney in which the necropsy showed a small tumor in the right cornu of the uterine cavity, acute infection of the endometrium extending through vessels about the right fallopian tube, acute diffuse peritonitis, and hemolytic streptococcus bacteriemia. The tumor consisted only of syncytial cells lying singly and in clumps in the swollen stroma of the uterine mucosa and in the superficial portion of the myometrium. The case illustrates the importance of early determination of the cause of uterine bleeding, not only in order to deal properly with the tumor itself, but also to avoid a termination by acute general infection.

Radium and Surgery in Cancer of Prostate.—The results obtained thus far by radium in the treatment of cancer of the prostate, Mumpus shows, are inferior to those obtained by surgery. A combination of radium and surgery offers the best results.

Radiotherapy in Breast Cancer.—Thorough radiation treatment of cancer tissue will devitalize the cancer cells so as to interfere with their inoculation or further development. This, Pfahler says, justifies anteoperative treatment. Radiation effects are most evident on new growing tumor and such radiation will prevent the growth of inoculated tumors. Therefore, he recommends active postoperative treatment of cancer of the breast. Visible and palpable recurrent metastatic cancer are probably only an index of similar disease elsewhere, and therefore the treatment of these cases should not be confined simply to the palpable and visible disease. Such visible and palpable disease should receive the most active treatment and sufficient to cause its destruction and disappearance. Thorough radiation treatment will cause disappearance of tumor tissue in some cases, and therefore can be recommended when there is any reason for avoiding an operation. In every case of cancer of the breast there should be a roentgen-ray examination of the chest, and this should be repeated from time to time to detect any possible invasion of the mediastinum or lungs, sternum or spine.

Texas State Journal of Medicine, Ft. Worth

August, 1922, **18**, No. 4

Rational Use of Physiologic Salt Solution Intravenously. E. H. Bursey, C. H. Harris and W. S. Horn, Fort Worth.—p. 192.
Goiter Summary. C. M. Rosser, Dallas.—p. 196.
Pathology of Goiter A. C. Scott, Jr., Temple.—p. 200.
Toxic Adenoma of Thyroid Gland. P. C. Gunby, Sherman.—p. 204.
Surgical Treatment of Exophthalmic Goiter. J. A. Hill, Houston.—p. 205.
Surgical Treatment of Goiter. J. E. Quay, Waco.—p. 208.
Roentgen Ray Therapy of Hyperthyroidism. I. W. Jenkins, Waco.—p. 213.
Insects in Relation to Health of Man. F. C. Bishopp, Washington, D. C.—p. 215.
Dengue Fever: Preliminary Report of Epidemic at Galveston. L. Rice, Galveston.—p. 217.
Suprarenal Support in Phenol Poisoning: Report of Case with Recovery. C. F. Hayes and W. S. Horn, Fort Worth, Tex.—p. 218.

U. S. Naval Medical Bulletin, Wahington, D. C.

August, 1922, **17**, No. 2

Fish Poisoning in Virgin Islands. F. D. Walker.—p. 193.
Chemical Analysis of Blood. C. W. O. Bunker.—p. 202.
Weil-Felix Reaction. J. H. Chambers.—p. 211.
Aviation Medicine in U S. Navy. J. F. Neuberger.—p. 214.
Functions and Organization of Medical Corps Units Serving with Marine Corps in Field. S. N. Raynor.—p. 220.
Gas Warfare. Effects of Poisonous Gases—Early and Late. W. R. Galwey.—p. 230.

West Virginia Medical Journal, Huntington

August, 1922, **17**, No. 2

Appendicitis in Children. B. B. Wheeler, Beckley.—p. 41.
Tonsil as Source of Focal Infection. T. W. Moore, Huntington.—p. 48.
Exophthalmic Goiter. H. H. Haynes, Clarksburg.—p. 56.
Report of Two Cases of Hypertrophic Pyloric Stenosis. C. L. Holland, Fairmont.—p. 65.
Unexplained Constitutional Symptoms Caused by Foreign Body in Tissues. M. J. Schroeder, New York.—p. 69.
Relative Value of Radium and Roentgen-Rays in Cancer Therapy. I. Levin, New York.—p. 79.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

June, 1922, **45**, No. 1

*Study of Thomsen's Disease, Based on Eight Cases, in Family Exhibiting Remarkable Inheritance Features in Three Generations. J. Rosett, New York.—p. 1.

*Anatomy of Spina Bifida. V. H. Keiller, Galveston, Tex.—p. 31.

*Cerebellar Stimulations. F. R. Miller and F. G. Banting, London, Can. —p. 104.

*Three Cases of Suprapituitary Tumor Presenting Fröhlich's Syndrome. C. N. Armstrong.—p. 113.

Nervous Control of Urinary Bladder in Amphibians. F. J. F. Barrington.—p. 126.

Thomsen's Disease in Family.—In the first generation of the family described by Rosett, myotonia congenita and psychopathies coexisted in the same person, but in the second generation there is a clear-cut segregation of the two disorders, each becoming associated with a definite physical type of person; three individuals of a certain type became affected with Thomsen's disease, and the other three, of a different physical type, became affected with psychoses. In the third generation the psychosis, as well as the physical type associated with it, are eliminated. Four new types appear, each represented by one individual who has inherited from a respective parent, not a blood relation of the affected family, that parent's physical type and normal constitution. The rest of the members of the third generation are all of the myotonic type of the second generation, and they are all, with the possible exception of one who has not been studied, affected with myotonia. Rosett suggests that the mendelian phases of the family described may help to throw some light on two of the pathologic features of Thomsen's disease—the abnormally large musculature usually associated with it, and the muscular atrophy which is sometimes observed. Three of the nine cases described have suffered no physical discomfort from the disease, which they are almost certain to transmit to their posterity. Finally, one patient suffered from a form of Thomsen's disease which has greatly facilitated the study, and has to a great extent explained the mechanism, of the abnormal muscular action. The other is an instance, no one knows how rare, in which the manifestations of the disorder are evoked by strong psychic stimuli only. If it were not for the fact that this patient is a member of a myotonic family, and that she belongs to a group of persons marked by certain physical characteristics, the examination would have been inadequate, and her trouble would almost certainly have been regarded as a form of hysteria. The cases reported are analyzed in great detail.

Anatomy of Spina Bifida.—Keiller emphasizes certain features in the minute structure of cases of spina bifida which have a direct bearing on details of operative procedure, and on prognosis as regards nervous function after and apart from operation. A full discussion of seven cases is presented also a review of such literature as was obtainable.

Cerebellar Stimulations.—Evidence is adduced by Miller and Banting to prove that the cerebellar cortex is excitable. The reaction chosen as a test was the inhibition of decerebrate rigidity evokable by stimulation of the surface of the cerebellum. Reasons are given for concluding that this reaction is induced as the result of a state of excitation in the cortical neurones of the cerebellum.

Frölich's Syndrome with Suprapituitary Tumor.—The three cases described by Armstrong are instances in which Fröhlich's syndrome was present in a more or less pronounced form associated with unusual types of tumor in the base of the brain, none of which started in or infiltrated the pituitary body. In the first two cases the tumor was a cystic ependymoma, and in the third case a cholesterin containing cyst.

British Medical Journal, London

Aug. 19, 1922, **2**, No. 3216

Bacteriophage (Bacteriolysin). I. Nature of Bacteriophage. F. d'Herelle.—p. 289.

Id. II. Breaking Down of Bacteria by Associated Filter Passing Lysins. F. W. Twort.—p. 293.

Id. III. Concerning Theories of So-Called "Bacteriophage." J. Bordet. —p. 296.

Id. IV. Andre Gratia.—p. 296.

Id. V. J. C. G. Ledingham.—p. 297.

Id. VI. J. W. McLeod.—p. 298.

Bacteriology of Influenza. I. M. H. Gordon.—p. 299.

Id. II. J. McIntosh.—p. 303.

*Action of Flavine Antiseptics on Localized Pyogenic Infections. C. Bennett, J. W. S. Blacklock and C. H. Browning.—p. 306.

Case of Interstitial Gestation (Left Cornii). J. W. Heekes.—p. 309.

Action of Flavine on Infections.—The results are recorded by Bennett, Blacklock and Browning of a series of more than 600 severe burns and pyogenic conditions treated in hospital wards continuously with flavine antiseptics (acriflavine or proflavine) by a simple method. The points specially investigated have regard to the rate and progress of formation of granulation tissue, ossification, and healing of skin epithelium. Only those cases are considered in which intimate contact of the tissue with the antiseptic occurred. As compared with other methods of treatment, there was clinically no interference with formation of granulation tissue. There was no evidence of pellicle formation or necrosis. There was no tendency to hemorrhage beyond the slight oozing which occurs from the tips of well vascularized granulations denuded of their surface in the act of changing dressings and which is to be regarded as evidence of their healthy state. Ossification proceeded actively in periosteal granulation tissue under application of flavine. Epithelial regeneration, both in the form of ingrowth from surrounding skin and from grafts proceeded actively in contact with dressings soaked in flavine solution. Histologic examination in representative, unselected cases have confirmed and supplemented the clinical observations.

Journal of Tropical Medicine and Hygiene, London

July 15, 1922, **25**, No. 14

Plant Dermatitis. H. N. Ridley.—p. 225.

Passages of Medical Interest from West Indian Notebooks of Dr. Louis W. Sambon.—p. 227.

Lancet, London

Aug. 12, 1922, **2**, No. 5163

*Critical Examination of Current Views on Internal Secretion. S. Vincent.—p. 313.

*Epidemic Diarrhea, Analysis of 84 Fatal Cases. D. Paterson and D. Nabarro.—p. 320.

Circumcision Under Local Anesthesia. R. Roper.—p. 326.

*Nasal Obstruction in Infants. J. A. Jones.—p. 327.

*Effect of Bismuth on Kidneys. H. B. Day.—p. 328.

Labor Obstructed by Solid Carcinomatous Tumor of Left Ovary. S. G. Luker.—p. 329.

*Trauma as Cause of Chronic Gastric Ulcer. H. E. Griffiths.—p. 329.

Pneumothorax Following Breathing Exercises. J. Crocket.—p. 330.

Views on Internal Secretion.—Admitting that there is no objection to the investigation of the activities of tissue extracts, so long as the investigator realizes that the results are in themselves only of pharmacologic interest Vincent says it is only when several other lines of research have been explored that conclusions about an internal secretion may be drawn. Furthermore, it is still desirable to point out that the term "internal secretion" has been used too generally and too confidently. Knowledge of internal secretion is not yet even remotely comparable in accuracy and definiteness with knowledge of "external" or ordinary glandular secretion. With the exceptions of the various preparations of the suprarenal bodies, the thyroid and pituitary bodies, these animal substances have not been shown to possess any specific characters or to exercise any definite physiologic action on the economy. Their continued and indiscriminate exploitation constitutes one of the worst forms of present-day quackery. Manufacturing druggists, Vincent continues, are not the only, nor, indeed, the chief offenders in this matter. They after all only push upon the market what they are likely to be able to sell, and their prospect of sale depends on the recommendations of physicians. It is the physician's duty, therefore, to be much more critical in drawing conclusions from an apparent beneficial effect of the administration of extracts of organs and tissues. This is all the more necessary when more than one kind of substance is given at one and the same time. It is sometimes urged that the body will pick out the substance it needs and will discard the others. This kind of argument has influenced therapeutic practice throughout the ages, but it is of doubtful value and needs the check of careful observation. There is a special need of great caution when the substances are administered by the mouth. With the exception of those from the thyroid, it is very doubtful in Vincent's opinion whether any of the organic preparations have any action, physiologic or therapeutic, when given in this way. He urges that if the subject of internal secretion, in both its clinical and its physiologic aspects, is not to fall into utter disrepute, it must be treated with infinitely more of scientific discrimination than has hitherto been the case. The ordinary criteria of evidence must be duly regarded, and workers in all fields must realize the necessity for adequate and rigid control experiments.

Epidemic Diarrhea.—In Paterson's investigation the fatal cases seemed to fall into two definite groups—those with and those without a previous history of indigestion. Except for the history, these two types are indistinguishable clinically in the later stages. The intestine was involved in an equal percentage of both groups and to an equal extent. The duration of the disease did not influence the extent of the pathologic lesion in the intestine. The most constant pathologic finding was a gross fatty change in the liver—this change was an almost invariable finding in the previously healthy group. The infectiousness of this disease was no strikingly evident on analysis of these fatal cases. The observation of Ballard—that the 4 foot earth temperature reaching 56 F. is synchronous with the outbreak of diarrhea—was borne out in this series of cases. Paterson states the feeding both during and after the acute symptoms is of the utmost importance, and that the original symptoms are reproduced when certain foods are administered in some cases. The administration of saline subcutaneously, intraperitoneally, and fluids by the mouth are essential to make up for the fluid losses and dehydration present. The intraperitoneal method, on the whole, seemed to be the best method of administration when the symptoms were urgent, and should be given at not more than 100 F. Paterson cautions that this method is not devoid of danger and should be retained for those cases in which the urgency is marked.

Nasal Obstruction in Infants.—The causes of infantile nasal obstruction enumerated by Jones are: (1) congenital occlusion of the nostrils, (*a*) of the anterior nares, by means of a congenital web of skin at the junction of the vestibule with the nasal chamber proper, and (*b*) of the posterior nares, where a diaphragm consisting of bone, or partly of bone and partly of membrane, may partially or totally obstruct one or both choanae; (2) temporary presence of mucous secretion in the nose, and engorgement of the nasal mucosa, during the first few days of life before mouth breathing is established; (3) congenital syphilis; (4) mongolism; (5) adenoids. The symptoms are: (*a*) inability to suckle efficiently; (*b*) snoring when asleep and frequent suffocative attacks; (*c*) persistent cough; (*d*) nasal discharge; (*e*) convulsions, a comparatively rare symptom; (*f*) otorrhea. Treatment varies with the cause.

Effect of Bismuth on Kidneys.—Day has encountered certain toxic effects following the intravenous injection of bismuth, which are not mentioned in articles quoted. The preparation he used was the liquor bismuthi et ammonii citratis (B. P.), which contains about 9 per cent. of bismuth citrate. Injections of 0.5 or 1 c.c. had no general bad effect, but on repetition a black line formed on the gums with sometimes a stomatitis, the condition resembling a mixed effect of lead and of mercury. But intravenous injection, especially when the large dose of 2 c.c. was given, gave rise to signs of poisoning. There were nausea or actual vomiting and slight diarrhea in most patients. But the most striking result was a copious diuresis, unaccompanied by strangury or other signs of vesical irritation. The action of bismuth was tried in two cases of actual nephritis. In one patient, a case of acute nephritis associated with chronic bacillary dysentery, a definite diuresis, lasting some days, followed immediately on the intravenous injection, and his condition improved; in the other patient, a case of chronic nephritis, no change either for better or worse was observed.

Trauma as Cause of Gastric Ulcer.—Griffiths relates the case of a man who was struck in the epigastrium by the handle of a spade. He collapsed and vomited blood stained material. He was treated for gastric ulcer. About two months later Griffiths did an exploratory laparotomy and found an ulcer about a quarter of an inch in diameter on the anterior aspect of the stomach near the pylorus and the lesser curvature.

South African Medical Record, Cape Town

July 22, 1922, **20**, No. 14

Outlook of Radiotherapy, with Special Reference to Roentgen Rays. J. Van Roojen.—p. 262.
Treatment of Growths of Upper Air and Food Passages. J. C. G. Macnab.—p. 266.
Hits and Misses in Diagnosis of Skin Eruptions. C. Pijper.—p. 268.
Case of Madura Foot. H. W. Dyke and N. M. Macfarlane.—p. 270.
Influence on Eyestrain of Plane of Vision During Reading. A. Verwey.—p. 271.
*Human Anthrax and Arsphenamin. A. H. Louw and A. Pijper.—p. 273.

Arsphenamin in Human Anthrax.—The treatment of human anthrax by means of intravenous injections of arsphenamin or its substitutes has been employed by Louw and Pijper in eleven cases. All the patients made a very speedy recovery.

National Medical Journal of China, Shanghai

June, 1922, **8**, No. 2

Salient Points About Recent Pneumonic Plague in Harbin. J. W. H. Chun.—p. 71.
*Treatment of Asiatic Schistosomiasis. E. S. Tyau.—p. 83.
Fifty Cases of Fibroid Tumors of Uterus. P. K. Liang.—p. 86.
*Medical Aspect of Life Insurance in China. C. W. Low.—p. 94.
Blood Pressure in Healthy Individuals. C. L. Kao.—p. 101.
Schistosoma Infection of Dog. H. P. Chu.—p. 116.
Addison's Disease; Report of Case. U. K. Koo.—p. 120.

Treatment of Asiatic Schistosomiasis.—One of the problems of Oriental medicine that needs immediate attention, Tyau says, is Asiatic schistosomiasis, a disease which is steadily spreading. Tyau gives tartar emetic in sterile distilled water, freshly prepared once a week, and injected intravenously once every other day. The initial dose is ¼ grain to be increased each time ¼ grain up to the maximum dose of 2 grains. The maximum dose is continued once every three days until, repeatedly, a negative finding of the stool is obtained. And this is taken as evidence of cure, although not as scientific as Fairley's complement-fixation reaction. Symptoms of improvement usually appear after the patient has received more than 20 grains of the remedy, as evidenced by the reduction in size of the spleen and liver, disappearance of fever and dysenteric stools, and marked gain in color and weight.

Life Insurance in China.—In China life insurance is either never thought of or unknown to many people of all walks. The rich are well satisfied with their possessions, and, in fact, find it not necessary to bother themselves with life insurance. On account of the cost of life insurance and the low earning capacity, the poor are unable to take any policy. The rate of mortality and morbidity in the Chinese is high, so the cost of life insurance in China is greater than that of American and European countries. Similar to many foreign industrial and financial enterprises, the functions of life insurance and the benefits derived from it are not yet wholly understood by the general public. The life insurance companies enroll the majority of policyholders from the government officials, members of the army and the middle class of people. Low discusses this subject for the benefit of Chinese physicians, telling them about the medical staff, qualifications of medical examiners, important points in medical examinations, etc.

Annales de Médecine, Paris

June, 1922, **11**, No. 6

*Physiology of the Sympathetic System. L. Bard.—p. 453.
*The Liver in the Tuberculous. N. Fiessinger and P. Brodin.—p. 474.
Experimental Reactions in the Lung. A. Guieysse-Pellissier.—p. 495.
Histologic Lesions of the Salivary Glands in Mumps. Delater.—p. 503.
*Gliomatosis of the Brain. Bertrand and G. Medakowitch.—p. 509.

Physiology of the Sympathetic System.—Bard says that when treatment has to be merely symptomatic, an exact knowledge of the pathologic physiology of the symptoms is highly desirable. We have a number of drugs that act on the sympathetic system, but they require further study as to their action on the peripheral receiving apparatus or on the reflex centers, instead of giving the drug blindly on the mere assumption of excessive or deficient sympatheticotonia, without discrimination as to the exact condition.

The Liver in the Tuberculous.—Fiessinger and Brodin present evidence to show that disease of the liver is liable to rouse an old tuberculous focus, and favor the generalization of the tuberculosis. They cite some typical instances of this sequence. Fatty degeneration of the liver is frequently found at necropsy of the tuberculous, and with every progressive tuberculous lesion there are signs that the liver is suffering more or less. With liver disease, the tuberculin test is overwhelmingly negative even in the tuberculous. This anergy testifies to impairment of the defensive reactions, and the practical conclusion is evident that the liver should be spared as much as possible in the tuberculous. Alcohol in particular should be proscribed. "In torpid tuberculosis, blind overfeeding should be avoided, as also that absurd digestive therapeutics in which custom calls for the association of toxic drugs such as creosote, guaiacol, arsenic, phosphorus and others for this alleged antisepsis which is as nonexistent in tuberculosis as in medical pathology otherwise. . . ." Liver organotherapy might be logically indicated, but whether it succeeds or not does not alter the fact of the "hepatic anergy."

Gliomatosis of the Brain.—The twenty photomicrograms reproduced sustain the authors' assertions that a glioma is a complex reaction of all the elements of the brain tissue.

Archives de Médecine des Enfants, Paris

July, 1922, **25**, No. 7

Influenza in Children. E. Weill and A. Dufourt.—p. 385.
*Tuberculin in Whooping Cough. P. Nobécourt and Forgeron.—p. 394.
Sifting Out the Tuberculous in School Inspection. J. Bouquier and A. Routhier.—p. 401.
Hydrargyria; Two Cases. C. Pelfort.—p. 420.
Open Air Schools in France. J. Comby.—p. 423.

Tuberculin Skin Reaction in Whooping Cough.—Nobécourt and Forgeron present evidence that pertussis renders tuberculin tests negative in the tuberculous children, and seems to speed up the tuberculosis. They obtained a positive response to the tuberculin skin test in only 5.4 per cent. of the thirty-seven children tested, while necropsy in a number of the negative cases showed tuberculosis in 27 per cent. and in many of the negative skin test cases the reaction had previously been positive. The reaction became negative during the pertussis even in children with unmistakable tuberculous tracheobronchial glands. The whooping cough thus modifies conditions and induces anergy, and this favors the development of the tuberculosis in pertussis as well as in measles and influenza.

Bulletin de l'Académie de Médecine, Paris

June 27, 1922, **87**, No. 26

*Action of Quinidin. H. Vaquez and Leconte.—p. 704.
*Masked Auricular Fibrillation. P. Ribierre and R. Giroux.—p. 718.
*The Diet in Diabetes. J. Dumont.—p. 721.
*Pregnancy and Tuberculosis. F. Dumarest and P. Brette.—p. 724.

Action of Quinidin on the Heart.—Vaquez and Leconte review in detail their experience with this drug, and remark that, so far, nothing is known which will reveal whether it is going to benefit or not, or whether the effect will be transient or durable. Even when it does not restore the rhythm to approximately normal—as in valvular disease—yet the subjective relief is often pronounced. It may also enhance the action of digitalis or ouabain, previously inert. In complete solitary arrhythmia—in which quinidin is particularly effectual—it seems to push the heart back into a preceding phase of the affection, and thus postpones the failing of compensation. Nausea and diarrhea may be observed in some cases, but this is unimportant, and the only harm is if the drug is suspended in consequence. A tendency to syncopes was noted in one case, but was explained by the grave disease. Pulmonary embolism has been observed even with digitalis, and it is evident that any active drug which forces the heart to contract vigorously when it contains clots is liable to force some of them into the blood stream. But no one thinks of abandoning digitalis on this account. A case of sudden death has been reported under quinidin, but it was a case of complete heart block, and this should have contraindicated the use of this drug. They advocate progressive doses, beginning with 0.4 to 0.6 gm. and reaching 1 or 1.4 gm. in three or four days. It may be well to precede quinidin with digitalis or ouabain to stimulate the heart beforehand, on account of the depressing action of quinidin. The failure of one course may not testify to the complete inefficacy of the drug, as they have had it sometimes prove successful at a later trial.

Masked Auricular Fibrillation.—Ribierre and Giroux describe a case in which nothing but the electrocardiogram revealed the true causes of the paroxysmal tachycardia and arrhythmia, with extrasystoles, and apparently normal intermissions. The masked auricular fibrillation revealed by the electrocardiogram imposes an entirely different prognosis on the case.

Simplification of Dietetic Treatment of Diabetes.—Dumont expatiates on the great advantage in diabetes of giving carbohydrates that generate levulose rather than glucose. Every year since 1915 he has thus guided the diet in about twenty cases each year, and gives the details of one typical case. With a weight of 100 kg. the man averaged from 200 to 250 gm. of glucose daily in about 2,500 to 2,800 c.c. of urine. Milk was dropped and bread reduced to 200 gm., and the glucose output declined to 135 gm. and to 106 gm. when boiled potatoes were given instead of bread. Then vegetables producing inulin (jerusalem artichokes, salsify and scorzonera or viper's grass) were taken to a total of 150 gm. at a meal, and the glucose in the urine dropped to 3.6 gm. and the polyuria and polydipsia declined. Then the artichoke was dropped, but the glucose increased only to 10.8 gm. on the ordinary diet. Then for three months the artichoke was resumed, and the glucose disappeared almost completely. As the end of the year approached, the urine averaged only 2.5 gm. of glucose. In another case the output was 200 gm. of glucose and there was a carbuncle on the head. The man was cured in a few weeks and the glycosuria disappeared after the carbohydrates were given in the form of artichokes. He says, "This valuable plant reeducates the intestine by the levulose it brings and the modification of the intestinal flora. Foods producing inulin and levulose seem to reenforce the defensive forces of the diabetic while supplying the elements necessary for energy and heat."

July 11, 1922, **88**, No. 28

*Pregnancy and Tuberculosis. E. Sergent.—p. 23.
Treatment of Whooping Cough. G. Carrière.—p. 30.
*Esophagus Vasomotor Reflex. F. J. Collet.—p. 34.
*Tetrachlorethane Poisoning. Frois.—p. 40.
Coincidence of Sunspots and Exacerbations of Chronic Diseases. J. Vallot, G. Sardou and M. Faure.—p. 41.

Pregnancy and Tuberculosis.—The optimistic views of Dumarest and Brette were summarized recently, page 591, when published elsewhere. Sergent protests against them. He acknowledges that the arrest of menstruation does have a favorable influence on tuberculosis, but that this lull is only transient. The disease flares up after delivery with ever greater intensity. He has had instances of tuberculous women passing safely through one or more pregnancies, but the disease in their case was always the torpid stagnating type, not active at the onset of gestation. In the discussion that followed, Bar asserted that when a pregnant woman unmistakably tuberculous does not react to the tuberculin test, no matter how minute the pulmonary lesion seems to be, she is gravely affected. If the pregnancy is not terminated until after the fourth month, it is too late, and even between the third and fourth, the outcome is dubious.

Esophagus Vasomotor Reflex.—Every attempt to introduce the sound in progressive dilation of the cicatricial stenosis of the esophagus in the girl of 19 induced intense redness of the face, ears, arms and chest. It was accompanied with profuse salivation, acceleration of the pulse and other vasomotor phenomena. Collet found this same reflex in other persons tested, but much less pronounced.

Tetrachlorethane Poisoning.—Frois explains that artificial ventilation stirring up the air is not enough to prevent the toxic action from absorption of the fumes of this solvent. In twelve fatal cases reported in England the liver and kidneys suffered most and the blood did not show any alteration. He explains that the fumes are heavy, and the best means for prophylaxis is to draw them down and out with an exhaust ventilator. By this arrangement the manufacture of artificial pearls, for instance, can be carried on without danger of serious harm. (An abstract discussing the early diagnosis of this poisoning was given in these columns, Jan. 14, 1922, page 146.)

Bulletin Médical, Paris

June 10, 1922, **36**, No. 24

Balance in Foods and Nutrition. G. Mouriquand.—p. 471.
*Thrombosis in Hemorrhagic Conditions. P. Emile-Weil and Isch-Wall. —p. 478.
Recent Works on Therapeutics. G. Lyon.—p. 479.

Thrombosis in Hemorrhagic Conditions.—Weil and Wall analyze a case of febrile asystolia in a woman of 32 with hemoptysis and petechial hemorrhages and the blood findings of purpura. Necropsy disclosed a typical infarct in the lung and both auricles clogged with white clots, and thrombosis in femoral and humeral arteries, etc. There was thus a combination of two apparently opposite conditions, thrombosis and a hemorrhagic state. Some infection induces the thrombosis, and the production of the clots entails a hemorrhagic tendency in the rest of the blood.

June 24, 1922, **36**, No. 26

Bismuth in Treatment of Syphilis. Simon and Bralez.—p. 523.
Diabetes of Syphilitic Origin. F. Rathery and P. Fernet.—p. 527.
*Colloid Reactions of Cerebrospinal Fluid. G. Laroche.—p. 530.
The Fight Against Syphilis. L. Bizard and J. Bralez.—p. 532.

Colloid Reactions of the Cerebrospinal Fluid.—Laroche reiterates that the colloidal benzoin test is instructive in various forms of neurosyphilis. In general paresis the benzoin reaction is very pronounced, as also often in tabes. In clinically progressing forms of cerebrospinal syphilis, the colloidal benzoin reaction is positive. When progressing syphilitic lesions have disappeared and only sequelae remain, such as hemiplegia, paralysis, etc., the colloidal benzoin reaction is often negative. In secondary syphilis, the benzoin reaction is positive only in patients having pronounced hyperalbuminosis and hypercytosis, with positive Wassermann reaction. The reaction is negative in patients with lesions of the nervous system of nonsyphilitic origin. It is always negative in epidemic encephalitis while the Wassermann reaction may be positive. Comparing the Wassermann reaction and the colloidal benzoin reaction in neurosyphilis, one may be positive while the other is negative, and vice versa. Cases exist in which a positive colloidal benzoin reaction alone leads toward a diagnosis of neurosyphilis, confirmed later by the evolution of the disease, and the Wassermann test becoming positive after reactivation with arsenical or mercurial treatment. It is also of real prognostic value, and can give important data on the gravity of clinical cases. It is simple and accurate and should be used in conjunction with the Wassermann reaction, and will give valuable information on the acute and subacute evolution of syphilitic lesions. Laroche describes his technic in detail, and extols the advantages of this colloidal benzoin method over the Lange, Emanuel and other tests.

July 15, 1922, **36**, No. 29

*Inguinal Lymphogranulomatosis. Gastinel and J. Reilly.—p. 577.

Inguinal Lymphogranulomatosis.—Gastinel and Reilly state that during the last few years cases of lymphogranulomatosis seem to have multiplied and have been the subject of many researches. The clinical picture was practically the same in all the twenty cases under their observation. Subacute inguinal adenitis has a tendency to spontaneous suppuration in the superficial glands but they never observed it in the iliac glands. The bacteriologic and experimental arguments presented in their article eliminate tuberculosis in diagnosing the nature of lymphogranulomatosis. On the other hand, Spillmann demonstrated that lymphogranulomatosis and syphilis can develop separately and successively in the same patient. The distinction between soft chancre, bubo and lymphogranulomatosis is more difficult to make, but in a soft chancre bubo, the suppuration involves the whole glandular mass, while in lymphogranulomatosis, the abscesses are multiple and limited. No specific treatment for lymphogranulomatosis has yet been found on account of the lack of knowledge concerning the etiology of the affection.

July 22, 1922, **36**, No. 30

Present Status of Herpes Zoster. A. Civatte.—p. 591.
*Infectious Origin of Multiple Sclerosis. Stefanopoulo.—p. 594.

Infectious Origin of Multiple Sclerosis.—Stefanopoulo gives photomicrograms of the spirochetes found in the cerebrospinal fluid of monkeys, rabbits or guinea-pigs inoculated with cerebrospinal fluid from patients with multiple sclerosis. He calls it the "S micro-organism," and states that the experiments succeeded only in eleven of the sixteen clinical cases, but the micro-organism was found in the spinal fluid in two of the latter.

Bulletins de la Société Médicale des Hôpitaux, Paris

June 30, 1922, **46**, No. 23

*Herpes Zoster in Children. J. Comby.—p. 992.
Vaccine Therapy in Malta Fever. Alfred-Coury.—p. 998.
*Varicella and Herpes Zoster. J. Pignot and H. Durand.—p. 1002.
Idem. A. Netter.—p. 1004. Idem. J. Rateau.—p. 1022.
*Pigmentation in Syphilitic. M. Pinard.—p. 1009.
Case of Ophthalmoplegic Migraine. A. Souques.—p. 1012.
*Adiposis Dolorosa. Pasteur Vallery-Radot and M. A. Dollfus.—p. 1016.
*Bile in Test and Treatment for Dysentery. Le Noir and M. de Fossey. —p. 1024.
Herpes Zoster in Epidemic Encephalitis. A. Netter.—p. 1028.
Diagnosis and Treatment of Retropharyngeal Abscess. J. Comby.—p. 1034.
Vaccine and Herpes Zoster. J. Dumont.—p. 1036.

Herpes Zoster in Children. — Comby has encountered 84 cases of herpes zoster in children from 8 months to 15 years old. In none of his cases was ever any connection with varicella apparent, and he protests that there is not the least analogy between the two. In 18 of 25 given the tuberculin test the response was positive. In only 2 cases was the herpes bilateral; it was on the chest in 37 cases, and on the head and neck in 7. In the discussion that followed several instances were cited of herpes zoster and varicella occurring in the same subject with a few years' interval, showing that the immunity conferred by one does not protect against the other, as would be the case if the two were the same disease. Pignot and Durand reported a case of herpes zoster in a woman and varicella developing the thirteenth day in her nursling, 9 months old. Rateau describes a similar case. Netter added 9 new cases to his previous list of this coincidence, a total of 26. He declares that it is not only possible but of frequent occurrence that varicella develops in the environment of herpes zoster when it comprises persons not immunized to varicella by a preceding attack.

Abnormal Pigmentation.—Pinard's patient is a woman of 38 and the pigmentation on the face and breast is like coal dust. There was nothing to suggest diabetes or cirrhosis, but her daughter shows signs of inherited syphilis. On this basis the woman was given treatment as for syphilis, and the pigmentation and the general symptoms notably subsided. Multiple subcutaneous ecchymoses were among her earliest symptoms, appearing with the pigmentation.

Adiposis Dolorosa. — The interest of the typical case of Dercum's disease described lies in the roentgenograms of the pituitary region. They show enlargement of the sella turcica.

Diagnosis and Treatment of Amebic Dysentery.—In dubious cases, Le Noir seeks to enrich the amebas and for this purpose feeds bile. Under the influence of nine capsules of some bile extract daily, diarrhea sets in, and amebas become numerous in the stools. They are young and more amenable to treatment in this stage. This same bile treatment is useful also in confirming the cure.

Gazette des Hôpitaux, Paris

July 13, 1922, **95**, No. 54

*Fatal Syncope After Puncture of Pleura. A. Cain and P. Hillemand. —p. 869.
*Preventive Serotherapy Against Tetanus. Lop.—p. 872.
The Fight Against Cancer. J. Laumonier.—p. 873.

Fatal Syncope After Puncture of Pleura.—Acute pulmonary tuberculosis had progressed extremely rapidly in the woman of 22. Cain and Hillemand had not found tubercle bacilli in the sputum, and the tuberculosis was a necropsy surprise. Three capillary punctures were made at the right base, without any incident, but the patient's condition became worse, and another puncture was made in a region where clinical and radioscopic examination suggested pleural or pulmonary suppuration. Notwithstanding local anesthesia, the puncture was followed by syncope and convulsions entailing death although all efforts were made to revive the patient. This case does not belong to the group of pleural epilepsy cases. Syncopal manifestations were predominant, and the convulsions occurred only at the last moments. In Apert and Vallery-Radot's similar case, the apparently healthy child of 4 had a small bilateral pleural effusion, and an ordinary exploratory puncture, although made while forcibly holding the scared child, sufficed to produce fatal syncope. Necropsy revealed latent myocarditis. In Cain and Hillemand's case, the suprarenals had an ecchymotic aspect due to intense capillary congestion, with the same effect as suprarenal hemorrhage in infectious disease. Hyperemia was limited to the suprarenals and was not found in other viscera. It was intense enough to disintegrate the gland and entail acute suprarenal insufficiency, which was probably, like the myocarditis in Apert's case, one of the principal causes of death. A pleural reflex, whatever may be its real nature, is susceptible of entailing far reaching disturbances but not death. Death is due to some grave organic lesion which may reveal itself then for the first time, after the reflex is involved. In this case the lesion was evident from the alteration of the suprarenals, but bulbar hemorrhage, cardiac thrombosis or obliteration of large vessels might lead to the same fatal conclusion.

Preventive Serotherapy Against Tetanus in Civilian Practice.—Lop's article was reviewed in the Paris Letter, Aug. 12, 1922, p. 569.

Lyon Chirurgical

May-June, 1922, **19**, No. 3

*Fracture of Both Bones of Forearm. P. Santy.—p. 241.
Isolated Fracture of Lumbar Transverse Processes. M. Oudard and G. Jean —p. 254.
Walking Splint for Fractured Leg. M. Lagoutte and B. Lambert.—p. 281.
Treatment of Pyostercoral Fistulas. X. Delore and A. Devaux.—p. 285.

Fracture of Both Bones of Forearm.—Santy places the patient prone, the shoulders slightly raised, the arm extending at a right angle, the hand resting on a stool just high enough to flex the elbow. This position is comfortable, and allows access to the forearm from all sides, while it is firmly supported. The only drawback is that the position is rather inconvenient for the anesthetist. He urges the necessity for early, almost emergency intervention when there is displacement with fracture of both radius and ulna. Every hour wasted on nonsurgical measures makes the surgical intervention more difficult. He begins by reducing the radius. If the fracture is oblique, the shaft can be reconstructed by holding the stumps in place with metal bands. If not, a Lane or Lambotte plate has to be screwed to the bone for the osteosynthesis. The intervention has to be repeated on the ulna, and the correction thus realized is maintained with a plaster splint applied to the dorsal aspect of the forearm, in supination, the splint including the elbow and wrist. This plaster immobilization must be continued for a long time. Between 18 and 25 the splint can be removed for a few hours every day after the thirtieth day, to allow a few passive exercises of the arm after the thirtieth day, not before. Active movements should not be begun until the forty-fifth day, under close supervision. In persons over 25, the immobilization should be longer, for forty-five days at least. If then there is any indication of weakness, a tendency to curve or weakness in active supination, the plaster immobilization should be at once resumed. Radiography generally shows then some slight displacement, and loosening of the plate. It is better then to discard the plate and apply a new plaster. In this case Delagenière's grafts have proved extremely useful.

Médecine, Paris

July, 1922, **3**, No. 10

*Diseases of Digestion and Nutrition in 1921. L. Lortat-Jacob.—p. 725.
*Dyspepsia in the Elderly. P. Le Noir.—p. 734.
Etiology of Cirrhosis. M. Garnier.—p. 740.
*Hyperglycemia in Prognosis. F. Rathery.—p. 742.
Manifestations of Syphilis in Stomach. Bensaude and Rivet.—p. 747.
*Gastric Ulcer and Syphilis. A. Cade.—p. 752.
Clinical Varieties of Exophthalmic Goiter. P. Sainton.—p. 754.
*Extrarenal Uremia. P. Merklen.—p. 760.
*Cirrhosis and Syphilis. M. Villaret, H. Bénard and P. Blum.—p. 766.
*Infectious Origin of Gallstones. M. Renaud.—p. 770.
Gout and Cholesterinemia. J. Troisier.—p. 772.
*Secondary Gastric Dyspepsia. G. Faroy.—p. 776.
*Jaundice and Insufficiency of the Liver. E. Chabrol and H. Bénard.—p. 781.
Diabetes Insipidus. L. Lortat-Jacob and R. Turpin.—p. 784.
Medicinal Treatment of Uricacidemia. P. Lassablière.—p. 790.
Diabetes in Children. Hallez.—p. 793.
Preservation of Vitamin Elements. O. Rolland and A. Jouve.—p. 794.
Cholagogues. Hallez.—p. 795.

Diseases of Digestion and Nutrition in 1921.—Lortat-Jacob remarks that the dominant event in this field last year was the discussion of glycemia at the Strasbourg Medical Congress. Diabetes and nephritis are estimated now from the blood, instead of from the urine. The treatment of a diabetic has to be based on his own individual metabolism, the balance-sheet of tentative experiments and the interchanges, studying the effect on one of the changes realized in the other, until a salutary balance is reached. Among the other works of the year he mentions Rist's favorable experience with calcium chlorid by the vein in treatment of the rebellious diarrhea of the tuberculous. He mentions further the promulgation in France of Sippy's method of treating gastric ulcer.

Dyspepsia in the Elderly.—Le Noir comments on the difficulty of excluding gastric cancer in the elderly. It may be simulated by chronic gastritis, or appendicitis, stenosis, arteriosclerosis, the gastric manifestations of uremia, and dyspepsia from deranged bladder functioning. Medical treatment should be addressed to the primary cause, and active drugs should be used less freely than in younger subjects. The condition of the heart, lungs and kidneys should decide the advisability of operative measures, rather than the age.

Hyperglycemia in Prognosis of Diabetes.—Rathery stresses the importance of the *indice glycémique de tolérance,* as an element for the prognosis, that is, the sugar content of the venous blood on a diet comprising the extreme amount of carbohydrates that can be ingested without inducing glycosuria. Each diabetic has his individual glycemia tolerance index, and if this is high, the prognosis should be reserved. The carbohydrates ingested beyond the assimilable amount seem to exert a directly toxic action.

Gastric Ulcer and Syphilis.—Cade recalls that when syphilis is responsible for gastric ulcer, the pains are more irregular and not connected so strictly with the meals as under other conditions. Their predominance at night is also suggestive, and the slight influence of repose and dieting. The pains may be so severe as to suggest tabes, and so tenacious that cancer seems certain, but the most characteristic feature is the hemorrhagic tendency. Hematemesis is frequent and may prove fatal. The first sign of trouble may be profuse hemorrhage from the stomach. The failure of the classic course of treatment for ulcer is presumptive evidence of a syphilitic origin. Castex even asserts that round gastric ulcer is always traceable to syphilis, but Cade protests that this is too sweeping.

Azotemia in Absence of Nephritis.—Merklen calls attention to the retention of urea from oliguria: There is not enough fluid in the kidneys to dissolve the urea enough for its evacuation. This extrarenal uremia from oliguria is common in acute infectious diseases and with asystolia. The azotemia may be due to deranged metabolism, and this is also common with acute infections. One special instance of it is in athrepsia; a progressive increase in the urea of the cerebrospinal fluid indicates a grave outlook even though the kidneys may be sound. There is also liable to be a postoperative extrarenal azotemia, and azotemia in lead poisoning, in liver disease, in anuria and in shock.

Cirrhosis and Syphilis.—Villaret argues that the combination of syphilis and alcohol is responsible for the majority of cases of cirrhosis of the Laennec and Hanot types. This is important for treatment, and cases are being published of a clinical cure when the syphilis element has been eliminated from the clinical picture before irreparable lesions had become installed.

Cholecystitis.—Renaud asserts that cholecystitis may exist without gallstones, but gallstones cannot exist without cholecystitis. The cholecystitis is secondary to some infectious process elsewhere, and unless the latter is cured, the cholecystitis is liable to keep recurring. The primary infectious process may date from childhood. He adds that such experiences are confirming the wisdom of watching over the course of all acute infections in children more carefully, and treating them as serious affections.

Secondary Gastric Dyspepsia. — The gallbladder or the intestine may be responsible for symptoms from the stomach, and Faroy describes a number of cases of this secondary dyspepsia. Colitis is by far the most frequent cause, but it may be so mild as to escape detection. Treatment of the colitis or lithiasis may arrest all the gastric symptoms or they may subside under treatment of the autonomic nervous system, eserin or atropin, etc.

Is Jaundice a Sign of Insufficiency of the Liver?—Chabrol and Bénard insist that jaundice implies merely retention of bile, and that there is no relation between the degree of jaundice and the intensity of the symptoms ascribed to functional insufficiency of the liver. The degree of cholemia is not proportional to the depth and extent of the lesions in the liver.

Paris Médical

July 15, 1922, **12**, No. 28

*Surgery for Children and Orthopedics in 1922. A. Mouchet and C. Roederer.—p. 53.
*Results of Operative Treatment for Cleft Palate. A. Broca.—p. 58.
*Arthrodesis of Hip Joint. Nové-Josserand.—p. 63.
*Torsion of Spermatic Cord in Children. A. Mouchet.—p. 68.
*Fencing Attitude for Grave Scoliosis. C. Roederer.—p. 73.

Surgery for Children and Orthopedics in 1922.—Mouchet and Roederer mention among recent important works in these lines one calling attention to hypertrophy of the transverse process of the seventh cervical vertebra, which has been observed recently, with or without cervical ribs. This anomaly might explain persistence of pains in the arm after resection of a cervical rib. Ombredanne has reported operative correction of a congenitally high scapula in a child. He severed the clavicle before drawing down the scapula.

Treatment of Cleft Palate.—Broca reports 1.5 per cent. mortality in his 529 operations of this kind, all under chloroform. In 447 the operation was concluded at one sitting. Carelessness in the after-care was responsible for 2 of the fatalities; 4 others were explained by diphtheria or pneumonia, but no cause was known for the seventh fatality; death occurred suddenly. In 10 of his latest series of 250, no operation was practicable; in the others, 81 per cent. were cured at once, and 12.8 per cent. after a second operation. In operating on young infants, the operation is easy and rapid, and the child learns to talk later without having bad habits of speech to overcome. These advantages are counterbalanced by the fact that the operation proved successful in only 73 per cent. In each case therefore, the interested parties will have to weigh the lesser certainty of an immediate cure against the greater certainty of better speech.

Arthrodesis of Hip Joint.—Nové-Josserand discusses the indications for the different methods of surgical fixation of a joint. He comments on Maragliano's success with a long bone graft, outside of the hip joint (described in these columns, May 20, 1922, p. 1579). The grafts retained their vitality although they are in contact with bone only at the two ends. He remarks that these surgical procedures applied to the hip joint do not threaten to rouse the tuberculosis, and the results have been very satisfactory. Artificial ankylosis has thus won a place in surgery; it can be regarded now as a rather benign intervention, promising so well that we can safely recommend it, and he prophesies a brilliant future for it.

Torsion of Spermatic Cord in Children.—In one of Mouchet's two cases recently the testicle had twisted in a rather ample vaginalis. In the other case the torsion was of the whole cord and its envelops. The boys were 8 and 9 years old, and the torsion was gradual in the first case, but the acute phase with violent pains occurred in both. Otherwise the clinical picture is that of acute orchitis, but the latter is rare in children. Operative correction should be prompt, to ward off irreparable injury. He resected the testicle in his second case as it was in an abnormal position, and gangrene threatened.

Fencing Position Extension for Scoliosis.—Roederer's illustrations show the excellent results realized in grave right dorsal, plus left lumbar scoliosis, for example, the child seated on the left buttock, the left knee flexed. The right leg is extended backward, the left arm extended forward and upward, the position like that in fencing. The left arm, the trunk and the right leg form a straight line at an angle, with the floor, of about 45 degrees. Openings in the plaster cast allow the passage of broad bands for traction from opposite sides. The results in the thirty cases in which this method has been applied for about a month are said to have been infinitely better than with the Abbott method.

Presse Médicale, París

July 8, 1922, **30**, No. 54

*Congenital Scoliosis. A. Mouchet and C. Roederer.—p. 577.
*Heliotherapy for Tuberculous Arthritis in Adults. J. Doche.—p. 579.
*Typhus According to Recent Russian Writers. L. Cheinisse.—p. 581.

Pathogenesis and Evolution of Congenital Scoliosis.—The motto heading this article is, "There is not one but various forms of congenital scoliosis." It was one of the leading addresses at a recent congress, and was summarized in the Paris Letter on page 673. Eight illustrations show the different types of congenital scoliosis.

Heliotherapy for Tuberculous Arthritis in Adults.—Doche reviews his experiences in 171 cases given treatment at a seashore sanatorium. The general condition should dominate the indications for treatment; in the total of 171 cases the joint focus was isolated in only ninety-six cases. The main thing for both adults and children is to improve the general condition so that the organism can carry on its own fight and defence, and this is what we try to accomplish with heliotherapy.

Early Diagnosis of Typhus.—Cheinisse describes an early sign of typhus to which Vinokourov called attention and which promises to be as instructive as Koplik's spots in measles. The mucous membrane of the mouth and throat is congested, and the front of the uvula is studded with punctiform petechiae, some as large as the head of a pin. Similar punctate extravasations may be found in scarlet fever and whooping cough, but there is little danger of confounding these with typhus. This sign seems to be constant during the first two days, reaching its height the third day and then disappearing by the fourth or fifth day. Complications have been found more frequent in Russia with typhus than with typhoid or relapsing fever, the figures being 29.9; 11.2 and 4.42 per cent. In all of them the complications were almost always in the soft parts or parotid glands. Dmitriev reports gangrene of the legs in 173 of his 9,239 cases of typhus, and only thirteen recovered of the 173. An abortive action from mercury is possible only in the first four days of the disease. It was realized in twenty-three of twenty-nine patients between 15 and 30, and in three of twenty-two others between 30 and 45.

July 15, 1922, **30**, No. 56

*Influence of Retention of Salt on the Respiratory Apparatus. F. Bezançon, S. I. de Jong and A. Jacquelin.—p. 597.
*Immunization Against Diphtheria. J. Renault and P. P. Lévy.—p. 599.
*Therapeutic Applications of Adsorption. L. Cheinisse.—p. 602.

Injurious Influence of Retention of Salt on the Respiratory Apparatus.—Bezançon and his co-workers have been testing 35 patients with cardiorenal disease, examining for albuminuria and tube-casts, chloridemia, uremia, the blood pressure, and the preceding bronchopulmonary history. Then the sodium chlorid intake was reduced to 1.5 gm. a day until the condition was stable, and then 10 gm. of sodium chlorid was given on four consecutive days, and the lung and respiratory findings recorded during this "chloridation period." The reaction in the cardiorenal cases with old respiratory affections was essentially bronchial or alveolar or both. The size of the heart and liver, the pulse, the peripheral edema and the weight showed little if any modification in this group, while in those subjects with previously normal respiratory apparatus, the disturbances from the retention of the salt were of these different kinds. The respiratory affection thus seemed to be the point of lesser resistance, where the effect of the retained sodium chlorid was felt most. They then turned their attention to patients with asthma, chronic bronchitis, and sclerosis but free from known disease of heart and kidneys. They reasoned that an unsuspected functional incapacity might possibly be inducing more or less retention of sodium chlorid, and that this was aggravating the respiratory affection. This surmise proved to be correct in 4 of 19 subjects examined. Nothing had ever suggested kidney disease; the blood pressure, urea content and Ambard constant were within normal range, but the daily 10 gm. of sodium chlorid induced edema and respiratory symptoms, and 9 others had their bronchopulmonary symptoms decidedly aggravated. Paroxysmal dyspnea was noted in 6 of the 19, most pronounced at night. In 8 cases expectoration became much more profuse, and in some it became purulent.

It is evident that the organism seeks to cast off through the bronchi some of the retained sodium chlorid. The research reported teaches the practical lesson that, in all affections of the respiratory apparatus, the intake of salt must not surpass the amount that can be duly eliminated. It also teaches the wisdom of a salt-poor or salt-free diet in asthma, bronchitis and other respiratory affections, regardless of whether they have heart or kidney disease or not. Simple reduction of the intake of salt is more effectual in combating their dyspnea, etc., than antispasm and sedative drugs. The salt-poor diet should be supplemented with diuretics. In cases with failing compensation, digitalis may improve conditions in regard to respiration and expectoration.

Immunization Against Diphtheria.—Renault and Lévy have been experimenting for over fifteen months with a modification of the Zingher toxin-antitoxin method of immunizing against diphtheria. They inject fifty toxin units with 5,000 antitoxin units, mixed together just as they are to be used. They thus treated thirty-two children giving a positive Schick reaction, and the effects seemed to parallel closely those of the American writers.

Therapeutic Applications of Adsorption.—Cheinisse deplores that so little use is made of animal charcoal in treatment of poisoning, in typhoid, in cholera and other febrile gastro-enteritis cases. If 3 gm. of finely pulverized animal charcoal is stirred into 65 c.c. of a 0.15 per cent. solution of methylene blue and filtered, the filtrate shows no trace of the stain. It has all been adsorbed by the charcoal. This adsorption is reversible in time, and hence a purgative should be given with the charcoal when used internally, to hasten its evacuation before absorption can occur. It should be given stirred into a pint of water, and no food should be taken for two hours at least. Animal charcoal is a universal and model adsorbent, and that made from blood is a better adsorbent than from bone. The unit of adsorbing power is that 0.1 gm. of the charcoal should adsorb at least 20 c.c. of a 0.15 solution of methylene blue. As the charcoal can adsorb only what is free in the alimentary canal, it should be given as early as possible, before absorption has occurred; in dysentery it should be given without waiting for the bacteriologic findings.

Revue Médicale de la Suisse Romande, Geneva

February, 1922, **42**, No. 2

Tincture of Garlic in Treatment of Gangrene of Lung. M. Roch.—p. 65.
Sacralization of Fifth Lumbar Vertebra. G. Turini.—p. 75.
*Lumbar Pain with Vertebral Disease. A. Jentzer and L. Baliasny.—p. 81.
Neo-Arsphenamin and Anti-Anthrax Serum in Anthrax. J. Roux.—p. 98.
Subcutaneous Calcareous Concretions. A. Cramer.—p. 111.
Case of Lamblia Intestinalis. A. Reverdin and E. Chomé.—p. 118.
Simultaneous Rupture of Spleen and Kidney; Recovery After Splenectomy Plus Nephrectomy. J. Roux.—p. 119.

Pain in Lumbar Region.—Jentzer and Baliasny remark that signs of inflammation and ankylosis of vertebrae have been found in skeletons of the stone age, but the war brought spondylosis and spondylitis into prominent interest. The general assumption is that there is always more or less pain with spondylitis, but eleven cases are described here which show that there are six forms of spondylitis: that without pain and that with pain; a pseudospondylitis with or without pain; a posttraumatic form, and the spondylitis for which tuberculosis or gout is responsible. Radioscopy has demonstrated that bony excrescences, twisting and curvature of the spine may be encountered in any of these forms, and hence are not characteristic of spondylitis deformans. Before ascribing the lumbar pain to any spinal affection, we must exclude lumbago, the girdle pains of tabes, gastric ulcer, a calculus in the kidney, colitis, etc. We know that spondylitis may have periods of complete remission, absolutely free from pain, and that spondylosis (spondylitis deformans) develops silently. Spondylitis appears as a rule between 20 and 50, and proceeds by waves. Pain distinctly limited to one vertebra, the roentgen findings negative, suggests incipient Pott's disease, spondylitis, or metastasis of cancer. In one of the cases reported, obstinate constipation and abdominal pain were finally explained by a secondary vertebral affection, although this had never caused local pain. With any accident to the spine, a roentgenogram should be taken at once, to compare with the findings four or five months later, in accident insurance cases, etc. Tuberculous spondylitis is painful if the process is close to the periosteum, but not when in the center of the bone. Tuberculous foci have often been found thus in the depths of the bone which had been absolutely silent during life. Cold and wet are often the only factors that can be determined in spondylitis with an intermittent clinical course. Treatment depends on the differential diagnosis, as Pott's disease requires strict immobilization, while true spondylitis with pains, and the false, with or without pains, the posttraumatic and the gouty, may yield with remarkable facility to physical measures, electrotherapy, galvanization with the positive pole on the lumbar region, medical massage and Swedish gymnastics.

March, 1922, **42**, No. 3

Deceptive Forms of Appendicitis. Appendicitis and the Menopause. C. Julliard.—p. 129.
Abnormal Cardiopulmonary Murmur in the Tuberculous with Pleural Symphysis. F. Loup.—p. 147.
*Primary Cancer of Lung. A. Cramer and C. Saloz.—p. 160.
Data for Lectures on Venereal Diseases. A. Lassueur.—p. 171.
Prophylaxis of Goiter. F. M. Messerli.—p. 176.

Primary Cancer of Lung.—The malignant disease was correctly diagnosed in six of the eight cases described, all seen in 1921. The recognition of the cancer may depend on some minute bunch in the skin or scrap of cancer coughed up. The sharp pain in the side, acute, lancinating, continuing for months, spreading to the arm, was a striking symptom in most of these cases. The differential importance of this stitch in the side, *point de coté*, has not been appreciated hitherto. The rapidly invading course of the process in the lung, without other signs of tuberculosis, testifies further to the neoplastic disease.

Schweizerische medizinische Wochenschrift, Basel

July 20, 1922, **52**, No. 29

*History of Iodin Treatment of Goiter. E. Bircher.—p. 713.
Reflexes and Muscular Reactions in the Fetus. M. Minkowski.—p. 721. Cont'd.
*Iodin Content of Thyroid. E. Herzfeld and R. Klinger.—p. 724.
The Sputum with Influenza Pneumonia. E. Liebmann.—p. 727.
*Resection of Stomach for Perforation. D. Eberle.—p. 729.

Dangers of Iodin Treatment of Endemic Goiter.—Bircher remarks that according to the Swiss newspapers and the medical press, iodin prophylaxis and treatment of goiter is the most important discovery of recent decades. Physicians and school teachers and others are vying with each other in giving iodin to those in their charge, but, he says, the harm wrought by this in cases of goiter is already so great—much of it irreparable—that this abuse of iodin must be halted before it is too late. He recalls that burnt sponge was used in treatment of goiter from the earliest days of history, and its value is in the iodin it contains. Hippocrates, Galen, Pliny mention it, and the Chinese used it fifteen centuries before Christ. Iodin was isolated in 1811, and Coindet extolled it in treatment of goiter in 1820. He warned, then, that the patient taking it must be kept under close medical supervision. During 1920 Bircher encountered thirty-six cases of severe thyroid derangement for which iodin treatment was responsible. It had been taken under advice of a physician in some, of a druggist in others, with self-drugging in the rest. In one woman of 42 with goiter 20 gm. of potassium iodid in the course of twelve weeks was followed by intense nervousness and excitement, tremor, salivation and palpitations, pulse reaching 116, and slight hemiplegia. On account of the heart disturbances—the exaggeration of which had been the indication for the treatment—Bircher did not dare to operate, and necropsy soon after revealed 380 mg. of iodin in the thyroid, which weighed 400 gm. The goiter had developed many years before in connection with a childbirth. The operation in these cases was always exceptionally difficult and tedious. The physiologic iodin content of the thyroid is from 2 to 9 mg., he adds; in these cases it reached 20, 30, and in the above case, 380 mg. Over 50 per cent. of internally treated goiters return in one, two or three years, and the surgeons report a similar proportion of recurrences after thyroidectomy. We must bear in mind further that exophthalmic goiter proves fatal in an average of 25 per cent. of the cases. Notwithstanding the extensive research on iodin and the thyroid in the last hundred years, the physiology and pharmacology of iodin is so uncertainly known and the experiences with it have been so contradictory that it seems like a dangerous experiment to give this metallic poison, in food or drinks, on an extensive scale and for long periods. To give it indiscriminately to the iodin-refractory and the iodin-susceptible, the thyroid sound or pathologic, is an irresponsible procedure. He says of the Ohio experiment with iodin prophylaxis in the schools that it is far from convincing, as also similar experiences in Switzerland. He calls attention further to the differences between goiter in America and in Switzerland, and cites figures from different regions in Switzerland showing goiter in 72 to 100 per cent. of the schoolchildren, while all but 3.3 to 9 per cent. of the recruits from those regions were free from goiter.

Iodin Content of the Thyroid.—Herzfeld and Klinger report from Zurich the iodin findings in 201 tests made of thyroids in the fall, the winter and spring. In fully 45 per cent. the tests failed to reveal any appreciable iodin. This group included 37.5 per cent. with apparently normal thyroid, and 41.2 per cent. with pronounced goiter. The group with iodin content between 0.06 and 0.15 per thousand included 37.5 per cent. normal thyroids, to 22.5 with goiter. The iodin content averaged decidedly higher in summer than in winter; possibly the summer green vegetables may be responsible for this, or the iodin metabolism may be more active in winter. In 39 thyroids from Holland, the tests failed to reveal appreciable iodin in only 21 per cent., in comparison to the 45 per cent. of the Swiss goiters. The domestic animals with no appreciable iodin in the thyroid formed 33, 24 and 100 per cent. of the Swiss cattle, hogs and dogs tested. The food of Dutch domestic animals is evidently responsible for the higher average of the iodin content found in them. All the data sustain, they say, the unconditional necessity for the use in Switzerland of iodized table salt, as from 30 to 50 per cent. of all persons have no iodin or only traces of it in the thyroid during a large part of the year.

Resection of Stomach for Perforated Ulcer.—Eberle adds another successful case of gastrectomy for perforated ulcer to the fifty operative cases of the kind on record. The mortality has been remarkably low. The outcome depends less on the surgeon's skill than on the practitioner's differential diagnosis in time.

Pediatria, Naples

July 15, 1922, 30, No. 14

*The Schick Reaction. L. Spolverini.—p. 633.
Leukanemia in Breast Fed Infant. G. Caronia.—p. 646.
*Nature of Pseudoleukemic Anemia. E. Mensi.—p. 652.
Congenital Ichthyosis. S. de Stefano.—p. 672.

The Schick Reaction.—Spolverini injected an antiserum or antitoxin in twenty-four children giving a positive Schick reaction but with nothing to indicate diphtheria otherwise. The Schick reaction became negative thereafter, regardless of whether diphtheria antitoxin or normal serum or an antiserum of some kind had been used. The Schick reaction returned to positive a day or two later in all the cases. These paradoxic findings might be explained, perhaps, by assuming that the serum transiently upset the colloid balance in some way.

Pseudoleukemic Anemia in Infants.—In the four cases reported by Mensi, none of the children were 20 months old, and all presented the characteristic anemia and enlargement of spleen and liver and the blood changes. This splenomegalic anemia, as he prefers to call it, seems to be a special biologic reaction to various anemia-producing causes, and is thus a variant of ordinary secondary anemia.

Riforma Medica, Naples

June 19, 1922, 38, No. 25

*Continuous Jacksonian Epilepsy. G. Cristel.—p. 577.
Intermediate Metabolism in Epileptics. A. Barlocco.—p. 580.
Invagination of Intestine from Lymphosarcomatosis. O. Carlo.—p. 581.

Continuous Jacksonian Epilepsy.—The young woman had had epileptic convulsions in the right arm continuously for twenty-two years, following a fall on head and shoulder. This continuous partial epilepsy had proved refractory to all measures. The spasms display the rapidity of a tic, while the movements of the arm are suggestive of chorea, but they differ essentially from both tic and chorea. An uncle had died in status epilepticus and a sister has typical epileptic seizures, but there is no history of alcoholism in the family. The rolandic region was opened up but nothing pathologic was found except that the dura was a little thicker than usual, and pulsating. Hemiplegia followed the operation, but this subsided in a few days and the epilepsy returned the same as before.

June 26, 1922, 38, No. 26

Suspension Stability of Erythrocytes in Malaria. M. Aresu.—p. 601.
*The Oncopleural Reflex. C. Minerbi.—p. 603.
The Drainage Question. M. Balsamo.—p. 607.
Hydrosalpinx. E. Aievoli.—p. 609.
Natural and Artificial Heliotherapy. M. Reale.—p. 610.

Reflex Congestion of Lymph in Pleura.—Minerbi describes a reflex response to pinching of the skin on the chest which is manifested by development in from two to eight seconds of a small area of dulness. He calls it the oncopleural reflex, and explains it as a circumscribed congestion with lymph in the parietal pleura. He assumes that the parietal pleura is erectile, and responds to congestion with lymph as other erectile organs respond to blood. This explanation may apply to certain other reflexes in the chest which have been attributed to the lungs. The oncopleural reflex can be examined with roentgenoscopy as well as with auscultation. When the reflex is elicited simultaneously on both sides of the chest, if the circumscribed resonance is much more extensive on one side than the other, adhesions may be suspected. This may prove useful as a guide in artificial pneumothorax.

Rivista Critica di Clinica Medica, Florence

April 15, 1922, 23, No. 11

*Fatal Cocain Poisoning in Addict. M. A. Mancini.—p. 121.

May 15, 1922, 23, No. 14

Functional Tests of the Kidneys. D'Arbela.—p. 163. Conc'n.

Cocain Poisoning in Addict.—The young man died a few hours after he had complained of intense pain in the heart region. It was learned then that he had been taking cocain for some time. The dose had been the usual one, and Mancini suggests that the limit of tolerance had been surpassed or that the cocain he had been previously using had been adulterated, and he had happened this time to get a pure article.

May 25, 1922, 23, No. 15

*The Autonomic Nervous System in Purpura. C. Alessandri and A. Terzani.—p. 169. Begun in No. 13, p. 145.
Diuretic Action of Tuberculin. P. Pennato.—p. 172.

The Autonomic Nervous System in Purpura.—Alessandri and Terzani tabulate the details in thirteen cases of hemorrhagic purpura, and call attention to the pronounced hypotonia in the vegetative nervous system as evidenced by repeated tests. In some it was most pronounced in the sympathetic nervous system, in others in the vagus. Hypotonia indicates insufficiency of the endocrine system, according to the latest views. Seven of the thirteen patients were suspected of tuberculosis. No general conclusions can be drawn from these experiences except that the indications in each case have to be estimated individually.

Brazil-Medico, Rio de Janeiro

June 17, 1922, **1**, No. 24

*Cultivation of Schizotrypanum Cruzi. C. Magarinos Torres.—p. 317.
*Surgery in the United States. Oscar Clark.—p. 319. Cont'd.
Toxicity of Chenopodium. T. de Almeida Junior.—p. 324.

June 24, 1922, **1**, No. 25

Physiology and Clinical Aspect of Menstruation. J. Adeodato.—p. 335.
Toxicity of Chemopodium. Raul Leite.—p. 340.

Cultivation of Schizotrypanum Cruzi.—Magarinos Torres describes the most favorable conditions for cultivation of the micro-organism responsible for Chagas' disease. The hydrogen ion content of the culture medium seems to have a great influence.

Surgery in the United States.—Clark illustrates with portraits his historical sketch of surgery in this country and its contemporaneous exponents. He calls Harvey Cushing "the typical modern surgeon," J. B. Murphy, "the genius of the present generation," and Holmes, "the Lister of obstetrics." He quotes from the latter. . . . "Do not dabble in the muddy sewer of politics nor linger by the enchanted stream of literature nor dig in far-off fields for the hidden waters of alien sciences. The great practitioners are generally those who concentrate all their powers on their business." He cites Welch and Hektoen among the few who brought about the appreciation of the necessity for study of pathology, and he emphasizes the importance of this factor in the development of medical science in this country. He adds that the history of Johns Hopkins is the history of scientific medicine in America. "The organization of the hospital units was copied from Germany, but Osler insisted on having the clinical teaching on the English system, that is, the old Boerhave system." He refers to the "four bigs of Johns Hopkins," and to the efforts of the Council on Medical Education of the American Medical Association. Another Brazilian physician speaking recently of the grading and standard for hospitals in this country styled it a "stroke of true genius." Clark remarks in conclusion, "The opinion now prevails in America that the physician is the principal figure in the progress of the country, and it will not be long before the Europeans will have to cross the Atlantic to learn about modern medical organization." In his recent trip to the United States, Clark seems to have been impressed most by the hospitals, medical schools, training schools for hygienists, for nurses, the sanatorium at Saranac Lake, the Phipps Psychiatric Clinic, the Brady Urologic Clinic, the Rockefeller and the Mayo Foundations, and the "medical and scientific journals of the highest grade."

Crónica Médica, Lima

May, 1922, **39**, No. 707

*Artificial Pneumothorax in Pulmonary Tuberculosis. A. Corvetto.—p. 165.
*Modern Views on Physical Education. E. Vergne.—p. 189.

Artificial Pneumothorax. — Corvetto's experience includes only twelve cases, but marked improvement was noted in all and the progress of the disease was materially retarded.

Organized Movement for Physical Education.—This is an address delivered by Vergne at the army training school in Peru. He is a member of the French military inspection mission to South America.

June, 1922, **39**, No. 708

*Case of Venereal Granuloma. C. Morales Macedo.—p. 201.
*Elastic Pneumothorax. J. Gwerder-Pedoja.—p. 208.
Research on Gastric Digestion. E. Guzmán Barrón.—p. 213.
Child Welfare Work. R. Eyzaguirre.—p. 218.

Venereal Granuloma.—Morales describes the first case of this kind to be published in Peru. The diagnosis had been "cancer of the pubis" in the young man. Under intravenous injections of from 2 to 10 c.c. of a 1 per cent. solution of tartrate of potassium and antimony, every two or three days, a local favorable reaction was evident at once. By the tenth injection the edges of the lesion had healed solidly, and by the twentieth it was reduced in size and severity fully 50 per cent. Local treatment was restricted to rinsing off the surface with boric acid solution. The various findings and the healing under the tartar emetic corresponded to the classic picture.

Elastic Pneumothorax. — Gwerder-Pedoja writes from Davos to extol his method of what he calls *entspannungspneumothorax*, that is, by injection of only enough gas to induce retraction of the lung. He does not attempt to compress it completely. By this elastic pneumothorax he hopes to modify conditions enough to start the healing process, and his experience has been extremely favorable. This merely symptomatic treatment does not have the limited indications of the ordinary pneumothorax technic, and hence can be applied even with a focus in the other lung. He has never had any mishaps with it, and describes here a case in which this elastic pneumothorax was applied to the active cavity in the lung, with great improvement for a time. Then the symptoms became aggravated, and radioscopy showed two cavities in the lung below the other. He assumed that these were old, practically healed cavities which had been irritated and had flared up under the pneumothorax. He consequently reduced the amount of gas, aiming to act only on the upper, active focus. Conditions improved at once. The lower cavities became quiescent anew and the new one was arrested in its progress.

Prensa Médica Argentina, Buenos Aires

July 10, 1922, **9**, No. 4

*Epilepsy and the Endocrine Glands. Teresa Malamud.—p. 97.
Roentgen Ray Study of Case of Achondroplasia. A. Casaubon.—p. 101.
*Fatal Hemorrhage from Gastro-Enterostomy. Artemio Zeno.—p. 105.
Propaganda to Insure Early Treatment of Cancer. C. A. Castaño.—p. 108.

Epilepsy and the Endocrine Glands. — Malamud remarks that detection of morbid conditions in one or more of the ductless glands in epileptics is reducing the number of cases of so-called essential epilepsy. In a case previously published, the exceptional duration of the tonic and clonic spasms phase had attracted attention. In the case here reported, the young woman showed signs of inherited syphilis and partial adiposogenital dystrophia, unusually small sella turcica, with probable sclerosis of the pituitary gland, and grave epilepsy since puberty. The seizures were peculiar, the clinical picture resembling that of tetany except for the loss of consciousness. The assumption seems plausible that insufficiency of the pituitary and of the parathyroids is a factor in the epilepsy in this case, and the benefit under pituitary treatment has confirmed this. It was preceded by a course of mercurial and iodin treatment. Parathyroid treatment was not available at the time.

Fatal Hemorrhage from Gastro-Enterostomy.—Zeno reports three cases of this kind occurring in his service in the last ten years. The patients were men between 29 and 60 and the gastro-enterostomy opening was found intact in all. The hemorrhage had come from perforation of the ulcer for which the operation had been done. In one case the operator had been aware of the perforation but had supposed it safely walled in by adhesions. The repeated hematemesis occurred the same night or next day or the fifth day in his cases.

Semana Médica, Buenos Aires

May 25, 1922, **1**, No. 21

*Pyelitis in Infant. A. Zubizarreta.—p. 825.
*Diagnosis of Acute Hemorrhagic Pancreatitis. C. Preioni.—p. 829.
Opening Lecture of Course on Semeiology. P. J. García.—p. 831.
Hydatid Cyst of the Kidney. E. Castaño.—p. 839.

Pyelitis in Infant.—The suppurating pyelitis in the infant only 4 months old was confirmed by the acid reaction of the urine, not modified by alkalines, the normal shape of the leukocytes in the pus, the retention of urine, and the enlargement of the right kidney. The urine voided from the other kidney was clear. Only one other instance of pyelitis in such a young child has been published in Argentina, but Zubizarreta states that he now has under treatment a case in an infant only 40 days old. No benefit in the first case was evident from the drugs used, hexamethylenamin, salol, methylene blue, potassium citrate, etc., but immediate improvement followed an autogenous vaccine, and the child recovered under this vaccine. It had to be kept up for months as there was pus in the urine for seven months. He ascribes the final disappearance of the pyuria to the improvement in the general condition brought about by a change to artificial feeding, as the child was not thriving on breast milk.

There was a constant drop in the temperature each time after the injection of the vaccine during the acute phase. The infant was of a healthy family, but an epidemic of "colds" had preceded the pyelitis.

Diagnosis of Acute Hemorrhagic Pancreatitis.—Preioni recalls that the diffusion and the apparent contradiction between the various abdominal symptoms are suggestive of acute pancreatitis. But a tender point 4 cm. above and 2 cm. to the left of the umbilicus is as constant and as significant as the McBurney point in appendicitis. The pressure, however, must be slow, gentle and sustained to elicit the pain at this point without inducing impeding reflexes. The pain thus elicited at this point was intense in all his ten cases of acute hemorrhagic pancreatitis at all stages of the disease, and he never found it but once in any other affection. This one exception was a case of gastric ulcer that had perforated and involved the pancreas.

Deutsche medizinische Wochenschrift, Berlin

June 30, 1922, **48**, No. 26

Two Different Effects of Narcosis on Muscular Tissue. E. Frey.—p. 857.
The Action of Thallium. A. Buschke and F. Jacobsohn.—p. 859.
Early Syphilitic Affections of the Central Nervous System. G. L. Dreyfus.—p. 860.
*The Phosphorus in the Blood. Vorschütz and Vorschütz.—p. 861.
Alkaptonuria and Ochronosus. K. Köster.—p. 863.
*Albee Operation in Tuberculous Spondylitis. H. Görres.—p. 864.
Interscapulothoracic Amputation. W. Fischer.—p. 864.
Treatment of Varicose Veins and Sequelae. T. Voeckler.—p. 865. Begun in No. 25.
Painless Treatment of Furuncles. Kritzler.—p. 866.
Epizootic Aphthae in Human Eye (Foot and Mouth Disease). W. Feilchenfeld.—p. 867.
Cell Count in Lumbar Puncture Fluid. E. Jacobsthal.—p. 867.
Remarks on Findings "Undernourished" and "Tuberculous." E. Neumann.—p. 868.
Yeast Substance for Bacterial Cultures. K. Thilo.—p. 868.
Theory of Fatigue and Mode of Recovery. J. Bauer.—p. 868.
Surgical Treatment of Shoulder Region. G. Ledderhose.—p. 870.
The Urologic Examination of Patients. L. Casper.—p. 872.
*Vital Statistics of German Cities in 1921. E. Roesle.—p. 873.

The Relative Phosphorus Content of the Blood, Especially in Cancer Patients.—The authors state that, from the clinical side, the determination of the amount of phosphorus in the blood may be of great importance in carcinoma as regards differential diagnosis, if one can rule out icterus, tuberculosis, pneumonia and typhoid fever, which are not difficult to diagnosticate as against carcinoma because of their acute febrile character. It is eminently desirable that in obscure cases in which an incipient carcinoma is suspected, the clinician shall ascertain the phosphorus content of the blood, and if it is found that the blood corpuscles, when washed and examined alone, contain a considerable excess of phosphoric acid as compared with an equal quantity of normal corpuscles, such a finding would strengthen the diagnosis of carcinoma. In fact they recommend that in so-called carcinoma families the phosphorus content of the blood of all members of the family be determined at an early age, as this would aid very much in the early diagnosis of carcinoma.

The Albee Operation in Tuberculous Spondylitis.—Görres defends the Albee operation against Lexer, who recently announced that he was absolutely opposed to it. He fears that this statement of a well-known surgeon will prevent many general practitioners from bringing their patients for such an operation. Görres reports excellent results in a series of 120 cases of spondylitis in which the Albee operation was performed in the Vulpius Orthopedic Surgical Clinic at Heidelberg. Here they perform this operation in almost all cases of tuberculosis of the spine in which the tuberculous focus stubbornly refuses to heal. Such intervention is only contraindicated if the operative area is not sterile; for example, on account of existing fistulas, or if the general condition of the patient is exceedingly bad, as sometimes in the presence of tuberculous complications in the lungs or other organs, which make recovery unlikely. Cases with accompanying paralysis are also excluded, since he has seen in these cases exacerbation of the paralysis, which made it necessary to resort to laminectomy.

Vital Statistics of German Cities in 1921.—This comprehensive study of the natural movement of city populations was mentioned in the Berlin Letter on page 755.

Medizinische Klinik, Berlin

July 9, 1922, **18**, No. 28

*Genital Metastasis of Gastro-Intestinal Cancer. O. Frankl.—p. 885.
The New Obstetrics. A. Dührssen.—p. 887.
*Rest and Exercise After Operations. A. Salomon.—p. 891.
Peptic Ulcer. Kirschner et al.—p. 894.
Tumor-Like Osteomyelitis. E. Melchior.—p. 895.
*Hemolytic Jaundice and Gout. E. Leschke.—p. 896.
Susceptibility of Children to Tuberculin. K. Dietl.—p. 897.
Dangers of Underdosage in Arsphenamin Treatment. E. Pulay.—p. 899.
Cantharides Blisters for Serologic Tests. Thomas and Arnold.—p. 899.
Insects in Transmission of Disease. E. Martini.—p. 900.
Rudiments of Obstetrics. E. Runge.—p. 902. Cont'n.

Relations Between Gastro-Intestinal Cancer and Female Genital Organs.—Frankl remarks that the frequent metastasis of cancer in the ovaries and in the pouch of Douglas, with primary malignant disease in the digestive apparatus, throws light on metastasis in general. He has been studying 10 certain and 5 dubious cases of metastatic ovarian cancer, and 65 primary ovarian cancers and 11 secondary to cancer in the uterus. Transmission by implantation is rare with metastatic ovarian cancer. In all in this group, minute endolymphatic metastases were found in the uterus, while this was never found in the primary ovarian tumors. The minute daughter tumors on the uterus in 23 cases of primary ovarian cancer were unmistakably implantations. In 36 primary ovarian cancers there was no metastasis or implantation of any kind. Only with the gastro-intestinal metastatic ovarian cancers were the endolymphatic metastases found in uterus and tubes. Everything testifies that these metastases were secondary to the primary cancer, not a third generation, through the ovarian cancer. They all developed simultaneously, but the conditions for growth proved most favorable in the ovary. If an operation is attempted, the uterus must be removed entire. With a primary ovarian cancer this is not necessary: If the ovarian capsule is intact there need be no fear of implantation tumors. When contemplating an operation on cancer of the digestive apparatus, if the uterus and tubes are found abnormally hard, this change in consistency warns that metastasis is already installed. The endolymphatic metastatic tumor emboli plug the lymphatics and there is stasis of lymph, thickening of connective tissue, and a hardening of the entire organ. When a patient complains of suspicious stomach disturbances and the ovary is enlarged and hard and the uterus feels hard as cartilage, although not enlarged, we can be almost certain that malignant disease is installed in the stomach.

Rest and Exercise After Operations.—Salomon says that after the period of excessive immobilization in surgery followed the period of excessive exercise. Now we use both immobilization and exercise, without going to extremes in either, and he outlines the indications with different surgical affections. With tuberculosis, the important thing is to refrain from immobilizing procedures while not allowing any weight bearing. Bed rest is the simplest means of insuring these two points. The advantages of getting the patients up early after a laparotomy can all be realized in bed by breathing exercises and cautious exercise of the limbs, without the dangers of getting the patient up. This "active repose" is far safer for the first few days, unless possibly for the elderly. With contusions and sprains, six to eight days is generally enough immobilization. With fractures, twice this period, exercising the joints nearby diligently. Every joint has its special repose position; that is, the position which is most useful in case of ankylosis. In beginning passive movements we must never induce pain.

Hemolytic Jaundice and Gout.—Leschke's patient was the third generation with hemolytic jaundice, and in the first and third generation it was accompanied by severe gout. Two other members of this last generation had hemolytic jaundice. In another family it reappeared in three generations, and one young woman of the third generation had 4.2 per thousand uric acid in the blood. He thinks that this is more than a mere coincidence, and that there is some causal connection.

Zentralblatt für Chirurgie, Leipzig

May 13, 1922, **49**, No. 19

*Coma Parathyreoprivum. E. Melchior.—p. 667.
Modification of the Bassini-Hackenbruch Operation for Inguinal Hernia. H. Neuffer.—p. 669.

Hernia Juxtavesicalis Dextra Incarcerata. C. Bayer.—p. 671.
Case of Hernia Inguinalis Directa Sinistra Incarcerata. Düttmann.—p. 674.
Extirpation of Wandering Spleen with Twisted Pedicle. Hanns Brossmann.—p. 675.

Coma Parathyreoprivum.—This term has been proposed by Melchior to designate a peculiar type of postoperative tetany that is not characterized by manifest convulsions. Especially in men, this condition of deepest coma occurs occasionally immediately following extensive reduction of goiters. Most cases of this kind seem to end fatally.

Zentralblatt für innere Medizin, Leipzig

May 13, 1922, **43**, No. 19

*Amidopyrin Test for Occult Blood. Fortwaengler.—p. 313.

Amidopyrin Test for Occult Blood.—Fortwaengler remarks that all the requirements for a test to demonstrate invisible blood are fulfilled by the amidopyrin test introduced by Thévenon and Rolland. It was described in The Journal, Oct. 26, 1918, p. 1443, as the "pyramidon color reaction in the presence of an oxidizer." Fortwaengler uses a little more of the acetic acid and of the oxidizer than the original technic calls for, and cites a number of favorable experiences with the test that have been published by others. The reagents are: (1) 5 gm. of amidopyrin in 100 c.c. of 90 per cent. alcohol; (2) 25 parts of glacial acetic acid in distilled water to 50 parts; (3) 3 per cent. hydrogen peroxid. The original formula specified hydrogen dioxid at twelve volumes. He adds to 2 or 3 c.c. of the fluid to be examined 16 drops per cubic centimeter of the acetic acid solution. Then 2 c.c. of the amidopyrin solution, and 12 drops of the hydrogen peroxid. Instead of shaking up the mixture, as called for by the original technic, he applies the method as a contact test. The amidopyrin solution is poured on top of the fluid after the acetic acid has been added. Then the peroxid solution is allowed to flow down the side of the test tube. A violet zone forms at the line of contact in the positive reaction.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

June 10, 1922, **1**, No. 23

*Syringobulbia. E. A. D. E. Carp.—p. 2239.
*Estimation of Effect of Massage. C. Bles.—p. 2247.
*Self Purification of Vaccine Lymph. J. W. Janzen and L. K. Wolff.—p. 2252.
Organic Disease of Nervous System After Influenza. G. C. Bolten.—p. 2255.
Anomalies of First and Second Ribs. J. F. O. Huese.—p. 2261.

Syringobulbia.—Carp explains that when the process that is responsible for syringomyelia is located in the medulla oblongata, the clinical picture is quite different. Two cases of this syringobulbia are described. The women were 32 and 39 years old, and the disturbances were exclusively or predominantly on the left side.

Effect of Massage.—Bles injected bismuth carbonate or India ink into symmetrical joints in rabbits, and then systematically massaged the joints on one side. Roentgenoscopy and the postmortem findings showed that neither the contrast suspension nor the ink had been forced along by the massage. The findings in and around the joints were exactly the same on both sides, with and without any mobilization of the substances injected, thus disproving assertions in regard to the mechanical effect of massage.

To Clear Vaccine of Bacteria.—Janzen and Wolff comment on the reason why addition of glycerin clears vaccine of bacteria. Glycerin has very little bactericidal action. Its efficacy in freeing the vaccine of bacteria has been a mystery, but they suggest that the explanation may be a bacteriophagic action in the vaccine as it is kept fresh by the influence of the glycerin. The latter allows time for the self-purification of the vaccine by its own bacteriophagic action. They suggest that this might be hastened by addition of a stronger antistaphylococcus bacteriophagum.

Norsk Magazin for Lægevidenskaben, Christiania

August, 1922, **83**, No. 8

*Fever in Relation to Asthma. P. F. Holst.—p. 577.
Bleeding from the Mamma. J. K. Hald.—p. 592.
Serotherapy of Measles. O. Jervell.—p. 601.
The Alkali Reserve in Epilepsy. S. K. Mørdre.—p. 603.
Pulse in Influenzal Pneumonia. F. Leegaard.—p. 610.
Erythema Nodosum. W. Holland.—p. 626.

Fever in Relation to Asthma.—Holst recalls that it is an old experience that persons with asthma may be free from attacks during an intercurrent febrile disease. He does not know, however, of any record of experiences such as two he relates in which the period following a febrile state was free from attacks. He gives the chart of one man of 31 who had been having asthma for two years, the paroxysms growing progressively more frequent and severe. In the course of the two years there were seventeen periods during which there was more or less fever, without known cause, lasting for a day or up to nearly a week. After twelve of these febrile periods, there were no further paroxysms of asthma—which before had been recurring every single night. These periods of freedom from the attacks lasted from two, three or five days up to twelve, twenty-five and twenty-six days before the asthma swooped down on him again. No effect on the paroxysms was noted after five of the febrile periods, and the height and duration of the fever did not seem to be influencing factors. Attempts to induce fever artificially, with tuberculin, glucose, gonococcus vaccine, peptone or autoserum, all failed to show the slightest influence on the asthma. An old asthma patient wrote to Holst recently that she had noticed that after intercurrent febrile infections she was relieved of her very severe asthma for a time, and she asked him to experiment with artificial fever. But no benefit was derived, except transiently after the first time tuberculin was given, and the attempts were abandoned after two or three months. Holst theorizes to explain the action of measures against asthma according as they act on the periphery, on the vagus center in the brain, or on the bronchial mucosa. Epinephrin depresses vagus functioning by stimulating the sympathetic system. Caffein and theobromin act in the same way. The benefit from iodid is probably due to its stimulating effect on the suprarenals.

Ugeskrift for Læger, Copenhagen

June 22, 1922, **84**, No. 25

*Multiple Sclerosis. K. H. Krabbe.—p. 723.
Advantage for Dentists of Closer Contact Between Medical and Dental Sciences. E. Kristiansen.—p. 730.

June 29, 1922, **84**, No. 26

Treatment of Syphilitic Disease of Eyes. H. Boas.—p. 757.
Graphic Records of Lung Findings. C. Hambro.—p. 773.
Actions of Quinidin. C. Schwensen.—p. 778.

July 6, 1922, **84**, No. 27

Determination of Oxygen Absorption and Energy Metabolism in Patients. Marie Krogh and O. Rasmussen.—p. 805.
Graphic Record of Lung Findings. V. Scheel.—p. 812.
Treatment of Chronic Contracture of Joints. H. Jansen.—p. 815.

July 13, 1922, **84**, No. 28

Comparative Tuberculin Tests in Children. P. Hertz.—p. 837.
Wassermann Tests Late in Syphilis. T. E. Hess Thaysen.—p. 846.
Sequelae of Epidemic Encephalitis. J. E. Holst.—p. 852.

July 20, 1922, **84**, No. 29

Intracranial Hemorrhage in the New-Born. G. Jørgensen.—p. 869.
Gastric Secretion in First Year of Life. M. S. Andersen.—p. 878.
Impressions of Rollier's Clinics. Strandgaard and Hansen.—p. 888.

Multiple Sclerosis.—Krabbe compares the classic form with the more frequently encountered form of disseminated sclerosis, and emphasizes the differences. In ten of the thirteen cases described there was no nystagmus, no tendency to scanning speech, and no intentional tremor. In one of the others there was slight nystagmus. But the whole group show that the optic-pyramidal type of the disease is more common, at least in the beginning. The symptoms to be looked for are temporal optic atrophy and spastic and reflex anomalies in the legs. Next in frequency comes the group with diplopia and slight sensory and sphincter disturbances. Third in order comes the Charcot triad, the classic type of multiple sclerosis. Some of the patients described were treated with arsphenamin, and favorable reports have been published elsewhere. The drug certainly has done no harm, and there is an increasing tendency to regard the disease as of infectious origin. The earlier it is diagnosed, the greater the prospects of benefit from the medication.

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THE DIAGNOSIS OF EPILEPSY *

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That, after thousands of years of familiarity with epilepsy, the diagnosis should still sometimes be difficult and mistakes not infrequent, may seem anomalous. But it is true. The principal difficulties are three:

1. Uncertainty as to what constitutes epilepsy.
2. Polymorphism of the disease.
3. Necessary lack of observation. Ordinarily the diagnosis must be made from statements of the patient and of others.

The first difficulty we shall not consider. What we mean by epilepsy is the disease or disorder described as such by most standard authors. Meticulous nosology is no part of our present theme. Obviously, a systematic discussion of diagnosis is impossible. Our private records of more than a thousand cases show that epilepsy had to be differentiated from the following thirty conditions: hysteria, psychasthenia, brain tumor, syphilis, apoplexy and hypertension, encephalitis, dementia praecox, melancholia, Stokes-Adams disease, spasmophilia, migraine, nephritis, feeblemindedness, general paresis, multiple sclerosis, polycythemia, anemia, tic, chorea, fainting spells, infection, aural vertigo, night terror, endocrine disorder, angina pectoris, heart disease, digestive disorder, arteriosclerosis, facial spasm and laryngismus stridulus. Naturally, this list is not complete. We wish simply to call attention to a few common errors and difficulties, largely by means of illustrative cases.

IMPORTANCE OF SLIGHT ATTACKS IN YOUNG PERSONS

First we wish to emphasize the importance of slight or odd attacks in children and young people: A transient dreamy state, a momentary stare, a causeless stop in play, a sudden feeling of fright (explained or unexplained), a brief laughing spell, a fugitive pain in abdomen or chest, seeing strange things (which can or cannot be described), a sudden sensation of taste or smell (especially tasting or chewing movements), a sudden lonesome feeling, a sudden bobbing of the head, a drop to the floor, the youngster at once jumping up: repetition of such things is to be taken seriously. Generally, observation will show them to be epileptic.

One child would say "Oh, my head hurts," go to a bed (staggering a little), quietly lie down for a few minutes, rise, yawn three or four times, and be quite normal. Another child would say "Oh, mama," and run and hide its face in the mother's lap—never a convulsion or even twitching, no rigidity, no fall, apparently no disturbance of consciousness. These were the beginnings of confirmed epilepsy, and treatment should have been instituted at once.

At 3½ years a rather frail, constipated boy, whose digestion was poor and who easily took on infections, began to have slight attacks. One of our greatest internists cared for his general condition wisely and faithfully, but seemed to be amblyopic for the fits. After a few months the boy was worse. It took almost a year to convince the parents that the fits had to be treated—even though he did frequently vomit after one and often had offensive stools. On full and continuous doses of bromid and hygienic treatment he improved at once, made a good recovery, and has remained well for fifteen years.

It is unsafe to consider such repeated attacks as due to "autointoxication," constipation, digestive disorder, dietary foolishness, etc. Once these slight manifestations are recognized as epileptic, they should be vigorously treated. Little fits do not indicate little treatment.

DIFFERENTIATION OF EPILEPSY FROM HYSTERICAL ATTACKS

One of the long recognized difficulties is the differentiation of epilepsy from hysterical or psychasthenic attacks.[1] Cases 1, 2 and 3 are examples:

Case 1.—A farmer, aged 44, had been kicked by a horse at 25, suffering a compound fracture of the skull and remaining unconscious for two hours. A month later he had a fainting spell. During the following two years he had four or five attacks of unconsciousness, said to have been without convulsions, biting of the tongue or voiding of urine. Then for twelve years he had no attacks, when one occurred during sleep, or at least at night. He called "Mary" (his wife's name), became rigid for a few moments, and then got out of bed in a "raving" state. He was violently destructive and screamed. This condition lasted for about half an hour, when he returned to bed and went to sleep. During the next few years, up to the time when we saw him, he occasionally had a smothering sensation rising from the epigastrium to the throat and followed by a hot feeling in the face. Four years after the violent attack at night he had another similar one. The next, last and worst seizure, also at night, occurred five weeks before our examination. He first became very rigid, and then got up and raged about, broke furniture, and tore curtains from the windows. They locked him in the room where he was, but he forced the door and seized a gun. His wife barred herself and her daughter in the cellar. He chased his brother from the house and down the road.

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* Read before the Section on Nervous and Mental Diseases at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] We definitely dissent from the view that emotional conflicts, unfulfilled desires and mental maladaptation are important factors in the etiology of epilepsy.

Soon he suddenly came to himself, was quiet, called to his wife to come to him, and said he was all right. The wife stated that for the next two or three days "he was not quite himself."

Results of physical examination and of ordinary investigation were quite negative. Apparently he was totally amnesic of the attacks. The case looked much like epilepsy on a traumatic basis, with attacks of epileptic furor. But something in the patient's manner made us suspicious, and he was at once hypnotized. Fortunately, he was a good subject. In hypnosis he not only detailed all the happenings of the violent attacks but explained their *raison d'étre*. They were purely emotional outbreaks. We may add that without treatment other than an explanation to himself and his wife, the patient has remained well—a period of fourteen years.

Case 2.—A steady, reliable chauffeur, aged 24, single, was sent to us by his employer. The father was nervous and subject to periods of depression. A paternal uncle had committed suicide. A sister had migraine, was nervous and had hysterical attacks. Seven or eight years before, during a dispute, he had fallen in a fit of unconsciousness; he did not know whether or not he had had a convulsion. In an hour he was all right. During the last few years he had several times experienced a queer feeling as if he might faint or lose consciousness. This would last only a few seconds; he would sit still with the eyes closed, and in five minutes he would feel as usual.

Two days before, when about to start his car, one or both hands suddenly became numb, he felt dizzy and as if about to faint, told his passenger who had just got in that something was the matter, and became unconscious, drooping over the wheel. In a few moments consciousness returned, but he felt dazed and confused. He was helped into the house and put to bed, and he went to sleep. The next morning he had a headache, which had persisted. Results of examination were negative. The patient was unusually vigorous, a wrestler, was quiet, composed and neither talked nor acted like a neurotic. From all information obtainable from the patient, the attack certainly looked like petit mal, and an epileptic chauffeur is a constant menace. But a talk with the employer gave us a little additional information, and with this as a wedge we succeeded in opening up a detailed history of emotional stress and conflict and an account of the attack itself which made the diagnosis clear. The seizure was purely hysterical. Furthermore, it was finally ascertained that the attack of seven or eight years before had been precipitated by almost identical circumstances and evidently was purely emotional. Without treatment, except an explanatory and reassuring talk, the young man continued well, and went through the late war and strenuous vicissitudes without nervous incident.

Case 3.—A married man, aged 31, with three healthy children, and negative family history except that the mother was of nervous temperament, had had scarlet fever with double otitis at 3 years, and typhoid at 10. Venereal disease and infantile convulsions were denied. About seven years before our examination, he rose at midnight, took a few steps, said to his wife "Catch me, I'm going to fall," and fell but got right up. He seemed a bit sleepy but otherwise normal. Two or three years later on a very cold day he ran to catch a car. Immediately after entering the car he lost his sight. He was not confused, and consciousness was not disturbed. After riding about 2½ miles, vision began to return, and 1 or 2 miles farther he left the car feeling quite normal. For probably a year before this event and continuing until a year before we saw him, the patient had had attacks of diplopia lasting from two to five minutes. They occurred about once a week to once a month without other symptoms. Two years before our examination, one evening he suddenly began asking his wife, "Where am I?" "Why are we here?" "Why did you come?" etc. There was no change in his appearance, and she thought he was joking. Immediately he complained of feeling cold, and shook as in a chill. He was put to bed, slept the rest of the night, and next morning was all right.

A month later he went by ferry from San Francisco to Oakland, and took a train, but had no recollection of leaving it. When consciousness returned he was looking into a drug store window (about an hour after leaving the train). He did not know where he was, but thought the town might be Denver, as he had relatives there. Entering the store he consulted a directory but, finding no names of relatives, went out and soon saw a familiar landmark, was at once oriented, and felt normal. For the next nine months he was entirely well, when one morning he remembered boarding a train, but nothing more until half or three quarters of an hour later, when he was ascending the steps of a bank—his destination. During the next year or more he had two attacks beginning with a chill, in which attacks he evidently was not himself and asked questions malapropos but not entirely irrational. In other words, he was not like one in delirium, and appeared more or less conscious.

In spite of much literature to the contrary, epileptic automatism lasting more than an hour or even half an hour, in which the patient does nothing irrational or unseemly, is exceedingly rare, most such patients being hysterical.[2] In the present case one must at least have been in great doubt, but four weeks before our examination this patient had fallen in a typical epileptic fit, and since then had had three more.

EPILEPTIC FITS AS SIGN OF BRAIN DISEASE

That epileptic fits may be the first sign of gross organic brain disease and remain the only symptom for some time we venture once again to emphasize. That this applies particularly to attacks beginning at 30 to 45 years is well known. The following case is a good illustration:

Case 4.—A farmer, aged 42, first seen in December, 1908, was subject, in common with his brothers and sisters and his eldest son, to migraine. At 14 years he suffered a head injury rendering him unconscious for an hour, but from which he completely recovered in a couple of days, and at 25 he received a severe bump on the vertex. At 39 he had in the night a general convulsion, followed by headache and then sleep. The next morning he felt rather ill. He had a "bad cold" at the time. A year later, also during the course of a "bad cold," while taking a nap in the afternoon, he was conscious of the arms "drawing up," and then lost consciousness in a convulsion. Some months later he had a third attack similar to these two. Six months before seen and probably a year after the third attack, he had a mild one while driving. He felt it coming, and tried to pass the lines to another, but could not. Though he lost consciousness, he did not fall from the seat. Three months later he had one seizure a week for three weeks. In these attacks the left arm drew up, the left face contracted, and the head rotated to the left; he did not fall, and he was sure that he did not lose consciousness.

Five days before our examination, he had repeated slight attacks limited to the left arm, face and head, and in the evening a bad one with loss of consciousness and biting of the tongue. In the last five days he had had many limited to the left face. He had had no increase of his customary headaches and no vomiting except after a bad evening, five days before. Between the seizures he felt well. For the last three months he had off and on a burning sensation in the left palm.

Results of examination were negative except a slight difference in movement of the two sides of the face; but as he had had a peripheral facial palsy four years before, this slight difference was of no diagnostic value. Venereal disease was denied. No Wassermann test was made.

The patient was put on mercury and bromid and was not seen again for more than three years, though a note from his physician in June, 1909, said that he was doing well, and another in October, 1910, said that he had had no attack since August, 1909. Later in the fall of 1910 he began to sleep poorly, and the fits returned. He changed physicians and medicine, and the fits stopped. In January, 1911, he had a mild attack, and then none until the following November. Between that month and March 29, 1912, when we saw him, he had ten or twelve attacks. In these attacks he had a distinct aura, "felt kind of flurry," and had time to prepare for the attack, which ordinarily was not severe. About four weeks before, he had first noticed that the left hand was somewhat weak and clumsy. This had increased, and for a week the left leg also had felt weak. Off and on he had had some headache but no vomiting. The patient's memory was somewhat impaired.

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[2] Patrick, H. T.: J. Nerv. & Ment. Dis. June, 1907.

Examination revealed typical left organic hemiparesis, but nothing else. The blood Wassermann reaction was negative. Operation was advised, and Dr. M. L. Harris found a tumor in the right prerolandic area. In short, this patient had epileptic fits for seven years before other signs of their cause, a brain tumor, appeared.

JACKSONIAN FITS IN IDIOPATHIC EPILEPSY

It is common knowledge that jacksonian fits are strongly indicative of localized organic disease; so strongly, indeed, that the term "focal fits" is synonymous, and both are often loosely used to indicate fits of obvious origin. That idiopathic epilepsy may assume this local or focal type, even without interference with consciousness, seems to be less well recognized. We have known needless brain operations to be done because of ignorance of this fact.[3] Case 5 is one of a number in our records.

CASE 5.—A husky farm hand, aged 23, of negative family history, first seen by us, March 21, 1900, had a negative personal history until about a year before, when he had begun to have "cramps" of the left arm. In these attacks the arm was abducted with clonic spasm at the elbow, and a "twist" of the entire arm. The attacks lasted about four to six seconds, occurred from once in several days to three or four in one day, were strictly limited to the left upper limb, and affected consciousness not at all. For a few minutes after an attack, the arm was weak.

A week before, he had been awakened from sleep by this spasm of the arm, which was almost immediately followed by a general convulsion in which he lost consciousness and turned onto his face. A brother occupying the same bed turned him back. "Pretty soon" the patient arose in a dazed condition, and the brother had a severe tussle to prevent him from going out. He then returned to bed and went to sleep. When awakened half an hour later he felt well except for irregular action of the heart. A few days later he had a similar attack, less severe, about one and one-half hours after retiring. He felt the drawing sensation go from the left arm across the chest and up to the left face; he felt nothing in the leg. The brother said that the patient awakened him, asked if it was not time to get up, and then twisted over and fell on his face. He went to sleep, but soon awakened feeling dyspneic and with thoracic oppression. The left arm ached.

Results of examination were negative. Under bromid and adonis vernalis there was immediate improvement, and after about a year and a half the seizures stopped for three years. He became careless about the medicine, and again had trouble. Under treatment the attacks again ceased, but not until he had become decidedly bromized. He was seen again fourteen years after the last attack and nineteen years after the beginning of his disorder and was entirely well. He had been married for five years and had a defective child.

EPILEPTIC ATTACKS WITHOUT LOSS OF CONSCIOUSNESS

We think it is not sufficiently well known that aside from jacksonian fits, epileptic attacks may occur without loss of consciousness.[4] This applies even to convulsive states. For instance, I have seen a lad with bilateral tonic-clonic spasm of arms, face, tongue and neck muscles who understood and afterward repeated questions and commands, but who at the time could not answer because the spasms prevented articulation. In our experience, attacks without involvement of consciousness are more frequent in children, but they occur in adults.

CASE 6.—A man, aged 58, had as a child had very transient frightened feelings and for some years a more or less irregular heart, especially when the stomach was overloaded or disordered. At 51 he had in the night a strange feeling about the nose and throat, and a peculiar taste "like the odor of a cat's nose." These little attacks frequently recurred. At first they were rather pleasurable, but had become disagreeable. Never were they attended by the least disturbance of consciousness. A year before he had had a typical nocturnal grand mal attack, and eight months before, his first diurnal attack of fully developed epilepsy.

CASE 7.—A blacksmith, aged 32, about two years before had begun to have attacks of a burning sensation in the throat. They lasted only a second or two, but soon became quite frequent, and after some months he noticed that with the burning sensation the jaw "set" a trifle. After a year a little contraction about the chin was added, and for the last four or five months the entire face had been involved in the transient contractions. No physical or mental stimulus seemed to start an attack, except that sometimes eating did. We succeeded in starting one by having him taste borax. The jaw "set" for a moment, then the mouth opened, the eyes closed and the face wrinkled (both sides) as if he had tasted something very sour or disagreeable and were making a grimace. In a moment this was accompanied by slight twitching—an indication of clonic spasm of the facial muscles. During the attack, respiration became audible, and he spat several times, as there was a free flow of rather stringy saliva. After the first closure the eyes were widely open. Just at first, apparently the pupils did not respond well to light, but in a moment they certainly did. There was not the slightest clouding of consciousness.

Results of examination were negative except for slight amblyopia ex anopsia of the right eye. A few days later another attack was induced in which the pupils responded normally. At first the case was treated as a functional one, without effect. Then on bromid there was very slight improvement.

We saw the patient again four years later, six years after the beginning of the trouble. He had gradually become worse, the seizures occurring principally at night, attended by loss of consciousness and followed by severe headache. Evidently the disease was epilepsy. Results of physical examination were negative.

CASES THOUGHT TO BE PSYCHIC EPILEPSY

Case 8 was referred to us as probably one of psychic epilepsy. Simply a carefully taken history showed it was not. This we have greatly abridged.

CASE 8.—A professional man of some note, aged 54, in good physical condition, two years before had had a brief attack of dizziness and of uncertainty on his feet. A year and a half before, following severe business strain, on a hot day as he got out of a buggy, he saw black specks before his eyes, sat down, the left leg cramped, and in a few moments he fell over and was unconscious for a few seconds. In a few minutes he was all right. About a month later, while pitching hay, he noticed that he had no control over the fork. Then both arms and legs began to jerk; he walked to nearby shade, lay down and recovered in a few minutes. A few days later he had a different sort of attack. He was riding in a wagon; suddenly he jumped off, went over a fence and ran to the veranda of a neighbor where he fell, not hard, was quite conscious, and in a few minutes was well. On the same day, which was "very hot, close and sultry," he had several slight attacks of restlessness, feeling ill at ease. as if something was impending, but he could control himself. For nearly a year there were no special nervous symptoms when, again on a hot day, after some physical exertion, while at dinner he jumped up and stamped with both feet, with the left so vigorously and maladroitly that he sprained the ankle. In a few minutes the attack passed.

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[3] This does not include the vagaries of a good many ill-balanced or ill-informed surgeons pursuing some vague or misborn theory, or the sins of a few revenue chasers.

[4] It may not be without interest to repeat a remark of Jackson made years ago to one of us. "Of course I do not use the term 'jacksonian epilepsy,' but if I may use it now I would say that all epilepsy is jacksonian epilepsy." That is to say, all epileptic seizures begin in and may be confined to a limited group of nerve cells—a conception since adopted by other investigators. On this assumption, all sorts of epileptic attacks without disturbance of consciousness are readily explained.

Not long afterward in a country hotel he wakened in the morning to find "the bed full of bugs." Immediately he had a powerful impulse to throw his feet up over his head, "thrashed about," and yelled. The landlord came. The patient "cussed him out," threw the bedding about and "raised hell." The next morning he found the same bedfellows, and the same scene was repeated. The next "fit" occurred two months later during hot weather. He had eaten freely of lettuce, which he thought was not digesting, but he slept all night. On awakening he felt uncomfortable and "as if the lettuce were impacted in the stomach." He began violently to throw himself about in bed, and his son was entirely unable to control him. But he soon became tranquil. About a month later there was another explosion. Seated in his office talking to a friend about the trip on which the three previous attacks had occurred, he became restless, had a full heavy feeling in the head, opened the window, could not sit still, and suddenly sprang into the air and yelled. Then he caught the friend in his arms, begged him not to leave him, jumped up and down, and fell or threw himself on the floor. In a few minutes he was tranquil. Ten days later, four days before consulting us, in an interurban car while talking of the same trip, he became more and more ill at ease and restless, felt as though he could not contain himself, "whooped" (he had been a cowboy), jumped up and down, and finally threw himself on the floor. In a few minutes the episode had passed.

Results of the physical examination were negative. In a man of his age and of his social and professional standing and intellectual capacity, with a practically negative neurologic history up to the age of 52, these attacks assuredly were enough to give one pause. But more searching inquiry showed that fear lay back of every attack, and back of that an impressionable, hypersensitive temperament and a poorly disciplined emotional life. A cousin had epilepsy and he was full of fear of this disease, of apoplexy and of suddenly going off his head. Of course in this case as in most cases of phobias, the patient was only vaguely conscious of his fears, naturally did not avow them and at first was inclined to deny them. The really important factors in the case had to be elicited by careful and tactful (which doesn't mean timid) inquiry.

Another case thought to be psychic epilepsy was the following:

Case 9.—A married man, aged 32, gave a negative developmental history except that at 14 years of age, while on a train returning from a fishing trip, he had a sudden attack in which the entire body became stiff with clonic movements of the arms, tightly closed hands and moaning but no loss of consciousness. He recovered when salt was put on his lips. Past illnesses were unimportant; venereal disease was denied.

The mother and one sister had migraine. A brother, from childhood to 28 years of age, when excited would become apneic, stiff and cyanotic, but recovered when soundly slapped on the back.

Eight months before being referred to us, while walking and smoking, the patient suddenly felt a tightening of the jaw, a sensation of "iciness" in the lower back and both arms, especially the left, thoracic heaviness, palpitation, a sensation of warm fluid rising from the stomach, and nausea.[5] He leaned against a fence for support, and in about a minute felt well and remained so for a month. In the following two months he had six or eight attacks of increasing severity, some of them lasting for from five to twenty minutes. The attacks always began with the sensation of tightening about the jaws. After a few months, this sensation of tension extended down the left arm and soon this sensation changed to a pain. About six months after the beginning of the trouble he began to be "delirious" in the seizures; would cry out, beat the arm against a pillow or the chest, talk at random, sometimes repeat the same word over and over, and act in a most irrational way. At times he had two or three attacks in a day, and had had several at night. They came spontaneously, but were almost sure to be brought on by exertion, especially by walking. So we sent him in the elevator down four floors with instructions to walk up. This caused no trouble except some precordial oppression. He was then sent out to walk a few blocks. This induced a typical though not exceedingly severe attack showing all the characteristics of angina pectoris.

The patient had grave organic heart disease, and although when he had been in a hospital a few months before the Wassermann reaction was negative, reexamination gave a maximum positive.

A little investigation disclosed that the "delirium" or irrational conduct during the attacks was simply the emotional reaction of a neurotic to the pain in the arm, the precordial distress and the consequent apprehension. And, as is so frequently the case, these neurotic symptoms were in large measure due to a neuropathic environment. Dr. James B. Herrick, to whom I referred the patient, made a diagnosis of syphilitic aortitis.

ABSTRACT OF DISCUSSION

Dr. A. L. Skoog, Kansas City, Mo.: I am particularly interested in what was said regarding the peculiar, usually unrecognized, attacks occurring in childhood. I have seen cases about which I have felt rather perplexed when analyzing them and trying to place them in a certain diagnostic category. Some of them have been proved definitely to be epilepsy, while others have proved to be functional disorders. Yet when we analyze that functional group we have to be careful lest we again make a mistake. It is possible that there may be some toxic condition or even some definite organic change in the brain substance, especially in the cortex of the brain, in the frontal or parietal lobes. It is quite possible that some of the cases of hysteria are erroneously diagnosed. Dr. Patrick rightly calls our attention to the sins of the internist. This applies not only to epilepsy, which I have observed, but also to many other neurologic or psychiatric disorders. When it comes to differentiating the particular variety of epilepsy, again we have difficulty. I have on several occasions analyzed the cases seen in institutions and those observed in private practice. There is quite a difference in these groups of cases. I noted that in private practice I get cases which one might say are in the acute stage, while in the institutions many of them are seen in the stage in which we have the fixed state undoubtedly due to chronic lesions in the brain. The prognosis is far better in the cases I have seen in private practice, in which there has been a very definitely higher recovery rate. I wish to ask Dr. Patrick whether he would place narcolepsy in the hysteroid group or in the epileptic group.

Dr. F. E. Coulter, Omaha: It is very timely that our attention has been called to some of the points in connection with this "thing" that is called epilepsy. We can hardly continue to call epilepsy a disease, for undoubtedly it is a syndrome having various types of manifestations, motor, sensory and mental. As to organic epilepsy, that, of course, does not belong to true epilepsy at all, but is rather an epileptoid manifestation. And if we look into each one of our cases carefully, we shall be able to determine the causative factor and what may be the cause of this recurring syndrome. Therefore, by the exercise of care, we can generally determine the particular and definite etiologic factor. As to idiopathic epilepsy, so called, I do not know that I have ever seen such a case; and I have seen a great many cases of epilepsy. It was my good fortune to be with Gowers about one year at the time he was working on this subject of epilepsy, but from his experience at that time, we were looking for some common etiologic factor. We never have found it, and as a result of the last twenty-five years in the observations of epilepsy we shall never discover a common etiologic factor. So it is simply a question of a combination of symptoms, a symptom complex, and Dr. Patrick has called attention to some of the unusual cases we encounter. Every one of these cases, by careful effort, can be ferreted out, and when we have found the particular etiologic factor, we should then take into account the habit, condition, and, lastly, the question of treatment of the patient and also the treatment of the parents of these children, referred to in the paper, for that is most necessary; then, I believe, we shall find the subject very much simplified. I do not believe there is such a condition as hystero-epilepsy. It is either epilepsy or hysteria; and if we analyze our cases carefully we shall be able to determine which condition exists. I am of the opinion that the subject of epilepsy is becoming more and more clear as time goes by. I am not surprised that internists overlook many of these etiologic factors in connection with epilepsy. Epilepsy is simply a syndrome, not a disease per se, as we are all beginning to understand. We use the term "idiopathic" simply for the purpose of covering up our ignorance, just as we use the word "functional" under certain conditions for the same purpose.

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[5] We are inclined to think that the patient did not register all these feelings at this time but that this picture is more or less of a composite of this and subsequent attacks.

Dr. Walter Timme, New York: There are some considerations on which I should like Dr. Patrick to cast some light, if he will. His paper is on the subject of the diagnosis of epilepsy. I think we ought to have a definition of what we mean by epilepsy as distinguished from other things, a diagnosis based on a proper pathogenesis, not a diagnosis based on symptomatology. If, for instance, a lesion or a functional disturbance of the cortex accompanied by motor or psychic phenomena is epilepsy, if the vasovagal spasms of the brain stem are epilepsy, how much farther are we to go in the nervous system before epilepsy ceases? Is disturbance in the anterior horn accompanied by muscle fibrillation an epilepsy, or is it not? These considerations are very important; and if Dr. Patrick can formulate an explanation or give us some line of demarcation as to what is to be diagnosed epilepsy and what is not, we should be very happy. Dr. Patrick mentioned two cases in which presumably the diagnosis of epilepsy made by him or about to be made by him was vitiated in his mind for the reason that he cured the patient by hypnotism or other means addressed to the psyche. Does Dr. Patrick mean that because he cured them by other means than we usually employ, these were not cases of epilepsy? How many cases of psychic manifestations may be subdued by just such methods as Dr. Patrick has used in the cases he described? How do we know that many of these patients, properly approached in that manner, will not be cured by that treatment; and if so, shall we say they are not epilepsy? In other words, before we can talk epilepsy we have to have a distinct understanding as to just what we mean by epilepsy; and if Dr. Patrick can shed light on this, we shall be indebted to him.

Dr. Tom A. Williams, Washington, D. C.: We know of no one who has so beautifully presented the problems of differential diagnosis in neurologic conditions as has Dr. Patrick, and it is all the more dangerous therefore when in addition to his title, "The Diagnosis of Epilepsy," he insinuates into our minds matter concerning the treatment of epilepsy which some of us must look on as reactionary. He speaks of curing epilepsy by bromids. Many of us have learned to think that in a great many cases that procedure is pernicious, and that many of the epilepsies of the kind he refers to are benefited much more by general medical measures than by bromids. As to the problems of differential diagnosis, I think the difficulties that have just been referred to in the discussion have already been disposed of by Dr. Patrick. But it is not by exclusion but by finding genetic factors that we should seek diagnoses. This is most important where psychic agencies are suspected. So that it is hysteria which should be excluded by failure to find the psychopathogen, when convulsions raise doubts. If the attacks can be produced by a situation, they are not epileptic then. The two cases that he cited of pseudo-epilepsy were cases in which the diagnosis could be surely made by eliciting the etiologic factor, which was a reaction to a situation, whereas idiopathic epilepsy is a reaction of the organism quite irrespective of the situation. I think it is quite common for psychogenic affections of convulsive aspect to be misjudged and named epilepsy and treated by bromids. I think the internist is very likely to misjudge such cases; and one of our chief problems is to determine how to lead the internist and pediatrician to appreciate the fact that the case manifesting the more trifling symptoms, matters that seem less serious, as Dr. Patrick says, is one in which they most require our cooperation. Where there are gross functional manifestations of epileptic attack they do not so much require our assistance to make a diagnosis. How can we impress the internist with the importance of these little manifestations which require interpretation? In regard to jacksonian epilepsy, I am sure we have all seen cases in which a series of motor attacks will begin on one side of the body; but finally we find the jacksonism on the other side. We can only infer, then, that this is a functional disturbance which first manifests itself on one side of the body and then on the other. So there is a caution for the surgeon—to be careful in his diagnosis before venturing to explore.

Dr. Charles A. L. Reed, Cincinnati: I object to the use of the term epilepsy. It has no reputable etymologic significance. It conveys no possible suggestion of pathology. In a clinical sense it has come to mean everything and nothing. By long usage it has acquired a misleading connotation. Thus it has come to mean a hereditary disease that is not established by the facts; it has been made to imply a permanent lesion of the brain that is at most confessedly indefinite and inconsistant, and, when it exists, is always secondary. It has been made falsely to stand for a stigma of degeneration that gives to the victim a classification that is cruel and unjust. By virtue of these facts, it has been accepted by the profession as implying something that is incurable. This alleged incurability is further accepted as an excuse for a let-alone policy of treatment, a policy that is as disastrous to the individual as it is increasingly expensive to the state. Either of two terms ought to be substituted for that of epilepsy, namely: chronic convulsive toxemia or convulsive splanchnoptosis. These terms give some clue to what I have found to be antecedent and concomitant, and, consequently, causative factors. The visceral displacements may be congenital—not hereditary; they may be acquired, as from traumatism; or they may be secondary to a primary focal infection in the tonsils, teeth or accessory isnuses. The fit of a so-called epileptic is but one symptom of a vastly more comprehensive condition.

Dr. M. L. Perry, Topeka, Kan.: Dr. Patrick has called attention to what seems to me to be one of the most important phases of this most protean disease. Something has been said here in criticism of the general practitioner, but this criticism I would make somewhat broader. Not only the general practitioner but also the internist fails to recognize these cases, and even the neurologist sometimes overlooks the early symptoms of epilepsy. However, it is seldom that the neurologist sees these cases first. Textbooks are distinctly at fault in not calling attention to the facts which Dr. Patrick has mentioned. For many years our attention has been called to the convulsive motor phenomena known as epilepsy, and the psychic phenomena have frequently been emphasized. I believe that Dr. Patrick based his diagnosis of epilepsy primarily on psychic disturbance, but too little has been said about sensory disturbance. These little vague feelings the author spoke of constitute symptoms which are important from a purely academic point of view in the diagnosis of this trouble, and they are especially important from the standpoint of treatment, for this is the preepileptic stage. I would disagree with Dr. Patrick that these little fits are as hard to cure as big fits. I have had considerable experience with epileptics, having had charge of an epileptic institution for many years, and I find that in this stage one can frequently relieve a patient, as Dr. Patrick did in one case referred to. Much has been said in criticism of bromid treatment, and a great deal of injury has been done by bromid medication; but I think that the greater part of the damage which has been laid to bromid medication has been due to the nonscientific use of this agent. I believe that if used properly it is a very valuable drug in the treatment of this disease. In the stage Dr. Patrick has pointed out, I think it is of the greatest importance that these patients, before having reached open, frank epilepsy, be given some form of sedative, and I know of nothing better than bromid medication given cautiously and in the proper dosage.

Dr. Hugh T. Patrick, Chicago: Replying to Dr. Skoog, I would say that if epilepsy is a symptom, narcolepsy is just that. That is to say, some cases of narcolepsy are epileptic, some hysterical, and some obviously due to gross brain disease. For instance, brain tumor sometimes causes it. Narcolepsy may also be a manifestation of endocrine disorder. Dr. Timme is trying to lead me into water beyond my depth in trying to beguile me into an attempt to define epilepsy. I definitely decline to make such attempt. But if he wants to know what I mean by epilepsy, I mean about what he means. We might differ here and there on an occasional case, just as we might differ as to whether a particular young woman were beautiful or only pretty or just attractive; but as to a thousand young women we probably would not differ materially, nor would we differ materially on a thousand cases of epilepsy. When I say epilepsy I mean what we all mean by epilepsy. If I conveyed the impression that I concluded that one of the cases reported was not epilepsy because I "cured" it, I did so unintentionally. What I tried to say was that it was not epilepsy because the attacks were due to an emotional conflict, if that is sufficiently accurately expressed. Epilepsy is not caused by any such thing in my opinion. Then Dr. Timme asks whether epilepsy could not be cured in the same way (psychotherapy). It cannot. Dr. Williams said I used the expression "cured" in one of these cases of epilepsy. If I did, I apologize. If I ever said that I "cured" a case of epilepsy, I beg leave to retract at once. I meant that the patient went a certain length of time without symptoms of epilepsy; in other words, after fifteen years or thereabouts he remained well. I never said I cured anything. I requested Dr. Reed to remain for the discussion, but he would not. As he went out I just had time to condemn his attitude. He announced that his remarks would be confined to the subject of diagnosis. He said not a word about diagnosis. He talked about condemning the use of the word epilepsy. If he has a better one, I shall be glad to use it. But when he wants to call epilepsy "convulsive splanchnoptosis," I certainly do not go with him. He talked about the possible causes of epilepsy and the pathology of epilepsy; he indicated the treatment of epilepsy, but he said nothing about diagnosis. He said that these cases are really and essentially a splanchnoptosis, but insisted that the patient should have a thorough examination—the teeth and tonsils, the feet, the mental condition, the emotional state, etc. But what I wish deliberately and emphatically to say is that in my opinion Dr. Reed has done untold harm to epileptics, untold harm to the families of epileptics and untold harm to the medical profession. So far as I have been able to learn, and I have tried to ascertain, Dr. Reed never has published categorical statements of his results and never has made a statement of his mortality. I have reason to believe that his mortality is unpardonably high. Dr. Perry says it is not only the internist who overlooks some of these little things; that the neurologist does the like. I should like to say to him that if there is any sin of omission or commission that neurologists have not perpetrated, I have not heard about it.

Psychotherapy Defined.—Psychotherapy is a convenient name applicable to all forms of treatment that depend on education, persuasion, or suggestion, and not on physical or chemical influences for their success. Although psychotherapy has been used by the medical profession for many generations, it has been recognized as a special method of treatment based on certain principles only within recent years. Its value in dealing with a large number of mental disorders can hardly be overstated, and it is for the future to determine the limits of its usefulness.—Buzzard, *Mental Hygiene*, July, 1922.

CIRCULATION OF PHENOLSULPHONEPHTHALEIN IN THE CEREBROSPINAL SYSTEM *

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The formation, circulation and absorption of the cerebrospinal fluid in the various fluid spaces of the central nervous system is a subject concerning which much information has been obtained. The work of Mott,[1] Cushing,[2] Frazier,[3] Weed[4] and others has shown that the greater part of the fluid is formed in the choroid plexuses situated in the ventricles of the brain. Opinion tends to the conception that the fluid is formed as a secretion rather than as a transudate. It is possible that some of the fluid is formed on the surface of the cortex of the brain or spinal cord as a secretion of the serous surfaces of the meninges. However, if this is so, it is only an insignificant portion of the fluid that is so formed. The greater portion of the fluid is formed by the choroid plexuses of the lateral ventricles. The fluid thus formed in the lateral ventricles communicates with that in the third ventricle by means of the foramen of Monro, and thence with the fluid of the fourth ventricle through the aqueduct of Sylvius. From the fourth ventricle there is a connection into the subarachnoid space through the foramina of Luschka and Magendie. There is convincing evidence that a free communication exists between the ventricular system and the subarachnoid spaces. Dandy and Blackfan[5] have shown that the ventricular fluid may be entirely exhausted by aspiration from the lumbar subarachnoid space, and that the ventricles and cerebral subarachnoid spaces may be refilled with air injected into the lumbar subarachnoid space. They further showed that a dye, neutral phenolsulphonephthalein, injected into the lumbar subarachnoid space, could be obtained from the ventricles in the course of several minutes, and also that the dye, when introduced into the ventricles, could be obtained from the lumbar subarachnoid space. These observations have been confirmed by Dahlström and Wideröe,[6] and the dye experiments by ourselves, as will be shown later in this paper.

There is also sufficient evidence to show not only that there is a communication between the ventricles and the subarachnoid spaces, but also that fluid is constantly pouring from the ventricles into the subarachnoid spaces. Clinical observation has shown that an exudate in the region of the foramina of Luschka and Magendie leads to an internal hydrocephalus.

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[1] Mott: Lectures on the Cerebrospinal Fluid, Lancet, July 2 and 9, 1910.

[2] Cushing: Studies on the Cerebrospinal Fluid, J. M. Res. **31**: 1 (Sept.) 1904.

[3] Frazier and Peet: Am. J. Physiol. **36**: 268, 1914.

[4] Weed: Studies on the Cerebrospinal Fluid, J. M. Res. **31**: 21, 1914.

[5] Dandy, W. E., and Blackfan, K. D.: An Experimental and Clinical Study of Internal Hydrocephalus, J. A. M. A. **61**: 2216 (Dec. 20) 1913; Internal Hydrocephalus, Am. J. Dis. Child. **8**: 406 (Dec.) 1914; **14**: 424 (Dec.) 1917.

[6] Dahlström and Wideröe: Studie über den Liquor cerebrospinalis und dessen Kommunikations—verhältnisse bei syphilogenen Geisterkrankheiten.

Frazier and Peet and Dandy and Blackfan have shown that an experimental plugging of the aqueduct of Sylvius likewise produces an internal hydrocephalus. Frazier and Peet proved that fluid made its way out through the sylvian aqueduct, by placing a cannula into the aqueduct in two dogs under urethane-morphin anesthesia and noting the flow of fluid through the cannula. They were able to prove that there was a formation of fluid in the ventricles which made its way out through the cannula. They reported the rate of discharge of cerebrospinal fluid at the rate of 0.231 c.c. a minute in one case, and 0.192 c.c. a minute in another case. Dercum[7] quotes Mestrezat and Frazier to the effect that the cerebrospinal fluid renews itself six or seven times in twenty-four hours. As the average amount of cerebrospinal fluid in the combined fluid spaces is from 125 to 175 c.c., this would indicate that approximately 1,000 c.c. of spinal fluid is formed in twenty-four hours. The greater portion of this fluid, as already stated, is formed in the lateral ventricles. As blockage of either the foramina at the base of the brain or at the aqueduct of Sylvius produces an acute internal hydrocephalus, it follows that the fluid that is formed in the ventricles is not completely absorbed in the ventricles. This proves that the fluid must make its way out of the ventricular system into the subarachnoid spaces.

Stern[8] has given further experimental evidence of the flow of the fluid from the ventricles to the cerebral subarachnoid spaces. He injected substances into the cerebral ventricles, and found these substances in the subarachnoid space after a very short interval. On the contrary, the same substances injected under the dura were found in the ventricles only when the volume of fluid injected was very large, and when it was injected under a pressure sufficient to disturb the normal conditions. Weed has shown that the cerebrospinal fluid is absorbed into the venous channels, particularly in the subarachnoid space. The connection between the perineuronal spaces and the perivascular spaces of His and Virchow-Robin and the ventricles and subarachnoid space is not definitely proved, and is a matter that we shall not consider in this paper.

There is evidence that substances injected into the cerebrospinal fluid system make their way into the blood stream with considerable rapidity. Dixon and Halliburton[9] state that "large quantities of a neutral fluid, such as physiological saline solution, disappear within a few minutes when introduced into the craniovertebral cavity." They further state that the rate has some relation to the diffusibility of the injected substances. Thus, nicotin, epinephrin and atropin, which are rapidly diffusible when given into the cerebrospinal fluid system, produce their pharmacologic results almost as quickly as when given intravenously. They say that diffusion is most rapid in the region of the cisterna magna, and least rapid in the lumbar region. Dandy and Blackfan have shown that neutral phenolsulphonepththalein, introduced into the lumbar subarachnoid space, appears very rapidly in the urine. In one case they found the dye in the urine of the bladder in one minute after injection into the lumbar subarachnoid space. This is even more rapidly than occurs when the dye is given intramuscularly. Mehrtens and West[10] likewise report that the dye makes its appearance in the urine following intraspinal injection in from four to fourteen minutes.

We may thus summarize the foregoing statements: In conditions of normal health, cerebrospinal fluid is constantly being formed in the cerebral ventricles in considerable amounts. This fluid is absorbed in large part in the subarachnoid spaces, arriving there by a course through the aqueduct of Sylvius and the foramina of Luschka and Magendie.

The flow of fluid from the ventricles to the subarachnoid space and its absorption must produce a movement of the fluid in the fluid spaces. This movement of the fluid is probably increased by the effects of respiration and of the heart beat. When a standpipe is connected with the lumbar or cistern subarachnoid spaces, or the lateral ventricle, oscillation of the fluid may be observed with each respiration or beat of the heart. A deep respiration, a cough, movement of the head and body, emotional reactions on the part of the patient, or compression of the jugular veins will cause a change of the height of fluid in the standpipe of as much as 200 mm. It must be granted that there is a movement or flow of cerebrospinal fluid in its system. It becomes of interest to learn what happens to substances introduced into one portion or another of the cerebrospinal fluid space. Despite the fact that there is free communication from one portion of the fluid system to another, there are numerous observations which show that an interchange of substances between the different areas is somewhat limited. In 1910, Schmorl[11] reported that the ventricular fluid frequently differed in its physical and chemical characteristics from the spinal fluid. Of ten patients who died with icterus and in whom the spinal fluid was colored by bile pigment, he found the ventricular fluid clear in seven. In one case the ventricular fluid was only slightly colored, and in the two remaining cases the ventricular fluid was more highly colored than the spinal fluid. He stated that in the cases in which the ventricular fluid was colored the choroid plexus showed evidence of injury, from which he deduced that in cases in which the choroid plexus was uninjured, the ventricular fluid was colorless, although the spinal fluid contained color. These observations indicate that there is not a very active interchange between the ventricular and lumbar fluids. In the case in which the lumbar fluid was more highly colored than the ventricular fluid, it is possible to assume that the flow of fluid was greater from the ventricles to the lumbar region rather than the reverse, and that the pigment was thus washed into the lumbar region. However, in his two cases in which the ventricular fluid was more strongly colored than the lumbar fluid, this explanation would not hold.

Schmorl further reported seven cases of paresis in which the spinal fluid gave a positive Wassermann reaction, whereas in six of the cases the ventricular fluid gave a negative reaction. In only one of the seven cases was the Wassermann reaction positive in both the ventricular and spinal fluids. In two cases of scarlet fever, he found that the spinal fluid gave a positive Wassermann reaction, whereas the ventricular fluid gave a negative reaction.

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[7] Dercum, F. X.: The Functions of the Cerebrospinal Fluid, Arch. Neurol. & Psychiat. **3**: 230 (March) 1920.

[8] Stern: Le liquide cephelorachidien au point de vue de ses rapport avec la circulation sanguine et avec les éléments nerveaux de l'axe cérébrospinal, Schweiz. Arch. f. Neurol. u. Psychiat. **8**: 215, 1921.

[9] Dixon and Halliburton: Rapidity of Absorption of Drugs Introduced into the Cerebrospinal Fluid, J. Physiol. **44**: 7, 1912.

[10] Mehrtens, H. G., and West, H. F.: Absorption of Phenolsulphonephthalein, Arch. Int. Med. **20**: 575 (Oct.) 1917.

[11] Schmorl: Liquor cerebrospinalis und Ventrikelflüssigkeit, Verhandl. d. deutsch. path. Gesellsch., Erlangen, **14**: 288, 1910.

Cushing has shown that the sugar content of the ventricular fluid differs from the sugar content of the spinal fluid. In 1915, one of us (H. C. S.[12]) showed that postmortem the colloidal gold reaction differed in fluids taken from various loci of the cerebrospinal fluid system. The fluid tested came from the ventricles, base of the brain, and lumbar region. More recently this difference between the reactions of the ventricular and spinal fluids has been observed antemortem in cases of paresis. Frequently the ventricular fluid will show normal findings as regards cell count, globulin, albumin, colloidal gold and Wassermann reactions, whereas the spinal fluid will give the typical paretic findings. This was observed in some of the cases in which we have made observations, reported in a subsequent part of this paper. This difference between the ventricular and spinal fluids is reported by Dahlström and Wideröe, who in seven cases of general paresis found the ventricular fluid positive to the Wassermann test in only one case and negative in six, whereas the spinal fluid was positive in all seven cases. Differences were also found in the cell count, globulin and albumin content, and in two of their cases in the colloidal gold reaction.

There is also abundant experimental evidence to prove that there is no very active or rapid circulation or diffusion of substances introduced into one locus or another. Goldmann[13] introduced trypan blue into the spinal subarachnoid space of living animals, and later examined them postmortem. He found that the dye was most concentrated at the point of injection, the intensity of the coloration diminishing in the cephalad direction. In the cranial cavity the coloration was almost entirely basilar. However, when the dye was introduced into the cerebral subarachnoid space, it spread immediately over the entire cortex.

Cocain or procain, injected into the lumbar region for purposes of anesthesia, rarely produces an effect above the dorsal region.

Kramer[14] injected 2 c.c. of a 1 per cent. solution of methylene blue into the cerebral subdural space of a dog and killed it after ten minutes. "A blue coloration," says Kramer, "is confined to that portion of the brain in front of the tentorium. The entire surface of the cerebral cortex on the side of the injection and a small though varying area of the mesial surface of the opposite hemisphere is stained; that is, the fluid diffuses to some extent under the falx cerebri." He found that there was a slight upward movement of the dye when introduced into the lumbar sac. He believes that there is an upward movement of the dye through the central canal of the cord when this is patent. He believes that the ciliated epithelium lining the central canal moves the dye cephalad, and that it thus reaches the fourth ventricle. It is his opinion that the explanation of collapse in spinal anesthesia occurs when the central canal is patent, and that the anesthetic is transported to the fourth ventricle through this opening.

Horbatsky[15] studied vital staining in four moribund children. The first three of his patients were ill with dysentery, and the fourth with tuberculous meningitis. One cubic centimeter of methylene blue in a 1 : 20 dilution was injected into the subarachnoid space between the third and fourth lumbar vertebrae. In two cases this was done two days, in one case twenty-four hours, and in the fourth case ten hours prior to death. In the three cases of dysentery, when the skull was opened, the coloration was limited to the base of the brain, pons and medulla, with some coloration in the ventricles, especially the fourth. The cranial nerves also were colored, but the cerebral cortex itself showed only a very slight coloration. In the case of tuberculous meningitis, the brain was not colored at all. (It is probable that adhesions were present in the case of tuberculous meningitis which prevented the diffusion.)

The work of Dandy and Blackfan with the injection of neutral phenolsulphonephthalein in the living human being has opened up the possibility of further study of this subject. They showed that neutral phenolsulphonephthalein can be injected into the cerebrospinal fluid without any untoward effects. In their experiments they found that phenolsulphonephthalein injected into the lateral ventricle appeared in the lumbar spinal fluid in from two to three minutes, and also that the dye introduced into the lumbar subarachnoid space appears very shortly in the cerebral ventricles. Dahlström and Wideröe have confirmed these observations of Dandy and Blackfan. We also have confirmed these observations, as will be shown below. Weston,[16] on the other hand, was unable to confirm these findings. He introduced the dye into the lumbar region, and was unable to obtain any from the cisternal fluid at intervals varying from fifteen minutes to five hours after the injection of the dye.

That there is not a very free flow of dye from one region to another of the cerebrospinal fluid system may be deduced from the observations on the elimination of the dye from the kidneys when introduced into the cerebrospinal fluid system. Dandy and Blackfan reported that phenolsulphonepththalein injected into the subarachnoid space (presumably meaning the cerebral subarachnoid space) appeared in the urine in from six to eight minutes, and that at the end of two hours from 35 to 60 per cent. had been eliminated. However, when the dye was introduced into the ventricular fluid it appeared only after from ten to twelve minutes, and at the end of two hours only 12 to 20 per cent. had been excreted. This indicates that a great deal of the fluid containing the dye had not made its way in the cerebral subarachnoid space; otherwise more of the dye would have been eliminated.

AUTHORS' EXPERIMENTS

After this review of the literature we may proceed to an account of our own experiments. These were performed on patients with neurosyphilis who were receiving antisyphilitic treatment, and who consented to the addition of the dye. Neutral phenolsulphonephthalein was introduced either in the lumbar subarachnoid space, the cistern subarachnoid space or the anterior horn of the lateral ventricles, and subsequently a puncture was made in one of these areas to see whether the dye had reached the latter point, and if so in what amount. In some instances 1 c.c. of spinal fluid was withdrawn and 1 c.c. of the dye added, an attempt being made to disturb the fluid as little as possible by this manipulation of withdrawal and injection. In other cases the dye was added to the Swift-Ellis arsphenaminized serum; from 15 to 20 c.c. of cerebrospinal fluid was then withdrawn, and an approximately equal amount of serum containing the dye was reinjected, thus duplicating the procedure in the intraspinal treatment of neurosyphilis. The patient was kept recumbent until after the completion of the experiment.

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[12] Solomon and Welles: Varieties of Gold Sol Test (Lange) in Several Loci of the Cerebrospinal Fluid System, Boston M. & S. J. **172**: 625, 1915.

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[15] Stepleanu-Horbatsky, V.: New Studies on Cerebrospinal Fluid Circulation, Presse méd. **28**: 254 (April) 1920.

[16] Weston, P. G.: Phenolsulphonephthalein Absorption from the Subarachnoid Space in Paresis and Dementia Praecox, Arch. Neurol. & Psychiat. **5**: 58 (Jan.) 1921.

TABLE 1.—CIRCULATION OF PHENOLSULPHONEPHTHALEIN IN THE CEREBROSPINAL FLUID

Patient	Serum Injected, C.c.	Time Between Punctures, Min.	Color Appeared	C.c. of C. S. F. Drained Before Color Appeared	Mg. of Phenolsulphonephthalein per C.c. in First Specimen of C. S. F.
First Group: Lumbar Subarachnoid Space to Cisterna Magna					
1. H. P.	..	7	No	33	......
2. H. P.	..	19	Yes	14	......
3. H. P.	..	25	Yes	Color in 1st 5 c.c.	0.0009
4. F. P.*.........	..	30	No	16	......
5. C. H.	..	30	Yes	0	......
6. J. C.	..	35	Yes	0	0.0016
7. C. S.	..	45	Yes	0	......
8. C. M.	..	60	Yes	0	0.0015
9. J. B.	...	60	No	40	......
10. J. C.	..	60	No	19	......
11. A. F.	..	70	Yes	0	0.0015
Second Group: Lumbar Subarachnoid Space to Cisterna Magna—Dye in Serum					
12. H. P.	15	14	Yes	0	0.0006
13. J. S.	20	18	Yes	0	0.015
14. J. K.	20	35	Yes	0	0.0007
Third Group: Cisterna Magna to Lumbar Subarachnoid Space					
15. P. M.	..	10	Yes	0	0.0016
16. P. M.	..	10	Yes	0	0.0016
17. P. M.	..	30	Yes	15	......
Fourth Group: Cisterna Magna to Lumbar Subarachnoid Space—Dye in Serum					
18. W. L.†........	3	5	Yes	5	......
19. G. M.	12	10	Yes	16	......
20. W. L.†........	2	30	Yes	10	......
21. P. M.	10	30	Yes	0	0.001
Fifth Group: Lumbar Subarachnoid Space to Cerebral Ventricles					
22. C. M.	..	15	Yes	50	......
23. J. S.	..	20	Yes	0	0.001
24. W. M.	..	20	Yes	20	......
25. C. S.	..	25	Yes	0	0.0008
26. H. P.	..	30	Yes	10	......
27. J. S.	..	30	Yes	3	......
28. J. S.	..	30	Yes	4	......
29. H. P.	..	45	Yes	8	......
Sixth Group: Lumbar Subarachnoid Space to Cerebral Ventricles—Dye in Serum					
30. C. M.	10	20	Yes	5	......
31. J. S.	20	30	Yes	0	0.001
32. H. P.	30	30	Yes	15	......
33. J. S.	20	35	Yes	0	Faint traec
Seventh Group: Cerebral Ventricles to Lumbar Subarachnoid Space—Dye in Serum					
34. E. B.	12	15	Yes	0	0.005
35. F. P.	20	30	Yes	15	......
36. T. R.	12	40	Yes	10	......
37. H. P.	10	40	Yes	21	......
Eighth Group: Cisterna Magna to Cerebral Ventricles					
38. J. S.	..	8	Yes	0	0.0033
39. E. B.	..	28	Yes	0	0.005

* In this case no color appeared in 16 c.c. of cerebrospinal fluid withdrawn when the cistern was tapped thirty minutes after the dye had been given; 24 c.c. of serum was then given intraspinally, and two minutes later color appeared in the cisternal fluid.

† Patient became nauseated shortly after the administration of a few cubic centimeters of serum, and less than 1 c.c. of dye was injected.

In the first group of experiments, 1 c.c. of neutral phenolsulphonephthalein was introduced into the lumbar sac between the third and fourth lumbar vertebrae, after 1 c.c. of spinal fluid had been withdrawn. Cisternal puncture was then made to determine whether any dye had reached this level. The time elapsing between the injection of the dye and cistern puncture varied from seven to seventy minutes. A perusal of Table 1 shows that the results were not uniform. In five instances the dye was obtained in the cistern fluid when the first drops were removed. In four cases no dye was recovered, even after a number of cubic centimeters of cerebrospinal fluid had been removed from the cistern region in order to aspirate the lumbar fluid. It is to be presumed that in these cases the fluid obtained from the cistern puncture came largely from the ventricles, and that not much fluid was obtained from the lumbar region. In one case, after 14 c.c. of cistern fluid had been withdrawn, dye made its appearance. In the cases in which no dye was obtained from the cistern region, double puncture according to the technic of Ayer was performed in order to prove that there was no blockage. In no case of this series was there any evidence that there was any anatomic blockade to the flow of the cerebrospinal fluid. In those cases in which the dye was found in the first drops obtained from the cistern puncture, the amount was very small indeed. As may be seen by a perusal of Table 2, as one continues to withdraw fluid the amount of dye substance in each succeeding specimen becomes greater. Further evidence that the failure of the dye to appear in the cistern region was not due to anatomic blockage was shown in Case 4 of Table 1, in which the cistern puncture was made thirty minutes after the dye had been given, and no color appeared in 16 c.c. of the cerebrospinal fluid withdrawn from the cistern. Then 24 c.c. of serum was given intraspinally, and at the end of two minutes the dye had been driven up into the cisternal fluid.

The second series of experiments consisted of withdrawing from 15 to 20 c.c. of spinal fluid from the lumbar region and then replacing an approximately equal amount of arsphenaminized serum, to which had been added 1 c.c. of the dye. At subsequent periods, varying from fourteen to thirty-five minutes, a cistern puncture was performed, and in each of the three cases dye was obtained in the first drops of fluid from the cistern region; and again the amount of dye that appeared was exceedingly small. The results are similar to those obtained when the dye was added directly to the cerebrospinal fluid without much disturbance due to withdrawal of a good deal of fluid and its replacement. In the second set of experiments the fluid was, of course, considerably disturbed by the withdrawal of from 15 to 20 c.c., and its replacement by serum put in under pressure.

The third group of experiments was the reverse of those shown in the first group in Table 1. In the latter series, 1 c.c. of dye was put into the cisterna magna after the withdrawal of 1 c.c. of cistern fluid. In two instances color was obtained in the lumbar fluid ten minutes after the injection of the dye in the cistern. In both of these experiments the amount of dye was small, but it increased as more and more fluid was withdrawn, showing the effect of the aspiration of the fluid downward. In the third experiment the dye was obtained only after 15 c.c. had been withdrawn.

In the fourth group, serum containing dye was injected into the cisterna magna, and spinal puncture was performed from five to thirty minutes thereafter. In the case in which the period between the injection was thirty minutes, dye was found in the first drops. In the other cases, in which the lumbar punctures were performed five, ten and thirty minutes, respectively, after the cistern injection, it was necessary to withdraw 5, 10 and 16 c.c., respectively, before color appeared.

In the fifth set of experiments, 1 c.c. of dye was given into the lumbar sac after the withdrawal of 1 c.c. of fluid, and then a puncture was made of the anterior horn of the lateral ventricle at a period varying from fifteen to forty-five minutes subsequently. In two cases in which the puncture was made twenty and twenty-five minutes subsequent to the lumbar injection of the dye, the first drops of ventricular fluid were colored, although the amount of dye was exceedingly small. In the remaining cases it was necessary to withdraw the ventricular fluid before the color was obtained. The amount that had to be withdrawn before the fluid became colored varied from 3 to 50 c.c.

In the sixth group, the dye was given intraspinally in blood serum, after the withdrawal of spinal fluid. In two instances in which the ventricle was tapped in thirty and thirty-five minutes, respectively, after the injection, the first drops showed a slight amount of dye. In the other two cases, in which the puncture was made twenty and thirty minutes after the injection, it was necessary to withdraw 5 and 15 c.c., respectively, before color appeared.

In the seventh group, the process was reversed from that of the sixth group, in that serum containing dye was injected into the lateral ventricle after the withdrawal of an approximately equal amount of ventricular fluid, and lumbar puncture was performed from fifteen to forty minutes subsequently. In one case in which the puncture was performed fifteen minutes after the introduction of the dye in the serum, color was found in the spinal fluid in the first drops. In three other cases it was necessary to withdraw 10, 15 and 21 c.c., respectively, before the lumbar fluid showed any color.

The eighth set of experiments consisted in the introduction of 1 c.c. of dye to the cisterna magna after the withdrawal of 1 c.c. of cistern fluid, followed in eight and twenty-eight minutes, respectively, by a ventricular tap. In both cases dye was found in the first drops obtained from the ventricle.

In order to be sure that the appearance of dye in the different portions of the cerebrospinal fluid system, even that in which it was injected, was not due to absorption into the blood stream and excretion into these spaces, dye was given intramuscularly, and a number of minutes later spinal and ventricular punctures were made in several cases. In no instance was there any evidence of dye in the fluid, thereby showing that the dye did not make its way from the blood stream into the cerebrospinal fluid spaces under these experimental conditions.

These groups of experiments, the results of which are similar to those obtained by Dandy and Blackfan, and Dahlström and Wideröe, and contrary to those of Weston, would seem to show conclusively that there is a direct communication between the various loci of the fluid system. On the other hand, the interchange between these different areas is shown to be inconsiderable, as very little dye makes its way from one locus to another. In Table 2 we have indicated the amount of phenolsulphonephthalein per cubic centimeter of fluid that was obtained in successive specimens from those cases in which the dye was obtained in the first drops at the second puncture. It will be noted that with the withdrawal of more and more fluid the amount of dye present increased in practically every instance, indicating that the withdrawal of fluid tended to aspirate the fluid from the region in which the dye had been added. More important is the small amount of dye that was obtained in the first specimen. One cubic centimeter of the mixture of phenolsulphonephthalein which was used in these experiments contained 6 mg. of phenolsulphonephthalein. If we assume that the cerebrospinal fluid spaces contained 175 c.c. of fluid, which is Weston's highest figure for cases of gen-

TABLE 2.—AMOUNT OF PHENOLSULPHONEPHTHALEIN IN SUCCESSIVE SPECIMENS OF CEREBROSPINAL FLUID OBTAINED FROM CASES IN WHICH DYE APPEARED AT ONCE

		Amount Cerebrospinal Fluid C.c.	Mg. of Phenolsulphonephthalein per C.c.
	Cases from First Group		
Case 3	1st tube	5	0.0009
	2d tube	6	0.001
	3d tube	6	0.001
Case 5	No record of amount		
Case 6	1st tube	2½	0.0016
	2d tube	4	0.002
	3d tube	2	0.003
Case 7	No record of amount		
Case 8	1st tube	No record	0.0015
Case 11	1st tube	No record	0.0015
	Cases from Second Group		
Case 12	1st tube	15	0.0006
	2d tube	5	0.0010
	3d tube	4	0.0016
	4th tube	3	0.0025
Case 13	1st tube	2	0.0015
	2d tube	7	0.015
	3d tube	7	0.015
	4th tube	7	0.015
	5th tube	4	0.015
Case 14	1st tube	2	0.0007
	2d tube	3	0.0010
	3d tube	2	0.0012
	Cases from Third Group		
Case 15	1st tube	10	0.0016
	2d tube	10	0.008
	3d tube	10	0.02
	4th tube	10	0.03
Case 16	1st tube	3	0.0016
	2d tube	6	0.004
	3d tube	8	0.008
	4th tube	5	0.01
	Cases from Fourth Group		
Case 21	1st tube	2	0.001
	2d tube	2	0.002
	3d tube	4	0.003
	4th tube	4	0.004
	5th tube	8	0.005
	6th tube	5	0.007
	7th tube	2	0.004
	Cases from Fifth Group		
Case 23	1st tube	7	0.001
	2d tube	10	0.002
	3d tube	7	0.003
Case 25	1st tube	5	0.0008
	2d tube	7	0.0016
	3d tube	10	0.0028
	4th tube	8	0.004
Case 27	1st tube	5	0.0003
	2d tube	7	0.0008
	3d tube	10	0.0015
	4th tube	17	0.005
	5th tube	9	0.007
	Cases from Sixth Group		
Case 31	1st tube	3	0.001
	2d tube	2	0.003
	3d tube	9	0.005
	4th tube	9	0.015
	5th tube	10	0.05
Case 33	1st tube	5	Faint trace
	2d tube	3	Faint trace
	3d tube	4	0.0005
	4th tube	3	0.0015
	Cases from Seventh Group		
Case 34	1st tube	3	0.005
	2d tube	5	0.007
	3d tube	2	0.007
	Cases from Eighth Group		
Case 38	1st tube	3	0.0033
	2d tube	4	0.007
	3d tube	12	0.02
	4th tube	12	0.03
Case 39	1st tube	4	0.005
	2d tube	6	0.01
	3d tube	8	0.02
	4th tube	3	0.02

eral paresis, it would follow that if the dye were uniformly distributed throughout, each cubic centimeter should contain 0.034 mg. It will be noted that in the majority of instances in which dye did make its appearance it was in very much smaller quantities, thereby indicating that only a small fraction of the dye injected had moved any distance from the point of injection.

How much the movement of the dye is dependent on the circulation of the cerebrospinal fluid, and how much is due to mere diffusion, is a question that we are unable to definitely answer. As shown by Weston, the specific gravity of the neutral phenolsulphonephthalein is ordinarily 1.0061, and the specific gravity of the spinal fluid in cases of paresis examined by him varied between 1.0061 and 1.0073. Weston states that one would expect the dye to rise to higher levels of the cord in those cases in which the specific gravity of the fluid was greater than that of the dye. In order to show in vitro the diffusion of the dye in cerebrospinal fluid, the following experiments were performed :

PROTOCOLS OF DIFFUSION EXPERIMENTS

EXPERIMENT 1.—Five-tenths cubic centimeter of serum plus 0.5 c.c. phenolsulphonephthalein placed at bottom of 29 c.c. spinal fluid in a 30 c.c graduate, 2 cm. in diameter and 6 cm. high.

12:25 p. m. (Color extended above bottom) 0.3 cm.

12:30 p. m. Diffuse pale red through entire 6 cm., but dark red remained in lower 0.3 cm.

12:45 p. m. Same as above, only the serum in the lower 0.3 cm. could be definitely distinguished.

1:45 p. m. Same as above, only the fluid throughout was a darker red and the color was evenly distributed, showing that the dye had diffused upward, but the blood serum was sharply demarcated from the cerebrospinal fluid and remained at the bottom of the graduate.

2:45 p.m. Same.

10:45 p.m. Same.

EXPERIMENT 2.—Ten cubic centimeters of serum placed in bottom of 50 c.c. graduate (22 cm. in diameter and 15 cm. high) with 40 c.c. spinal fluid above. Fluids were slightly mixed and the color of the serum extended up to 4.5 cm.

12:05 p. m. Color of serum, 4.5 cm.
12:15 p. m. Color of serum, 3.5 cm.
12:25 p. m. Color of serum, 3.5 cm.
12:35 p. m. Color of serum, 3.5 cm.
12:45 p. m. Color of serum, 3.5 cm., showing that there was no upward diffusion of the blood serum.

One cubic centimeter of phenolsulphonephthalein added at bottom of serum. Dye diffused rapidly through serum, and by 12:48 had extended up as far as 6 cm.

1:45 p. m. Color (red) up to 12 cm. Faint pink above.
2:45 p. m. Color (red) up to 12 cm. Faint pink above.
10:45 p. m. Color (red) up to 12 cm. Faint pink above, showing that blood serum tends to hold the dye.

Much dye remained in the serum at bottom of graduate.

EXPERIMENT 3.—One cubic centimeter of serum placed at bottom of 49 c.c. spinal fluid in 50 c.c. graduate as used above.

12:00 noon. Serum extended up 0.6 cm.
12:15 p. m. Serum extended up 0.45 cm. Definite line of demarcation.
12:35 p. m. Serum extended up 0.45 cm.
12:45 p. m. Serum extended up 0.45 cm.
1:45 p. m. Serum extended up 0.45 cm.
2:45 p. m. Serum extended up 0.45 cm.
10:45 p. m. Serum extended up 0.45 cm.

EXPERIMENT 4.—One cubic centimeter of dye placed under 49 c.c. cerebrospinal fluid in 50 c.c. graduate as used above. There was some mixing almost immediately.

12:15 p. m. Color extended upward 1.5 cm.
12:30 p. m. Color extended upward 9 cm.
12:35 p. m. Color extended upward 11 cm.
12:45 p. m. Color extended upward 13.5 cm.
1:15 p. m. Color throughout fluid and of equal intensity throughout.
1:45 p. m. Same.
2:45 p. m. Same.
10:45 p. m. Same.

EXPERIMENT 5.—One cubic centimeter of dye placed at top of 50 c.c. of cerebrospinal fluid. There was almost instant diffusion, and in thirty minutes the color had reached the bottom and was of equal intensity throughout.

EXPERIMENT 6.—Five-tenths cubic centimeter of serum plus 0.5 c.c. dye placed at top of 49 c.c. cerebrospinal fluid. The colored mixture settled rapidly in channels along the side of the vessel, so that in five minutes some of it had reached the bottom.

In fifteen minutes practically all color was in the lower 3 cm., shading off through the next 3 cm. to a faint pink color which was of equal intensity throughout the upper 9 cm.

This condition then remained stationary for two hours.

EXPERIMENT 7.—The experiments were repeated to observe the diffusion in a horizontal direction. For this purpose, a glass tube with a diameter of 0.5 cm. was used; the two ends of the tube were bent upward. Cerebrospinal fluid was then placed in the tube and blood serum, phenolsulphonephthalein and a combination of dye and serum was added to one end of the tube in the respective experiments. The dye progressed rapidly throughout the fluid. The blood serum progressed more slowly and remained in the lower portion of the tube in its horizontal progression. When one end of the tube was slightly raised, the blood serum sank to the lower end of the tube. When the dye and serum were added together, the dye tended to remain in the serum for a considerable period, and only after a time interval did the dye separate from the serum in the lower portion of the tube and color the entire volume of fluid.

CONCLUSIONS

1. Phenolsulphonephthalein (neutral) diffuses fairly rapidly through cerebrospinal fluid. One cubic centimeter of the dye will diffuse in thirty minutes through 49 c.c. of cerebrospinal fluid, showing an equal intensity of color throughout. This holds true when the dye is placed at the bottom and when it is placed at the top of the column of cerebrospinal fluid

2. Blood serum shows no tendency to diffuse upward. One cubic centimeter of serum placed at the bottom of a column of cerebrospinal fluid remained at the same level more than ten hours. Serum mixed with dye when placed at the top of the column settled rapidly to the bottom, carrying the dye with it. From this point the dye tended to diffuse to a certain extent while the serum remained stationary.

3. When serum and phenolsulphonephthalein are mixed, the serum tends to hold the dye and prevents diffusion to the extent shown above when the dye is used alone.

As a result of our experiments, we believe that it may be stated that there is a free communication between the lumbar subarachnoid space, the cisternal subarachnoid space, and the lateral ventricles. Under ordinary condition, however, it is probable that there is not very much movement from one locus to another of the substances introduced into the cerebrospinal fluid. The movement of the introduced substances may depend either on circulation of the cerebrospinal fluid or, what is more probable, on a diffusion of the substances due to osmotic and specific gravity effects. From our observations of the dye and blood serum introduced into cerebrospinal fluid in vitro, it is seen that the dye will rise against gravity, whereas the blood serum seeks the lowest level. When the tube is placed in a horizontal position, both the dye and blood serum will flow slowly from one end to the other. However, in the case of the blood serum, this occurs in the lowest portion of the fluid. We may therefore assume that when the blood serum is introduced into the subarachnoid space, it will tend to reach the lowest portion of the cerebrospinal fluid system by a slow diffusion process. On the contrary, there is no evidence to show that there is a sufficiently active circulation of the cerebrospinal fluid to displace the blood serum in a direction contrary to gravity. It seems probable that the blood serum introduced into the lumbar subarachnoid space will make its way cephalad only when the head is lower, or at least as low as the lumbar subarachnoid space, or else when the pressure with which it is introduced is sufficiently great to force it upward. The rate of diffusion is quite slow and, as has been shown by Dandy and Blackfan, substances make their way out of the spinal subarachnoid space into the blood stream. Therefore, it is to be assumed that a certain amount of the blood serum introduced intraspinally will make its way out into the general circulation from the spinal subarachnoid space. Under conditions in which intraspinal therapy is usually given for neurosyphilis and epidemic cerebrospinal meningitis, a large part of the subarachnoid space surrounding the cerebral cortex and the greater part of the cerebral ventricular space is at a higher level than the lumbar subarachnoid space. It is therefore to be assumed that the blood serum does not reach the ventricles or cerebral cortex in any great amount, particularly as effort is usually made to introduce the blood serum into the spinal spaces under a comparatively low pressure. On the other hand, serum introduced into the superior portion of the anterior horn of the lateral ventricle should tend to diffuse in the caudal direction because the superior portion of the anterior horn is at a higher level than the lumbar subarachnoid space. In order to reach the base of the brain, the point of election for introduction of serum is the cisterna magna. For therapeutic purposes, blood serum should be introduced as near as possible to the area in which its effects are desired.

ABSTRACT OF DISCUSSION

Dr. W. A. Jones, Minneapolis: Would the Trendelenburg position help in carrying out this procedure? Would it cause the fluid more readily to gravitate to the cisterna magna or to the ventricles in the brain?

Dr. Lewis J. Pollock, Chicago: I should like to corroborate the observation that in experimental intravitam staining, when the stain is introduced subdurally in the lumbar region, it does not reach any considerable part of the cerebral hemispheres, with the exception of the base. Following the work of Goldmann, Dr. Cluney and I conducted some experiments which impressed us as to the necessity of differentiation between the diffusibility of substances and the organotropic action of such substances. It impresses me that we obtain poor results by the intravenous administration of remedies for the treatment of a certain disease because that substance is not organotropic for the particular tissue we wish to treat, and not because the substance does not find its way readily out of the vascular system. For example, methylene blue diffuses very readily through an animal membrane, and when administered intravenously it stains the brain very well. On the other hand, if we inject fluorescein, which diffuses even more readily through an animal membrane, the brain is not stained, nor is the suprarenal gland, the testicles or ovaries. It is needless to presuppose a separate type of blood vessel for these various organs, or various filters which prevent substances from reaching them. It has been shown by Kite, who worked with the eggs of marine animals and many plant cells and root hairs, that when certain eggs were punctured and immersed in stains, the stain did not penetrate the protoplasm of the cell. It seems to me, therefore, that the most important physical problem dealing with the failure of intravenous therapy is the character of the remedial agent used.

Dr. A. L. Skoog, Kansas City, Mo.: I wish to call Dr. Thompson's attention to the experimental work on dogs which was done about fifty years ago by Quincke, who used cinnabar for the diffusion and then examined the dogs. He found a liberal distribution of the fine particles in the subarachnoid spaces over the entire encephalon and spinal cord. His injections were made at the foramen magnum.

Dr. Karl A. Menninger, Topeka, Kan.: This paper deserves commendation because the authors have considered a factor which has rarely been touched on, namely, the diffusion rate of the phenolsulphonephthalein. Several years ago I tried precisely the same experiments that Drs. Solomon and Thompson have performed, except that I did not use the drug alone without the serum. I used the serum every time and always obtained the same results that Weston did, and I did not know why. Dr. Thompson has shown very clearly why. Those who have advocated the intracranial treatment of syphilis have never had any better support than Dr. Thompson's experiments give them. At any rate, my own hopes for success in the treatment of optic atrophy and vascular types of disease that do not yield to ordinary forms of treatment are now very much greater.

Dr. Charles R. Ball, St. Paul: I should like to ask Dr. Thompson whether thus far this method of treatment at the Psychopathic Hospital in Boston has produced any notable results in cases of paresis. In my experience with intraspinal treatment, I have not found that my results in tabes were, on the whole, any better than when I used the ordinary methods of specific treatment. That is, when the arsphenaminized serum was introduced directly into the lumbar region, in which the lesions in tabes are likely to be severe, no better result was obtained. Reasoning by analogy, since paresis has the same type of lesion, and the same causative factor as tabes, the only difference between the two being the difference in location, one might reasonably expect the results to be similar from the same method of treatment. The question naturally arises, if intensive intraspinal treatment does not bring any very decided results in tabes, why should intensive intraventricular and intradural treatment cause any very decided improvement in paresis?

Dr. Mary Freeman, Perrine, Fla: I wish that Dr. Thompson would tell us what he thinks about intraspinal injections for tetanus. I gave antitetanic serum intraspinally in the lumbar region in one case, and while the patient had a stormy time, he recovered. I wonder whether we would have had greater chances for success if we had given it higher up?

Dr. Lloyd J. Thompson, Boston: We mentioned that the Trendelenburg position should be used, especially following intraspinal treatment. Our experiments in vitro showed so remarkably how serum follows gravity that I believe it is a point well worth while. As to intensive treatment, it is a question what is meant by intensive treatment. A year ago we thought that giving a patient an intraspinal injection once in two weeks and an intravenous injection once or twice a week was quite intensive. More than a year ago we started our system of giving a combination of intraspinal, intraventricular and intracisternal treatments within a period of two weeks and keeping it up week after week. In no case did we find that we had to give it up on account of the condition of the patient. So far as we have been handling our cases by what we now know as intensive treatment, our results have been much better than before. The point is, I think, that it depends a great deal on the pathology of the cases being treated. In some cases, intravenous injection seems to do the work as well as any other method could do it, and then a certain group does not do well with intravenous injection and does well with intraspinal treatment. Then there is another group in which we have seen the patients go down hill with intravenous and intraspinal treatments, and then with intraventricular treatments they begin to improve. All we can hope for is to arrest the disease. As yet we should not be justified in saying that we have anything that would cure the disease. As to tetanus and any other condition that is treated with serum intraspinally, I think that these experiments apply there also. Intraspinal injection is, perhaps, to be tried first, although, if time is valuable, it may be well to try the intracisternal route. I feel that in the cisternal treatment we are putting the serum in at the point at which the most good will be done, especially if it is a diffuse condition. The serum will to a limited extent be carried up over the cortex, down in the spinal canal and up to the base of the brain.

THE VALUE OF TEMPORARY COLOSTOMY *

LOUIS J. HIRSCHMAN, M.D.
DETROIT

Diseased or injured limbs and joints respond to treatment most effectively when function is suspended and immobilization is effected. Physiologic rest alone is a valuable therapeutic agent because the organ involved can, so to speak, devote its entire energy to the business of getting well. Unfortunately, many organs, which would be benefited by the complete suspension of activity, are so vital to life that complete rest is an impossibility. "A half a loaf is better than no bread." When one cannot secure complete cessation of functional activity, a minimum of function must suffice. Fortunately, the colon can be completely excluded from functional activity, and in the treatment of various pathologic conditions which affect it, relief and cure can often be effected by a temporary interference with its activity.

Enterostomy and colostomy are both being utilized with increasing frequency for temporary purposes. The number of lives saved yearly by the employment of temporary enterostomy in cases of postoperative ileus must run into considerable figures. The prolongation of life and increased comfort in incurable conditions of the lower bowel, and complete relief from many infective diseases of the colon made possible only by temporary colostomy, is evidenced by its increasing employment in recent years. While colostomy is a surgical procedure, perhaps its employment in the treatment of colonic disease offers as much promise to the internist and the gastro-enterologist, in the successful treatment of disease of the large intestine, as to the proctologist.

All forms of chronic colitis, whether the infective agent be bacterial or ameboid, or both, are characterized by two principal symptoms. These two symptoms are evidence of the attempt on the part of the organism to rid itself of irritating material, and accompany practically all diseases of the colon. These are evidence of increased physiologic activity of the colon, and are (1) hyperperistalsis and (2) hypersecretion.

Anything which irritates the colon, whether it be acrid and undigested food material, the inflammation produced by bacterial or ameboid activity, or the ulceration or deformity which come in the later stages of this type of colonic disease, will call on this organ for increased peristaltic activity in the endeavor to expel the undesirable occupant. In chronic disease, an atonic condition will supervene; the bowel musculature loses its tone; destructive processes extend with greater freedom; permanent loss of function, chronic invalidism, and ultimately death follow as a natural sequence unless prompt and efficient remedial measures are undertaken. It makes no difference whether the infection is syphilitic, tuberculous or dysenteric, the result of metallic or food poisoning, or the simple ulcerative type; suspension of physiologic activity, in addition to the administration of specific measures or remedies by hypodermic, internal administration or local application is of prime importance.

Patients of another large class, those suffering from the later manifestations of specific diseases, strictures, complicated fistulas, and neoplasms of either benign or malignant nature, are often converted from incurable to curable by the employment of temporary colostomy before the indicated major surgery is carried out. Temporary colostomy is also of distinct value in the treatment of malignant growths, which appear inoperable, and when radium or deep high-voltage roentgen-ray therapy is employed. Not only is the temporary suspension of physiologic activity of great assistance in the treatment of diseases of the colon, distal to the colostomy, but this artificial opening offers an opportunity to irrigate the diseased organ from above downward.

The administration of colonic irrigations by means of the rectal tube is merely of fractional value. The solution, passing up into and through the diseased portion of the rectum and colon, carries with it the products of disease. On the return flow and expulsion of the solution, much of this material remains in the cecum and along the walls of the colon, and continues to infect, irritate and inflame its walls.

A great step in advance was made in colonic irrigation when appendicostomy and cecostomy were first performed, and irrigation from above downward was successfully accomplished. Partial physiologic rest was thus obtained, and a much more thorough cleansing of the diseased bowel was procured. While the feces were not prevented from passing through the diseased portion of the canal, they were so diluted by the irrigating solution that they were not nearly so irritating. Many types of colitis were entirely cured by this method when combined with the indicated medicinal and dietetic therapy. When the patient, however, is rapidly losing ground and becoming anemic from the continual loss of blood from diseases such as chronic ulcerative colitis, colonic polyposis and amebic dysentery, on the one hand, and from the systemic effect of infective and suppurative conditions, such as ulceration combined with stricture, multiple fistulas of the lower colon communicating with other organs, such as the bladder, vagina, tubes or appendix, or multiple diverticulitis, the organ must be given as near absolute rest as possible. This can be accomplished only by enterostomy or colostomy well above the diseased area.

The point of election for the artificial anus can be determined only after a thorough roentgenologic study of the gastro-intestinal tract, corroborated by surgical examination through a laparotomy wound. All things being equal, an abdominal incision, through the rectus muscle on either side of the median line, should be made for exploratory purposes, and either this or, more rarely, a second wound should be used for the colostomy.

The question of anesthesia for the performance of temporary colostomy is an important one. Patients suffering from chronic diseases of the colon are not, as a rule, ideal patients for abdominal surgery. They are usually debilitated and suffering from disturbed nutrition, and their resistance is markedly subnormal. They are particularly prone to complications resulting from anesthetic accidents when ether is employed. If, in the surgeon's judgment, complete surgical narcosis is deemed absolutely necessary, the use of gas and oxygen combined with local anesthesia is much to be preferred to ether. In my practice I find it rarely necessary to employ general anesthesia for the per-

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formance of temporary colostomy. My preference is for the use of local regional anesthesia produced by the infiltration of 0.5 per cent. solutions of either apothesin or procain. This is not combined with epinephrin, as I find no reason to add this drug to secure perfect anesthesia.

One hour before the time selected for operation, the patient is given from a quarter to a third of a grain of morphin sulphate, combined with from $\frac{1}{150}$ to $\frac{1}{100}$ grain of scopolamin hydrobromid. The administration of this combination induces a state of mental calm and dispels the anticipatory anxiety and dread of a surgical operation, and assists in no small degree the relaxation of the parts produced by local anesthesia. The quantity of anesthetic solution is of relative unimportance. The only criterion used is infiltration sufficient to produce complete nerve block. No solution is injected into or between the layers of the skin, but the needle is introduced underneath the skin so that we have a true subcutaneous and not a subcuticular or intradermal infiltration. It is the latter type of injection, and the use of epinephrin, which is responsible for the skin slough, which has been unjustly attributed to anesthetic agents.

An area from 1 to 2 inches wide and 6 inches long is infiltrated down to the fascia. This, in turn, is punctured and infiltrated for the same length. Then after from three to five minutes, all tissues are divided down through the fascia. The underlying muscles are then thoroughly distended with anesthetic solution, and after a short pause the fibers are incised or separated by blunt dissection and the peritoneum is exposed. The hypodermic needle is inserted between the layers of the peritoneum, and the line of proposed incision is infiltrated. The peritoneum is opened in the same manner as under general anesthesia, and retracted. The assistants must bear in mind at all times that the patient is not asleep or under general anesthesia, and all unnecessary conversation, noises and handling of tissue are strictly enjoined. Unnecessary trauma to tissues is avoided under local anesthesia, and the patient is thereby the gainer.

Examination of the abdominal viscera can now be made. The colonic lesion is then located, and the portion of the colon well above the diseased segment is delivered outside the wound. If there is any evidence of pain on handling the colon, the mesentery below the part grasped should be infiltrated with the anesthetic solution, after which it will be found that it can be freely and painlessly manipulated. The mesentery is perforated with blunt forceps, and a thick-walled rubber tube, not larger than a lead pencil, is drawn through to act as a support for the bowel on the abdominal surface. It is not necessary or advisable to suture the skin, fascia or peritoneum to the bowel, as adhesions will form within a few hours between the cutaneous abdominal surfaces and the bowel wall.

It is my practice to place the exposed loop or colon as high in the wound as possible, so that it may be well out of the way in the event of further abdominal surgery for the removal of colonic disease in the pelvis, colon or rectum. The abdominal wound below the colonic loop is sewed in layers, and the skin closed with clips. The parts are dusted with zinc stearate powder, pads are applied under the ends of the supporting rubber tube, a dressing is applied, and the patient is returned to bed until the bowel is opened forty-eight hours later.

The whole operation is performed in from ten to fifteen minutes, and the patient is able to continue his nourishment without interruption. There is practically no postoperative pain, and the patient shows no reaction and gains several days over the one who had the same operation performed under general anesthesia. If, at any time during the operation, conditions arise which prevent its completion under local anesthesia, a short period of gas anesthesia will help out. This occurs, however, in only a small percentage of cases.

If one wishes to divide the spur of the colostomy by pressure necrosis at the time of bowel closure, then it is necessary to sew the two loops of the bowel together at their mesenteric attachment for 3 or 4 inches. However, we find it unnecessary to do this, as when the time for closure arrives it may be done extraperitoneally by simple invaginating sutures under local anesthesia, or without any anesthesia whatever.

After the bowel has been closed, it is dressed with dichloramin-T solution for four or five days. When healing is complete and the wound proved sterile by bacterial examination, the peritoneal cavity is opened under local anesthesia, the bowel replaced, and the wound closed by layers.

In quite a number of patients the simple suspension of peristaltic activity, through the employment of temporary colostomy, has been all the treatment required for permanent relief. In major surgical procedures on the distal portion of the bowel, such as resections, removal of neoplasms and operations for extensive fistulas, the creation of a comparatively clean field in which to work, and the physiologic rest afforded by temporary colostomy, has meant the difference between life and death.

Its more frequent employment is urged in the treatment of inflammatory and infectious diseases now treated medically as "colitis." Temporary colostomy, as a step in the surgical treatment of severe injuries, neoplasms and fistulas, is now almost universally employed in many clinics. The time for halfway medical measures, enemas and colonic irrigations, has passed, and the treatment of chronic and severe colonic diseases will be materially improved by physiologic rest and direct treatment and irrigation afforded by the more general use of temporary colostomy.

The employment of local anesthesia has robbed this operation of much of the risk inherent in etherization, has placed it among the list of safe surgical procedures, and has made it a life-saving measure of the greatest value.

ABSTRACT OF DISCUSSION

Dr. Alois B. Graham, Indianapolis: As to the value of a temporary colostomy, I agree with all that Dr. Hirschman said. Any surgical technic or procedure which will place a pathologic area at practically complete physiologic rest, which will inhibit infection, control hemorrhage, improve appetite, add weight, and convert what was previously a relatively poor or bad surgical risk into a comparatively safe surgical risk, should command the attention of all good surgeons. This is the possibility of a temporary colostomy.

Dr. Samuel G. Gant, New York: No subject in our field is of more value than temporary colostomy, although it is not new. There are many conditions in which I perform it, sometimes preceding an excision of the rectum and for polyposis; but in the majority of cases it is done for relief of inflammatory conditions in the intestines complicated by ulceration and excessive discharges. I do not think it makes much difference what organism is the cause; the inflammatory processes pave the way for mixed infection, and eventually there is destruction of the mucosa and surgical diarrhea. I try to classify these conditions into moderate and severe cases of colitis. If a moderate case, I treat it by rest, diet, medication and rectal irrigations. If there are quite a number of stools containing considerable blood and pus, then I employ appendicostomy or cecostomy. When the condition is an extensive mixed infective colitis, the submucosa riddled with ulcers, etc., then it is essential to put the intestine at complete rest, and in these cases I prefer a colostomy or cecostomy. However, in certain conditions we have to do as Dr. Hirschman has suggested, viz., perform colostomy instead of cecostomy. I do not believe in the treatment of these cases by ileostomy because the patient suffers from frequent fluid stools and excoriations of the skin surrounding the opening. The artificial anus must be made according to the location of the lesions. But putting the bowel at rest and employing frequent irrigation, one can cure a great many cases of chronic colitis which otherwise would end in death. The operation has a decided field, and, as a rule, can be performed under local anesthesia, for the reason that the bowel is superficial, and there is no pain in handling it when one can bring it up without much traction. Of course local anesthesia is not effective when one must pull on the mesentery. In this class of affection I think if one studies cases and employs temporary colostomy when indicated, the operation will be found serviceable. The bowel can be left open one, two or three years, and then the opening closed without atrophy or damage to the intestine. Formerly I believed that if a person did not use the bowel for a considerable time it would not function again, but such was not so in several of my cases.

Dr. Sidney K. Simon, New Orleans: It seems to me that the operation of colostomy advocated by Dr. Hirschman represents the last step in the therapy of colonic conditions. I can easily understand that from the proctologist's standpoint this measure demands more than it would from the purely medical side, because the proctologist sees the extreme cases, after they have passed through the hands of the medical man. I take issue with Dr. Hirschman in several respects. First of all, I object somewhat to grouping the various etiologic factors of colitis under one heading, and claiming, as he apparently does, that the treatment is surgical. Certainly, in the amebic infections of the colon there rarely arises an occasion for surgical intervention. The use of specific therapy along well known lines has in my own experience obviated the necessity for surgical intervention. In the purely bacterial infections of the colon, frequently the patient is allowed to drift because of lack of proper appreciation on the part of the attending physician of the probably serious nature of a simple colitis. The patient is treated along the usual lines with a very moderate degree of attention, and from a simple infection of the mucosa the condition pathologically is allowed to advance below the mucous membrane, affecting the musculature so that eventually the bowel becomes a fixed, nonperistaltic organ, allowing the feces as it comes through the ileocecal valve to gravitate toward the descending colon and rectum without any peristaltic control. When once that condition has come about, when peristalsis is to a great extent annihilated, then and only then in my opinion should surgical intervention be resorted to. However, prior to advising surgical intervention I should employ lavage. A solution which has proved of benefit in this class of cases is methylene blue or gentian violet used as a flush of the colon from above downward Within half an hour, after 50 c.c. has been introduced, the fluid finds it way through the colon, and one gets in effect a complete washing out of the colon from above downward which has practically the same effect as a cecostomy opening.

Dr. Alfred A. Strauss, Chicago: I am heartily in accord with the ideas of Dr. Hirschman regarding colostomy, but in the severe forms of ulcerated colitis ileostomy has many advantages over colostomy. In many of these cases the pathologic changes extend into the cecum and even into the appendix, and it is much more difficult to put the bowel at absolute rest with a colostomy than with an ileostomy. I am highly in favor of doing these operations under local anesthesia, because the patient's condition is usually very poor. In doing an ileostomy, by making a knuckle of the ileum and then opening the ileum transversely, the entire colon will be put at absolute rest. These operations are usually done as a last resort. The patient, as a rule, has been under the care of an internist for one or two years, and since the patient is either no better or is markedly worse, surgery is resorted to. This is a serious mistake. The operation should be done early in the disease before marked pathologic changes have occurred in the colon, changes which are found to produce cicatrization and stenosis. Besides, the patient is in much better condition, and recovery is that much quicker.

The result from ileostomy in these chronic ulcerated colitis cases is nothing short of wonderful. Patients can be treated through the ileostomy by irrigations with various solutions, which in many cases aids considerably in addition to the rest the colon gets from the ileostomy. In these severe forms of ulcerated colitis, repeated blood transfusions, one before and one after operation, are of the greatest aid to the patient, and reduce the operative risk about 50 per cent. In addition to that, for five or six days after the operation, I have given 1 quart of 5 per cent. glucose solution intravenously daily. As to the operative procedure, in spite of definite roentgen-ray findings, it is best always to make a small midline incision below the umbilicus to inspect the colon. Ileostomy or colostomy should be done through a separate small gridiron incision, and the midline incision closed. One of the great advantages of ileostomy over colostomy is the absence of the colon bacillus odor from the intestinal discharge.

Dr. John L. Jelks, Memphis, Tenn.: I believe that some of us are not quite clear as to the proper terminology of some of the procedures mentioned. In the first place, if I should speak of colostomy, I should mean something independent of the appendix. If I were to speak of an appendicostomy, I should refer to an operation which means picking the appendix up and using it as a nozzle through which to irrigate the colon. If I were to mention appendicocecostomy, I should mean the operation here described—that of fastening the cecum against the abdominal wall and using the opening where the appendix had been removed. Dr. Gant speaks of pain. I do not believe it is advisable to wait for that symptom, because there will be pain when the cecum is pulled up. I should prefer to use a little procain previous to operation. Anticipating an operation of this type, I much prefer using morphin sulphate, three doses, before the operation is started, in order to get the patient in a fairly comfortable condition. I have seen colostomy performed to put a colon at rest which meant simply the opening of the colon and allowing the fecal material to come out. But if the colon is to be put at rest, one has to exclude; therefore one must close the distal part and set it apart from the proximal part. Dr. Simon states that this procedure is rarely indicated in amebic infection, but that well known lines of medical treatment should be followed. I believe I have seen as many amebic cases as any man in this country, and I know that when the appendix and cecum are involved, and the appendix has in it amebic cysts which one cannot get at, one is not going to cure that patient by any medical procedures whatsoever. Also, one may fail to find amebas in the stools of patients to whom emetin has been given by the colon. I never give less than 1 grain of emetin at a dose, when I give it at all. I have given bismuth in one, two or three heaping teaspoonsful doses, three or four times a day. Some men claim that they cure patients with 10 grain doses. I cannot do it. The amebas inhabit the colon, not the ileum, and there is no need of an ileostomy to cure a disease that does not involve the ileum or the small intestine. However, I agree with Dr. Simon as to the method of treating these patients by the use of various irrigants. I am especially partial to gentian violet solutions. I hope that we shall get better solutions for getting rid of these intractable infections. In transfusing, I use the citrate method.

Dr. Anthony Bassler, New York: I feel that in the strictly medical conditions of bacterial infections with ulceration and infiltration in the colon, cecostomy or other surgical procedure may, in a very few instances, be required. In my experience the method mentioned by Dr. Simon has been perfectly satisfactory. Up to three years ago, the routine procedure was cecostomy and appendicostomy, with irrigations kept up for several months, and we had not a few patients return after a year or two with the original symptoms and often with the fistula closed, when he had to reoperate. Now practically none are operated on, and the results from medical treatment are quite as good. For irrigation I use the hypertonic solutions. To these is added gentian violet, which is kept up for weeks and months. I have used other dye solutions, but the gentian violet is now used most often. During the last three years in cases of dysenteric infections, through all the grades of *B. coli* and the streptococcic infections, by persistent medical treatment only, I have achieved results which I feel are quite as good as those obtained from the operative procedures of former years; in fact, much better. When, however, it comes to malignant disease, or granulomatous diseases, such as tuberculosis and syphilis, I think that the cases must be considered surgical at the start and then perhaps medical, as Dr. Hirschman suggests.

Dr. **Granville S. Hanes**, Louisville: I want to call attention to one feature in the technic of doing colostomy, and especially when it is done with the view of treating a pathologic condition in the lower segment. It formerly was advised that when the sigmoid was brought up through the abdominal wound, the bowel should be pulled down and made tight from above, leaving the redundant part below. Just the converse should be done. The redundant part of the sigmoid should be left above the colostomy opening in order that it may serve as a reservoir for the material as it comes down, with the result that in many cases the patient has a movement every morning just as before there were any pathologic changes. Then, especially in cases of carcinoma, if necessary to introduce radium, this becomes entirely possible, while with the redundant part of the intestine below the colostomy it is impossible to introduce it. Therefore, not alone from the standpoint of introducing an instrument into the lower segment of the intestine for the purpose of making local applications of any kind or applying radium, it also serves as a reservoir for fecal material. Again, I would call attention to the fact that it is possible to do colostomy easily in only two portions of the intestine. These are the transverse portion of the colon and the sigmoid. Other portions of the large bowel, except the cecum, usually have mesenteric attachments so short that they cannot be delivered through the abdominal incision.

Dr. **L. J. Hirschman**, Detroit: I merely offer the operation of temporary colostomy to those who are surgeons but who are treating cases medically, as a method of very decided assistance to them in shortening the period of treatment. In the treatment of infective conditions of the colon, a great deal of time can be saved to the patient with the performance of a colostomy and its closure under local anesthesia. It is one of the most conservative operations one could advise. Every surgeon has found that a temporary colostomy often gives permanent relief in a condition which he thought would require more radical measures. In regard to the question of using this method to assist in the treatment of amebic dysentery, Dr. Jelks has answered that. I have found it of service in late cases of dysentery. With reference to the location of colostomy, we must be guided by the lesion in the individual case as to whether we shall do an ileostomy, a high or low colostomy, or what portion of the intestine shall be used. My experience shows that most of these conditions do not involve the entire colon, and many times we have been able to select the part that Dr. Hanes has mentioned, the transverse and sigmoidal portions. In many cases in which I previously would have thought ileostomy was necessary, I have found that colostomy answered the purpose. Dr. Hanes has mentioned the question of drawing the upper segment of the bowel taut. This depends on conditions. If one wants to pull up the intestine in order to form a reservoir, well and good. But if later one has to excise a carcinoma or other lesion, then it is well to leave as much intestine below the colostomy as possible in order to have good material with which to make an anastomosis. So far as impeding peristalsis is concerned, my experience has been exactly the opposite. I have found that, with convalescence, peristalsis is increased if anything.

AN ANALYSIS OF FOURTEEN CONSECUTIVE CASES OF SPINAL CORD TUMOR *

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AND
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We present this critical analysis of a series of fourteen consecutive cases in the hope that the emphasis which we lay on certain diagnostic phases may lead to an earlier diagnosis in spinal cord tumors and, as a result, to the consideration of surgical therapy before cord degeneration—the inevitable consequence of delay—has deprived the patient of relief from crippling deformities. Whatever the cause, the fact remains that in this series the final diagnosis was not established until an average of two and a half years had elapsed from the date of the initial symptom.

While tumors of the spinal cord are less frequent than brain tumors in the ratio of one to six, the proportion of operable tumors of the cord from the standpoint of localization and feasibility of exposure and removal is far greater. In twelve of our fourteen cases the tumor was accurately localized, accessible, well encapsulated and distinctly an operable lesion.

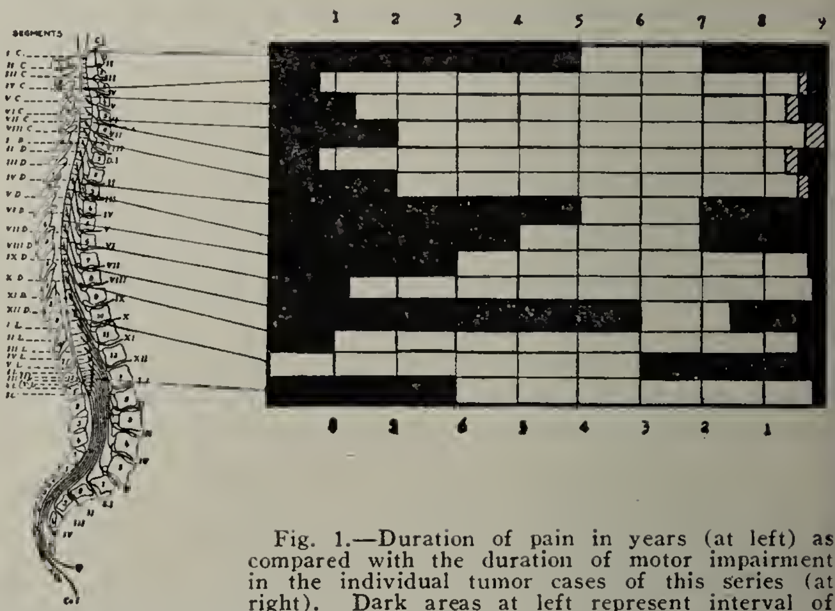

Fig. 1.—Duration of pain in years (at left) as compared with the duration of motor impairment in the individual tumor cases of this series (at right). Dark areas at left represent interval of time from beginning of pain. Dark areas at right show duration of weakness of legs; shaded areas, weakness and atrophy of arms.

DIAGNOSIS

Fully cognizant of the fact that occasionally spinal cord tumors run a painless course, in this series in thirteen out of fourteen cases not only was pain a conspicuous symptom, but in each of these thirteen cases it was the first symptom. There are other important lessons to be learned from this pain phenomenon. While in later stages pain may be referred to a more widespread distribution, the original pain zone continues throughout the course of the disease and is therefore an important localizing sign when the time comes to determine the seat of the growth. The physician might be misled by the occasional remission, as often happens, and interpret these remissions as responses to the treatment he may have inaugurated.

Of interest, too, is the length of time which elapses between the onset of pain and the first signs of motor impairment. In four, or one third of the cases, three or more years elapsed, and in three, or one quarter of the cases, approximately two years elapsed (Fig. 1).

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We have dwelt on the pain phenomenon and viewed it from various angles because of its outstanding importance as a warning signal in spinal cord tumors and because it was the one symptom which proved the misleading factor in the mistaken diagnoses which had been made previously in almost all our cases. Not only are erroneous diagnoses made but also many needless operations are performed, especially when pain is referred to the upper or lower quadrant of the abdomen. According to the location of the tumor, the most common diagnostic errors are:

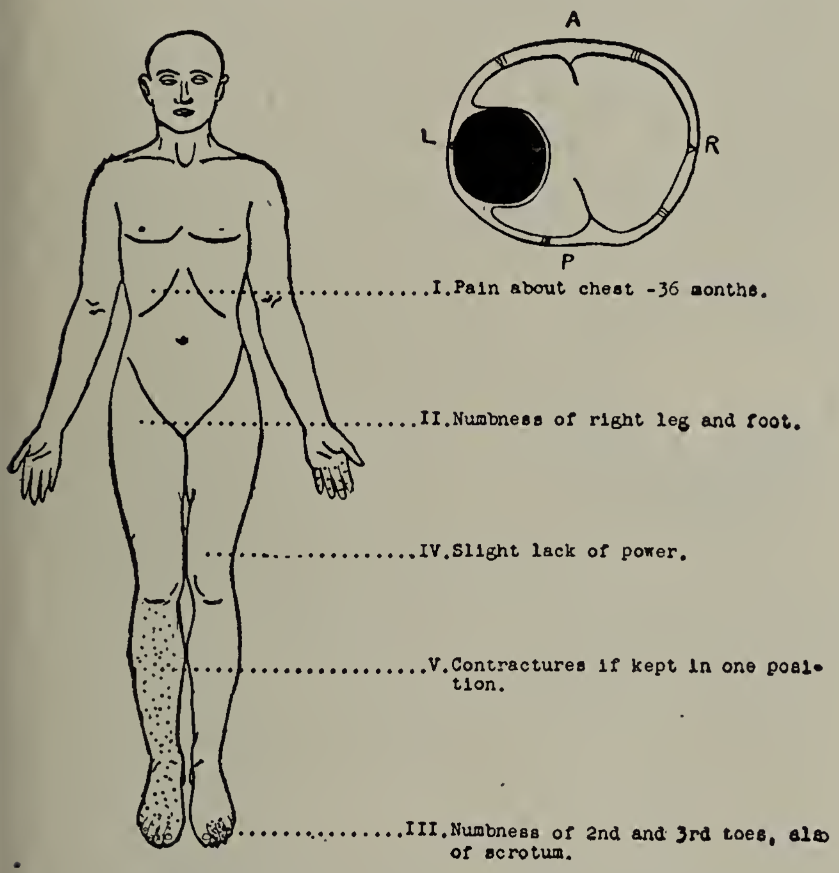
A
L
R
P
I.Pain about chest -36 months.
II.Numbness of right leg and foot.
IV.Slight lack of power.
V.Contractures if kept in one position.
III.Numbness of 2nd and 3rd toes, also of scrotum.

Fig. 2.—Usual sequence of symptoms in tumors of the spinal cord. The tumor involved segments T 3-5.

Pain associated with movements of the neck: Pott's disease.
Pain referred to the shoulder: rheumatism.
Pain referred to the shoulder and arm: neuritis.
Pain referred to the precordium: angina pectoris.
Pain referred to the upper abdomen: gallstones.
Pain referred to the lower abdomen: appendicitis.
Pain referred to the lower extremities: sciatica.

Given a case with pain of definite localization, aggravated by movement, coughing or sneezing, and persisting, with occasional remissions, without variation except in degree, in the original territory for months and especially for longer periods, one should at least have in mind the possibility of a spinal cord tumor and be on the lookout for further confirmatory evidence.

While pain with one exception was present in all our cases and invariably the first symptom, subjective sensory disturbance was invariably the second symptom. These paresthesias are variously described as a sense of numbness or sleepiness in the limbs, itching, tingling, and a sense of constriction about the limb or trunk. There is, however, a distinction in the distribution of pain and paresthesia in that pain, a root phenomenon, is always referred to the same side as that of the lesion, while the paresthesia, a cord pressure symptom, may be homolateral, contralateral or sometimes bilateral.

One must not be misled by the absence of the typical Brown-Séquard syndrome. In the classical description of the clinical course of spinal tumors there are three cycles: the cycle of root pain, the Brown-Séquard cycle and the cycle of motor and sensory paralyses. The sensory disturbances are extremely variable, of course, depending on the duration of the lesion and its location with reference to the cord; but it is worthy of note that in not one of our series was there a typical Brown-Séquard picture.

Motor disturbances were present in each of the fourteen cases in greater or less degree, according to the size and location of the tumor. In only two of the series was there a disability of the upper extremity, and of the remaining twelve cases, in one half both lower extremities were involved and in one half only one lower extremity. It might be mentioned in passing that, while the root pain persisted for an average of two and a half years, it is not until the appearance of motor impairment that the patient finds his way to the neurosurgical clinic. These motor disturbances begin often as awkwardness in movement of hand or foot; the patient experiences difficulty in handling objects, or stubs the toe in walking. Spasticity is always a forerunner of weakness or paralysis, and in most cases the difficulty in locomotion is due to the spasticity rather than to muscular atrophy. In only three cases was the spastic paraplegia advanced to the stage of complete disability.

The sequence of symptoms in their chronological order is pain, paresthesia and paralysis; and the fact that this sequence is so uniformly expressed in our series is not a matter of coincidence but may be explained on the basis that the vast majority of spinal cord tumors are situated lateral to the cord, either anterolateral or posterolateral. Of the fourteen tumors, only one occupied a position anterior to the cord; nine were on one side or the other; and, of the three which at the time of operation were mostly posterior, two originated near the intervertebral foramina (Fig. 2).

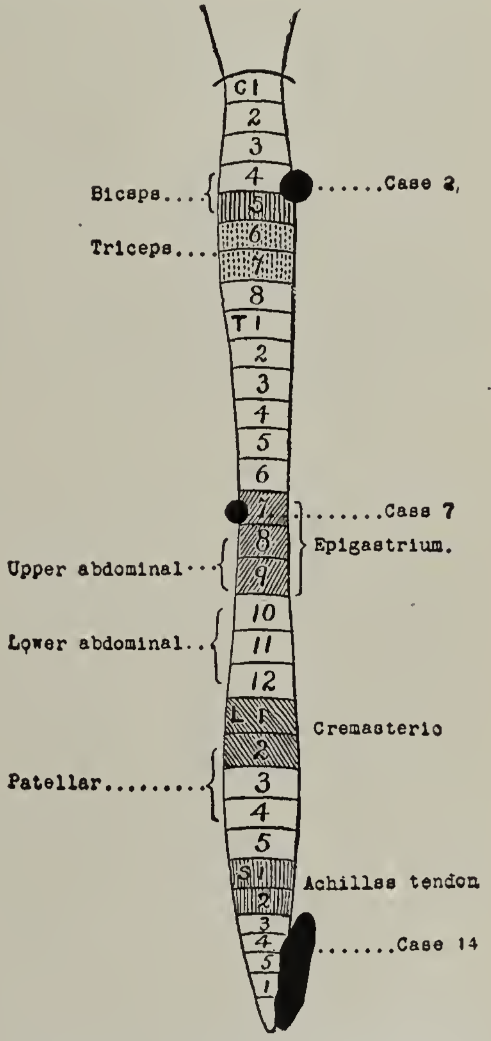

Fig. 3.—Diagrammatic representation of location of reflex arc to spinal segments. The position of the tumor is indicated in three cases in which localization was assisted by absence of an individual reflex. Case 2, right biceps absent, left biceps present, right and left triceps exaggerated; Case 7, abdominal reflex absent; Case 14, Achilles tendon reflex and Babinski reflex absent.

Too much stress must not be laid on the presence of a spinal block. It is a late rather than an early symptom. Xanthochromia was present in only five cases, and in those the duration was five, three and two years. The Queckenstedt or Ayer test for a spinal block should be applied in all cases, and may reveal a block before xanthochromia appears. At all events, a positive finding by either method should be regarded as only of confirmatory evidence, since negative findings do not preclude the existence of a tumor, and positive findings, it should be remembered, have been noted in lesions other than tumors.

SEGMENTAL DIAGNOSIS

Once the presence of tumor is presumed, its accurate localization is an essential preliminary to exploration. In the order of their importance we have found the following of the greatest assistance: (1) level of sensory loss or impairment; (2) point of referred pain; (3) sympathetic phenomena; (4) absent reflex; (5) muscular atrophy. In eleven out of fourteen cases, the level of the lesion was determined chiefly by the level of sensory loss or impairment; referred pain was present in all but one; the ocular phenomena were present in every tumor from the fourth cervical to the third thoracic segment. An absent reflex was a determining factor in three (Fig. 3). In two high cervical lesions there was impairment of the movement of the diaphragm.

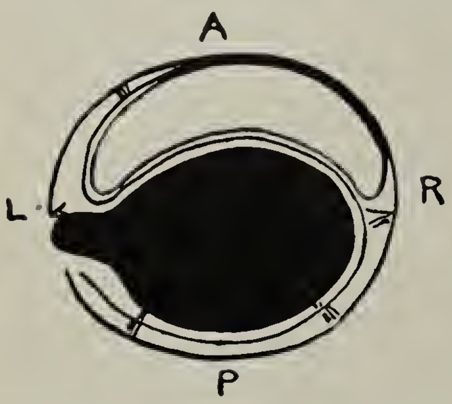

Fig. 4.—Diagrammatic representation of a tumor posterior to cord. The first symptom was one of motor impairment, showing effect of indirect pressure.

It is a matter of little consequence, once the segmental localization is established, whether the tumor is intradural or extradural, or what its position is with relation to the cord. The symptoms are easily misinterpreted, since they may be elicited by direct or indirect pressure, by direct pressure of the tumor on the cord, or by pressure of the cord on the wall of the spinal canal directly opposite that of the location of the tumor (Fig. 4).

SURGICAL ASPECTS

Unlike tumors of the brain, the exposure and removal of tumors of the spinal cord present rather elementary surgical problems. This generalization applies to the extramedullary tumors so commonly a definitely encapsulated growth of necessarily limited dimensions, usually an endothelioma, and not to the intramedullary glioma (Fig. 5), which we consider an inoperable lesion. There were no intramedullary growths in our series, and in but one of the series was the removal of the growth difficult. In this case we were dealing with a tumor, two thirds of which was within the intracranial cavity; and had it not been for the fact that the respiratory act was sustained alone by one half of the diaphragm, its removal could have been accomplished. At is was, there was a respiratory breakdown during the operation, and attempts at resuscitation proved unavailing. This and one other, in which death was due to embolism, were the only fatalities.

There are two points in technic to which reference may be made. When mistakes are made in the attempt to expose the tumor, the opening in the spinal column is invariably too low, and to find the tumor the operator must enlarge the opening upward. To avoid this error we recommend this rule: The level of the lowest lamina to be removed should correspond with the location of the segment representing the highest level of sensory loss. In every one of our operations the tumor was exposed in the opening as originally planned; in one instance part of the tumor extended beneath the lamina just below our opening.

The second point has to do with the prevention of recurrence. Endotheliomas grow from the spinal meninges, and in most instances one can readily see at the operation the point of origin, usually on the lateral aspect of the spinal canal, often near the intervertebral foramen and sometimes within the canal (Fig. 6). Therefore, in removing the tumor, the operator should remove with it that portion of the meninges from which the tumor originated. Up to the present time there has been but one recurrence; a second operation was advised, but our advice was not accepted.

FUNCTIONAL RECOVERY

Recovery of function is a matter over which the surgeon has no control. Assuming that the tumor was removed, as it should be, without traumatizing the cord, the return of function will depend on whether the symptoms are due to pressure or to cord degeneration. If to the former, functional recovery will be complete; if to the latter, more or less restricted. When due only to pressure, paralysis and sensory and motor function recover surprisingly promptly, even when the tumor has been present for several years. Within a few days of the operation, function, first sensory, then motor, reasserts itself; and, as in one of our cases with an advanced spastic paraplegia, the patient was able to walk in three weeks.

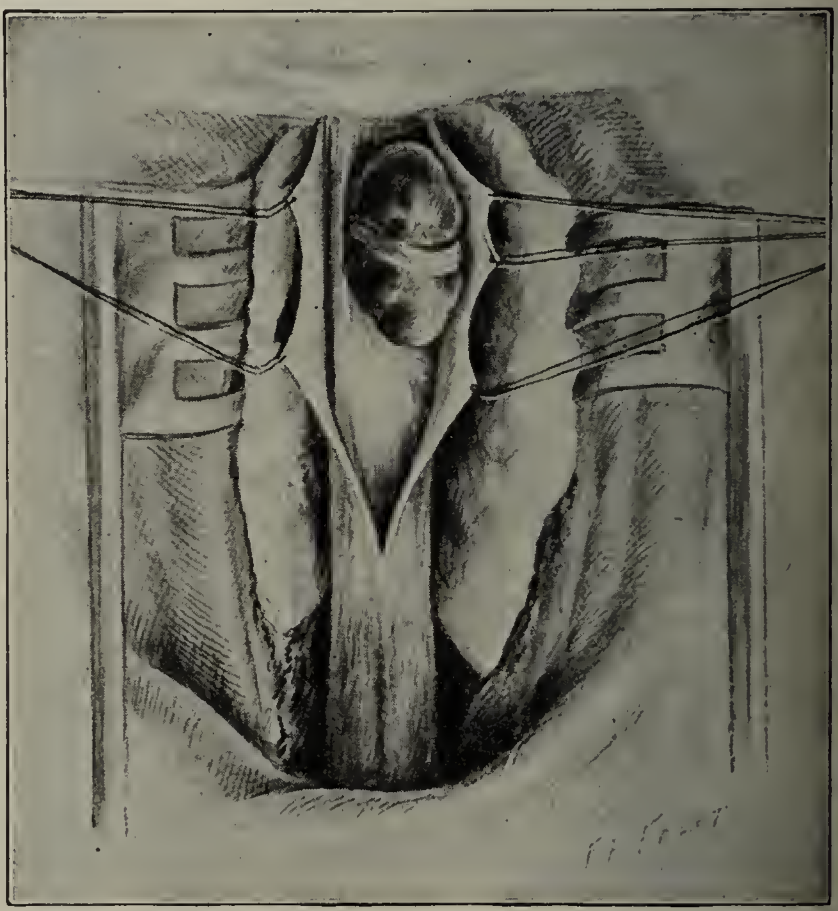

Fig. 5.—Drawing made at operation showing rather characteristic appearance of an intradural endothelioma.

There were but two cases in our series in which there was absolutely no return of function. In one of these, in which the tumor was of five years' duration, the prognosis was forecast by the degenerated appearance of the cord. In the other, the appearance of the cord was normal. As Patrick suggests, the possibility of multiple tumors must be borne in mind.

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ABSTRACT OF DISCUSSION

Dr. M. A. Bliss, St. Louis: Did Dr. Frazier fail to find a tumor in cases which presented a typical Brown-Séquard syndrome? I have seen such cases, but the symptom level rose higher in the cord after operation. Did a cyst of the cord appear in any of his cases? In one such case we had brilliant results, with return of sensory function in a few days and return of motor function within a month, and with restoration from a totally paralyzed state, to walking. A year later, recurrence showed epithelioma.

Dr. Julius Grinker, Chicago: I had an experience with a case of spinal cord tumor which leads me to believe that Dr. Frazier need not despair of recovery in some of his operative cases. In that case an operation was done, and for fully a year and a half there was not a sign of improvement, the patient being completely paraplegic. Then, to our surprise, the nurse noticed that one great toe began to move, and from that time on there was gradual improvement, and within another year and a half the patient had recovered sufficiently to walk with assistance. I have no doubt that there are cases in which recovery does not occur, but we should never despair, for that recovery may eventually take place. I cannot explain why in some cases improvement should be so long delayed.

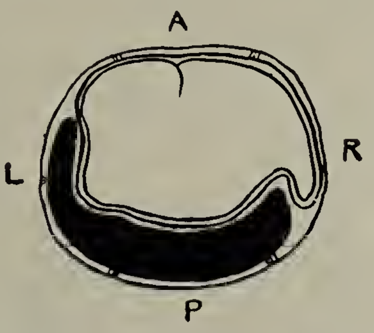

Fig. 6.—Diagrammatic representation of tumor, showing the relationship of tumor to cord. Note that while the major portion of the tumor is posterior, the lateral extension represents its point of origin.

Dr. F. E. Coulter, Omaha: What has Dr. Frazier's experience been relative to trauma acting as an etiologic factor?

Dr. Leo M. Crafts, Minneapolis: I recall the case of a farmer who, while a group of men were lifting a section of barn floor, reached under it; the workmen accidentally let the section down on him, doubling him over very sharply. When released, he had a sense of discomfort and pain all about the midbody. This feeling continued. A few months later he had developed a typical picture of cord tumor. A laminectomy was done in the middorsal region, and a hypernephroma was found extradurally, postlateral, toward the right. He had a complete paraplegia which showed no improvement for six months or more; then he began to improve, and continued to gain until he had fairly good use of the legs. Some months later the picture recurred and progressed. It would seem that unquestionably trauma was the etiologic factor.

Dr. A. W. Adson, Rochester, Minn.: Dr. Frazier emphasized an important point in stating that pain is a very valuable sign. The tendency has been to wait until the patient developed a level sign in addition to pain, that is, loss of pain, tactile and temperature sensibilities, before we felt free to make a diagnosis of cord tumor. In reviewing 112 laminectomies which were performed at the Mayo Clinic for cord tumor, I find that fourteen were situated extradurally, thirty intradurally but extramedullary, and thirty-one intramedullary; in twenty-seven instances a tumor was not found, the condition being chronic meningomyelitis. In four of this group, tumors were found later—three cases of varicose veins of the cord, two tuberculomas, two gummas, one echinococcus cyst and two cerebellospinal tumors. Root pain was present as a symptom in eight of the extradural group, in twenty of the intradural group, and in twenty-two of the intramedullary group. Of the group in which no tumor was found, pain was present in thirteen patients. This is evidence that pain is a very valuable symptom. During the past year we have explored and removed four tumors from patients who had no sensory loss and who presented a history of pain without any other symptoms, which is significant of pain being an important and valuable sign. When a patient complains of pain, which is aggravated by stooping, coughing, sneezing and when lying down, which is relieved by getting up and walking about, and not by usual remedies, when the pain is in the sciatic nerve, the possibility of cord tumor must be borne in mind.

Dr. Hugh T. Patrick, Chicago: Was any motor loss manifested in those cases in which there was no sensory loss?

Dr. Adson: No, there was no motor loss. One patient stated that for two months he did develop a little patch of anesthesia over the lumbar nerve, but he came primarily for pain and was at first treated for sciatica.

Dr. Patrick: I was surprised that Dr. Frazier's table showed only one case in which pain did not antedate motor loss. I have no statistics to present, but I feel quite sure that my cases show a fair proportion in which motor impairment came before pain. Possibly in interpreting just what pain is, Dr. Frazier and I may have a little different attitude. Any patient who is spastic (and there are many patients with motor impairment who are spastic) will spontaneously make the statement that he has a pain in the back or between the shoulders or below the small of the back, which, like many other statements of patients with reference to pain, may be shown to be not pain at all in the proper sense; that is, these patients have a distressing sensation, and in their vocabulary a disagreeable or uncomfortable feeling is called pain. This sensation in spastic patients is frequently due to the spasticity—the muscular tension in the muscles of the back. In my opinion that is to be distinctly distinguished from anything like a root pain or pain due to any sort of nerve encroachment. Relative to multiple tumors of the spinal cord, which condition has been one of the disappointing and perplexing features of two of my cases, I should like to ask Dr. Frazier whether he has had tumors which were at first, microscopically and macroscopically, supposed to be the ordinary endothelioma, and later proved to be gliomatous. One patient was operated on with success. There was a recurrence, and we operated the second time with almost as brilliant a result. A third operation was done after recurrence of symptoms, but the surgeon reported that the cord had become infiltrated with a growth and no operation was possible. However, for a long time afterward the patient did very well under roentgen-ray therapy. Dr. Frazier informed me that his one patient who showed no pain at any time was another case in which I failed to make the diagnosis. Fortunately, however, she eventually landed in the hands of Dr. Frazier and Dr. Spiller, who did make a diagnosis. When I examined her she had absolutely no pain, as she informed me she had not subsequently. She had no sensory loss of any sort. She had a spastic paraplegia of moderate degree, was serologically negative, and the spinal fluid showed no indications of tumor. As most such cases in young persons (this was a relatively young woman) eventually turn out to be multiple sclerosis, I supposed she had that disease. I did not have the opportunity of following the case, and consequently had the discomfort of knowing that I had not diagnosed it properly. But I had the comfort of knowing that after operation she made a brilliant recovery.

Dr. Charles H. Frazier, Philadelphia: What Dr. Patrick said in regard to the possibilities of misinterpretation of the symptom of pain is very significant. No doubt there may have been cases in my series in which what we termed pain or what the patient thought was pain was not the pain of a root phenomenon. Yet, it is rather significant that the location of pain was found to be constant throughout the history of the case, and was always helpful in diagnosis. I do not think that Dr. Patrick ought to take himself to task for not having made an accurate diagnosis in the case to which he referred, and in which I subsequently operated. He saw the patient at a very early stage of the disease, while I saw her at a late stage, when there was an indefinite level of impairment. And I think it is only fair to Dr. Patrick to make this acknowledgment, that in this case I was unwilling to commit myself, and told the family of the patient the lesion might be of three possibilities: an intramedullary tumor, an extramedullary tumor or a myelitis. I was quite sure of the level of the lesion, but not of its nature. But since the symptoms were progressive and the patient totally disabled, we felt that an exploratory operation was justified. We found an extradural tumor, which was readily removed. Dr. Bliss has asked a pertinent question: Whether or not we have failed to find tumor in cases which presented a typical Brown-Séquard syndrome. I cannot answer this question as accurately as I would like to do because I have not the details of all the cases in mind. However, I recall one case in which the symptoms of cord tumor, including the Brown-

Séquard syndrome, were very definite, when we failed to find any evidence of tumor at the exploratory operation. The patient died about a year later, but unfortunately we were unable to secure a necropsy in that case. Most of the cases in which we failed to find a tumor, at the exploratory operation, are those in which there was not a definite level of sensory loss. Referring to the case cited by Dr. Grinker, I was surprised to hear that recovery of function had been deferred a year and a half after operation. When symptoms are due to pressure alone one would expect recovery of function to be rather prompt and rapid. When symptoms are due to degenerative changes, we would not anticipate recovery of function at any time. As to the relation of trauma to cord tumor, I have no knowledge. In one of the cases of this series there was a very definite history of trauma. However, no particular significance was attached to it. I think it is interesting to note that sometimes those who practice manipulative therapy help to make the diagnosis. There were two cases in our series in which great aggravation of symptoms followed immediately on the institution of such treatment.

INTRACARDIAC SURGERY—A NEW METHOD

PRELIMINARY REPORT [*]

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AND
EVARTS A. GRAHAM, M.D.
ST. LOUIS

The purpose of this paper is to describe briefly a new surgical procedure for intracardiac operations. Heretofore, no method has been described by which it is possible to go into the cavities of the heart without haste, to examine its chambers carefully, and to operate with deliberation on the interior of the heart under guidance of the eye. We have been able to do this while the normal flow, or nearly normal flow of blood was taking place through the chambers of the heart. The blood supply to the body and to the heart itself was maintained throughout the operation. Great speed of execution, therefore, was not imperative. We have repeatedly looked into the cavities of normal hearts of etherized dogs for as long as twenty minutes with impunity.

The primary object of our experimental work was to develop a practical surgical procedure for the relief of mitral stenosis. The possibility of the relief of mitral stenosis by surgical means was first suggested by Sir Lauder Brunton,[1] in 1902. Since that time many experimenters and surgeons have made attempts to work out practical procedures for cutting the heart valves. MacCallum,[2] Cushing and Branch,[3] Schepelmann [4] and others have succeeded in cutting or tearing the valves by means of hooks or small knives without the aid of the eye. Haecker,[5] Carrel and Tuffier [6] have developed speedy procedures for operating on the heart valves under guidance of the eye by shutting off the circulation through the heart. Carrel and Tuffier have successfully cauterized, sutured and cut the pulmonary valves of the normal hearts of dogs.

All these experimental procedures have seemed impracticable of application to the human heart, since they necessitate either the cutting of the valve without the guidance of vision, or the arrest of the circulation and a speedy operation. The method which we have worked out has none of these objectionable features.

Three things are worthy of special consideration in the development of this method for intracardiac surgery and its application to the relief of mitral stenosis. The first is the instrument for exploring the heart cavity; the second is the selection of the route of approach through the heart wall to reach the mitral valve, and the third is the actual cutting of the mitral valve.

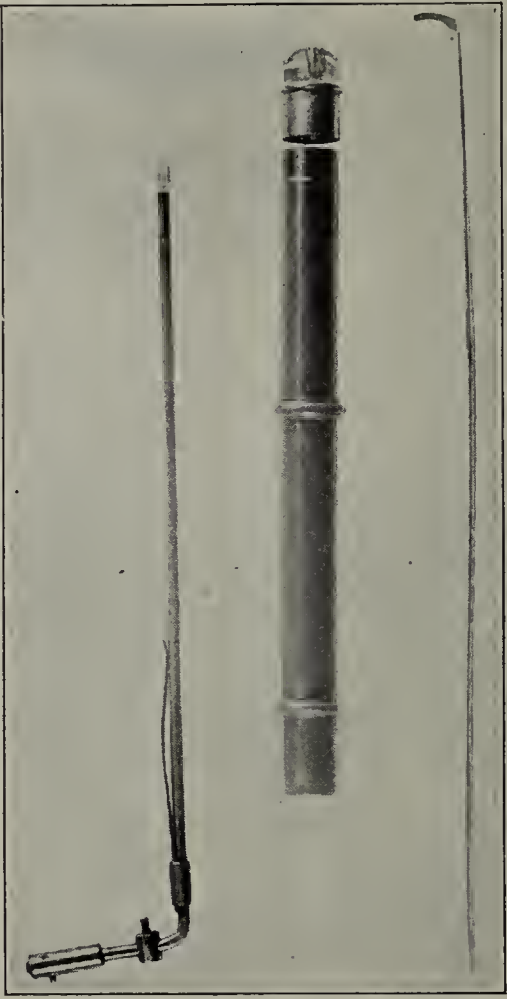

Fig. 1.—Cardioscope taken apart, so as to show knife attachment; the lens is convex.

INSTRUMENTS

The procedure involves the introduction of a cardioscope through the heart wall into the cavities of the heart. It is tied into the wall of the heart by a purse-string suture or a ligature thrown around the point of introduction. This controls hemorrhage. The cardioscope is then manipulated to bring into view any portion of the interior of the atrium or of the ventricle. On first thought it would seem impossible to see the interior of the heart in the presence of the opaque blood. This is not the case, as will be shown. The endocardium can be seen through the cardioscope as clearly as we see the mucosa of the bladder through the cystoscope, if the lens of the instrument is in contact with the structure to be seen.

The cardioscope is a metal tube, one end of which is closed by a planoconvex lens. The plane surface of the lens is within the tube, the convex surface is without (Fig. 1). The convex surface is of such curvature that it can be applied snugly to the walls of the heart cavity. A small electric light bulb, fitted on a carrier, is placed against the plane surface of the lens. This illuminates that portion of the endocardium which is in contact with the lens. This portion of the endocardium can be clearly seen through the tube. Direct vision of the interior of the heart is thus made possible in the presence of blood.

A knife to cut the valves is carried alongside the tube of the cardioscope. The flat steel handle is held close to the tube by two collars. The blade of the knife is placed at right angles to the handle. The cutting edge faces the lens. The whole of the blade can be concealed in a groove cut across the center of the lens. Thus the knife is held ready for immediate use.

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[*] From Washington University School of Medicine. Department of Surgery.

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ROUTES OF APPROACH

In our earliest experiments, we considered it best to place a purse-string suture around the point of entry in the heart wall before making the incision for insertion of the cardioscope. This was done first near the apex of the left ventricle, and then in various regions of the walls of the left atrium and its auricular appendage. We found that brisk bleeding usually accompanied the placing of the purse-string suture in the thin walls of both the left atrium and the left auricular appendage. The hemorrhage was due to needle punctures into the cavities of the atrium and the auricular appendage. It was difficult to control. The hemorrhage did not take place from the wall of the ventricle. The ventricular route of entry to the mitral valves was, therefore, the first to be chosen.

An opening was made through the wall of the left ventricle near the apex. The opening was of just sufficient size to admit the cardioscope. The high systolic, intraventricular pressure was encountered. It was found necessary to place the purse-string suture about 1 cm. from the edges of the incision in order to control the hemorrhage around the cardioscope. The purse-string suture had to be tied with marked tension. All this trauma was accompanied by marked disturbances in the heart action. Furthermore, it was found that more than 50 per cent. of the hearts stopped in diastole during the operation. Other regions of the wall of the left ventricle were used as the site of entry with no better results.

Plaster-of-Paris casts were then made of the cavities of the heart to determine, from an anatomic point of view, the most suitable region of the heart wall to enter. It was evident at a glance that, on the basis of anatomy, the auricular appendages were the most suitable structures through which to insert the cardioscope (Fig. 2). Furthermore, the physiologic function of the left auricular appendage seems to be the least important of any part of the heart. For these two reasons the left auricular appendage was then chosen as the route of approach to the mitral valve.

Since we had experienced difficulty in placing the purse-string suture about the auricular appendage, a weak-jawed, rubber jacketed clamp was made to control hemorrhage until the cardioscope could be inserted and tied into place. The clamp was applied to the base of the appendage. A simple ligature was used to tie the cardioscope into the appendage instead of a purse-string suture. After tying, the clamp was removed from the base of the appendage. No bleeding followed (Fig. 3). The interior of the auricular appendage could then be seen through the cardioscope.

ACTUAL CUTTING OF THE MITRAL VALVES

The end of the cardioscope was pushed from the cavity of the left auricular appendage into the cavity of the left atrium. If the cardioscope is turned in the direction of the valves, they can be clearly seen and definitely identified. They are of a distinct white color, with a slight translucence. The cardioscope is held so that the valve leaflets are in contact with the lens during systole. The knife blade is pushed into the cavity of the ventricle. Traction on the handle of the knife then brings the valve leaflet against the lens, and holds it there for reinspection. Further traction cuts the valve.

The end of the cardioscope is then withdrawn from the cavity of the atrium into the cavity of the appendage. While it is being held there, that portion of the auricular appendage which contains the end of the cardioscope is tied off and amputated.

No sutures are taken in the auricular appendage. By simple ligation the placing of suture material within the cavity of the appendage is avoided. Thus hemorrhage at the time of the operation is guarded against, and at the same time the formation of postoperative intracardiac thrombosis is prevented. Ligation of the appendage places the endocardium to the endocardium.

A consideration of moment in these operations on the mitral valve has been that of postoperative pericardial adhesions. In our earlier experiments, the pericardium was opened widely enough to remove the heart from the sac. It was found that adhesions between the heart and pericardium took place along the line of suture in the pericardium. In our later experiments we have made a 2 cm. incision in the pericardium across the base of the left auricular appendage (Fig. 3). If pressure is applied to the pericardium at the anterior edge of the incision, the appendage flips out of the pericardium through the small incision. Postoperative adhesions form then mainly between the stump of the appendage and this line of suture in the pericardium. The pericardium has been closed without drainage in all our experiments.

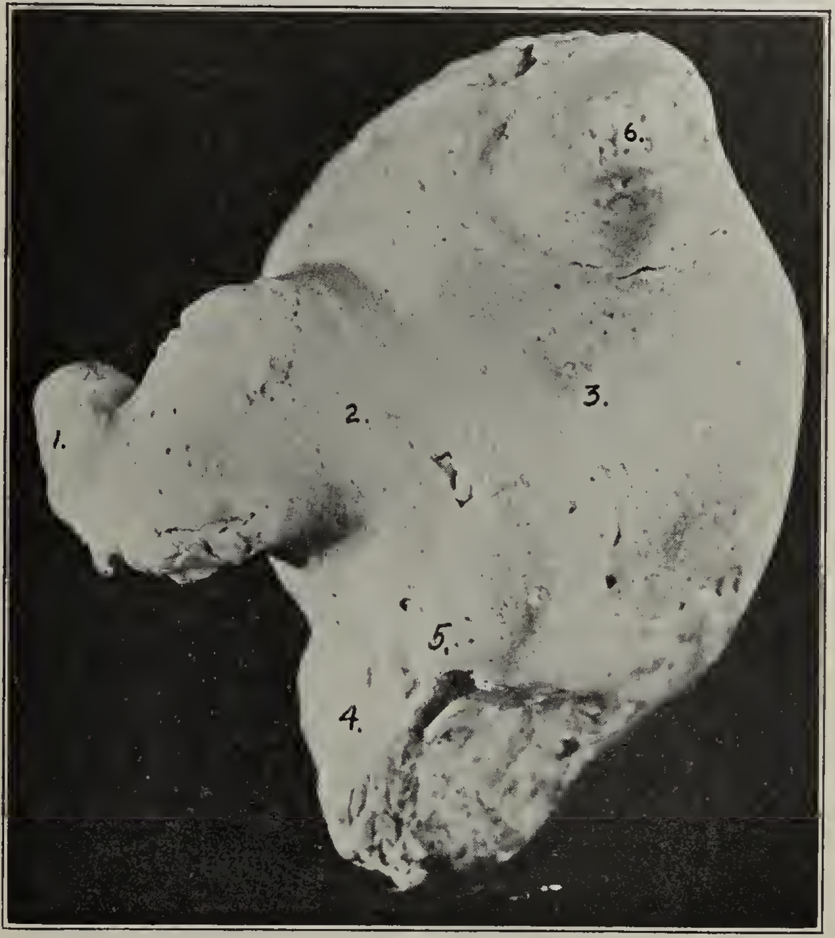

Fig. 2.—Plaster-of-Paris cast of the cavities of the left atrium and left auricular appendage, posteriolateral view: 1, tip of appendage, site of incision for inserting the cardioscope; 2, base of auricular appendage; 3, cavity of left atrium; 4, imprint of valve leaflet; 5, mitral ring; 6, left inferior pulmonary vein.

Our series of intracardial explorations and operations will be presented in detail in a future communication. In general, the approach through the left auricular appendage to the mitral valve is accompanied by a surprisingly small disturbance in the heart action. Twenty-two experiments have been done through this approach. Only one fatality has occurred during these manipulations of the heart, and that was due to an easily avoidable fault of technic. A loud systolic murmur over the apex has followed each operation for cutting the mitral valve. In those experiments in which death was spontaneous, blood has not been present in the pericardial sac at necropsy in any case. Although the mortality has been high, death has occurred late in most instances, and empyema seemed to have been the cause of death in virtually all. Death has therefore usually been due to accidental infection and not to any fundamental error in the method. One dog is still living eight and one-half months after the mitral valve was cut by this procedure, and two other dogs are still alive more than two months after cutting the mitral valve. They all still have systolic murmurs.

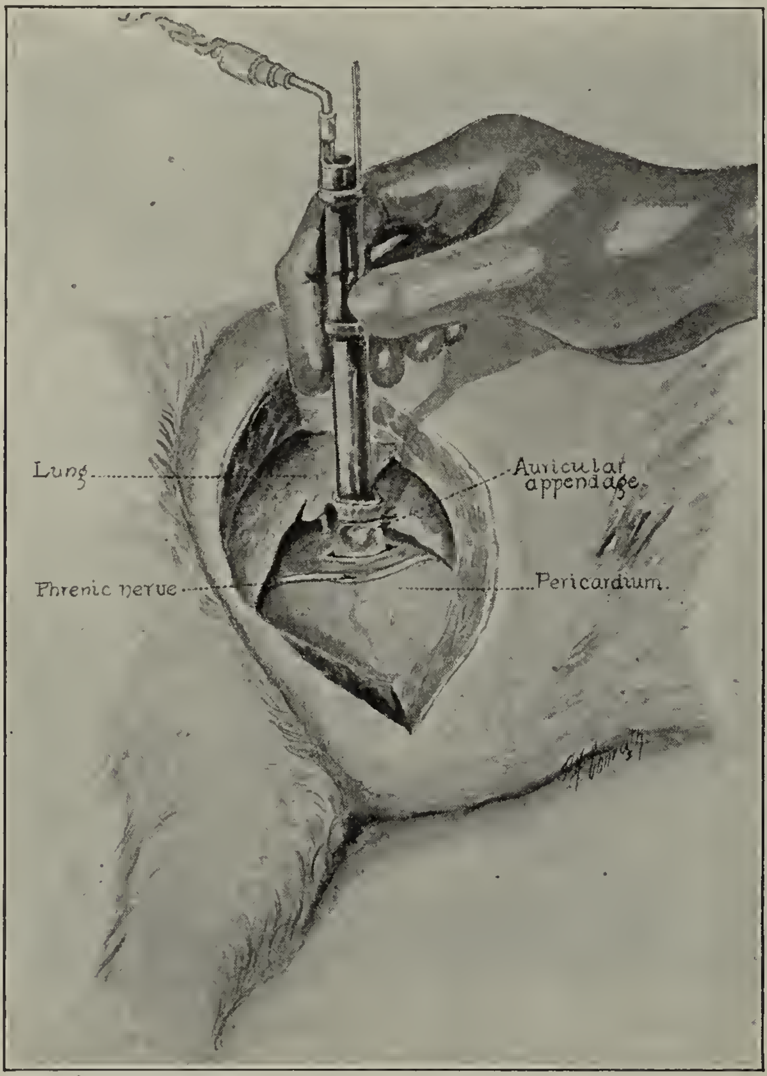

Fig. 3.—Cardioscope inserted into left auricular appendage; size and location of the incision in the pericardium.

ADVANTAGES

The new surgical procedure for intracardiac operations which we have worked out has these desirable features:

1. Hemorrhage does not occur.
2. The circulation is not interrupted.
3. Haste is not imperative.
4. The operation is carried out under the guidance of the eye.
5. The normal heart of the dog tolerates the procedure.

During the past year we have been able to cut any desired leaflet of the tricuspid, the pulmonary or the aortic valves. This has been done with deliberation and under guidance of the eye.

By the use of the cardioscope, the valves, the chordae tendineae, the papillary muscles, the muscle bundles and the openings of the large and small arteries and veins into the cavities of the heart can be clearly seen and definitely identified. The finer details of the walls of the heart cavities can be seen. With the proper attachments for the cardioscope, it is possible, therefore, to do accurate experiments and operations on these structures in the functioning heart.

THE LOCALIZATION AND EXTRACTION OF INTRA-OCULAR FOREIGN BODIES *

JAMES M. PATTON, M.D.
OMAHA

That the last word on localization and removal of intra-ocular foreign bodies has not been written is very evident from the diversity of opinion expressed by men who, from a wealth of experience and maturity of judgment, may well be classed as authorities. For example, there is a marked diversity of opinion as to the value and method of localization, a number of men of national influence insisting on a thoroughly accurate localization. Others of equal prominence are satisfied with a lateral and anteroposterior plate, a plate taken with the globe in motion or with two positions of the globe on the same plate. One of our best known operators (McReynolds [1]) does not hesitate to insert the tip of the magnet into the vitreous, to the foreign body if necessary, if it cannot be secured otherwise, while another (Allport [2]) of wide experience cautions us against such a procedure, evidently thinking the danger from the operative trauma greater than the presence of the foreign body. So long as these honest differences exist, it does not seem out of place to present this subject in the hope that by repeated discussion we may establish more definite procedures in the management of these sometimes difficult cases.

As the welfare of the patient is of first importance, we should approach this or any other subject bearing on the preservation of such an important structure as the eye with an open mind, and consider the suggestions of other operators, even though they may be markedly at variance with some of our pet theories.

Derby [3] states that "in every injury of the eye the possibility of an intra-ocular foreign body should be considered." If we could all take this to heart literally and practice its teaching, it would save us much embarrassment and save our patients from the danger of carrying a foreign body for weeks and even months, to be discovered later by some more painstaking colleague, or until siderosis or degeneration makes the presence of the foreign body all too evident. We are sometimes too willing to accept the statement of the patient that he is absolutely sure there is no foreign body in the eye. In many cases, the wound of entry is almost imperceptible, and the pain at the time of injury so slight that it passes unnoticed. On the other hand, I recall one case in the days before the roentgen ray in which an intra-ocular foreign body escaped us, owing to the fact that the wound was very extensive and the patient assured us that he had been hit by a bolt 4 inches in length and three-fourths inch in diameter, when in reality it was a flake of metal about

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* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] McReynolds, J. O.: Foreign Bodies Within the Eyeball, J. A. M. A. **73**: 818 (Sept. 13) 1919.

[2] Allport, Frank: Am. J. Ophth. **1**: 412 (June) 1918.

[3] Derby, G. S.: Am. J. Ophth. **4**: 334 (May) 1921.

half an inch in extent from the sledge with which he had been pounding the bolt. The patient was so sure he had been hit by the bolt that we did not try the magnet for a couple of days. Any one who is doing any amount of eye work can recall cases in which the patients have been referred for other conditions only to find that the trouble was due to an intra-ocular foreign body. I wish to mention the following, not only as an illustration of this unfortunate fact, but also as a side light on the theory of Tuckett [4] and Verhoeff [5] that the presence of iron pigment acting on the fibers of the third nerve in the siderotic iris is responsible for the dilatation which not infrequently accompanies it.

E. G. H. was referred to us on account of an intractable dilatation of the right pupil, with temporary spells of blurring of vision. He was an employee of one of the railway companies and had been treated by the local oculist for some time. He gave no history of injury beyond having gotten some dust in the eye; but in view of the subsequent findings, he thought he could remember having gotten a foreign body in his eye several months previously, but it was removed by the local oculist and he had forgotten the circumstance. The vision of his right eye was 20/20 — 1, left eye 20/15 — 1, the vision of the left eye being the better of the two. There was no restriction of motility or convergence. I was unable to get a satisfactory view of the fundus on account of light irritation. The pupil was dilated almost to the maximum, and the iris was decidedly discolored. As he was so positive there was no possibility of a foreign body in the eye, I did not have a roentgenogram made, which I admit was very reprehensible on my part; but to ease my conscience, I cautiously tried the magnet, in this case a Haab, and immediately a foreign body presented itself back of the iris, was drawn around into the anterior chamber, and was delivered through a corneal incision without much loss of aqueous. The surprising thing in this case was that as soon as the foreign body was drawn into the anterior chamber, the pupil contracted down to 3 mm. and remained so without the use of a myotic. I explained this on the basis that the foreign body must have been exerting pressure on one of the larger nerve filaments at the root of the iris, and probably also accounted for the photophobia. The patient's recovery was uneventful, but he returned some six months later with a traumatic cataract which was removed in the usual way. He went back to his local oculist before a final test was made, and I have not heard what the visual outcome was. Owing to the size of the foreign body, it is quite possible that if the proper localization had been made, the foreign body could have been removed by the posterior route and the traumatic cataract avoided.

In the nonmagnetic foreign bodies, it is sometimes necessary to show the patient the roentgenogram before he can be convinced that his eye contains a foreign body, even though the laceration may be extensive. For example:

C. W., aged 26, was attending a neighborhood "Wiener roast," when one of the young men playfully threw a handful of twenty-two cartridges into the fire, and he was struck in the eye by one of the exploding shells. When seen twenty-four hours later, the globe was badly lacerated and removal was advised, but the patient would not consent to this until he was shown the roentgenogram, which revealed a piece of copper fully a half inch long by three-sixteenths inch broad in the vitreous chamber. The argument was sufficient, evisceration showing an already well advanced purulent degeneration of the vitreous.

In our experience, the eye seems to tolerate copper or brass more kindly than the other nonmagnetic substances, and, in addition to this, there is a tendency for this type of metal to work its way outward through the coats of the eye, this having occurred at least twice in my experience.

Although the roentgen ray has certain limitations and shortcomings, I think we must admit that it is our most valuable aid in determining the presence and location of the various foreign bodies that gain access to the interior of the globe. Even when the object is glass, which is, of course, the most difficult to locate, we can frequently get a shadow, if the work is done with extreme care.

Many schemes for localization have been devised, ranging from the very simple methods suggested above to the complicated but accurate systems proposed by Eaton.[6] It would scarcely seem, with the comparative simplicity of the Sweet localization method and its modifications, that we should be satisfied with the inaccurate methods that were used before this system came into general use. It is true that plates taken in two different planes give a general idea as to the location of the foreign body and, in lieu of something better, two positions of the eyeball on the same plate or a plate taken with the eyeball in motion give us a rough idea as to the location; but it is very evident that a foreign body, a millimeter or so in the vitreous, embedded in the sclera or 2 mm. outside the sclera, will be moved through a considerable arc when the eyeball is rotated, so that we are naturally still at a loss to determine whether the foreign body is just inside, or embedded in, or just outside the sclera. Dr. Jackson

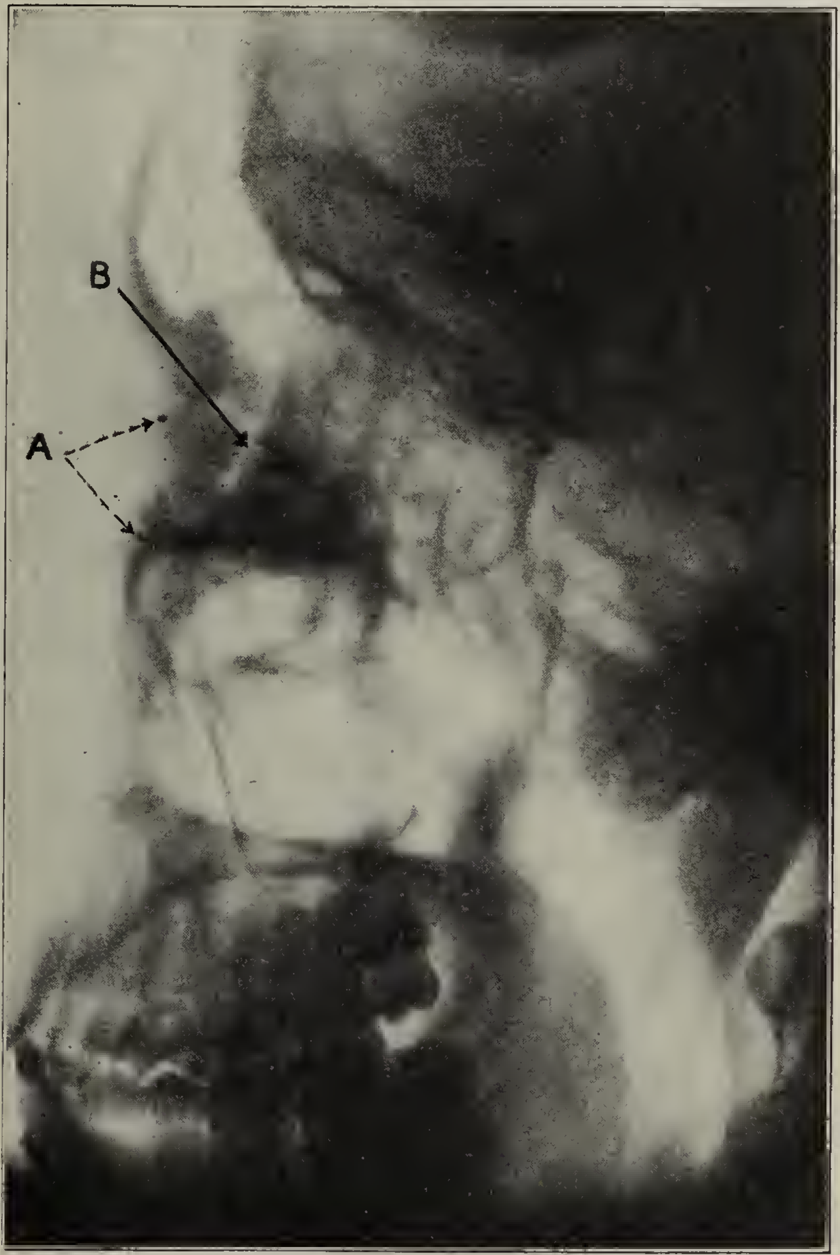

Fig. 1.—Roentgenograms taken with Sweet localizer, showing Gifford markers: *A*, markers; *B*, foreign body.

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[4] Tuckett, I. L.: Brit. J. Ophth. **2**: 79 (Feb.) 1918.
[5] Verhoeff, F. H.: Brit. J. Ophth. **2**: 571 (Nov.) 1918.
[6] Eaton: Brit. J. Ophth. **1**: 721-749 (Dec.) 1917.

wisely calls attention to the necessity for considering the probable length of the eyeball and divergence of the rays in using the commercial localizers, and there is always the possibility of the patient's moving the globe without his or the operator's knowledge. To forestall this error and to provide a fixed point of measurement even when the eye is moved, it has been our custom to continue the use of a procedure devised by my colleague, Dr. Harold Gifford, in the old prelocalization days, though not published by him until 1912.[7] This is simply to insert a small bit of metallic substance, preferably a piece of sterilized wire or lead, just beneath the conjunctiva as close to the limbus as possible. Usually, this is placed at both the upper and lower limbus, and can be done without discomfort to the patient by anesthetizing the conjunctiva with a little cocain. These markers (Fig. 1) may be removed as soon as the plates are taken, usually before the cocain has had time to wear off. We attempted to attach little metallic clips or split shot to the surface of the conjunctiva, but we found that they were not nearly so satisfactory as the subconjuctival substance just mentioned.

Similar plans were suggested by other men, such as fastening a ring of wire to the surface of the lid, and crossed wires attached by adhesive tape; but these were relatively a considerable distance from the cornea, and in our hands were not so satisfactory as the bits of wire introduced under the conjunctiva.

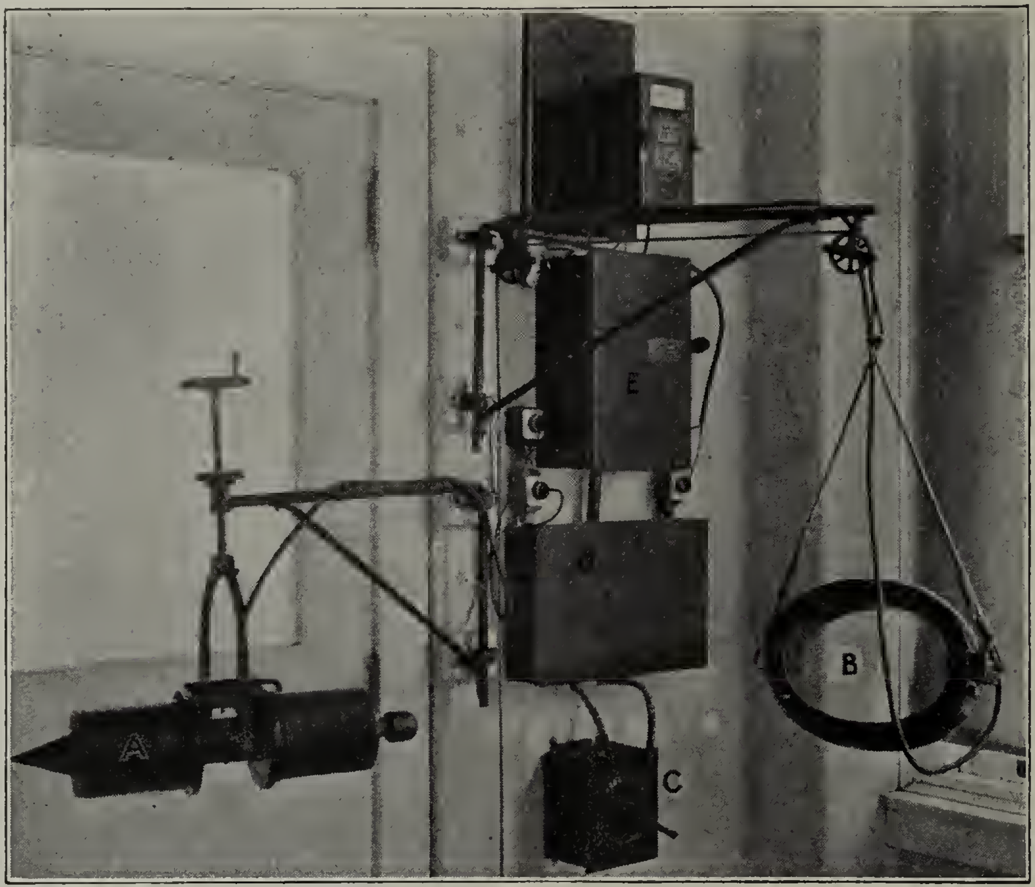

Fig. 2.—Arrangement of Haab and ring magnets: *A*, Haab magnet; *B*, ring magnet; *C*, rheostat; *D*, distributing switch; *E*, automatic control switch.

There is always a discussion, of course, as to whether the operator is justified in using the magnet as an instrument of localization, or whether the magnet should ever be used without the guidance of previous roentgenoscopy. I think there are instances in which this is justifiable; but the privilege must not be abused. If either from ophthalmoscopic observation, the history of the injury, the condition of the lens or the nature of the wound, we are positive that the foreign body is small and probably well forward, and if for financial reasons the patient does not feel like going to the expense of a roentgenographic localization, I feel that we are justified in trying the magnet first, though it is only fair that in every case the possible benefit of the roentgen ray should be explained to the patient and he should be given the privilege of having it if he so desires. On the other hand, if the foreign body is apparently far back, if we suspect that it is of considerable size, or if the lens is apparently uninjured, then both the patient and the operator are entitled to the information that can be gained from a most careful localization. Derby[3] properly insists that it is unwise to lose valuable time waiting for a roentgen-ray localization. This is perfectly true; but, with the modern methods of developing, the operation, except in very unusual circumstances, need not be delayed more than an hour at the most, as the localization may be taken care of while the surgeon is preparing for the operation. Of course, cases coming in at night or when the accustomed roentgenologist is unavailable are the exceptions, and must be met as we would any other emergency situation.

We frequently hear the complaint that roentgen-ray operators are not familiar with the modern methods of localization. This is no doubt true; but, as I mentioned a couple of years ago, this is largely the fault of the oculist rather than the roentgenologist. I have found these gentlemen very willing to cooperate, and a little team work will often solve the problem. A few years ago,[8] in collaboration with our roentgenologist, Dr. W. H. Mick, I placed an opaque foreign body in various positions in a number of animals' eyes. These were frozen by the usual salt and ice method, placed in the normal position in a skull, and localization plates taken. I then sectioned the frozen eyes and accurately determined the position of the foreign bodies while the roentgenologist localized them on his plates. Not only did this help him to acquire proper technic, but we were much gratified by the accuracy with which the localizations were made. Since then, we have had no trouble in securing satisfactory localizations, and I would recommend this method of training the roentgenologist to any who are having trouble along this line.

Before beginning an operation for the extraction of an intra-ocular foreign body, the question of prognosis should always be discussed with the patient, as it is much easier at that time to explain the dangers of the operation and possibility of failure than afterward. As a rule, the patient will be satisfied to have the operation, and then, should the eye turn out badly, will feel that everything possible was done to save it. In the recent cases, we may well expect beginning infections or the possibility of retinal detachment, hemorrhages, lens injuries, etc.; but in cases in which the foreign body has been in the eye for a considerable period without causing any particular disturbance, we sometimes fail to call attention to the relatively uncertain prognosis, and the manipulation may stir up a latent infection or give impetus to an already present degenerative process, as the following illustrates:

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[7] Gifford, Harold: Ophth. Rec., January, 1912.

[8] Patton: Western Med. Review, August, 1917, p. 404.

J. W., aged 34, consulted us, Jan. 30, 1922, with a history of having injured the right eye three months previously while pounding a chisel with a hammer. A roentgenogram had been taken at the time, which was negative. Vision was fairly good until four days before consulting us. There was no pain, and practically no congestion. Vision of the right eye was 3/200; of the left eye, 20/15. The ophthalmoscope revealed very numerous fine and coarse vitreous opacities in the right eye, the lens being clear. No external evidence of a penetrating wound or an intra-ocular foreign body could be obtained. As the patient was very sure that the previous roentgenogram was negative, we did not have this repeated; but, on applying the magnet (Lancaster portable), a fragment of steel 3 mm. long and 1.5 mm. wide was drawn into the anterior chamber and delivered through a corneal incision. A magnetized knife was used in this instance, the foreign body adhering to the lips of the wound on its removal and delivered with the Lancaster hand magnet without even touching the tip to the corneal surface and without the loss of more than a drop or two of aqueous. I mention these details to show that the subsequent inflammation was in all probability not due to the operative procedures. On seeing the patient the next day, I was surprised to find the eye deeply congested, aqueous hazy, and a well marked hypopyon, the patient complaining of great discomfort. This inflammation persisted for ten days in spite of most vigorous treatment. An enucleation was advised, but the patient asked for a little more time, when the eye gradually began to improve and, when last seen, was practically free from inflammation, but almost sightless. The danger of keeping the eye was explained to the patient, but he thought he would rather take a chance and, so far, has had no further trouble.

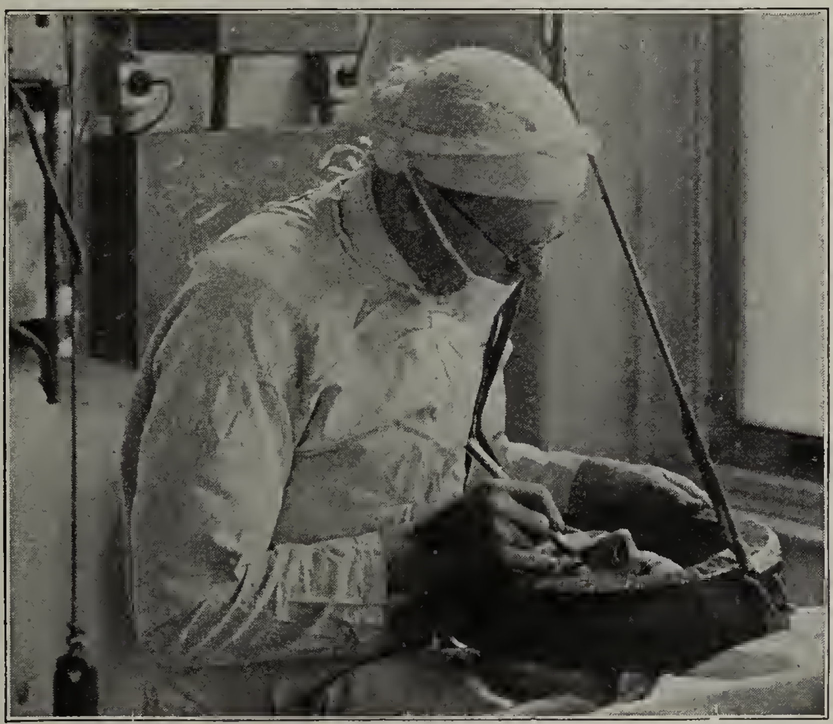

Fig. 3.—Position of ring magnet and patient.

As to the choice of magnets, there are a number of excellent types on the market, varying from the very powerful instruments of Haab and of Lancaster to the more flexible but less powerful hand magnets of Hirschberg, Sweet, Lancaster and others. Dr. Lancaster presented a scholarly, scientific discussion of the relative merits of various types of magnets at the recent meeting of the American Academy of Ophthalmology and Oto-Laryngology in Philadelphia in 1921, in which he called special attention to the importance of selecting an instrument in which the end of the tip was as close to the coil as was consistent with good work. He also mentioned a very small hand magnet which he has recently had constructed and which he assured us had ample power. I have not had the privilege of seeing this magnet; but, from the description, I should think it would be an ideal instrument.

There has been considerable discussion as to the relative merits of the so-called ring or inner pole magnet. A number of our British confrères are especially enthusiastic over it, notably T. Harrison Butler,[9] who has had a wide experience with this type of instrument and who considers it to have a very decided advantage over other types, especially as a hand magnet is not necessary and it can be used while the patient is in a prone position; and Tuckett,[10] who reports a case in which the ring magnet was successful when the Haab had failed. At present, we are using a Lancaster arm and hand magnet at the office and in the ophthalmologic clinic at the University of Nebraska College of Medicine, with a Haab and ring magnet in our operating rooms at the Nebraska Methodist Hospital. The heavier magnets are mounted on cranes (Fig. 2) for, while the Lancaster arm magnet is entirely practical when slung from the shoulder of an assistant, it is more convenient when permanently suspended. We have found the Lancaster magnets to be very practical and fully equal, if not superior in power, to our Haab. The hand magnets have plenty of power, but the models we have are inclined to heat rather quickly. While the ring magnet we use is not as powerful as the Haab or the Lancaster types, it is so convenient to use that we invariably employ it when the foreign body is in the anterior chamber or has been drawn there either by the ring "electrodes" or by one of the larger magnets. The patient is in a comfortable position, and the operator can go about his work as quietly and accurately as he would in any other delicate procedure on the anterior segment of the globe.

I wish to emphasize one procedure which I have mentioned previously[11] and which can be carried out best when using the ring magnet: that is, making the corneal incision while the current is on in the magnet. The knife at once becomes magnetized, causing the foreign body to fly to the point as soon as it enters the anterior chamber, and on completion of the incision and withdrawal of the knife, the foreign body is almost sure to adhere to the lips of the wound and can be easily removed without even touching the cornea with the tip of the electrode, thus avoiding even the suggestion of infecting the wound. The same result can be accomplished by magnetizing a knife through a minute or more of contact with the tip of the giant magnet; but, in my experience, the action is not so strong as when the inner pole magnet is used. Before making the incision, one should be sure that the foreign body is well away from the iris angle, as the loss of even a small amount of aqueous may result in pinching the foreign body so tightly that the operation must be delayed till the aqueous reforms.

As to the choice of routes, while some few men seem either "always" to use the corneal or "always" the scleral routes, I feel that every case must be dealt with according to its individual requirements. When the

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[9] Butler, T. H.: Brit. J. Ophth. **1**: 46 (Jan.) 1917.

[10] Tuckett, I. L.: Brit. J. Ophth. **2**: 329 (June) 1918.

[11] Patton, J. M.: Am. J. Ophth. **4**: 605 (Aug.) 1921.

foreign body is small and relatively smooth and can be brought forward without unnecessary danger to the lens, it is our custom to deliver it through the anterior chamber. On the other hand, if the object is large and jagged or firmly fixed in the tissues of the posterior segment, I am convinced it is much less dangerous to approach it through the sclera after careful localization. In doing so, the incision should be of sufficient size, and if it is necessary to insert the magnetized tip into the vitreous, it should be done with extreme gentleness and with strictest antiseptic precautions. A number of observers have called attention to the value in adherent cases of throwing the current off and on, in a sense "jerking" the foreign body. We have found this of real value; it should be tried repeatedly and, when necessary, on successive days. In cases in which the magnetic foreign body is firmly embedded in the sclera and absolutely resists the action of the magnet, if it is visible through the pupil, we are certainly justified in loosening this with a knife needle under direct ophthalmoscopic observation.

The after-care of these cases is exceedingly important. It is our custom, except in cases limited to the anterior segment, and even then if there is congestion, to proceed as though there was a beginning intra-ocular infection. The patient is kept in bed with both eyes bandaged, and he is given salicylate, inunctions, hot packs, etc. If the eye fails to quiet down rather promptly, the danger of sympathetic ophthalmia is explained to the patient. Then the responsibility of keeping the globe rests with him. When there is a question as to whether the steel is in the sclera or just outside it, the eye should be kept under observation, but should not be removed without very definite evidence of irritation. If the steel is outside the sclera, the chance of its causing trouble is practically nil. If it is embedded in the ocular coats, we are justified in doing our utmost to remove it rather than tamely to enucleate the eye on the possibility that at some future time it might cause trouble.

Finally, in caring for this class of cases, one should not be misled by the patient's story. In any case of penetrating wound, we must prove the absence of a retained foreign body.

Give the patient the benefit of a roentgen-ray localization if he wants it in any case, and insist on it if it will materially improve the prognosis.

If the roentgenologist cannot localize accurately, cooperate with him experimentally until he can.

Discuss the prognosis with the patient or a responsible relative before beginning the operation.

Choose the route in accordance with the needs of the individual case.

Do not give up too easily. Success is frequently the result of repeated efforts.

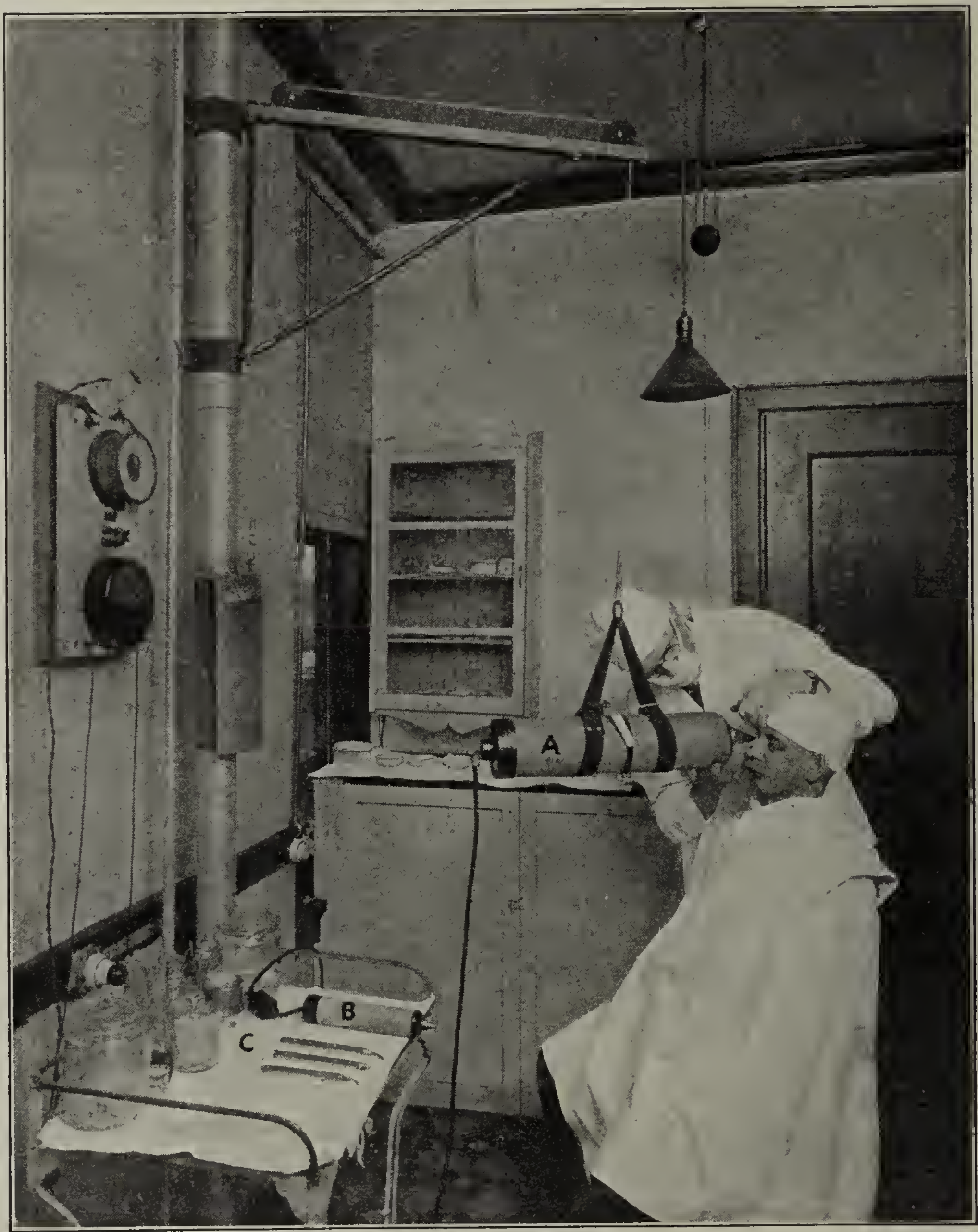

Fig. 4.—Lancaster portable magnet suspended from crane, showing flexibility and ease of manipulation: *A,* Lancaster portable magnet; *B,* Lancaster hand magnet; *C,* electrodes for ring magnet.

ABSTRACT OF DISCUSSION

Dr. George F. Keiper, Lafayette, Ind.: Localization is dependent on the mathematical principle that the position of a plane is determined by three points. To determine the location of the point C, two fixed points, A and B, are necessary. Knowing already the distance between A and B, by triangulation we are able to determine the location of the point C and its distance from the base line connecting the points A and B. That is what the range finder does at sea to determine the position of the target. Sometimes it is called triangulation. The astronomer uses this principle to measure the distances of the heavenly bodies from the earth. The same principle is applicable to the localization of foreign bodies anywhere in the eyeball or in the orbit. So any attempt to determine the location of a foreign body in the eyeball by doubly exposing the plate as the eyeball is rotated to determine whether it is in the eyeball or outside the eyeball is unwise, because the third point necessary to exact localization is lacking. The foreign body may be within the globe, and yet only one point may show on the double exposed plate as the eyeball is rotated. The only way to get the location of the foreign body is to have two fixed points entirely outside the eyeball and eyelids. Hence, the modification of the Sweet apparatus which brings the two fixed points as close to the cornea as possible. Then, by means of the roentgen ray, we are able to determine not only whether the foreign body is within the eyeball but also its plane, i. e., its exact location. The charts which come with the apparatus help very materially in the solution of this problem. All patients with intra-ocular foreign bodies should be warned that we are bound to lose 50 per cent. of such eyes anyway because of the trauma produced, to say nothing of the possibility of infection from a dirty foreign body. Again, foreign bodies are sometimes carried for years without doing any particular damage to the eyeball or its vision.

Dr. C. D. Wescott, Chicago: Dr. Derby has made a very valuable suggestion, and that is, that if the ophthalmoscope and roentgen ray do not positively determine the location of the foreign body in the eye, we should always use the magnet test. I recall one case in which it was evident that a rather large foreign body had entered the eye, but the eye was so mutilated that it was impossible to use the ophthalmoscope. The roentgen ray, after six examinations, seems to show that the foreign body was definitely behind the eye. The reason so many plates were made was that we wanted to be sure that the foreign body was outside the eye and that we had a double perforation. Because the roentgen ray showed it behind the eye, the magnet was not used. The eye went on to complete destruction, and when it was removed and incised the foreign body was found inside the eye at the posterior pole.

Dr. J. M. Banister, Omaha: I agree with Dr. Patton that we ought to try to localize these foreign bodies. For one reason, the foreign body may have gone entirely through the eyeball and be located outside the globe. How foolish it would be in such case to be doing much intra-ocular work with the magnet. Suppose the foreign body has entered the eyeball, and is lodged in the vitreous humor; does that condemn that eye? Not by a great deal, judging from what we learned in the war. Why not apply the immense volume of military experience to civilian practice in determining what to do? It is reported in the American Encyclopedia of Ophthalmology that thousands of men continued on active duty at the front with small foreign bodies in the eyeball, with normal, or almost normal, vision, without any symptoms of irritation in the other eye at all. That being the case, why should we condemn an eyeball because we find a little foreign body in it? We should practice conservatism there, and if we cannot eradicate it by simple use of the magnet, then let us wait and see what is going to happen. Very likely that body, if in the vitreous, may remain without causing any trouble, and if an iridocyclitis should develop with danger of sympathetic involvement of the other eye, then enucleation would be in order.

Dr. George S. Derby, Boston: The first point in Dr. Patton's paper which I wish to stress is the possibility of not recognizing the presence of a foreign body in the eye. It is most important that we should never take the history which the patient gives. We should always use every means of examination in our power to exclude the presence of a foreign body. In cases in which the wound is in the conjunctiva, it may be so covered by hemorrhage that the perforation is not made out and the oculist is satisfied that none exists. The magnet test is the final judgment in the question of foreign bodies. It is always easy to put the patient before the big magnet and test for a pain reaction, if there is the least possibility of a punctured wound. I have seen several cases and I have known of others in which, although careful examination was made, the perforating wound came to light through the roentgen ray and the use of a magnet. In several cases, foreign bodies were not discovered until the chance for successful extraction was not nearly so good as it would have been at first. In regard to the question of nonmagnetic substances in the eye, in my experience small pieces of stone are better tolerated than any of the metals. Dr. Gifford's plan of inserting a piece of wire under the conjunctiva above and below is excellent. It would be a great help in discovering the exact location, and especially in telling whether the eye has moved. The presence of foreign bodies in the eye should be regarded as a real emergency, and they should be extracted with the least possible delay. When the use of the roentgen ray means a delay of several hours, and when it is evident from the size of the wound and the ophthalmoscopic appearance of the foreign body that it is comparatively minute in size, we should extract anteriorly without the aid of the roentgen ray; but when a posterior extraction is to be done, the roentgen ray is indispensable, unless an exact idea of the position can be obtained with the ophthalmoscope. The sooner a foreign body is removed, the better it is for the patient. There is less danger of sepsis, and the foreign body is less likely to become firmly fixed in the eye, a very important point; for the dragging of a foreign body from the exudate which had formed around it is always accompanied by much greater reaction, and a foreign body is always extracted with much more difficulty than is the case when the wound is fresh. There is no question that when the magnet test is not tried and reliance is put solely on the ophthalmoscopic examination and the roentgen ray, a certain number of foreign bodies escape detection. Frenkel reports eight cases of wounds of the eye in which the roentgen ray was negative, and foreign bodies were found at enucleation; in five of these cases there was more than one foreign body in the eye. Others have also reported similar experiences. Therefore, we should never forget that the magnet test is the final test for the presence of a magnetic foreign body. As to the choice of magnets, the essential thing is to get a magnet that will do the work. The arm magnet of Lancaster is an excellent instrument, but it is not nearly powerful enough to get the best results. The Haab magnet is badly designed and one does not get nearly the amount of power needed. This is also the case with the ring magnet of Mellinge. Some of these foreign bodies are very small; some are wedged in the sclera or covered by exudate. Therefore, it requires a magnet with an extremely strong pull to dislodge them, and this is one of the reasons why these patients should be sent for extraction to the place where the strongest magnet and the greatest surgical skill can be obtained. Comparatively small foreign bodies should be extracted anteriorly when possible. Large foreign bodies, as a rule, should be extracted through a posterior incision, but in these cases the eye is usually lost. I agree with Dr. Patton that it may be necessary to use the large magnet on several occasions in the case of foreign bodies which are firmly embedded in an exudate or in the ocular coats. In this case we often try the method of throwing the magnet on and off rapidly.

Dr. A. E. Ewing, St. Louis: Before the days of the Sweet localization, Dr. Post and I were accustomed to localize foreign bodies by what I still consider one of the best methods, because the patient cannot change the localizers. Instead of putting the wire or the film against the cornea, which a tender eye sometimes will not bear, we had the lids closed first and then put a piece of fuse wire vertically on the upper lid at the center of the lid, so that it extended from the upper border of the tarsus to the cilia, and another piece on the lower lid in the same meridian, extending from the cilia to the lower margin of the tarsus. These bits of wire were held in place with pieces of zinc plaster above and below. A lateral exposure was then made. The bits of wire were then moved to the nasal and temporal angles for an anteroposterior exposure. From the data thus obtained, the eyeball could be plotted and the foreign body located.

Dr. John A. Donovan, Butte, Mont.: One should take time to study the case, and if one does not know what to do, should send the patient to some one who does. As soon as these patients come into our office, the first thing we think of is to operate. The best thing about Dr. Patton's paper is that he did not tell us anything dogmatic, perhaps for the reason that every case requires a different method. But, if in doubt, one should take time to decide what one is going to do, or whether one is liable to do more harm than good. Unless it is an urgent case, one can better afford to wait a few days to study the case.

Dr. J. G. Dorsey, Wichita, Kan.: One form of foreign body was not mentioned in the paper that sometimes causes very serious thought. Some time ago, a child fell out of a plum tree and got a splinter of the wood into the eye. It was very difficult to remove. The foreign body broke off close inside the cornea. There was no possibility of using the magnet because this was a piece of wood. If one used the keratome to cut through one might push the wood through into the lens and further injure the eye. The procedure I used was to put the keratome in one side so as not to push the piece of wood; then, putting the forceps in, I seized it and tried to draw it through the wound. When this was done, however, it caused traction so that it presented itself at the opening and I withdrew it through its own opening.

Dr. Oliver Tydings, Chicago: After we had learned to use the roentgen ray for locating foreign bodies in the eye, we found out that the giant magnet was not the court of last resort. For many years we had the only giant magnet west of the Alleghenies. Where the foreign body is large enough to destroy the eye, of course, the treatment is not satisfactory. A man came to me in March who the August before had got something into his eye and thought nothing of it. He came with a neuroretinitis. I put him under treatment after trying the giant magnet, which failed to locate the body. After awhile, the trouble subsided. About six months later he turned up with another attack of the same kind. Three of us spent two hours trying to locate the foreign body with a giant magnet. It did not occur to us to use the roentgen ray. This was many years ago. He got well of that attack, but after several months he had another. Then we used the roentgen ray and located the body just under the retina below. Another interesting case was one in which the foreign body had passed entirely through the globe. It was localized about four or five days after the injury. This injury occurred while he was traveling on a train. He went to his local physician and was examined and treated, but did not improve. He came to me, and the eye was perfectly soft. The man who had treated him had used atropin and I sent him for localization. The foreign body was found behind the globe. I have every reason to believe that it was a piece of lead which the magnet would not have had any effect on. I immediately put the man to bed and gave him all the attention I could, and finally the lesion healed and vision became normal; he had better than 20/20 vision in that eye. We kept him under observation for several months and then he went to California and spent a year. When he came back, he had a plastic iritis which cut down his vision very materially. I have not seen him since. That was ten or fifteen years ago.

Dr. James M. Patton, Omaha, Neb.: I wish to congratulate Dr. Dorsey on the successful outcome of his case of wood fiber in the anterior chamber. These are often very difficult cases and cause more trouble than metallic foreign bodies. I do not want to leave the impression that, because occasionally the roentgen ray may fail, we should take this as an excuse for not using it. Failure may be occasionally noticed in any diagnostic measure, but this is no excuse for not using it. I am sure if we will cooperate with our roentgenologists in improving their technic, the percentage of failures will be greatly diminished. Evidently Dr. Keiper did not quite get the idea about the use of markers. We do not depend on them alone, but we do feel that they give additional help when used in connection with regular localization technic. It gives us a fixed measuring point, no matter how the patient may inadvertently change the position of the globe. I have never seen any harm result from putting a piece of sterile opaque substance beneath the conjunctiva for localization. Personally, I cannot overemphasize the importance of removing foreign bodies as soon as possible. If we were sure there would be no progress in the infection, we might wait, as one of the gentlemen suggested; but unfortunately this is not the case. One speaker gave the impression that we might wait indefinitely if the foreign body did not seem to be causing any reaction. This I feel sure is a mistake. In looking over the reports of many cases in which intra-ocular foreign bodies have been carried for some time, I find that they almost invariably result in either partial or complete intra-ocular degeneration, and I feel that we are justified in employing extreme measures on the basis that if the object is successfully removed we may save the patient useful sight, while if it is allowed to remain the vision is almost sure to be entirely lost.

ANALYSIS OF A DIPHTHERIA EPIDEMIC *

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City Health Officer
TOPEKA, KAN.

Topeka is a city with an estimated population, for the year 1921, of 50,850 persons. In only one year previous, 1915, had there been more than 100 cases of diphtheria reported for a twelve month period. During the year 1921, 786 cases were reported; 742 of these were reported from August 5 to and including Dec. 31, 1921; forty-six additional cases were reported from Jan. 1, 1922, to and including Jan. 31, 1922. The study of cases and incidents reported in this paper is from Aug. 5, 1921, to Jan. 31, 1922, during which time there were reported 788 cases, fourteen of which proved fatal.

The disease, on the whole, was very atypical, many of the patients presenting typical symptoms of a follicular tonsillitis, but on culture showing diphtheria bacilli in great numbers. The majority of the cases were mild, yet in numbers of the mild cases as well as the severe ones there developed complications common to the disease. It is impossible to say what percentage of cases were diagnosed or confirmed by culture; a conservative estimate of 90 per cent. of all cases reported is made.

The numbers of cases by race were: white, 718; colored, sixty, and Mexican, ten. On the estimated population for the year, the rates of attack by race for each thousand of population were: white, 15.8; colored, 13.3, and Mexican, ten.

Cases by months were thus reported: October, 291; November, 168; September, 162; December, 71; August, 50, and January, 46.

In cases reported by five day periods, that ending October 13 showed fifty-nine cases; November 17, fifty cases; September 23, forty-nine cases, and October 28, forty-five cases. For five other five-day periods, the number ranged between twenty and forty. In all other five-day periods, there were less than twenty cases reported. The highest number of active cases at any time of the epidemic, on the records of the health department, was 129 on October 18.

The highest number of cases reported for single days was: September 19, seventeen cases; October 11, nineteen cases; October 18, seventeen cases, and November 18, twenty cases. It is an interesting fact that three of the high periods occurred approximately four weeks apart. The first peak (of September 19) may be accounted for by the fact that the city schools opened on September 6, that the day was Monday and some of the cases may have been carried over from Sunday, that the majority of the days had either been cloudy or partly cloudy, and that during the thirteen day period ending on the above mentioned date there had been a total precipitation of 3.78 inches. There is no factor of any importance that would account for the other high peaks.

Of the 184 days from August 5 to January 31, 59 per cent. were reported clear; the remainder were reported as cloudy or partly cloudy. In August and September, 14.86 inches of rain was recorded, which

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* Read before the annual meeting of the Health Officers Section of the Kansas Public Health Association, Kansas City, Kan., April 11, 1922.

was 7.85 inches above normal, while the other four months of the six month period under study recorded only 1.36 inches of rain, which was far below normal. Zingher of New York has emphasized the point that the normal mucous membrane will prevent the action of diphtheria bacilli that have lodged in the nasopharyngeal cavity of persons who show a positive Schick reaction. If this resistance, however, is destroyed by a catarrhal process brought on by bacterial action aided by inclement weather, or by an operation, then the Klebs-Loeffler bacillus will promptly begin its local action and produce clinical diphtheria.

The 788 cases reported represented 656 families, totaling 3,114 persons, of which number 1,505 were adults and 1,609 were children; 25.6 per cent. of persons who may, therefore, have been directly exposed in family association, came down with the disease. Cases resulting in families are shown in Table 1.

TABLE 1.—CASES IN FAMILIES

Number of Persons in Family	Number of Cases						Total Number Exposed
	1	2	3	4	5	6	
Two	50	..	..	..	..	..	100
Three	81	3	1	..	..	..	255
Four	159	13	2	..	..	..	596
Five	110	18	6	4	..	..	660
Six	62	12	6	..	..	..	480
Seven	39	3	3	..	1	1	329
Eight	16	3	..	3	1	..	184
Nine	9	..	2	..	..	..	99
Ten	5	1	2	..	..	..	80
All others	39	1	..	..	..	..	331
	570	54	22	7	2	1	3,114
Cases	570	108	66	28	10	6	

By age groups, the epidemic presented an interesting study; 24.2 per cent. of all cases reported were in persons aged 18 years or over, and of that number (24.2 per cent.) 65.3 per cent. were women, not a surprising percentage since many had the care of the children who were ill with the disease and thus came into more intimate contact. By five year periods under 20 years of age, and all over 20, based on the estimated population for the year, the attack rate for each thousand of population is given in Table 2.

TABLE 2.—ATTACK RATE

Age	Per Cent.	Estimated Population	Cases	Rate per Thousand	Number of Deaths	Case Fatality per Cent.
From 0 to 4	11.3	5,812	106	18.2	8	7.5
From 5 to 9	10.5	5,340	301	56.4	4	1.3
From 10 to 14	10.0	5,080	154	30.5	0	...
From 15 to 19	10.1	5.140	59	11.5	1	1.6
Over 20	58.1	29,540	168	5.7	1	0.58

Although toxin-antitoxin had been used comparatively little in the city, questionnaires were mailed, January 10, to 112 physicians as to whether or not they had used toxin-antitoxin, whether any cases developed following its use, whether the patients had had all three doses, and how long a period had elapsed after the third injection before the disease developed. Sixty-seven physicians, or approximately 60 per cent. of those to whom questionnaires were sent, submitted replies. Twenty-seven reported that they had immunized a total of 489 persons. Four physicians had cases develop after its use, the time elapsing between the third injection and the development of the disease being sixteen days, four weeks, six weeks and eight weeks. The four patients had all three injections of toxin-antitoxin, but were not given the Schick test afterward.

Fourteen deaths were reported, a case fatality of 1.76 per cent. One death was of a patient aged under 1 year; one, 26; one, 17; one 9, and the remaining ten were between the ages of 1 year and 5½ years. Twelve of the patients who died had laryngeal diphtheria. On the histories obtained the patients who died averaged 6.2 days sick before death. Antitoxin was not used in four cases; in two of these cases the disease was so far advanced that the physician decided it would be of no value. In six of the cases, the patients had each been ill with the disease seven or more days before a physician was called.

During the months of September and October, cultures were taken of the children of twelve of the city schools, a total of 2,745 children; 132, or 4.8 per cent., were found positive; 119, or 4.33 per cent., were carriers, and the remaining number (thirteen) were or developed into active cases. Additional numbers of carriers were detected, both among children and among adults, so that the total number of carriers discovered was 157. Of the total number of carriers, only eighteen, or 11.4 per cent., gave a history of ever having had diphtheria. In thirty-five cases, or 22.2 per cent., a history of diphtheria was obtained of some other member of the family other than the carrier, while in 104 cases, or 66.2 per cent., no history of diphtheria was obtained in either the carrier or any other member of the family.

October 18, in one school, cultures of 246 children were taken, with the result that seventeen showed diphtheria bacilli when the cultures were examined the following morning. These children were sent home at noon, i. e., within twenty-four hours of the time the cultures were taken. Within twenty-four hours, one of the children who had been sent home developed laryngeal diphtheria; forty-eight hours later a second child developed the disease, and within ninety-six hours a third one developed diphtheria. Five days after the children had been sent home, there developed, in a family in which one child was a carrier, an active case of diphtheria, and within two days two more children took sick with the disease. Yet, throughout the illness of the three children, the carrier showed no active manifestation of the disease, except the presence of diphtheria bacilli on culture.

Release of carriers was made after two consecutive negative cultures, twenty-four hours apart. Twenty-one persons, or 13.3 per cent., were released at the end of one week after the diagnostic culture had been made; sixty-three, or 40.1 per cent., were released by the end of the second week; forty-two, or 26.7 per cent., were released by the end of the third week; twenty-three, or 14.6 per cent., were released by the end of the fourth week. Only eight carriers, or 5 per cent., remained under quarantine after four weeks. We find, therefore, that 126, or 80.2 per cent. of the 157 carriers, were released by the end of three weeks. A virulence test was not made in any case.

CONCLUSIONS

1. The opening of the city schools was a factor in the spread of the disease.
2. The mortality was low.
3. The diphtheria carrier is an important factor in the continuation of an epidemic.
4. The disease attacked a large percentage of children of advanced age.

AN UNUSUAL ORBITAL TUMOR *

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AND

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SAN FRANCISCO

In this paper we present the clinical history and microscopic findings of an unusual case of orbital tumor. The diagnosis was not made clinically, nor can one be ventured at present.

REPORT OF CASE

History.—C. L., a man, aged 30, was referred to the university hospital from the outpatient department because of an unusual orbital tumor of the left side. There was nothing of note in the family history; no trace of familial tuberculosis, carcinoma, heart, kidney or mental disease. The patient was born in California, and had spent most of his life there. He was a street-car conductor. He had measles at 9 and a severe bronchitis at 20 which had left him with a chronic nasal catarrah and asthma; otherwise he had always been in good health. Venereal diseases were denied. His habits were good. He had a tumor of the left cheek removed five years before; no other operations. His average weight was 140 pounds (63.5 kg.). Under the left eye was a swelling, first observed nine years before. It had gradually increased in size until at present it seemed to extend throughout the entire lower lid. There had been no disturbance of vision and no pain, the only symptom being at times a mild epiphora. The increase of the mass had been gradual, and without remission or temporary diminution in size. Aside from an occasional attack of asthma, his general health had been very good. Because of the disfigurement, the patient had been unable to secure employment. At the time of his respiratory infection, eleven years before admission, a small swelling was observed on the left cheek, which gradually increased until it became the "size of a small lemon." Because of cosmetic disfigurement, the tumor was excised five years before admission. He was told that the tumor was not malignant. Six years before a similar tumor developed in the right cheek, which had not appreciably increased in size. There was nothing of interest in the history of the central nervous, cardiorenal, gastro-intestinal or genito-urinary system.

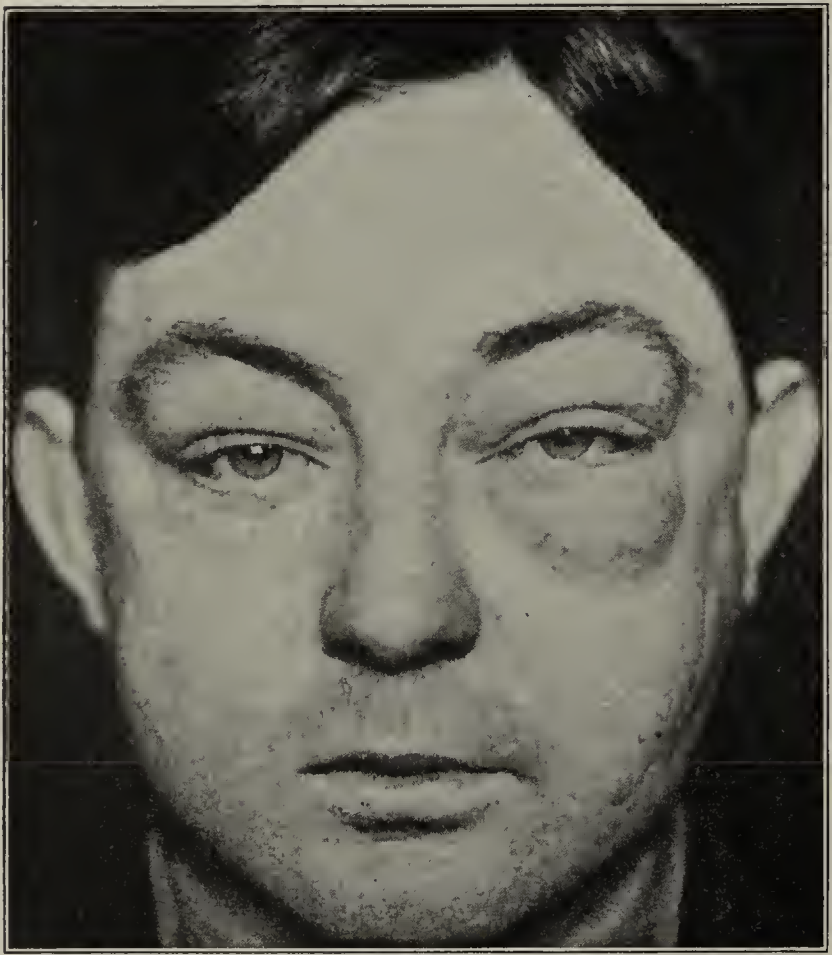

Fig. 1.—Front view of patient, showing tumor of left lower lid; also fulness of cheek and upper lid.

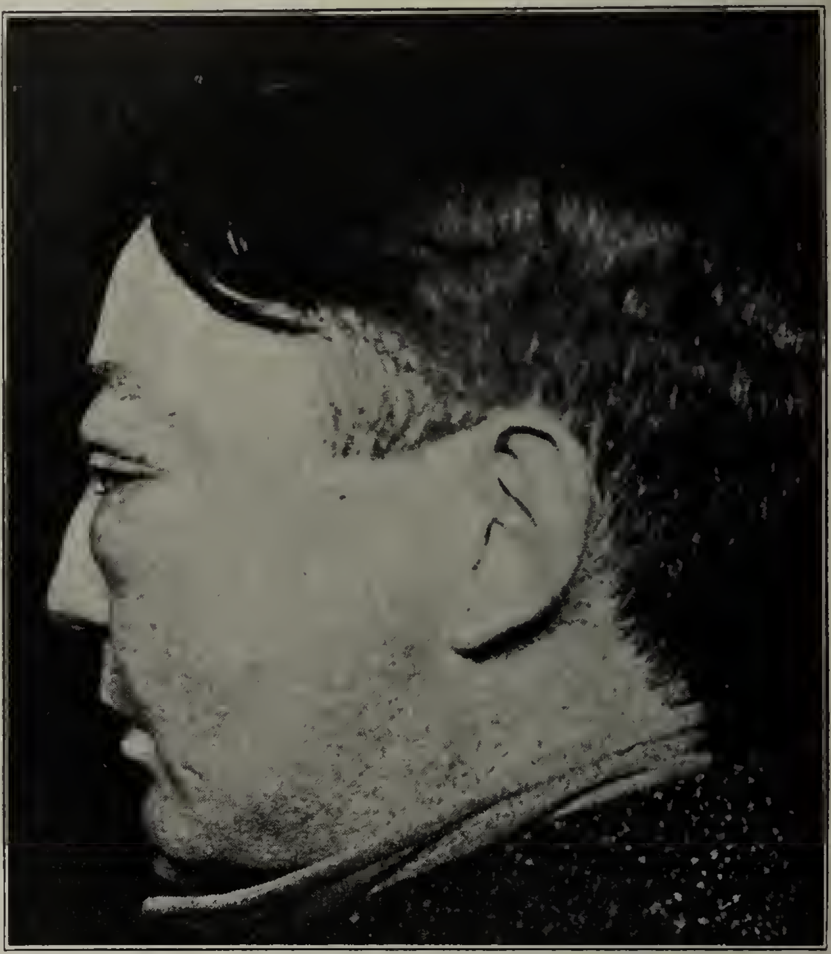

Fig. 2.—Side view of patient.

Physical Examination.—The patient was well developed and well nourished. There was a definite swelling of the upper and lower lids on the left side, and the upper right lid presented a definite fulness. The cheeks were rather full, particularly on the right side. The skin was smooth and fair, with many freckles over the forearm and face. There was a long linear scar in the left cheek. The hair was red, and rather coarse and thick. Both lacrimal glands were palpable. The preauricular gland on the left side and the sublingual glands also were palpable. In the right cheek, felt best through the buccal mucous membrane, was a tumor which was firm, regular, and in some ways resembled an enlarged accessory parotid gland. The nose and ears were normal. The teeth were in poor condition with a great deal of dental work. The tonsils were somewhat hypertrophied. On the left side of the neck were many small, shotlike posterior cervical glands. There was adenopathy of one large and several small axillary glands on the right side. The chest, heart and lungs were not remarkable. The abdomen, extremities, genitalia and reflexes were normal. The blood pressure was: systolic, 115; diastolic, 80. Blood examination revealed: hemoglobin (Sahli), 90 per cent.; red blood cells, 5,320,00; white blood cells, 10,200; polymorphonuclears, 65 per cent.; red blood cells, 5,320,000; white blood cells, 10,200; polymorphonuclears, 65 per cent.; small mononuclears, 31 per cent.; large mononuclears, 4 per cent.; eosinophils, 2 per cent. The urine was normal, with no albumin, sugar or casts. The blood Wassermann and Pirquet tests were negative.

Roentgen-ray examination of the skull revealed a calcified pineal; sella small and roofed over, and a large sphenoidal sinus. The heart was small, and central; there were very heavy hilum shadows, with marked fibrosis extending along the bronchi. There was pleural thickening around both tops. There was interlobar pleurisy on the right. The conclusion was that there were fibrotic changes in the lung.

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* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

Eye Examination.—Vision of the right eye was 0.8; of the eft eye, 1.2(?). There was a fulness of both lids of the ight eye; aside from the lacrimal gland, no tumor mass was alpable. The conjunctiva, cornea and fundus were negative. xamination of the left eye revealed: upper lid full, lacrimal land palpable. There was a definite swelling of the entire ower lid. On palpation, a rather firm mass was felt, which vas not attached to the skin, was not compressible, and xtended throughout the lower lid and apparently into the rbit. There was a definite yellowish xanthoma-like color ver this area, with dilated venules in the skin. There was light limitation of the vertical movements. In the conjunctiva t the temporal side was a small degree of chemosis, with ortuous superficial veins. On the cornea at the temporal side f the pupillary area were several superficial scars. The undus was negative.

Exophthalmometer: Right eye, 25 mm.; left eye, 28 mm.

The perimetric fields were normal. Tension was normal.

Pathologic Examination.—The report of the previously emoved tumor was obtained through the courtesy of Dr. obert B. Drury of Columbus, Ohio. The pathologist reported he tumor as nonmalignant lymph glands.

Clinically, a positive diagnosis was impossible. Because of he chronic enlargement of the lacrimal and other glands, ikulicz's disease would not be ruled out. The yellowish olor made the consideration of xanthoma necessary, but the vidence was insufficient to warrant the diagnosis of multiple anthoma. The other possibility considered was that of fibro-ngiosarcoma of slow growth.

It seemed advisable to remove a small portion of the tumor or pathologic diagnosis. Through a small incision, the tumor vas exposed. It had a definite xanthoma-like color, and was rm and directly under the skin but not attached to it.

Pathologically, it was impossible to make a definite diag-osis. The tumor contained considerable fibrous tissues and lso some xanthoma-like cells. Dr. G. Y. Rusk of the Uni-ersity of California Pathological Department and also Dr. phuls of Stanford University refused to make a diagnosis.

A week later the tumor mass was excised through an ncision parallel to the lid margin. It was not encapsulated nd apparently not attached to any of the orbital structures, lthough it extended well back into the orbit. It was found xpedient to bisect the mass, and we removed the entire facial ortion and dissected below Tenon's capsule approximately 00 mm. between the globe and lower orbital bony rim. Palpa-on of the periocular tissue gave induration, but we did not onsider further radical excision, as no gross evidence of nalignancy was present and further removal would have nvolved an exenteration of the orbit. Hence we cannot state definitely whether or not the growth had a direct connection temporally with the orbital portion of the palpebral gland. Portions of the tumor were put into various fixatives, and, in addition, a small piece was sent to the bacteriologic laboratory for culture.

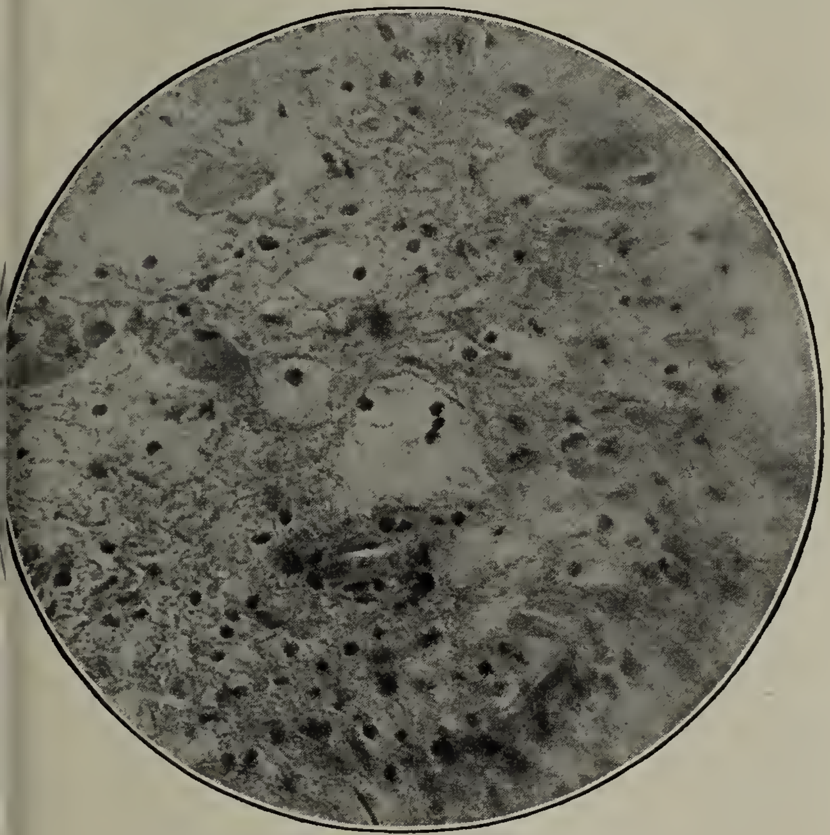

Fig. 3.—Xanthoma-like cells (high power).

The patient developed a mild influenza two days after the operation, but made an uneventful recovery.

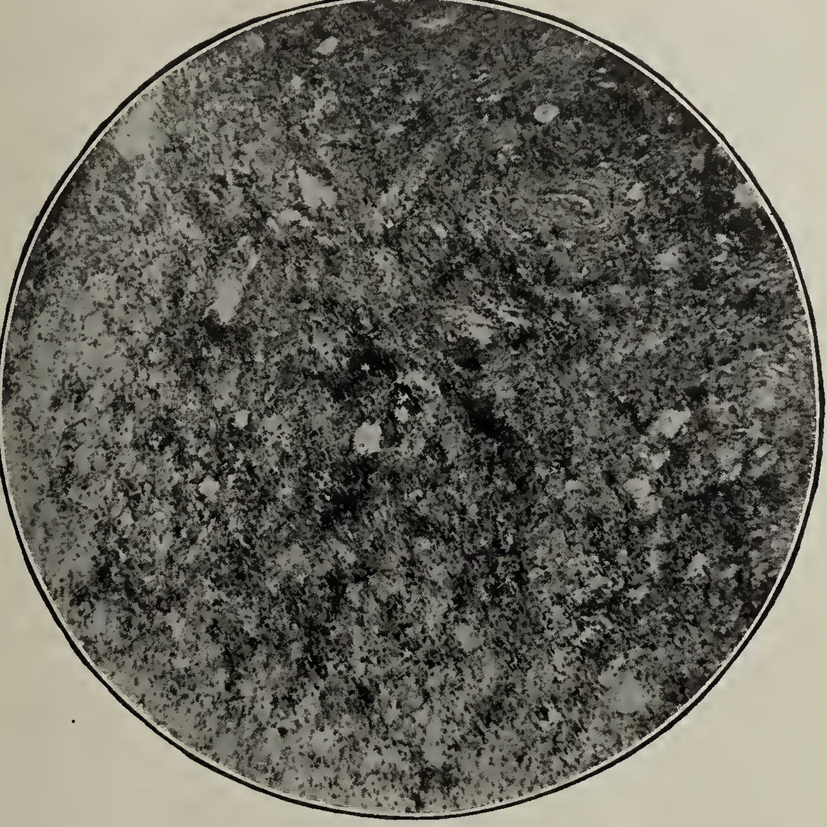

Fig. 4.—Xanthomatoid portion.

The culture of the tissue revealed *Staphylococcus albus* and *Staphylococcus aureus,* with a predominance of the latter.

Microscopic examination of tissue first submitted which, in the gross, was a butter yellow color, showed accumulations of large cells, with a finely reticulated cytoplasm and, in the meshes of this reticulum, accumulations of fat. In association with this xanthoma-like growth there was found considerable fibrous tissue reaction and rather extensive infiltration, with lymphocytes and plasma cells. This, however, was irregularly disturbed. Also in the fibrous tissue more particularly, there were a number of ill defined multinucleated cells, but neither these cells nor the general tissue reaction type were such as to suggest tuberculosis. It did, however, rather suggest a chronic inflammatory process.

The tissue received from the operation at which the tumor-like mass was removed was fixed in formaldehyd and Zenker's fluid. Cultures were also taken.

The cultures yielded a mildly chromogenic, nonhemolytic staphylococcus in pure culture.

At the time of operation the growth was extensively adherent, superficially presenting the same butter yellow color, but on section the fibrosis caused most of the center of the growth to be white and fibrous looking.

Microscopic examination of numerous sections from this material again revealed the xanthoma-like cells (Figs. 3 and 4), in places in relative abundance, in others with rather marked intersection by connective tissue or a rather hyaline type; in still other places the fibrous tissue occurs alone. Especially present in the normal fats of the part as well as scattered through the fibrosis was again found the extensive inflammatory reaction consisting of invasion with lymphocytes, plasma cells, and a marked number of eosinophils (Fig. 5). Again, the giant cells were observed, small, often compressed looking, and lying principally scattered in the fibrous tissue (Fig. 6). Again nothing suggesting a tuberculous reaction was seen. The diagnosis in this case seemed difficult; the question was whether to consider the process primarily a xanthoma with secondary inflammatory reaction and fibrosis, or whether the process was primarily inflammatory with secondary alteration in the peripherally situated portions, causing a reaction in the fat similar to what one occasionally encounters in fat tissue, as the xanthoma-like nodules at times present in infected areas in breasts. The material was shown to Dr. Ophuls, who was inclined to consider the mass among the xanthomas, but I preferred not to venture an absolute diagnosis.

The diagnosis was: xanthoma with infection (*Staphylococcus aureus*) or xanthomatoid reaction based on chronic infection, as above.

COMMENT

In reviewing the case, the possibility of two separate entities must be considered, namely, Mikulicz's disease and a separate tumor of the lower lid. From the pathologic report of the tumor previously removed, it is evident that its nature is vastly different from the tissue removed by us. It is described as nonmalignant lymph glands and has the possibility of being a lymphoma and merely part of a chronic Mikulicz's disease. As described by Mikulicz,[1] the disease is a symmetrical enlargement of the lacrimal and salivary glands, chronic in character and with, as a rule, no systemic disturbances. The parotids and accessory parotids, submaxillary and in many instances the sublingual as well as the preauricular glands have been enlarged. In this case these glands were all larger than normal and readily palpable. Figure 1 also shows the suggestion of the broad cheeks, and the "bloodhound eyelids" described by Ziegler.[2] Posey's [3] case showed marked dental decay, while Kayser's [4] showed no systemic infection. In Randolph's [5] report, the enlargement of the glands was not simultaneous. Meller and Snegireff [6] emphasized the excessive hypertrophy of the tonsils. As the case described has definite features in common with the foregoing, we must consider the possibility of Mikulicz's disease in addition to the localized tumor of the left lower lid. Dr. E. I. Bartlett of the surgical department also considers this probable.

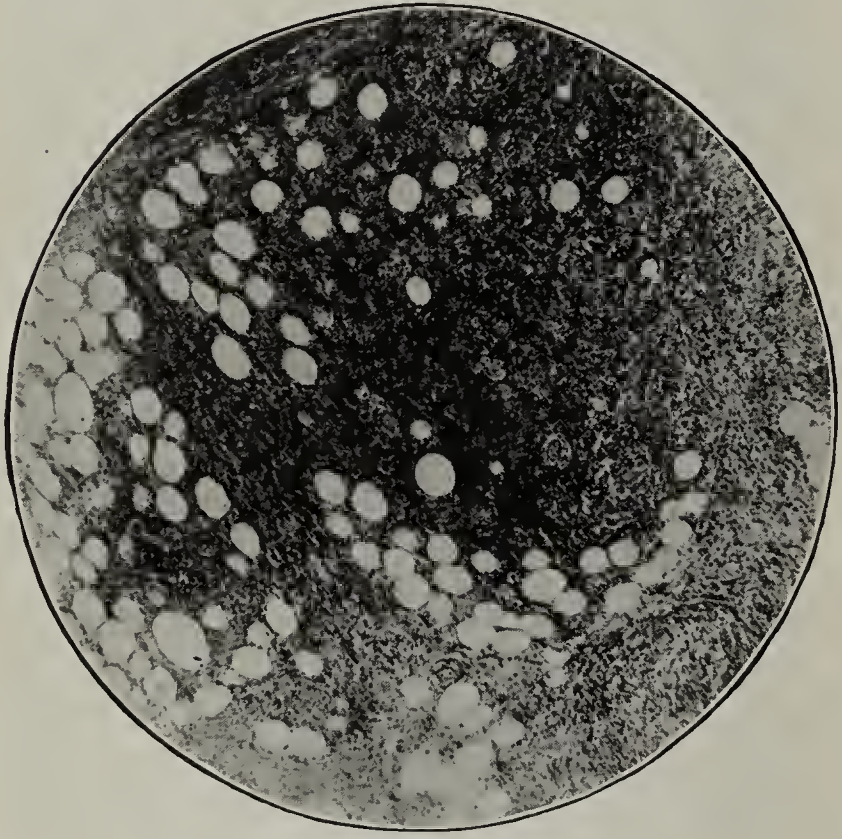

Fig. 5.—Fat with inflammatory infiltration.

While the tumor removed has some of the characteristics of multiple xanthoma as described by McCallum,[7] Pollitzer,[8] Sikemeier [9] and others, it is apparently not multiple, as the other tumors do not resemble that of the lower lid. Ewing [10] describes them as occasionally appearing in the lid first and later in other localities. Multiple xanthoma differs markedly from the usual xanthoma palpebrarum, as shown by Unna [11] and Virchow.[12] The histologic structure of our tumor is not typical of the usual xanthoma, although clinically there was definite suggestion of a xanthoma-like color.

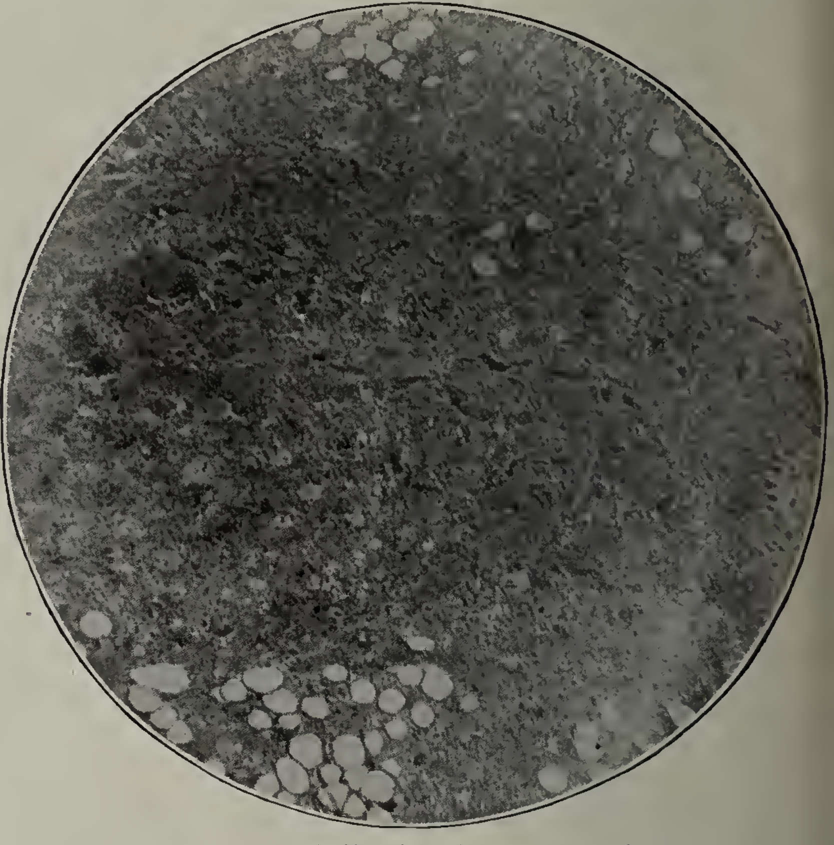

Fig. 6.—Xanthoma and fibrosis, with small multinuclear cells.

The other possibility that must be considered seriously is that of a granuloma. Culture revealed the presence of *Staphylococcus albus* and *aureus*. The unusual number of giant cells, together with the inflammatory reaction, is strongly suggestive of a granuloma. Delafield and Prudden [13] state that some authors are disposed to class together, under the name of infectious granuloma, lesions produced by micro-organisms, certain phases of which are characterized by a localized, usually slow, nodular growth tending toward necrosis. A number of pathologists reserve the term granuloma for tuberculosis; yet, as Stengel Fox [14] points out, the giant cell is not characteristic of tuberculosis, as it may be found in many specific inflammations and also in foci of chronic irritations due to foreign bodies as well as in tumors. The type of granuloma due to conditions other than tuberculosis differs in failing to undergo caseation and in prominence of connective tissue new growth with some giant cells. The tumor, microscopically and bacteriologically, has some of the appearances of a granuloma, but clinically lacks the characteristic features as described by Wescott,[15] Pusey,[16] Wile [17] and others.

As to the final diagnosis, we must adhere to that of the pathologist, namely, xanthoma with infection

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1. Mikulicz: Berl. klin. Wchnschr., 1888, p. 759.
2. Ziegler: Tr. Am. Ophth. Soc., 1909.
3. Posey: Ophth. Rec. **5**: 25, 286.
4. Kayser: Klin. Monatschr. f. Augenh., July, 1909.
5. Randolph: Ophth. Rec., 1904, p. 18.
6. Meller and Snegireff: Klin. Monatschr. f. Augenh., August-September, 1906.
7. McCallum: Textbook of Pathology.
8. Pollitzer: New York M. J. **5**: 70, 72, 1899.
9. Sikemeier: Frankfurt, Ztschr. f. Path. **14**: 428, 1913.
10. Ewing: Neoplastic Diseases.
11. Unna, in Ewing: Neoplastic Diseases.
12. Virchow: Virchows Arch. f. path. Anat., 1871, p. 52.
13. Delafield and Prudden: Textbook of Pathology.
14. Fox, Stengel: Textbook of Pathology.
15. Wescott, C. D.: A Case of Granuloma Pyogenicum Affecting the Eyelid, J. A. M. A. **66**: 2067 (June 24) 1916.
16. Pusey: J. Cutan. Dis., December, 1906.
17. Wile: J. Cutan. Dis., December, 1910.

(*Staphylococcus aureus*) or xanthomatoid reaction based on chronic infection. The case is of interest because of the unusual clinical and pathologic findings and, in particular, because of the probability of a separate clinical entity, that of Mikulicz's disease.

135 Stockton Street.

LEGAL STATUS OF PHYSICIANS AND SECTARIANS *

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CHICAGO

Probably no subject has given rise to so much acrimonious discussion and bitterness of feeling as the efforts of physicians to restrict the practice of medicine to certain individuals or to certain classes. This problem is apparently no nearer permanent solution than it was fifty years ago. The proceedings of our state associations show that every year the adoption of a new medical practice act or of an amendment to the existing medical practice act is among the subjects discussed. At every session of the state legislature, bills creating new practice acts or amending existing laws, and special bills providing for the registration of osteopaths, chiropractors, naturopaths, drugless healers, mental healers and other fantastic sects occupy a considerable share of the session. There is no other subject on which the medical profession in the last thirty years has expended an equal amount of time and energy. Yet, in spite of all our efforts, there is not a single sect or cult, no matter how absurd or fantastic, which has failed ultimately to secure the so-called legal recognition which it sought, in spite of any objection which the organized medical profession might present. Two explanations are usually given for the failure on the part of physicians to prevent the passage of such measures. These are lack of understanding on the part of the public, and indifference and lethargy on the part of the medical profession.

In spite of all our efforts, this question today occupies as large an amount of time and absorbs as much energy as it did twenty-five years ago. That it has not as yet been satisfactorily solved is generally admitted. That its discussion is hampered by our own prejudice is also true. Rarely, if ever, is this question discussed in professional circles with the thoroughness, the absence of personal feeling and the readiness to accept a recognized truth from any source which characterizes our discussions of the scientific questions of medicine. This is largely because, whatever may be our lack of prejudice on other questions, on this subject we are ourselves sectarians and partisans. Yet its practical importance cannot be denied. It is not a scientific question, but an administrative and social question of importance, not only to physicians, but also to the public. Is it not, therefore, worth while for us to consider it, not in the light of our personal and professional prejudice, but rather as an abstract problem, a permanent solution of which would render unnecessary any further waste of time in the needless and profitless efforts of the past? Is it not possible that both the indifference of the public and the lethargy of the profession may be entirely justified, that the conventionally accepted attitude of the medical profession on this subject for the last forty years may be based on erroneous premises and inaccurate reasoning, and that, instead of endeavoring to educate the public to our point of view, we might rather attempt to learn something from the public point of view?

LEGAL REGULATION

The history of the efforts to restrict the treatment of the sick to certain individuals goes far back into the past. In a primitive civilization or in a simply organized state of society, no restrictions on professions or occupations are necessary. Each individual does what he is able to do for his own benefit or for the benefit of others, without any hindrance. It is only when society has become relatively complex that regulations for the government of various trades, industries, occupations and professions become necessary. There is, consequently, nothing inherently wrong in any individual pursuing any occupation or profession which he may see fit. As society increases in complexity, regulation of many human activities becomes necessary. The violation of such regulations does not constitute inherent crime, as does murder, stealing or various other acts which are in themselves criminal.

The regulation of professions, occupations and trades, legally speaking, comes under what is known as the police power of the state, characteristics of which are that it aims directly to secure and promote public welfare, and that it does so by restraint and compulsion. Under the police power of the state comes a vast multitude of subjects which increase as society becomes more complex. Everything having to do with licenses, reports, registration, prohibition, commerce, safety, public health, public order and comfort, public morals, the regulation of capital, public corporations and property comes under the police power of the state. The only object and the only justification for the exercise of police power is the greatest good to the greatest number, or, more concisely, the general good. Acts which are regulated by police power are, in the majority of cases, acts which in themselves are not culpable and which are wrong only in a statutory sense; that is, because it has been found best for the public good to provide certain regulations for such acts.

Legally speaking, the regulation of the practice of medicine comes under the same classification as the regulation of any other occupation, profession or trade or of any other subject which must be regulated or restricted for the public good. Regardless of the provisions or limitations which may be made, the practice of medicine without a license is never a crime, but only a misdemeanor. It is in the same class as running an automobile or keeping a dog without a license, exceeding the speed limit, permitting a factory chimney to smoke, or violating any other of the thousand and one restrictions and regulations which modern society has evolved for its own protection.

Without attempting to discuss the history of medical practice acts in this or other countries, all of which I have considered at length in a previous article, it is interesting to note that the present system originated with Dr. N. S. Davis in the early seventies. In the hope of elevating the standard of medical education, Dr. Davis urged the creations of boards of examiners to pass on the qualifications of applicants, entirely separate from the medical faculty which had given the instruction to the student. In other words, as Dr Davis put it, there should be a complete separation between the educating and the licensing bodies. His demands, which can be found in the proceedings of the American Medical Association from 1867 to 1873, were for the creation of a board of examiners by the state for the examining and licensing of medical college graduates. As a result of his agitation, Texas in 1873, Kentucky and New York in 1874, New Hampshire in 1875, and California and Vermont in 1876, passed laws creating such boards. During the next twenty years, every other state passed some kind of a law on this subject, so that by 1895 there was in practically every state a board created by special enactment charged with the duty of examining and licensing physicians and surgeons.

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* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

While differing considerably in details, practically all of these laws are based on the same principles and have the same general characteristics. They have been enacted almost entirely through the influence and at the demand of the regular medical profession. To discuss the numerous laws which have been enacted in the last forty-nine years is impossible. In no state is the original practice act still in force. In each state there has been a succession of laws and amendments enacted making changes from time to time. In the forty-eight states more than 250 separate laws on this subject have been adopted during this period. In 1907, I abstracted and published in the *American Medical Association Bulletin* all of the medical practice acts then in force, and endeavored to summarize the average law on the subject. The synopsis, which I designated as a composite picture of medical legislation at that time, is equally applicable today, as the general character of these laws has changed but little during the last fifteen years.

No sooner were these medical practice laws enacted than there arose many cases which had to be settled by the courts. These involved prosecution of individuals accused of practicing medicine without a license, efforts by the board to revoke licenses once granted or demands, on the part of persons denied licenses, for a review of their cases by the courts, and the securing of what they considered to be their rights. It is significant that in the ninety years from 1780 to 1870, there had been only twenty-eight decisions in this field in all states, while, in the fifty-two years since 1870, there have been more than 800 cases passed on by supreme courts. In the early seventies, the suits involved mainly the rights of homeopaths and eclectics to practice medicine and to be represented on the examining boards. The appearance of the osteopaths in the late eighties caused a large amount of litigation and the rendering of many decisions, just as did the advent of the chiropractors later on. Each new sect as it appeared aroused opposition, prosecution and appeals to the higher courts, with the final rendering of decisions which established the legal status of the sect or cult, whatever it might be.

COURT DECISIONS

To discuss these eight hundred supreme court decisions in detail is impossible. In 1915, the Council on Health and Public Instruction published a digest of supreme court decisions on the state regulation of the practice of medicine, up to that date. In this digest these decisions were abstracted, indexed, analyzed and summarized. The decisions which have been rendered since that time are in the main simply confirmatory of the previous decisions, and do not in any sense alter the principles laid down.

The final decisions of the courts of last resort are recognized as final authority on any legal question. What are the conclusions which can be drawn from the opinions of the various supreme courts on this subject?

They hold that the sole justification for the enactment of medical practice acts is the protection of the public from incompetent and unscrupulous persons; that the state has a right to enact laws making any reasonable standards for the practice of medicine; that the object of such laws is not the benefit of the physician, but the protection of the public; that it is not the function of the state, through either its legislature or its courts, to decide scientific questions or to determine the scientific value of one school or method of practice as compared with another, or to decide the relative value of different forms of treatment; that the sole interest of the state in the practice of medicine is the regulation of medicine as a business; that the legislature is justified, for the public good, in establishing and enforcing reasonable regulations under which such business may be carried on; that the qualifications and conditions exacted must be reasonable and equitable and must be the same for all those who desire the same privileges, and that the function of examining boards is to test the qualifications and knowledge of applicants in order to determine whether they may be properly entrusted with the treatment of the sick.

MEDICAL PRACTICE ACTS

The accumulated experience of the medical profession on this question in the different states for the last fifty years, and the history of the various experiments that have been tried, and of the attitude of the public, the courts and the legislatures, forms an interesting chapter in the history of applied medicine. To discuss them in detail, under present limitations, is impossible. Summing up the situation, we find that after years of effort and experiment, the essential problem is no nearer solution than it was in the beginning.

Each state has on its statute books a medical practice act, which has been secured at great expense of time and labor on the part of physicians. It is in constant need of defense; it is not effective in accomplishing the purpose for which it was enacted; it is not understood or supported by the public for whose protection it was passed; it is of no special value to physicians because it handicaps the honest practitioner, but does not deter the faker or the charlatan, and it does not prevent any new sect, which may arise, from overriding its provisions. The public, feeling that such laws are for the benefit of physicians, is not and never has been especially interested in their enforcement.

By our insistence on the passage of these laws and through keeping their administration in our own hands, we have strengthened and confirmed this public misconception. As a result, we now have a cumbersome and ineffective machinery, supported largely at the expense of physicians, which has to be defended continually against assault, which occupies a large part of our time and energy, which might better be devoted to better purposes, keeps us in a false position before the public and arouses and keeps alive antagonism against the medical profession. The present laws do not accomplish the purpose for which they were created, and the efforts to adopt and administer them have in many states dragged the medical profession into politics and have prostituted our scientific organizations without any compensatory benefit to us or to the public.

Is it necessary to pursue this indictment further? Let us look at the question from an outside point of view and apply it to some other class. Suppose that the owners of automobiles should appear each year before legislatures, asking for the passage of laws restricting the use of automobiles to certain individuals; that they should insist that the membership of all boards and the appointment of all administrative officers in carrying out these regulations should be controlled by automobile owners, and that only those persons who owned a certain kind of automobile should be permitted to have a license. Can you imagine the shout of derision that would go up from the people of the state at such a request? Yet this proposition is identical with the method now existing for the regulation of the practice of medicine.

LICENSES

It seems impossible to disabuse the minds of physicians, who have grown up under the present licensing system, of the idea that a license is an official endorsement by the state of a system of treatment. Evidently, the followers of the various sects have the same idea, since they present bills before legislatures asking for special boards of examiners and special standards of education and qualifications on the plea that they want recognition from the state—as though the legislature were a jury qualified to pass on scientific questions, and the passage of a bill creating a board of examiners for one sect or another amounted to a certificate of merit or an endorsement of the methods followed. Such a conception shows a complete misunderstanding of the legal character of medical practice acts. A license to practice medicine is not a recognition of anything. It is simply a permit to do something. Legally, it is exactly in the same class as a license to run an automobile or to own a dog. No one would claim that an automobile license constituted a recognition of an Overland, a Pierce-Arrow or a Ford as being any better than any other machine on the market. Certainly no intelligent person would claim that a dog license was an endorsement or a recognition of an Airedale, a Boston bull or a collie. They are all of them simply permits by the state to do something which the state has restricted for the public good. A license to treat the sick is simply a permit from the state to carry on a certain business which has been by statute restricted to those holding such licenses. The license is evidence of the fact that they have complied with certain restrictions which the state, for the public good, has seen fit to require.

It is, of course, obvious that if there were only a single school of medicine and a single class of practitioners, there would be no difficulty regarding licenses. The problem of sectarianism is, therefore, inseparably involved in the discussion of the regulation of the practice of medicine. It is characteristic of each generation of physicians to regard the sects and cults of their own day as the only ones that have ever existed. To the physician of today, especially the man under middle age, homeopathy and eclecticism are simply names. Osteopathy is something that has existed throughout his entire professional activity. Chiropractic, as the newest, the most absurd of the many sects in medicine, is the only one which arouses the antagonism of the present generation of physicians. Yet history shows that sects of various kinds have been a constant accompaniment of the medical profession.

CHARACTERISTICS OF SECTS

When the characteristics of all the sects in medical history are tabulated, it will be seen that they follow a surprisingly uniform course. Practically every medical sect, like every religious sect, arises through the peculiar teachings of some individual, who bases a new and strange system of healing on his own fantastic ideas, rather than on the accumulated knowledge, experience and wisdom of the human race. Without going back of the last hundred years, it is only necessary to mention Samuel Hahnemann as the founder of homeopathy, William Thompson in eclecticism, Mrs. Eddy as the high priestess of Christian science, Andrew Still as the originator of osteopathy, and Palmer, the magnetic healer of Davenport, Iowa, who invented chiropractic.

A second characteristic of sectarianism is that each cult starts with a small group of enthusiastic followers, personal disciples of the leader, who throw themselves into the propaganda with all the enthusiasm of religious fanatics. The parallelism between medical and religious sectarianism is indeed very marked. This group of followers grows first through personal contact and later through various methods of promotion.

The third peculiarity is that each sect evolves some new and fantastic theory regarding the cause of disease. Samuel Hahnemann taught that all disease was caused by the itch; Mrs. Eddy found the explanation for all mortal ills in mortal mind; Still taught that the human body was a machine and that all afflictions were due to the dislocation of some part; Palmer went Still one better and taught that all abnormal conditions of the body were due to the dislocation of one of the spinal vertebrae. It is worthy of note in this connection that all of these sects personify disease and regard it as an entity, rather than as any one of a great variety of abnormal conditions; that they all seek to attribute disease to a single cause, and to remove it by applying a single method of treatment.

A fourth peculiarity, common to all medical sects, is that they have a regular order of development and decay. Starting originally with the leader, who is regarded as inspired, the first generation of followers accepts the new method of treatment as a solution of all human ills. Later on, they recognize the limitations of their method and learn by practical experience that there are many conditions to which their methods are not applicable. As time goes on, their teachings are modified by force of circumstances and by contact with the practical world. They gradually drop their fantastic notions; recognize the limitations of their methods; profit by the general knowledge of the medical profession and, in time, lose their distinctive characteristics and merge themselves in the great mass of physicians. This has happened in our own day with the homeopaths and the eclectics. Osteopathic schools are now offering courses in minor surgery, obstetrics and, in some cases, general surgery. In ten or fifteen years from now, it is safe to say that such osteopathic schools as still exist will be giving the best courses they can offer on diagnosis and treatment and, in the next twenty-five years, osteopathy will have become a name without any meaning—just as homeopathy and eclecticism have today.

This, again, is in line with religious sectarianism, which, like medical sectarianism, originates in an individual, is promoted by his immediate disciples, starts out to conquer the world, and eventually settles down into one of the innumerable sects of Christendom. Ask the average Presbyterian who John Calvin was and what the seven points of his theology were, and he couldn't tell you, to save his soul from perdition, even if he knows he is one of the elect. How many Episcopalians know why their church separated from the Church of Rome? How many Methodists can tell you anything definite about John and Charles Wesley, or how many Baptists know why they believe in immersion rather than sprinkling? Twenty-five years from now the Christian science church will be indistinguishable from other orthodox churches. Mrs. Eddy, before her death, recognized the limitations of her own teachings, and advised her followers to consult surgeons in cases of broken bones. The mother church at Boston long since instructed its healers to comply with state and municipal regulations regarding infectious diseases. Christian scientists go to dentists for defective teeth and to oculists for errors of refraction. To expect the followers of either religious or medical sects to be consistent or logical is to expect the impossible. If these people had consistent or logical minds, they would not be sectarians.

THE QUESTION OF PATERNALISM

One of the principal reasons for antagonism to medical practice acts has been the opposition of the followers of these various cults and sects, who felt that their liberty was being interfered with by the enactment and enforcement of medical practice acts. This has given rise to various local movements and, at the time of the agitation for the passage of the Owen Bill in Congress—from 1910 to 1914—gave rise to a national movement known as the National League for Medical Freedom. As is usually the case in sectarian controversies, both the knowledge and the methods of these agitators were open to criticism. At the same time, it cannot be denied that there is a certain amount of justice in their position. Huxley, many years ago, when the British medical practice act was under consideration, stated clearly that it was not desirable for the state to attempt to substitute restrictive legislation for individual judgment on questions relating solely to individual rights, and that it was better, in the long run, for each person to be responsible for his own well-being and to be free from any paternalistic supervision by the state. The courts have recognized in all their decisions that there are three classes who are entitled to special protection. These are, first, the child who is below the age of intelligent judgment and is, in the eyes of the law, an infant and a ward of the state, and as such is entitled to protection. This principle was emphasized by the supreme court of New Jersey in the celebrated case in which the parent, who was a Christian scientist, was brought before the court for permitting his child to die from diphtheria on account of the parent's disbelief in antitoxin. The court, while recognizing the right of the parent to his own belief, denied the right of the parent to sacrifice the child, whose life might have been saved by recognized scientific methods.

The second class entitled to special protection consists of those who, through lack of mental development or through mental affliction, are incapable of exercising sound judgment. The insane and the feebleminded, like the child, are wards of the state and are, as the courts have repeatedly held, entitled to the best care available scientific knowledge can give them.

The third class subject to special consideration, not on its own account, but for the public good, consists of those persons suffering from communicable diseases which may be a source of infection to others. Here the public good demands that they be given such care and treatment as will render them harmless to the community, and this can, if necessary, be carried even to the restriction of their liberty.

But, with the exception of the child, the insane person and the person suffering from a disease dangerous to others, any sane adult who has a bodily affliction which is not a danger to others has a right to control his own body and to take such treatment or refuse such treatment as he may see fit. If he wishes to consult an osteopath, a chiropractor, a Christian scientist, a voodoo doctor, a witch doctor or a pow-wow doctor; if he wishes to treat his rheumatism by carrying a horse-chestnut or a potato in his pocket; if he prefers incantations to scientific treatment; if he likes prayers better than powders, or if he wants charms rather than surgery, he has a perfect right to do as he sees fit, and the state has no right to compel him to submit his body to any treatment that he does not desire. If he errs through ignorance, he must suffer the effects of his own poor judgment, just as he would in any other activity in life. Physicians must recognize this right on the part of the layman, just as they assert their own right to individual judgment on other questions.

BASIS OF INTELLIGENT AND EQUITABLE REGULATION

Does this mean, then, that there should be no regulation of physicians or sectarians? By no means. Undoubtedly, there should be intelligent and equitable regulation by the state for the public good. What, then, is the remedy for the present absurd and unsatisfactory situation? It is for the medical profession to surrender to the public a function and a responsibility which it never should have assumed. If the people, for their own protection, desire to impose certain restrictions on those who wish to treat the sick as a profession for compensation, then it is the business of the public to determine the conditions and administer the machinery by which such regulations shall be carried out. Whether an individual is qualified to treat the sick is an educational and not a sectarian question. Its enforcement should be in the hands, not of physicians, but of the educational authorities of the state.

Having complied with the requirements of the state, which should be as high as they can be made, consistent with the public welfare, and having received a license, each person so licensed should be at liberty to follow any method of treatment or school of practice which he may see fit, subject only to the common law limitations on professional responsibility. Any physician who undertakes to treat the sick is subject, under the common law, to definite liabilities for the character of his treatment and of his services. But there should be one standard for all, and the task of defending such laws and elevating the standard belongs to the public and not to physicians. If the rights of physicians are invaded, then we can go before legislative bodies and frankly and openly fight for our own interests. If the requirements are unfair or unreasonable in any way, then physicians can, with perfect consistency and with a clear conscience, appear before legislative committees and insist that reasonable provisions be adopted. But the protection of the public belongs to the public itself, and it can be safe in no other hands.

It is difficult to understand when or how the fiction arose that the medical profession is a divinely authorized and chosen class, charged with the protection of the public health and public welfare, even against the desires and the wishes of the people themselves. Such a doctrine savors far too much of imperialism to be particularly popular at the present day. Abraham Lincoln was emphatically right when he said he did not believe any man was good enough to govern any other man against his will. I do not believe that any man or any class of men is good enough or wise enough to be charged with the responsibility of protecting the people without their consent. We have in the last fifty years been assuming a burden which did not belong to us. To this extent we have pauperized the people by depriving them of their own responsibility. The sooner this responsibility is returned to the people, where it belongs, the better it will be for the public and the medical profession.

Recognition of these principles has been slowly growing in the last fifteen years. In New York, the regulation of all occupations, professions and trades is under the jurisdiction of the board of regents of the state university. In 1911, Tennessee provided for a board of three educators as a board of preliminary examiners. But there was no general recognition of the duty of the state to regulate professions and trades through a definite department of the state government until 1916, when Illinois adopted what is known as the Illinois Code, creating as one of nine departments of the state government a department of registration and education with an educator at the head, which was authorized to examine and license physicians, surgeons, dentists, pharmacists, nurses, embalmers, optometrists, barbers, midwives, architects and structural engineers. Included in this list, by inference, was the entire group of so-called drugless healers. Nebraska and Idaho have adopted similar laws. The Illinois law today stands as the most complete and logical method for the solution of this vexing problem that has as yet been found. I would commend a careful study of the Illinois Code to all those interested in this question.

CONCLUSIONS

Summarizing the discussion of this subject, we are led to the following conclusions:

1. The regulation of those desiring to treat the sick should be based on educational rather than sectarian standards. Such regulation should be administered by the state educational authorities. For economical and efficient administration, the regulation of all professions, occupations and trades supervised by the state government should be placed in the hands of a single state department, which should have as its head an educator of recognized standing and demonstrated executive ability. This department should have the power to appoint examining and advisory committees for each of the different groups, the general educational standards being under the control of the department, which should also control the actual granting of licenses, as well as prosecutions for violations of the law. In the smaller states, in which the creation of a distinct department of the state government would be difficult, for practical reasons, a board of examination and registration, consisting of three educators of recognized standing with power to appoint examining committees for the different occupations, professions, schools, etc., will best meet the local needs.

2. Whatever machinery for regulation is adopted, it should be recognized that the object for such regulation is the protection of the public, and that the people should pay for this protection as they pay for protection from any other danger. Such laws are emphatically not intended for the restriction of competition among practitioners. It is no more the business of the state to protect a physician against competition than it is to protect a drygoods man, a furniture dealer or a grocer. The only justification for restricting the liberty of any person is the public good. It follows, therefore, that the public should pay for this protection. Any scheme whereby a department or bureau of registration and examination is supported by fees is unfair, in that it places the expense of maintaining such a bureau on those who are restricted for the public good. Fees should be fixed at a nominal figure. All fees received for examinations or licenses should be turned into the state treasury, and all expenses of administering the laws and prosecuting violators should be paid out of the state funds by regular appropriations. Under the present system, in most states physicians are not only unfairly and unjustly restricted, but they are also compelled to pay the cost of their own restriction for the public good, a plan that is manifestly unfair and which should be abolished at the earliest possible moment. The people should pay for their own protection, and they should understand that they are paying for it and that they are entitled to it.

3. A third principle on which the medical profession should insist is that all persons desiring the same privileges should be required to comply with the same educational standards, without regard to the school from which they graduated or the sect to which they belong. Special sectarian standards are simply a back door to the medical profession, by which the sectarian endeavors to secure equal privileges at a lower cost. The moment equal educational qualifications are insisted on, sectarianism will be wiped out, since no one will elect a limited license as a sectarian if, for the same price in time and money, he can secure an unlimited license as a physician. In application, however, the converse of this proposition must also be recognized; namely, that all persons complying with the same standards are entitled to the same privileges. If the osteopath, the chiropractor or the drugless healer desires to perform all the functions of a physician, he should be required to possess exactly the same qualifications and comply with the same standards, but, having complied with such standards, he should then be allowed the same privileges.

It is not anticipated or claimed that the recognition of these principles or the adoption of the method best exemplified by the Illinois plan will result in a medical millennium, any more than the adoption of any other single law. This discussion is presented in the hope that it will, to some extent, throw light on this perplexing situation and will enable those physicians who are interested in better social and professional conditions to secure more satisfactory laws, to profit by the experiences and mistakes of the past, thus relieving the medical profession of the embarrassment and confusion in the public mind under which it has labored for half a century, and, especially, that it will enable physicians, in the future, to conserve their strength and energies for professional and public activities, rather than to dissipate them in the useless and unproductive wrangling of the last half century.

ABSTRACT OF DISCUSSION

Dr. William C. Woodward, Chicago: Much of what has been said is based, it seems to me, on a misapprehension of the status of medical licensing boards. Such a board is not an agency of the medical profession, even though it is made up of physicians. It is an agency of the state, to carry out the will of the people as expressed by the legislature. It owes no duty to the medical profession that it does not owe to every one else in the community, and the medical profession has no right to command or direct its activities. The fact that the people entrust the work of such a board to medical men does not alter its nature or make the medical profession in any way responsible for it. Granted that the legislation enacted to regulate the practice of medicine has been unwise. Many laws we have passed have not represented the acme of wisdom. Are we to repeal them all? Why single out medical practice acts? Possibly we have not yet exhausted our wisdom with respect to medical practice acts, and possibly observation and reflection may invest us with new wisdom. The situation may not yet be so bad as to justify us in saying that the public—the state—is powerless to assist the individual in his efforts to protect himself and his family against medical quackery and fraud. The public has too substantial moral and legal interests in the work of the physician to permit the abandoning of efforts to regulate his qualifications. No one else has so good an opportunity as the physician for executing crimes and then concealing them, and for concealing the crimes of others—blackmail, abortion, the illegal prescribing of narcotics and of alcohol, fraudulent certification of births, stillbirths, illness, injury, insanity, and even of death—the doing or the concealing even of murder. And to suggest that we as physicians abandon our efforts to assist the people in formulating and maintaining proper legal standards for the protection of the public and for the good name of our profession will not appeal, I hope, to the medical profession as rational or even humane. Let down the bars if you will, and who in the coming generations will enter the medical profession? We as physicians are none the less citizens. Our professional relations give us better opportunities than have other citizens to see the danger in medical quackery and to point out how to avert that danger. If we neglect to do so, we shall fail in our duty to our fellow man.

Dr. D. B. McEachern, Chicago: I was very much interested in Dr. Green's discussion, but being of a more philosophical turn of mind, I should like to go back and trace the thing that was responsible for this condition other than the local aspects. Originally the priests of the temples of Aesculapius were the healers of the sick. The priests themselves were responsible for a great deal of the mysterious attitude toward the treatment of disease. Up to a very short time ago, physicians adopted a mysterious attitude in handling people who were ill. I might say, without attempting to antagonize religion, that the close relationship between religion and medicine is responsible for the present outcrop of sectarian medicine. This close relationship has broken down as the people have become rationalized. What is necessary is a comprehensive education of the public and the general practitioner as well, to develop what Zenker calls physiologic thinking. I remember an observation made by the late Dr. Oscar King that strikes me as the basis of it all, which is education. He said, "If you substituted in the teaching of all public schools some of the fundamental sciences, such as biology, John Alexander Dowie would have a hard time to make a living." The thing to do is to start in the public schools and educate the children.

Dr. B. C. Darling, New York: What Dr. Green has said is very true. It has always been hard for me to understand how these cults and sects got their start. They did this because there was no automatic provision for enforcement of the medical practice act. I am interested in the matter on account of the violation of the medical practice act, as radiologists, by roentgen-ray technicians and commercial roentgen-ray laboratories. In New York City the board of health has lately passed an amendment to the sanitary code in which it proposes to issue permits only to those properly prepared to handle roentgen-ray apparatus, and who are duly licensed physicians or dentists. The machines are becoming so powerful that following an improper treatment or diagnostic exposure, burns are more frequent and more severe. Law suits are so common that many insurance companies will not carry the liability insurance, in which case the layman technician or the commercial laboratories are neither professionally nor financially responsible. In such cases the referring physician may become liable to suit for malpractice on account of a burn or diagnostic error. The operator must know enough to protect himself and must know enough to protect the patient and the people living above and below. It is proposed to issue permits only to those qualified to practice medicine or dentistry, and they will be permitted to do only what they ask in the permit; if they ask a permit to do fluoroscopy, that is all they can do. A board of consultants has been established which will work with the board of health. New York State has passed a law making it automatic for the board of regents to cooperate with the attorney-general against irregular practitioners. Besides this, we should have annual registration, as recommended by Dr. Augustus S. Downing of the board of regents. It is the duty of the public rather than of the medical profession to see that their laws are enforced and their interest should be solicited. While we have had medical practice acts, the public has had only a false security and protection, for the act is never enforced.

Dr. Frederick R. Green, Chicago: I did not say that the present method of regulating the practice of medicine is illegal, but that our present laws are not doing what they were intended to do. There never has been any sect, no matter how absurd or ridiculous, that sooner or later has not been able to get so-called legal recognition and authority to do what sectarians all want to do, viz., to treat patients for a fee. So long as the public and the legislatures regard these laws as purely for the benefit of physicians, sectarianism can never be controlled. Laws which are not backed up by public sentiment never amount to anything. I should like to tell you how the question has been worked out in Illinois, where a department of registration and education has been established whose function it is to regulate all occupations, professions and trades which the state restricts. There is, of course, no question as to the right of the legislature to create a board made up of physicians and, when appointed, they are acting as individual citizens and not as physicians. In the last forty-nine years the medical practice acts have not accomplished that for which they were intended, which is to exclude the unfit and admit those who are fit. The futile attempts to enforce those laws are putting us in a false position before the public and taking a large amount of time and money in each state to defend the medical practice laws. If the people want protection against undesirable men who practice medicine let them pay for it, just as they pay for police protection and protection against fire. Our efforts to enforce unsound laws put us in a false position before the public and prevent the proper appreciation of our efforts for the public good. Very few physicians take any interest in this question, yet it is of vital importance both to the profession and to the public.

Russia's Great Epidemics.—Of all countries in eastern Europe, Russia has suffered most from epidemics during the last four years, during which time about 7 million cases of typhus and relapsing fever, without counting the figures for the red army, were officially reported. The culminating point was reached in 1919 and 1920, when 4,917,000 cases of typhus and 1,259,500 of relapsing fever were officially recorded. The official figures, however, do not represent the total incidence, and must be multiplied by at least 2½ in order to obtain an approximate picture of the situation.—*Epidemiological Intelligence, Bulletin No. 3, Health Section, League of Nations,* June, 1922.

Clinical Notes, Suggestions, and New Instruments

REPEATED PERFORATIONS OF SMALL INTESTINE DUE TO FOCAL INFECTION

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History.—A woman, aged 40, was first admitted to the hospital, Sept. 17, 1918, because of general abdominal pain, most marked in the region of the right iliac fossa, with abdominal distention, rigidity and vomiting. The family history was negative. The patient had been married eighteen years, but had no children, and there had been no miscarriages. The menses, which began at 12, were of the twenty-eight day type, regular, with slight pain and backache on the first two days, the flow lasting from four to six days; there was no leukorrhea. The patient had always enjoyed good health and had never had any injuries; she had had most of the diseases of childhood. She drank coffee and tea moderately, and did not use alcohol or tobacco. The tonsils had been removed about two years previously, and about eighteen months before, a small cystic tumor had been removed from the right breast under local anesthesia. The pathologic report was that the tumor was benign.

The patient said that she had been perfectly well until the night before admission, except for furunculosis of the external auditory canal about ten days or two weeks prior to her present illness, and that she had not been feeling quite up to her normal standard for a day or two, had done a hard day's work of house cleaning, was very tired when she ate her supper, and had felt some slight abdominal pain. She went to a moving picture show thinking it would rest her; while she was in the theater, the abdominal pain became so severe that she had to leave. After reaching home she drank some hot water and soda, vomited, went to bed, and applied a hot water bag to the abdomen. The pain rapidly grew worse and she called her family physician, who administered a hypodermic injection of morphin. Her physician saw her the next morning. She had had a bad night, with considerable nausea and vomiting, and the pain had increased in severity. Another hypodermic injection of morphin gave no relief, and another physician was called in consultation. These two physicians decided that she had appendicitis and sent her to the hospital for immediate operation. Her face was ashen; the temperature was 100; pulse 120; respirations 36. Examination of the heart and lungs was negative. The abdomen was greatly distended and rigid. Blood count revealed: leukocytes, 17,800; polymorphonuclears, 88 per cent. The urine was clear and acid, with a specific gravity of 1.004, it contained a faint trace of albumin and an occasional pus cell, but no sugar. The preoperative diagnosis was ruptured appendix with peritonitis, and immediate operation was advised.

First Operation.—A long right rectus incision revealed free pus and an appendix normal except for congestion. The uterus, tubes and ovaries were normal except for a small fibroid on the fundus. There was a large quantity of free pus in the pelvis. The abdomen was greatly distended, and small intestine, with fibrinous exudate on the ileum, escaped from the wound. From 12 to 16 inches from the ileocecal valve, a perforation about the size of a match head was found. This perforation was surrounded by an indurated area about the size of a dime. An attempt was made to close the perforation with a purse string suture, but this pulled out. The perforation was then closed with interrupted silk Lembert sutures. A rubber drain was put into the pelvis. The wound was closed in layers, and the skin was closed with figure-of-eight silkworm-gut sutures.

The postoperative diagnosis was ruptured ulcer of the ileum from 12 to 16 inches from the ileocecal valve, of undetermined origin.

The patient had a rather stormy convalescence. She left the hospital six weeks after the operation, entirely well.

Second Operation.—April 16, 1919, seven months after her first admission, she was readmitted to the hospital on account of pain in the abdomen. She had been well since the operation for ulcer of the intestine in September, except that she had complained of gas pains and had had occasional attacks of cramps and nausea. Physical examination was practically negative except for some tenderness in the lower abdomen, more marked over the region of the appendix. Blood examination revealed: leukocytes, 12,500; polymorphonuclears, 70 per cent. Examination of the urine was negative. Temperature, pulse and respirations were normal. Roentgenograms of the gastro-intestinal tract revealed that the stomach, small intestine and colon were normal. There was marked tenderness over the appendix, which was club shaped, with somewhat narrowed lumen in the proximal portion. The roentgen-ray diagnosis was chronic appendicitis. On these findings we made a diagnosis of chronic appendicitis with possible adhesions from the previous operation.

Operation by suprapubic midline incision was performed. The appendix, which was bound down with adhesions, was removed. Several little strings of adhesions of fibrous bands about the size of a knitting needle, extending from the parietal peritoneum to different parts of the small intestine, were released. A Lane kink was also released. Careful search of the intestine for the previous perforation was made, but the intestine appeared to be perfectly normal, and the location of the former perforation could not be found. The wound was closed in the usual manner without drainage. A small cyst the size of a guinea egg was removed from the upper and outer quadrant of the left breast.

The postoperative diagnosis was subacute appendicitis, with a few adhesions resulting from the previous operation, and a mammary cyst. Microscopic examination of this cyst revealed that it was a retention cyst of the breast. Seventeen days after admission the patient was dismissed in good condition.

Third Operation.—Oct. 26, 1919, six months after the second operation, and one year and one month after the first perforation was closed, the patient was readmitted to the hospital. The chief complaint was severe abdominal pain which began that morning, with sudden pain in the lower abdomen, nausea, vomiting, prostration and abdominal distention. On admission, the temperature was 98.4, pulse 100, respirations 30. The blood count was: leukocytes, 21,000; polymorphonuclears, 89 per cent.. The urine was straw colored, cloudy and acid; the specific gravity was 1.017; there was a trace of albumin; sugar was negative; there were from 18 to 20 pus cells in the field; blood was negative; there were a few bacteria. The preoperative diagnosis was perforation of the small intestine. The patient was operated on a few hours after admission, which was about twelve hours after the beginning of this attack. It was later elicited that about two weeks prior to this attack, the patient had had furuncles in the external auditory canal.

Operation by right rectus incision was performed. When the peritoneal cavity was opened, dense adhesions were found. The small intestine bulged into the wound, and immediately a loop with a perforation appeared. This hole was the size of a pea, with a large indurated area around it the size of a dollar. The intestine was resected well beyond the indurated area. Lateral anastomosis was made, and a split rubber drain passed into Douglas' culdesac. The patient left the operating table in good condition. The drain was removed in three days. The temperature was practically normal at the end of a week, and the patient left the hospital in good condition seven weeks after admission.

The pathologic report was: Piece of intestine resected; tissue from ulcer of intestine, simple inflammatory; small round type of cell predominating; no malignancy.

The blood Wassermann reaction, the Widal test for typhoid, Dryer's test for typhoid, blood culture for typhoid and the tuberculin test were negative.

Fourth Operation.—Jan. 17, 1921, about one year and three months after her last admission and about two years and four months after the first perforation was closed, the patient was readmitted to the hospital. About two weeks prior to admission, she had two or three furuncles in the external auditory canal. About the time this furunculosis was subsiding, she began to have more or less discomfort and abdominal pain with some distention. She came to the hospital for observation and roentgen-ray examination. Physical examination was negative except that there were indefinite soreness and tenderness in the abdomen, slight distention and no rigidity. Blood examination on the morning of the 17th revealed: hemoglobin, 75 per cent.; leukocytes, 7,800; polymorphonuclears, 60 per cent.

The day following admission, roentgen-ray examination was made of the teeth, chest and abdomen. There was a slight area of infection around the roots of the upper right first bicuspid, but none of the other teeth showed any definite areas of infection around the roots. Chest examination was negative. There was no evidence of any lesion of the small or large intestine. The patient was allowed a light lunch. Soon after this she suddenly developed acute pain in the abdomen, nausea and vomiting, distention and marked muscular rigidity. Diagnosis of perforation of the small intestine was made a few hours later. Blood examination shortly after she complained of the first violent abdominal pain revealed: leukocytes, 12,400; polymorphonuclears, 80 per cent. Three hours later another blood count revealed: leukocytes, 12,600; polymorphonclears, 88 per cent.. The urine was negative except for a faint trace of albumin. The blood Wassermann reaction was negative.

Operation by right rectus incision was performed. When the peritoneal cavity was opened, dense adhesions were found as a result of the former operations. The site of the former anastomosis was found. Two perforations were present just outside the previous line of anastomosis. Considerable barium was free in the peritoneal cavity and running freely out of the perforations. This old anastomosis was resected, and another lateral anastomosis was made. Some adhesions were released. The rectus muscles had separated, and no attempt was made to bring them together. A rubber drainage tube with a gauze wick was inserted at the lower angle of the wound. The postoperative diagnosis was: perforation of the intestine, which was the third one within the last three years; the cause of perforation not determined. The patient made rapid and uninterrupted recovery, and left the hospital in nineteen days.

A specimen of the intestine submitted to Dr. A. C. Broders for pathologic study gave no evidence of tuberculosis, malignancy or *Endameba histolytica*. It appeared to be a simple inflammatory ulcer. Dr. Broders believed the condition a straight-out inflammatory process due to a focus of infection.

Two weeks later I accompanied the patient to the Mayo Clinic for observation and advice in order that we might prevent, if possible, any future perforations. She was carefully studied there for about two weeks. Tests for tuberculosis, malignancy, amebas, infective foci and other pathologic conditions were made. Roentgen examination revealed root abscesses of two teeth. These teeth were removed. Otherwise the examinations were negative except that she had a slight ventral hernia resulting from drainage and many operations.

COMMENT

The interesting feature of this case is the cause of the repeated perforations. The family history and previous history of the patient were negative. She had never had any illness of any consequence prior to the first perforation in 1918. Careful and repeated examinations for tuberculosis, syphilis, endamebas and typhoid fever were all negative. It is interesting that from one to two weeks prior to each perforation she had furunculosis of the external auditory canal; that the pathologic reports of the sections of the resected intestine showed it to be inflammatory; that she had root abscesses of two teeth at the time of her examination at the Mayo Clinic, and that she had an infection around the roots of the upper right first bicuspid when a roentgenogram was made on the day of the last perforation.

We can say definitely that these perforations are inflammatory in character and result from a focus of infection somewhere. The two foci of infection that were known to exist were the furuncles of the external auditory canal and the abscessed teeth. I myself am inclined to think that the perforations resulted from the furunculosis. The consensus at the Mayo Clinic was that in all probability the infection came from the teeth.

Phemister[1] says that skin foci are important as a source of hematogenous staphylococcus lesions, and reports nineteen cases, briefly summarized and grouped according to the structures involved, which he has observed, with two exceptions, in connection with various services of the Presbyterian Hospital in the twenty months previous to September, 1921. In all instances the staphylococcus, usually *Staphylococcus aureus,* but the variety was not always stated, was the only organism in cultures from the pus obtained at operation. In a few cases it was obtained in cultures from the skin focus, but usually the skin lesion was healed before the patient entered the hospital. The only definite focus of infection for entrance of the organism was in the skin, and there was no history of a recent focus in another region, except in one case.

It seems, therefore, these nineteen cases of blood-borne infection, reported by Phemister, directly traceable to primary skin infections, lend weight to the very strong probability that the primary focus in the case herein reported was due to an infection transmitted through the blood stream from the furuncles in the external auditory canal.

ACUTE DELIRIUM APPARENTLY DUE TO BROMIDIA POISONING

A. E. Bennett, M.D., Philadelphia

History.—Mrs. R. B., aged 32, white, actress, admitted to the service of Dr. M. H. Bochroch in the psychopathic wards of the Philadelphia General Hospital, June 5, 1922, was unconscious, May 30, when her husband arrived home in the evening. In about ten minutes she revived, and talked rationally. That night she became delirious and talked at random, but had no fever. The next day she imagined that she was receiving electric shocks; she heard voices saying bad things about her, and thought that people were persecuting her father, and also trying to kill her with radio. No visual hallucinations were present. The history was unimportant until December, 1920, when the patient developed a pelvic inflammatory condition. At this time a physician prescribed Bromidia for insomnia. The patient took from one-half to 1 ounce daily of her own accord for nervousness, sleeplessness and pain for eighteen months.

On admission, the patient's mental status was that of a delirious reaction. She was confused, disoriented as to time, showed a memory loss for recent events, and her attention could not be fixed. In addition, many schizophrenic phenomena were present; she answered voices, and felt that people spoke about her, calling her bad names. She also spoke of radio causing her to receive electric shocks, and felt that people were trying to kill her father and brother.

Examination.—A complete physical and neurologic examination revealed nothing abnormal except moderate emaciation and pupils sluggish to light and slightly irregular.

Complete laboratory examinations were made. Repeated urinary examinations were negative. The blood picture was that of a moderate secondary anemia, with normal leukocyte and differential count. Blood and spinal fluid Wassermann tests were negative, as were cell counts, and globulin and colloidal gold tests.

Treatment and Course.—The patient was put on a forced high caloric diet with forced liquids. Hydrotherapy, in the form of continuous baths morning and afternoon, was given to allay excitement. Alkaline diuretics were given, and sodium cacodylate intramuscularly, along with ferrous carbonate after meals. The patient was afebrile during her entire stay of four weeks in the hospital. In about ten days her hallucinations disappeared; at times she would be rational, and at other times confused. By July 26, she had improved remarkably; the sensorium was entirely clear, and she showed excellent insight.

During her convalescence, the patient stated that her trouble began with constantly hearing voices; next her surroundings appeared of various colors. She felt as though some one was playing violet rays on her; at times she saw flashing lights before her eyes. At other times she felt that she was receiving electric shocks and that people were persecuting her father and brother. She stated that the voices stopped first after her admission; at times things would seem normal, then again confused.

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[1] Phemister, D. B.: Hematogenous Staphylococcus Infections Secondary to Foci in the Skin, J. A. M. A. 78: 480 (Feb. 18) 1922.

Telling of taking Bromidia, she stated that it never was a habit. One teaspoonful made her drowsy, 2 teaspoonfuls wakened her, and a larger dose was required for sleep. First she felt depressed and then exhilarated, forgetting her pain and feeling happy.

The patient's weight on admission was 90 pounds (41 kg.); when discharged, 95 pounds (43 kg.). When seen two weeks later in the neuropsychiatric clinic, she felt and appeared perfectly well, and weighed 110 pounds (50 kg.).

COMMENT

The interest in the case lies in the facts that:

1. It represents a case of delirious reaction, due to taking large doses of the proprietary preparation Bromidia, over a period of eighteen months.
2. Difficulty in diagnosis might have arisen without the history, since the case presented many schizophrenic phenomena, and it illustrates how an incorrect diagnosis of dementia praecox may be made.
3. The preparation Bromidia was passed on unfavorably by the Council on Pharmacy and Chemistry,[1] and three deaths were reported due to poisoning. "S. Q. Lapius,"[2] in 1918, again pointed out the dangers of its indiscriminate use.

Philadelphia General Hospital.

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[1] Bromidia, J. A. M. A. **72:** 1573 (May 16) 1914.
[2] Shotgun Nostrums, J. A. M. A. **70:** 642 (March 2) 1918.

TWO CASES OF FOREIGN BODY IN LEFT BRONCHUS REMOVED ENDOSCOPICALLY

M. R. WALTZ, PH.B., B.S., M.D., FORT SMITH, ARK.

Removal of foreign bodies by the endoscopic method is relatively common, but reports of these cases have not entirely lost interest. The cases reported here are of slightly added interest because of the location of the foreign bodies in the left bronchus and not in the right, as we usually expect them to be because of the anatomic configuration of the bronchi; also these cases happened to be consecutive.

CASE 1.—A school girl, aged 7, was playing with some brown beans seven days before I saw her. She had one in her mouth when her cousin suddenly tickled her by "grabbing her ribs," causing her to inhale forcibly, drawing the bean down. She coughed considerably, her respirations had been rapid since then, and she complained of pain in the left side of the chest, and fever. The previous history was generally negative. On examination the temperature was 100, pulse 114 and respirations 50. The examination was generally negative except for chest findings. The left chest expanded only slightly on inspiration, and seemed to be fixed. Percussion was dull over the whole left side, and resonant over the right. No breath sounds were heard on the left side; a few râles on inspiration were heard on the right.

Fluoroscopic examination revealed a small irregular shadow in the left descending bronchus. This was not very plain, but seemed to be a foreign body. No air entered the left lung on forced inspiration. The diaphragm did not move on deep breathing.

The bronchoscopic examination was made under general anesthesia because we could not control the child under local. By means of an Ingals laryngeal spatula, a 7 mm. Jackson bronchoscope was passed into the trachea and down to the bifurcation. The right bronchus was examined, with negative findings. In the left bronchus, the mucosa was considerably swollen, and no divisions of the main bronchus could be made out, but apparently it ended in a blind pocket about half an inch to an inch from the trachea. Fibrin covered the walls. Inferiorly there was a resisting, rounded white mass which could not be grasped with Bruening forceps. After considerable work and time, a piece of it was withdrawn with the bronchoscope and forceps, which proved to be about one half the valve of a bean without the hull. The bronchoscope was introduced again and another attempt made to grasp the bean. This time the forceps caught the hull, and hull and bean were removed with the bronchoscope and forceps. Breath sounds were immediately heard over the whole lung.

Following the removal, considerable laryngeal dyspnea was encountered owing to swelling, but this was kept under control with an epinephrin spray. The lung findings gradually cleared up, and the child went home on the seventh day.

CASE 2.—A baby, aged 9 months, crawled to the back kitchen steps, six days before, and was seized with a sudden violent coughing spell, which lasted for several minutes. The mother stated that some watermelon seeds had been swept out the door, but none could then be seen. The baby had two more attacks of coughing that day and several the next. On the fourth day, a chest examination revealed many coarse moist râles in both lungs, more in the lower lobes and left side. Roentgenograms and fluoroscopic examination revealed nothing. The baby was allowed to go home to await developments, as no definite diagnosis was possible at that time. Three days later the baby was brought back with the history that the coughing attacks had increased in frequency to about every thirty or sixty minutes. The findings on chest examination were about the same as before, with the addition that a sound, as though air were going through a narrow opening, was now heard over the left hilum. At this time the count of white blood corpuscles was 24,000, with a normal differential, and the temperature was 99.6 F. The child was referred to me for bronchoscopic examination.

After cocainization of the pharynx and larynx with an application of 20 per cent. cocain, by means of a small laryngeal spatula, a 4 mm. Jackson bronchoscope was passed into the trachea. The right bronchus was normal in appearance. In the left bronchus, the mucosa was inflamed and slightly edematous. Just visible in the descending portion of the left bronchus was the germinal end of a watermelon seed. With Bruening forceps the seed was grasped, and the bronchoscope, forceps and seed were removed together. The time was from two to five minutes.

The baby was slightly cyanotic for a few minutes afterward, but soon regained a healthy color, and was taken home the next morning.

Cooper Clinic.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

PYRAMIDON (See New and Nonofficial Remedies, 1922, p. 251).

The following dosage form has been accepted:

Pyramidon Tablets, 5 grains.

NOVOCAIN (See New and Nonofficial Remedies, 1922, p. 36).

The following dosage forms have been accepted:

Novocain and L-Suprarenin Tablets "H": Each contains novocain, 0.06 Gm. (1 grain), and l-suprarenin synthetic, 0.00006 Gm. (1/1,000 grain).

Novocain Solution 1 Per Cent. Ampules: Each contains novocain, 0.06 Gm. (1 grain), sodium chloride, 0.036 Gm. (½ grain), and distilled water, 6 Cc. (90 minims).

RADIUM CHLORIDE-United States Radium Corporation (formerly, Radio Chemical Corp.; see New and Nonofficial Remedies, 1922, page 261).

The following dosage forms have been accepted:

Ampules Radium Chloride, 2 Cc.-United States Radium Corp. (radium element, 5 micrograms).

Ampules Radium Chloride 2 Cc.-United States Radium Corp. (radium element, 10 micrograms).

Ampules Radium Chloride, 2 Cc.-United States Radium Corp. (radium element, 25 micrograms).

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SATURDAY, SEPTEMBER 23, 1922

INORGANIC NUTRIENTS AND EYE DISEASE

The reference of specific pathologic lesions to the invasion of harmful micro-organisms into the body has become so common in these days of modern bacteriology that other pathogenic factors in disease are sometimes likely to be overlooked and often to be undervalued. The comparatively recent history of the few so-called deficiency diseases illustrates the struggle of investigators to exclude bacteria as the primary etiologic agents in such conditions as scurvy, rickets and beriberi. The scientific debate may still be followed today in the case of pellagra, for which several views are still being championed by students whose reputation entitles them to an unprejudiced hearing. The idea that a dietary deficiency of vitamins may bring about disorders in the body has rapidly won adherents, and may fairly be regarded as a permanent gain to the theory and practice of medicine.

So little attention is ordinarily paid to the inorganic ingredients of our food that the conception of upsets in the mineral metabolism with consequent localized defects is not so easily appreciated. McCollum, Simmonds and Becker[1] of the Johns Hopkins University have recently discovered that certain species of animals which are growing fairly rapidly and present a moderately well nourished appearance may nevertheless develop a type of ophthalmia that is amenable to treatment by suitable changes in the diet. This newly recognized form of "sore eyes" is not identical with the xerophthalmia now generally believed to be associated with a deficiency of vitamin A in the diet, for it is not curable by administration of the latter. The Johns Hopkins experimenters who have discovered the second type of ophthalmia believe it to be caused in rats by an unfavorable relationship between certain inorganic elements in the food of the animals.

In its general manifestations this eye malady is indistinguishable from the ophthalmia due to lack of vitamin A. The one constant dietary factor which operated in the experiments under discussion was a high content of chlorin. McCollum and his associates regard it as possible, however, that a high sodium content in the diet may contribute to cause the pathologic condition. They admit, further, that perhaps the provision of excessive amounts of certain other inorganic elements may intensify the effect of chlorin or sodium or both in hastening the onset of the eye disease.

Obviously, it will not be permissible to apply these experimental findings without clinical study of human disease. It is now well known that certain species may be peculiarly susceptible to particular deficiencies. As Mitchell[2] has pointed out in reference to vitamin studies, experiments are performed on animals chosen particularly because they are known to be readily susceptible to a deficiency of this or that vitamin. One is therefore by no means always justified in transferring to man the conclusions arrived at through such animal tests. Nevertheless, the demonstration of a biologic interrelation of salt effects in mammalian nutrition is of itself of sufficient significance to direct the attention of investigators of human disease to its possibilities for man.

A SPECIFIC ANTIRACHITIC VITAMIN

Thanks to the active interest of a number of investigators both in this country and abroad, the study of rickets has made noteworthy progress within the last five years. It has long been appreciated that unless lime is available, bones cannot manifest a normal growth and development; but the more recent researches have emphasized that the dietary supply of calcium is only one of the factors that play a physiologic part in the deposition of this element in the osseous tissues. Phosphorus must likewise be available; but besides this and the possible disturbances in the balance of the inorganic elements in the diet whereby their relative proportions become unsuitable for the nutritive functions, there are still further influences that may affect the well-being of the bones. The history, both clinical and experimental, of the use of cod liver oil in connection with skeletal development attests the indisputable value of certain naturally occurring fats in this respect; and the trend of scientific studies of the past decade has been to implicate vitamin-like substances in the beneficial reactions.

The fundamental facts which have led to the conclusion that some as yet unidentified dietary component, tentatively designated as vitamin A, or fat-soluble A, is essential to the organism during the period of growth at least, have often been rehearsed in The Journal.[3] Vitamin A is present, as might be expected, in milk and eggs, which represent the food of early growth. Aside from failure to make adequate gains of weight, the lack of vitamin A is known to manifest itself specifically, in certain species at least, by a variety of abnormalities of the eyes commonly termed xerophthalmia.[4] Pure cod liver oil is rich in something which prevents or cures such ophthalmias;[5] and it is notably efficient as an antirachitic agent. Consequently, there has been a temptation, though by no means a logical necessity, to conclude that the same dietary factor, vitamin A, is responsible for both the antixerophthalmic and the antirachitic potency of cod liver oil.

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[1] McCollum, E. N.; Simmonds, Nina, and Becker, J. E.: On a Type of Ophthalmia Caused by Unsatisfactory Relations in the Inorganic Portion of the Diet: An Ophthalmia Not Due to Starvation for Fat-Soluble A, and Not Curable by Its Administration, J. Biol. Chem. **53:** 313 (Aug.) 1922.

[2] Mitchell, H. H.: The Necessity of Balancing Dietaries with Respect to Vitamines, Science **56:** 34 (July 14) 1922.

[3] Some Properties of the Fat-Soluble Vitamin (Fat-Soluble A), editorial, J. A. M. A. **73:** 1066 (Oct. 4) 1919; The Nature of the Fat-Soluble Vitamin, ibid. **75:** 544 (Aug. 21) 1920; The Loss of Antiscorbutic Potency of Foods, ibid. **76:** 1577 (June 4) 1921; Vitamin A and Rickets, ibid. **77:** 383 (July 30) 1921; The Origin of "Vitamin A," ibid. **78:** 352 (Feb. 4) 1922.

If this deduction were valid, all those food products which are rich in vitamin A should promote the cure of rickets when all the other dietary factors are made adequate. Recent experiments, however, have raised serious doubt as to the identity of vitamin A with the antirachitic factor. Thus, McCollum and his associates[6] have concluded that cod liver oil contains in abundance some substance which is present in butter fat in only very slight amounts, and which exerts a directive influence on bone development, enabling animals to develop with an inadequate supply of calcium much better than they could otherwise do. They add that this substance is apparently distinct from fat-soluble A, which is essential for growth and which is associated definitely, as already stated, with the prevention of ophthalmia.

In harmony with this is the more recent demonstration that coconut oil, for example, which does not contain this vitamin A, furnishes something which increases the efficiency of animals to utilize a low supply of calcium, although it will neither prevent nor cure xerophthalmia. Furthermore, the fat-soluble A can be completely destroyed in cod liver oil by oxidation without loss of the substance which plays such an important part in bone growth.[7] Cod liver oil must therefore be assumed to contain at least two distinct nutritive properties aside from its value as a fat having a high degree of digestibility.[8] The Baltimore investigators are convinced that the power of certain fats to initiate the healing of rickets depends on the presence in them of a substance which is distinct from vitamin A. In other words, we are told that the now available facts demonstrate the existence of a fourth vitamin (in addition to the already familiar A, B and C factors) whose specific property, so far as can at present be conjectured, is to regulate the metabolism of the bones. Let us hasten to add that cod liver oil is not the exclusive source of antirachitic potencies.

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[4] Mori, Shinnosuke: The Primary Changes in the Eyes of Rats Which Result from Deficiency of Fat-Soluble A in the Diet, J. A. M. A. **79**: 197 (July 15) 1922.

[5] Osborne, T. B., and Mendel, L. B.: The Influence of Cod Liver Oil and Some Other Fats on Growth, J. Biol. Chem. **17**: 401, 1917.

[6] McCollum, E. V.; Simmonds, Nina; Shipley, P. G., and Park, E. A.: Studies on Experimental Rickets, XII, Is There a Substance Other than Fat-Soluble A Associated with Certain Fats Which Plays an Important Rôle in Bone Development? J. Biol. Chem. **50**: 5 (Jan.) 1922.

[7] McCollum, E. V.; Simmonds, Nina; Becker, J. E., and Shipley, P. G.: Studies on Experimental Rickets, XXI, An Experimental Demonstration of the Existence of a Vitamin Which Promotes Calcium Deposition. J. Biol. Chem. **53**: 293 (Aug.) 1922.

[8] Devel, H. J. Jr., and Holmes, A. D.: Digestibility of Cod Liver, Java-Almond, Tea-Seed, and Watermelon-Seed Oils, Deer Fat, and Some Blended Hydrogenated Oils, Bull. 1033, U. S. Dept. Agric., July 27, 1922.

THE WASSERMANN AND PRECIPITATION TESTS

Although numerous modifications of the Wassermann test have been proposed, an efficient simplification is still wanting. The entanglement of amboceptor, complement, antigen, serum and cells constitutes a Gordian knot which biochemists and serologists have failed to unravel in sixteen years. Pipetting, diluting, titrating and injecting are tedious, technical procedures. Iceboxes, centrifuges, incubators, shaking machines and animals are expensive and cumbersome equipment. Nevertheless, complexities and encumbrances have failed to obscure the value of the test, and have charmed rather than discouraged investigators. Recently, after years of study on standardization, Kolmer[1] adopted a complement-fixation technic less simple than the methods in use heretofore. His primary incubation period is from fifteen to eighteen hours. The antigen is a cholesterolized and lecithinized alcoholic extract of the dried powder of several heart muscles. The test unit of antigen is ten antigenic units, and this amount is at least twenty times less than the anticomplementary and hemolytic units. Schamberg and Klauder,[2] in a series of 2,000 tests, found the Kolmer technic distinctly more sensitive than the older methods. They observed no false positive reactions. Shivers,[3] in a series of 320 tests, likewise found it more sensitive and reliable, and states that it gives positive reactions earlier in primary syphilis, and is much slower in becoming negative when the patient is under treatment. It would seem that Kolmer has succeeded, at the expense of simplicity, in increasing the efficiency of the complement-fixation test, although it is a disappointment to learn that simplification of the test was apparently impossible. If generally adopted, Kolmer's technic will commit the serologic diagnosis of syphilis definitely to the trained worker and the highest type of laboratory. The Wassermann test will be, as it is to some extent now, a full-time job. Whatever happens, it will not be discarded until an equally dependable but simpler test has been introduced.

The time, labor and expense involved in the complement-fixation test has led to the proposal of various other tests for the diagnosis of syphilis. Meinicke, in 1917, and Sachs and Georgi, in 1918, introduced procedures which employ only serum and antigen. In these tests the end-result with a positive serum is a precipitate. Their difficulty is a forty-eight hour incubation period, during which the serum frequently becomes contaminated, and thus leads to false interpretations. Wang[4] also proposed recently a precipitation test. His antigen shows a slight turbidity on dilution with physiologic sodium chlorid solution, and thus renders doubtful the interpretation of weak reactions. Still more recently, Kahn[5] introduced a precipitation test which is relatively free from the foregoing objections. A definite precipitate appears in Kahn's test within five minutes in nearly 80 per cent. of serums giving a four plus reaction with the Wassermann test. While this is a distinct advantage, the final readings, especially of the weaker serums, are not made until the following morning. Kahn claims that his method is more sensitive than the Wassermann test in hereditary syphilis and in treated cases of this disease. Keim and Wile,[6] in a series of 350 unselected cases in which the Wassermann and Kahn tests were made side by side, found that the latter compared favorably in sensitiveness with the Wassermann test. Finally, Herrold[7] has proposed a simple modification of the Kahn test in which a contact precipitation, or ring, appears at the juncture of serum and antigen. The final reading is taken after one hour. In a comparative test with 244 serums, the complement-fixation, the Kahn, and the ring precipitation tests agreed in 95.5 per cent. of the serums. The final determination of the value of the precipitation tests can be made only after a large number of trials, especially with doubtful serums, but it appears that the serologic diagnosis of syphilis has been simplified as well as sensitized.

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[1] Kolmer, J. A.: A New Complement-Fixation Test for Syphilis Based upon the Results of Stúdies in the Standardization of Technic, Am. J. Syph. **6**: 1 (Jan.) 1922.

[2] Schamberg, J. F., and Klauder, J. V.: M. Clin. N. Am. **5**: 667 (Nov.) 1921.

[3] Shivers, C. H.: The Clinical Value of the Kolmer Complement-Fixation Test for Syphilis, Arch. Dermat. & Syph. **6**: 344 (Sept.) 1922.

[4] Wang, C. Y.: A Precipitation Test for Syphilis, Lancet **1**: 2 4 (Feb. 11) 1922.

Current Comment

COLLECTION AGENCIES

Some weeks ago The Journal published in the Propaganda Department two short articles, each dealing with a collection agency about which complaints from physicians had been received. These articles, apparently, stimulated many physicians who had had unpleasant experiences with these and other collection agencies to write to The Journal. From these reports it seems there are two tricks practiced by certain agencies that are especially exasperating. The first is that of incorporating in a long and verbose contract a clause, easily overlooked by the physician, to the effect that, should the physician wish to withdraw any of the accounts he has turned over to the agency, he must pay the agency the full commission on each account. Letter after letter has come in, from physicians who have signed such contracts, complaining that their delinquent patients have been bombarded with crude form letters which have simply aroused ill feeling to the point where the physician would rather cancel the debt than continue "dunning." He finds, however, that he cannot do so without paying to the collection agency an amount in cash equal to the commission this agency would have received had it enforced payment in full of the account. Another scheme that is much resented by physicians is that of obtaining accounts under false representations. A representative of a collection agency comes into town and assures the physician that his company does *personal* collecting and states, or leads the physician to infer, that the entire business of collecting the old accounts will be done by a representative of the agency through personal solicitation. After the accounts have been turned over the physician finds, to his cost, that the concern employs the usual series of stock dunning letters, most of them of such a character as to arouse resentment in the debtor rather than cause him to settle his account. There is no recourse, however, because the misrepresentation has been verbal, usually without witnesses, and the contract which the physician signs contains nothing to indicate how collections will be made. But all the fault is not on the side of tricky collection agencies. Too many physicians sign contracts with these concerns without giving due thought and study to the contract. It is not a bad plan when these gentry come around to tell them to leave a copy of their printed contract for twenty-four hours so that it may be studied and then come back for a decision. Meanwhile the physician may consider whether or not, in the long run, he will not do as well by employing a local concern.

THE DYNAMOMETER IN MEDICINE

To any one who considers the important part played by muscular efficiency in human welfare, the desirability of having some reliable objective method of evaluating the working power of the contractile tissues must be obvious. Those who recall the introduction of the human ergograph by the Italian physiologist Mosso nearly forty years ago will doubtless confess a disappointment in the outcome of studies with this ingenious device. Aside from a few physiologic investigations indicating the influence of special environmental factors on the power of certain muscles, little has been contributed by its employment to our knowledge of muscular function. The dynamometer also has had a relatively long history of application, primarily by physical trainers who were interested in securing some sort of measure of the success of their efforts. "Strength tests" failed to excite any serious clinical interest, although they have found a place in the technic of gymnastic training. The need of a reliable criterion of the degree of muscular impairment in surviving sufferers from infantile paralysis led Martin[1] to devise a dynamometer of a modified type in which the part played by the person is to resist a pull rather than to exert his strength in an active effort. The test therefore measures the maximum resistance which the contracted muscles offer against stretching. Furthermore, it is made applicable to numerous muscle groups in various parts of the body. With this device, Lovett and Martin[2] have been able to ascertain the progress of affected muscles in infantile paralysis, either in the direction of improvement within the limits set by the disease, or as further impairment due to unfavorable conditions. It is not unlikely that dynamometry with such improved apparatus will find industrial applications, particularly in the physical classification of employees.[1] The war has emphasized the importance of considering industrial fatigue; and Martin has suggested that a classification of workers in accordance with their strength may prove to be extremely useful. He [3] has more recently proposed a greater use of the resistance strength test in medicine in connection with the diagnosis and treatment of "effort syndrome," in the management of which the method has already been applied with apparent advantage; [4] and Smith has pointed out the possible value of well-graded, properly supervised exercise in the later treatment of infectious diseases. If controlled exercise is to play a larger part in therapy, it is increasingly evident that more attention must be paid to the dynamometer or some other instrument for measuring results without mere reliance on the momentary "feelings" or impressions of patients.

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[5] Kahn, R. L.: A Simple Quantitative Precipitation Reaction for Syphilis, Arch. Dermat. & Syph., May, June and September, 1922.

[6] Keim, H. L., and Wile, U. J.: The Kahn Precipitation Test in the Diagnosis of Syphilis, J. A. M. A. **79**: 870 (Sept. 9) 1922.

[7] Herrold, R. D.: A Ring or Contact Precipitation Test for Syphilis, J. A. M. A. **79**: 957 (Sept. 16) 1922.

[1] Martin, E. G.: Pub. Health Rep. **35**: 1895 (Aug. 13) 1920.

[2] Lovett, R. W., and Martin, E. G.: Certain Aspects of Infantile Paralysis, with a Description of a Method of Muscle Testing, J. A. M. A. **66**: 729 (March 4) 1916.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Personal.—Dr. Edward S. Sledge, Mobile, will succeed Dr. W. R. Jackson, deceased, as a member of the state board of censors, the state board of health, and the state board of medical examiners.——Dr. Wilder D. Hubbard, Florence, has been appointed health officer of Lauderdale County.

Health Conference.—A conference of health officers and nurses was called, September 11-12, in Birmingham, by Dr. S. W. Welch, state health officer. Prof. E. V. McCollum, professor of chemical hygiene and public health at Johns Hopkins University, Baltimore, gave lectures on nutrition and school hygiene at the meeting.

ARIZONA

Health Exhibit at State Fair.—The state board of health has arranged to have a health exhibit at the state fair in Phoenix, which will include all departments of health work being done by the board. Prizes will be awarded for the best original health posters by Arizona schoolchildren, and the prize winning posters exhibited. The first prize will be $20, the second $10 and the third $5.

Better Babies Contest.—During the state fair at Phoenix, October 30 to November 4, a better babies contest will be held for children under 3 years of age. The number of entries is limited to 200. Gold and silver medals will be awarded to the prize winning babies. Children are scored and judged solely on their physical and mental perfection, according to the rules and standards of the American Medical Association.

CALIFORNIA

Chiropractor Fined.—It is reported that Walter B. Sessions, chiropractor of Fullerton, was recently fined $250 for practicing a method of healing without having obtained a license from the state board of medical examiners.

State Society in New Offices.—Following notification that the rent of the offices of the Medical Society of the State of California in the Butler Building, San Francisco, would be materially increased, the society decided to move. Suitable offices have been taken in the Balboa Building, near the Palace Hotel. The League for the Conservation of Public Health has also moved to the Balboa Building for the same reason. The *California State Journal of Medicine* is the official publication of the state medical society.

Hospital News.—A new fifty-five bed addition has been completed at the Seaside Hospital, Long Beach. This addition includes four operating rooms, two sterilizing rooms, one nurses' work room, one anesthetizing room, as well as physicians' rest room, complete pathologic laboratories, diet kitchens and diet laboratory.——Dr. Adelbert C. Matthews, superintendent of the Napa State Hospital, Imola, will make a tour of inspection of hospitals in Chicago, Cleveland, Toledo, New York and Boston, among other places, for the purpose of studying their methods.——The Taft General Hospital at Taft was burned to the ground, September 7. All the patients were saved and were taken to private homes near the hospital.——It is expected that the San Fernando Hospital will be ready for occupancy, October 1.

COLORADO

State Medical Meeting.—The annual meeting of the Colorado State Medical Society will be held in Colorado Springs, October 3-5, under the presidency of Dr. Harry A. Smith, Delta.

Hospital Merger.—The University and Boulder hospitals have merged, it was recently announced. Control of the merged institutions will be vested in a chamber of commerce board. Under this plan the community shall maintain the University Hospital until Aug. 1, 1924. New equipment for the operating room at the University Hospital, purchased at a cost of $1,500 by the women's advisory board, will be installed at once.

New Medical School.—Plans for the psychopathic ward of the new state hospital and medical school are said to have been approved by the dean, Dr. Charles N. Meader, and a committee of neurologists. The Denver city council appropriated $20,000 in May as that city's contribution to the University of Colorado Medical School and State Hospital, which was made possible by donations from the Rockefeller and Carnegie foundations.

Jubilee Volume for Semicentenary of Medical Society.—A handsome volume, in celebration of the semicentennial anniversary of the Colorado State Medical Society, will be issued shortly. The frontispiece will be a portrait of Dr. Edwin James, the first medical man to distinguish himself in Colorado. He accompanied the Long Expedition of 1819-1820, and was the first white man to ascend Pikes Peak. His name was given to the peak in Gilpin County under which it is proposed to drive the Moffat tunnel. This volume will contain a history of medicine in Colorado, portraits of the deceased presidents of the Colorado State Medical Society, a list of medical journals published in that state, etc. The price to all who have not contributed to the publication fund is $5.

GEORGIA

New Feature for Schools.—Inauguration of a dental clinic in the Atlanta public schools was coincident with the opening, September 11, under the direction of Dr. John P. Kennedy, city health officer, and the school superintendent. Portable dental chairs are used, days being set aside for examination of teeth of the children in the respective schools. Recommendations are to be made to the family dentist as to any defects in the teeth of children, and if the parents are financially unable to pay, the work will be performed free by the school dentist.

ILLINOIS

Publisher's Bequest to Hospital. — Under the will of Delavan Smith, publisher of the Indianapolis *News*, $100,000 is bequeathed to the Lake Forest Hospital, Lake Forest, for the erection of a permanent general hospital building.

Medical Meeting. — Physicians from Stephenson, Carroll, Boone, LaSalle, McHenry, DeKalb, Jo Daviess, Ogle, Lee and Whiteside counties in Illinois and Rock County in Wisconsin attended the convention of the First District Illinois State Medical Society at Rockford, August 23. A trip was made up Rock River to Illinois Park by steamer. Dr. Dean Lewis, Chicago, was the principal speaker at the meeting.

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[3] Martin, E. G.: Tests of Muscular Efficiency, Physiol. Rev. **1**: 454 (July) 1921.

[4] Smith, Bertnard: The Possibilities of Physical Development in Cases of Effort Syndrome by Means of Graded Exercises, Arch. Int. Med. **24**: 321 (Sept.) 1919.

Personal.—Dr. Axel F. Benson, Galva, has resigned as coroner of Henry County and will reside at Austin in future. Dr. Benson was formerly a minister.——Dr. William H. Lyford, Port Byron, celebrated his eighty-sixth birthday, September 8.——Dr. George W. Michell has resigned as president of the board of school inspectors of Peoria, after ten consecutive years and four terms as president.——Dr. James M. Masters has resigned as superintendent of Oak Knoll Sanatorium, Mackinaw, and will reopen his sanatorium at Port Orange, Fla. Dr. John F. W. Rost of Minier is acting as medical director of Oak Knoll Sanatorium until other arrangements are made.

Tri-State Meeting.—The annual meeting of the Tri-State Medical Association will be held in Peoria, October 30 and 31, and November 1 and 2. Calvin Coolidge, vice president of the United States, it is stated, will address the members of the association at the banquet, November 2. Among the physicians who are scheduled to address the meeting are: Prof. Theodore Tuffier, Paris; Dr. Andrew Fulleron, Belfast; Dr. Einar Key of Maria Hospital, Stockholm; Dr. Alexander Primrose, dean of the University of Toronto; Dr. William Mayo, Rochester, Minn.; Dr. William Seaman Bainbridge, New York; Dr. Frank Billings, Dr. Alfred N. Murray and Dr. Edward H. Ochsner, Chicago; Dr. Francis G. Blake, New Haven, Conn.; Dr. Walter W. Chipman, Montreal; Dr. George W. Crile, Cleveland; Dr. John B. Deaver, Philadelphia, and Dr. John M. T. Finney, Baltimore. A joint meeting of the medical women of Wisconsin, Illinois and Iowa will be held at Peoria at the same time as the Tri-State Meeting. The annual election of officers of the Wisconsin society, of which Dr. Edith McCann, Milwaukee, is president, will take place immediately preceding the general meeting.

Chicago

Chicago Medical Society.—A dinner-dance will be given at the Morrison Hotel, October 11, in honor of Dr. John S. Nagel, retiring president of the Chicago Medical Society. Tickets can be obtained from the secretaries of the branch societies, at $2.50 per plate.

Physicians Decorated.—Dr. Camillo Volini and Dr. Antonio Lagorio, both of Chicago, have received the Order of the Grand Knight from the king of Italy, for their services to humanity. Dr. Volini is director of the Italian Red Cross in the United States, and Dr. Lagorio is head of the Pasteur Institute, Chicago.

Personal.—William F. G. Swan, Sc.D., professor of physics at the University of Minnesota, has been appointed professor of physics at the University of Chicago. Professor Swan was connected with the Royal College of Science, London, and the University of Sheffield, before coming to the United States in 1913.——Dr. Edmund J. Doering of Chicago has been promoted to the rank of colonel, M. O. R. C., by President Harding. Dr. Doering passed the Army Examining Board in August.——Passed Asst.-Surg. Harris E. Powers, U. S. Public Health Service, Louisville, Ky., has been appointed to the U. S. Veterans' Bureau Hospital, No. 30, at Chicago.——Dr. Leroy P. Kuhn will speak on "Myositis Ossificans Traumatica" at a meeting of the Chicago Society of Industrial Medicine and Surgery, October 2.

INDIANA

Clinical Lectures for Lawyers.—A course of six clinical lectures for members of the legal profession and students of law will be given by Dr. Bahr in the pathologic department of the Central Indiana Hospital for the Insane in its twenty-third annual program. For a number of years, the hospital has advocated giving a course of clinical lectures to the legal profession in psychology, psychopathology and psychiatry, especially in their relationship to forensic medicine. It is hoped in the near future, in conjunction with the Indiana law schools, to arrange a special program to stimulate a study of psychologic and psychiatric problems from a medicolegal angle for the judges of the courts and members of the legal profession. It is contended that such instruction will qualify an attorney to interrogate the medical witness, regardless of the character of the case. The lectures will deal with (1) the mind as a process of development; (2) more frequent symptoms of insanity; (3) the mental mechanism of dissociation; (4) causes of insanity; (5) classification of mental diseases, and (6) insanity and crime.

KANSAS

Physician Fined.—Following several warnings, Dr. Solomon H. Thompson was fined $5 in the city court of Kansas City, August 4, for failure to report his cases of infectious disease.

KENTUCKY

Hospital News.—Work on the new Logan Hospital is practically completed and the institution will be ready for occupancy in the near future.——A hospital has recently been established for negroes at Versailles.——Construction work has been commenced on the new two-story brick addition to the St. Agnes Sanatorium at Buechel. The building will contain thirty rooms for patients, with sleeping porches and a chapel with a seating capacity for 250 persons.

LOUISIANA

Personal.—Dr. Henry N. Blum and family, New Orleans, are touring in Europe and will visit England, Germany, Austria, Switzerland and Italy.——Dr. Mary Goorwich of Russia has been appointed the first, and only, woman intern at Touro Infirmary, New Orleans. Dr. Goorwich received her medical degree from Tulane University in June.——Dr. Thomas Jefferson McHugh has been appointed health officer of Baton Rouge to succeed Dr. Philip H. Jones, who held that position for eight years.

Dengue Epidemic.—The state board of health has taken steps to determine the origin of a small-sized epidemic of dengue, said to be prevalent in several localities of the state. Fifty cases have been reported from Shreveport, fifty from Jeanerette, four from Lake Charles, two from Morgan and two from Sulphur. Dr. Oscar Dowling, state health officer, has written all health authorities and physicians throughout the state asking cooperation against the disease and outlining methods to combat it. Dr. Dowling said that it may have been imported from Florida or Texas, where the disease is prevalent, by some species of mosquito. Epidemiologists from the state board of health have gone to Shreveport and Jeanerette to study conditions in an endeavor to locate the source of the infection.

MARYLAND

Cumberland Valley Medical Association.—At the annual meeting of the association held in Hagerstown, September 7, Dr. Henry C. Lawton, Camp Hill, Pa., was elected president; Drs. William Hamilton Smith, Hagerstown, Thomas D. White, Orrstown, Pa., and George L. Zimmerman, Carlisle, Pa., vice presidents, and Dr. John J. Coffman, Scotland, Pa., secretary-treasurer.

Halstead Estate Left to the Johns Hopkins University.—By the will of Dr. William S. Halstead, the residue of his estate, valued at approximately $100,000, is left to the Johns Hopkins University, subject to the payment annually to his widow of the profits of 5 per cent. of the value of the legacy. The bequest is to be devoted to research in medicine, preferably in surgery, and is not to be used for buildings. The university is given the right to sell at its discretion any portion of the residue and reinvest the proceeds.

Personal.—Dr. John M. T. Finney has been appointed temporary surgeon-in-chief of the Johns Hopkins Hospital and professor of surgery in the medical school, in place of the late Dr. William S. Halstead. At a meeting of the faculty in October, a committee will be appointed to make a permanent selection.——Dr. Warfield T. Longcope has arrived at the Johns Hopkins Hospital and assumed his duties as physician-in-chief, succeeding Dr. Canby Robinson, who resigned to return to Vanderbilt University. Dr. Longcope comes to Baltimore from New York, where he was Bard professor of practical medicine at Columbia University and director of the medical service at the Presbyterian Hospital. He is a graduate of the Johns Hopkins Medical School, class of 1901.——Dr. F. I. Wertheimer, a graduate of the University of Wurzburg, and recently connected with Professor Kraepelin's clinic at Munich has become a member of the staff of the Henry Phipps Psychiatric Clinic at the Johns Hopkins Hospital.——Dr. Hans C. Syz, a graduate of the University of Zurich, who has recently been associated with Professor Veraguth in Switzerland, and Dr. William Herman, a graduate of the Harvard Medical School and a member of the staff of the Massachusetts General Hospital, have also arrived at the Henry Phipps Psychiatric Clinic, where they will serve on the staff.

MASSACHUSETTS

Hospital News.—A new home is being planned for the Infant Hospital, Boston. It has been announced that it will affiliate with the Children's Hospital of that city.——A new surgical and maternity building will be erected at the New

England Sanatorium at Melrose, it is announced by Dr. William E. Bliss, superintendent of the institution. Work will be started on the project soon.——Plans have been completed for a new administration building with accommodations for fifty patients, a nurses' home, power house and laundry building for the Athol Memorial Hospital at Athol.

MICHIGAN

Michigan State Tuberculosis Association.—The annual meeting of the association will be held jointly with the Michigan Trudeau Society at Grand Rapids, October 5-6. Dr. Mazyck P. Ravenel, past president of the National Tuberculosis Association, Dr. Willis A. Lemon and Dr. Carl A. Hedblom of the Mayo Clinic, and Dr. Norman E. Clarke of the University of Michigan, Ann Arbor, will address the meetings.

MINNESOTA

Hospital News.—Plans are being prepared for a new hospital for incurables to be erected on the city's quarantine property at St. Louis Park, Minneapolis.——The contract has been let for an $18,000 addition to the St. Paul Catholic Orphan Asylum, St. Paul.——The Sisters of St. Francis, who conduct the St. Mary's Hospital, Rochester, have purchased the St. James Hospital at St. James.

Personal.—Dr. John S. Abbott, who for several years has been at the head of the medical department's inspection staff of the city of St. Paul, has resigned. Dr. Arthur E. Nichols has been appointed to succeed Dr. Abbott.——Dr. Aaron F. Schmitt, Minneapolis, has resigned as secretary general of the Southern Minnesota Medical Association.——Dr. Adolphus W. Guest has been reappointed, for a period of two years, as superintendent of the North Dakota State Hospital for the Insane at Jamestown.

MONTANA

Personal.—Dr. Lewis L. Mayland, Great Falls, is a candidate for the nomination of state senator on the Republican ticket.

NEVADA

State Medical Meeting.—The annual meeting of the Nevada State Medical Association will be held in Reno, October 12-14. Dr. Ralph A. Bowdle, East Ely, will preside.

NEW JERSEY

Medical Examiners Appointed by Board of Education.—The Hillside Board of Education has appointed Drs. Laurence G. Beisler, Alvin T. Lippnard, Clayton A. Mentzler of Hillside, and Frederick H. Lovell of Newark as medical examiners for the school board.

NEW YORK

Typhoid Fever in New Rochelle.—Four cases of typhoid fever have been brought to the attention of the health authorities of New Rochelle. They have been traced to a farm in Woodbury, Conn., where many New Rochelle people spent a portion of the summer. It is believed that the infection was conveyed by water. The health department at Woodbury has been asked to make an investigation.

Health Commissioner Returns from Europe.—Dr. Herman T. Peck, health commissioner of Brooklyn, has been traveling in Europe, studying sanitary conditions and health protection in England, France, Italy, Switzerland, Austria, Germany, Holland and Belgium. He arrived in New York, September 7, on the *Homeric*. He stated that England was the most advanced of all European countries in sanitation and health measures.

Hospital News.—Construction work has been started on a new fifty-bed wing for the Saratoga Hospital, Saratoga Springs. This addition will be used as a maternity and children's ward.——Two solariums are being erected at Buffalo Hospital of the Sisters of Charity at a cost of $35,000. The solariums are of brick construction with a tile roof.——A public health laboratory has been established at the Champlain Valley Hospital, Plattsburg. This was made possible by a donation from David Merke of Plattsburg, in memory of his parents. The county will appropriate $2,000 annually for its maintenance.

New York City

National Chemical Institute.—The eighth National Exposition of the Chemical Industries was held in Grand Central Palace, New York, during the week of September 11. The exhibition had more than 400 exhibitors, covering every branch of chemistry and its allied interests and was wider in its scope than any previous exposition of its kind ever held in this country.

NORTH CAROLINA

New Health Officer.—Dr. Charles L. Outland, Raleigh, has been elected full-time county health officer of Carteret County and will remove to Beaufort. Dr. Outland recently returned from Siberia, where he had been on a hospitalization survey for a church missionary society.

Hospital Construction.—Drs. John T. Burrus and H. W. McCain, who are now operating the High Point Hospital, High Point, announce that they will also construct and operate another hospital at Lexington.——Construction work will soon be started on a new eye, ear, nose and throat hospital at Charlotte, which will be erected by Drs. Matheson, Peeler, Sloan and Shirley of that city. The plans call for a four-story brick building.——The contract has been awarded for the erection of a nurses' home and an addition to St. Peter's Hospital, Charlotte. These new buildings will be erected at a cost of $65,000.—St. Luke's Circle of King's Daughters of Raleigh is planning to erect in that city a home and infirmary for old ladies. The building will contain twenty bedrooms, the infirmary and other offices, and will be erected at an approximate cost of $35,000.

NORTH DAKOTA

New Head at Trachoma Hospital.—Acting Assistant Surgeon Clarence E. Downes, head of the Trachoma Hospital at La Moure, has been succeeded by Acting Assistant Surgeon W. C. Thomas, head of the Trachoma Hospital at Pikeville, Ky. Dr. Downes will take Dr. Thomas' place at Pikeville.

OHIO

Fremont Physicians Retire.—Drs. Orange H. Thomas and Frank L. Kinsey, Fremont, both graduates of the Medical College of Ohio, Cincinnati, in 1882, recently retired after forty years' practice. Dr. Thomas is health commissioner for Sandusky County.

Honor Memory of Physician.—The regular monthly meeting of the Warren County Medical Society was dedicated to the memory of Dr. Herschel I. Fisher, who died recently at his home in Lebanon. Dr. Benjamin R. McClellan, Xenia, former president of the Ohio State Medical Association, spoke of his experiences with Dr. Fisher, emphasizing his nobility of character.

Elimination of Local Registrars.—At their third annual conference at Columbus, the health commissioners of the state went on record as favoring the elimination of the more than 1,500 local registrars of vital statistics and their replacement with a local registrar for each health district. This would provide for ninety-five city registrars and eighty-eight general health district registrars, corresponding to the counties outside the cities, a total of 183.

New Appointments.—Dr. Edmund M. Baehr, director of the Bureau of Juvenile Research, has announced the appointment of the following Columbus physicians as members of the consulting staff of the bureau: Dr. Isaac B. Harris, surgery; Dr. Joseph W. Leist, medicine; Dr. William H. Miller, roentgen ray; Dr. Charles H. Hoffhine, ophthalmology; Dr. Hugh G. Beatty, laryngology; Dr. Herbert M. Platter, dermatology; Dr. Milton Jones, genito-urinary, and Dr. Andrews Rogers, obstetrics and gynecology.

Social Service Conference.—During the conference of health commissioners at Columbus, all the socal service agencies of Ohio working among the colored people of the state were represented at a meeting held in the Y. M. C. A. for the purpose of arousing the interest of colored social service agencies in health work and linking up their health activities with the work of the state department of health. Dr. Roscoe C. Brown, Washington, D. C., head of the federal government's work among negroes, addressed the conference.

OKLAHOMA

Public Health Conference.—The fifth annual meeting of the Oklahoma Public Health Association will be held in Oklahoma City, October 3-4. C. M. DeForrest, national director of the modern health crusade, will deliver an address and will assist in laying the plans for extension of health crusade work in Oklahoma schools this fall. Distinguished speakers will address the meeting on the problems of health in industry and the health of the laboring classes.

OREGON

Hospital News.—The Multnomah Hospital, which is being erected on the campus of the University of Oregon Medical School, Portland, will be opened to the public about December 1. The institution has accommodation for 250 patients.——The Portland Free Dispensary has been reorganized and its capacity trebled. The daily attendance has increased from thirty-five to ninety-five during the last year.——The new community hospital at Medford was formally opened to the public, September 5. The building has been equipped with modern conveniences. Miss Elsie Davidson, formerly of the Presbyterian Hospital, Chicago, is superintendent of the institution.

PENNSYLVANIA

Mental Health Clinic.—A permanent mental health clinic has been opened in Wilkes-Barre under the direction of Dr. Horace V. Pike of the Danville State Hospital. This clinic will render service to the people of Luzerne County and the neighboring districts. The need of such a clinic has long been felt in the various welfare organizations.

Hospital News.—A new county tuberculosis hospital for Cambria County will be erected at Cambria on the Little farm, which was purchased for $23,000. It is expected that a 100-bed hospital will be erected, with facilities for increasing the capacity.——When the new buildings are completed at the Methodist Episcopal Hospital, Philadelphia, the number of beds for children will be increased to fifty and for adult patients to fifty-seven. This addition will be opened some time this winter.——The Dixonville and Clymer Miner's Hospital at Dixonville has changed its name and will in future be known as the Two Lick Hospital.

Defective Children May Enter Homes.—The act of 1917 forbidding importation into Pennsylvania of dependent defective or delinquent children does not apply in the case of a child placed in an institution in this state, provided the child is not removed from it or placed elsewhere except in accord with the law, under an opinion rendered to Commissioner of Public Welfare John M. Baldy by Deputy Attorney-General Emerson Collins. The question arose in administration of some of the homes which come under supervision of the department, and Collins holds that an institution is a proper place in which to rear such a child, but that no institution can become a channel through which children may go into other houses of the state.

Camp Healthy Opens October 1.—Camp Healthy, a tuberculosis preventorium, will be dedicated, October 1, by the tuberculosis committee of the Philadelphia Health Council. In it fifty undernourished children taken from homes in which tuberculosis has appeared will be cared for the year round. Boys and girls from 6 to 12 years old will be given the most advanced care and treatment, designed to guard them against lung troubles. Camp Healthy will be the winter successor of Camp Happy at Brown's Farms. The dormitories will be heated, but in their waking hours the children will be in the open air. An open air school will be a feature of the center, and even in the coldest weather the children, warmly clad, will be taught in the open.

Philadelphia

Medical Club Entertains Senator.—At the regular fall meeting of the Medical Club of Philadelphia at the Bellevue Stratford Hotel, September 23, the Hon. George Wharton Pepper, U. S. Senator from Pennsylvania, was the guest of honor.

Pasteur Centenary Celebration.—A celebration of the one-hundredth anniversary of the birth of Louis Pasteur will take place in Philadelphia, Dec. 27, 1922. Tentative plans call for a meeting in the afternoon at the Academy of Music, and a banquet in the evening at the Bellevue Stratford Hotel, at both of which there will be distinguished speakers. A general committee, comprising Drs. Edgar Fahs Smith, Ernest Laplace, Francis X. Dercum, Charles A. E. Codman, Wilmer Krusen, McCluney Radcliffe, secretary, Judson Daland, treasurer, and William Duffield Robinson, chairman, and an honorary advisory committee from all parts of the country have been appointed.

Drug Users Menace City.—Plans to use the two wings of the House of Correction as quarters of victims of the drug habit were agreed on, September 13, at a conference of Director Warburton of public welfare. The proposal will be submitted to the district attorney's office, and if it is accepted, motion will be made to the court that all drug addicts be sent to those quarters for special treatment. There are now between 200 and 300 drug victims imprisoned, and the new quarters will accommodate 500. Dr. J. Blair Spencer, assistant director of welfare and an expert in the treatment of drug cases, will be put in charge. At a conference, it was stated that the Philadelphia Hospital, to which most cases are now being sent, is seriously overcrowded, and some drug victims have been sent to Moyamensing Prison.

SOUTH CAROLINA

Baby Welfare Center.—The Spartanburg County Medical Society has indorsed the plan for establishing a baby health center in Spartanburg. This welfare station will be financed jointly by funds provided by Spartanburg County, the state and the Sheppard-Towner Act.

TENNESSEE

Hospital News.—Joseph W. Purvis, former superintendent of the Methodist and City Hospital, Memphis, has been appointed superintendent of the Baptist Hospital in that city, to succeed Dr. William R. Bethea. Dr. Bethea resigned to devote his entire time to the roentgen-ray department of the Baptist Hospital.——A campaign for funds is being conducted for the erection of a negro hospital in Maury County. More than $1,500 has already been donated in small sums.

TEXAS

Only Embalmed Bodies Allowed on Trains.—A new ruling of the state board of health states that henceforth bodies must be embalmed if shipped on trains. Formerly, when corpses were to be in transit for a brief period, embalming was not required.

UTAH

State Medical Meeting.—The annual meeting of the Utah State Medical Association was held in Salt Lake City, August 31 to September 2, under the presidency of Dr. Augustus C. Behle of Salt Lake City. Dr. John C. Landerberger, Salt Lake City, was elected president of the association and Drs. Joseph R. Morrell, Ogden, and George R. Roberts, Salt Lake City, vice presidents. Dr. William L. Rich will hold his position as secretary of the association until 1923. Dr. Edwin M. Neher was elected two-year delegate to the American Medical Association. The 1923 convention will be held in Salt Lake City.

VIRGINIA

Personal.—Dr. George B. Young, senior surgeon, U. S. Public Health Service, in charge of the Mariners Family Asylum, Stapleton, Staten Island, N. Y., has been appointed in charge of the public health service offices at Norfolk. Dr. Young succeeds Dr. George M. Magruder, senior surgeon, U. S. Public Health Service, who has been transferred to the health office at Detroit, as surgeon-in-charge.——Dr. William S. Keister has been elected health officer of Charlottesville, to succeed the late Dr. R. Lindsay Robertson.

WASHINGTON

State Public Health Association.—At the annual meeting of the Washington Public Health Association held in Tacoma at the same time as the state medical meeting, Dr. Horace J. Whitacre of Tacoma was elected president and Dr. Philip V. Von Phul secretary-treasurer.

State Medical Meeting.—At the thirty-third annual convention of the Washington State Medical Association held at Tacoma, September 5-6, under the presidency of Dr. Wilmot D. Read, the following officers were elected for the ensuing year: president, Dr. John B. O'Shea, Spokane; vice presidents, Drs. Charles B. Ward, Spokane, and Frederick H. Brush, Yakima, and secretary-treasurer, Dr. Curtis H. Thomson, Seattle. The next meeting will be held at Spokane in 1923. A resolution adopting an educational program for the public throughout the state was unanimously adopted.

WISCONSIN

Hospital News.—A state hospital with accommodation for 300 patients will be erected at Portage by the state hospital commission. Work on the project will be started in the near future.——A nurses' home will be erected at the Sunny View

Sanatorium at Winnebago, it is announced. This will release beds for the use of patients in the main building. The cost of the addition will be $40,000.—A $45,000 addition will be erected at the nurses' home of the Northwestern Branch National Home for Disabled Volunteer Soldiers. Dr. Myron W. Snell is superintendent of the institution.——The contract has been let for the erection of the $1,000,000 hospital group for the University of Wisconsin. Construction work will be started in the near future.——Construction will soon be started on an addition to the Mauston Hospital, Mauston, to be erected at a cost of $75,000.

WYOMING

Personal.—Dr. Albert B. Tonkin, Cheyenne, was unanimously elected state commander of the American Legion of Wyoming at the third annual convention held in Torrington. ——Dr. C. Dena Carter, Thermopolis, has returned from Europe, where he took graduate courses in London, Paris, Berlin and Vienna.

CANADA

Honor for Dr. Currie.—It has been announced that Dr. John Ronald Currie, medical officer of the Scottish Board of Health, Edinburgh, has been appointed to the chair of preventive medicine at Queen's University, Kingston, Ontario.

Tuberculosis Directory.—A directory of Canadian agencies for the diagnosis and treatment of tuberculosis has been compiled by the Canadian Association for the Prevention of Tuberculosis. The list contains information in regard to 396 agencies, and shows that 4,057 sanatorium beds are available.

Hospital News.—Plans have been completed for a new hospital to be erected at Unity, Saskatchewan, at a cost of $60,000. It will be a concrete structure.——Six one-story pavilions will be erected for the Edmonton Isolation Hospital, Edmonton, Alberta. The cost of the buildings is estimated at $108,448 and they will have accommodation for 100 patients.——Two buildings, each to accommodate 100 patients, are nearly completed at the Home for the Feeble-Minded which is being erected at Edmonton at a cost of $84,000. These two structures are the first of sixteen which will be erected on the site.——The cornerstone of the new Muskoka Sanatorium, Gravenhurst, Ontario, was laid recently with appropriate exercises. The former institution was razed by fire in November, 1920. One million dollars was collected from individuals and organizations in Ontario to rebuild the institution. The total accommodations of the sanatorium will be 450 when completed.

GENERAL

The National Tuberculosis Association.—The association has begun its campaign for the next Christmas seal sale, having purchased one billion seals. Five different styles of advertising material, stories and articles on various phases of tuberculosis health problems are described in the circular, which is being sent out by the publicity director.

Pacific Coast Oto-Ophthalmological Society.—At the annual meeting of the society, held in Salt Lake City, September 14-16, the following officers were elected: president, Dr. William H. Roberts, Pasadena, Calif.; vice presidents, Dr. Kaspar Pischel, San Francisco, and Dr. Ashley W. Morse, Butte, Mont.; secretary-treasurer, Dr. Clarence B. Wood, Los Angeles. The next annual meeting will be held in Los Angeles in 1923.

Southern Medical Association. — The sixteenth annual meeting of the Southern Medical Association will be held at Chattanooga, Tenn., November 13-16, under the presidency of Dr. Seale Harris of Birmingham, Ala. Dr. Edward B. Wise, city health commissioner of Chattanooga, will deliver the address of welcome. Dr. Charles C. Bass, dean of the Tulane University of Louisiana School of Medicine, New Orleans, will deliver the oration on medicine, and Dr. Hubert A. Royster, Raleigh, N. C., the oration on surgery.

Journal of Physical Chemistry.—As a result of action by the council the *Journal of Physical Chemistry* is to be published under the auspices of three great English-speaking chemical societies: The American Society, the Chemical Society of London and the Faraday Society of Great Britain, as recently announced in *Science*. It was also reported to the council at the annual meeting, at Pittsburgh, that Francis P. Garvan, president of the Chemical Foundation, had guaranteed $10,000 annually for five years, for publication work.

Fund for Contributions to Chemistry.—At the annual meeting of the American Chemical Society, it was announced that the Allied Chemical and Dye Corporation of New York has instituted in perpetuity an award of $25,000 annually for contributions to chemistry by a chemist of the United States. A specially appointed committee will select a jury to decide annually which chemist in this country has contributed most to the benefit of the science and the world. The letter from the chairman of the Allied Chemical and Dye Corporation stated that they did not desire to limit the gift to any particular field of chemistry, recognizing as they did the importance of them all.

Rockefeller Gift to League of Nations.—In a report from Geneva, August 17, it was stated that the hygiene committee of the League of Nations had decided to accept the offer of the Rockefeller Foundation, amounting to the sum of $60,000 a year for three years, to allow an interchange of staff in the public health services of various countries, and a sum of $30,000 yearly for five years for the development of an international office for distributing information as to epidemics. After the necessary documents are signed, the plan will be put into action at once, and the interchange of staff will begin in October. Officials of the various nations will take a two weeks' course in Brussels and will then spend two months in the health departments of other countries.

American Hospital Association.—The twenty-third annual conference of the American Hospital Association will be held in Atlantic City, N. J., September 24-30, under the presidency of Dr. George O'Hanlon, Bellevue Hospital, New York. The meeting will be held on Young's Million Dollar Pier, and in conjunction with the annual meeting of the Occupational Therapy Association. The regular sessions will close in Atlantic City on Thursday evening, and Friday and Saturday will be spent visiting the hospitals of New York and Philadelphia. The Pennsylvania Railroad will operate special cars from Chicago to Atlantic City on September 22, 23 and 24, at 10:30 a. m., central time, stopping at Plymouth and Fort Wayne, Ind., Lima, Crestline, Mansfield, Canton and Alliance, Ohio.

Medical Scientists to Visit America.—The minister of education has accepted on behalf of the Japanese Government an invitation from George E. Vincent, president of the Rockefeller Foundation, New York, to name and send a commission of Japanese medical scientists to visit the medical institutions of the United States and Canada, as guests of the Rockefeller Foundation. This idea originated from the success that attended the visits to America of similar commissions from Great Britain, Brazil and Belgium. The commission will consist of four or five men, well known as representatives of the important branches of medical science and of the principal medical universities and institutes of the country. The spring of 1923 has been selected as the most suitable time for this visit, which will last about three months.

Protection of Synthetic Drug Industry. — The conference committee of the Senate and House on the tariff bill refused to provide for an embargo or prohibitive duties on dyes and the related synthetic organic drugs and medicines as requested by the American chemical industry. In their first report to Congress, the conference committee restored the embargo provisions, but the House of Representatives refused to accept this provision of the bill and also the schedule fixing a duty of $30 a ton on potash. Following the refusal to accept these two provisions of the tariff bill, the conferees agreed to a compromise, which fixes rates of 55 per cent. on intermediates and 60 per cent. on finished coal tar dyes and chemicals, with a specific duty of 7 cents a pound, in each case to remain operative for a period of two years, following which ad valorem rates of 40 and 45 per cent. and 7 cents specific are to apply. The House accepted by a decisive vote the amended conference report, and on September 19 the bill as passed by the House also passed the Senate.

Alcoholic Liquors Ruled Nonmailable.—Surgeons, physicians and pharmacists are denied the use of the mails for the shipment of intoxicating liquors, according to an interpretation of the postal laws and regulations made by Postmaster-General Work. Even should the container bear the words prescription, or superprescription, of the sender, and the liquor is designed for medicinal purposes, postmasters are instructed to prevent such shipments through the United States mails. The decision was made by the Postmaster-General supporting a ruling of the postmaster at Philadelphia that liquor could be confiscated if discovered in the mails. A physician at Harrisburg, Pa., was responsible for the seizure of a bottle of whisky sent through the mails by a druggist, at his direction, to his son and under guarantee of a prescription that it was to be used for medicinal purposes. The postmaster-general in his ruling declared that the entire subject was covered by the United States criminal code, which provides that "all spirituous, vinous, malted, fermented or other intoxicating liquors of any kind are hereby declared nonmailable and shall not be deposited in or carried through the mails."

Personal.—Dr. Jesse K. Marden, an American physician of long experience in the Near East, has been appointed successor to Captain E. A. Yarrow, who recently retired as director general of the American Relief activities in Armenia and Transcaucasian Russia. Dr. Marden is a graduate of the University of Michigan, but was born in Turkey and has spent most of his time there. For the last six months he has directed the fight against cholera and typhus among the famine victims. Dr. Marden and Dr. Russell T. Uhls, White City, Kan., chief surgeon of the Near East Relief Trachoma Hospital, Alexandropol, Armenia, are members of a newly created administrative committee, which will direct the work of the Near East Relief in Transcaucasia.——Dr. Henry Hanson, formerly of South Dakota, has just returned from Lima, Peru, and will take up research work at Johns Hopkins University, Baltimore. Dr. Hanson has just completed a successful campaign against yellow fever in Peru and is now directing reorganization of the public health forces of that country with a view of eradicating bubonic plague. He was formerly health officer at Panama, and at one time bacteriologist for the state of Florida.——Dr. Bolivar J. Lloyd, U. S. Public Health Service, has been assigned to Baltimore to succeed Dr. Benjamin S. Warren.

Physical Examination of Postoffice Employees.—At the request of the Postmaster General, boards of medical examiners from the U. S. Public Health Service in New York and Chicago examined postoffice employees to obtain a survey of health conditions existing in the federal postoffices in those cities. Only those employees who volunteered were examined, a total of 985, from all the different occupations in the postoffice department. A thorough physical examination was made in each case, and the results were classified. In Class 1 (no physical defects) there were five employees; in Class 2 (minor defects requiring observation or attention) there were twelve; in Class 3 (moderate defects requiring hygienic correction or minor medical, surgical, or dental attention) 258; Class 4 (moderate defects requiring medical supervision as well as hygienic correction), 336; Class 5 (advanced physical impairments requiring systematic medical or surgical attention), 234; Class 6 (serious physical defects requiring immediate medical or surgical attention), 140. It was found in comparing the results with those of the examination of garment workers that arteriosclerosis, aortic, mitral, and tricuspid diseases and myocarditis were from three to nine times as frequent among postoffice employees as among garment workers. Albuminuria and diabetes were three to four times as prevalent among garment workers as among the postoffice employees. There are a majority of employees in the sixth class and a considerable number in the fifth and fourth classes whose physical condition demands constant medical supervision if they are to be continued in their present work. Constant medical supervision does not mean daily supervision, but as in industrial plants, these cases should be under the observation of a medical officer, their work should be regulated and the progress of their infirmity closely watched. Furthermore, when the diseases which these employees are suffering from become severe enough to keep them from work, such incapacity will be complete, and, if not fatal, will at least mean continuous disability. Analysis of the defects found brings out the necessity of periodic physical examination for government employees, with advice, and such treatment as is allowed under the law; it also brings out the necessity for a competent physical examination on entrance into government service to exclude those with marked physical defects, or at least to record such defects to avoid compensation. The service is to be extended to all postoffice employees in the country.

Bequests and Donations.—The following bequests and donations have recently been announced:

Federation for Support of the Jewish Philanthropic Society of New York, the income of the residuary estate of William B. Kaufmann, amounting to $500,000. on the death of the present beneficiaries.

Asbury Hospital, Minneapolis, $300,000, by Mrs. H. H. Williams of Rochester.

University of Chicago, one third of his $125,000 estate for the endowment of scientific scholarships, on the death of two sisters, and $2,500 to Beloit College, under the will of Prof. Rollin D. Salisbury of Chicago.

Methodist Hospital, Indianapolis, and the Lake Forest Hospital, Lake Forest, Ill., each $100,000, for the erection of new buildings, and St. Vincent's Hospital, Indianapolis, $10,000, by the will of Delavan Smith of Indianapolis.

Frankford Hospital, Philadelphia, $100,000, by the will of the late John W. Wilbraham.

Cameron, Texas, for the erection of a hospital to be known as the Carrie Yoe Memorial Hospital, $75,000, by the will of Mrs. Carrie Yoe.

Knox County General Hospital, Rockland, Me., $70,881, from collections and pledges.

Lenox Hill Hospital, New York, $50,000; St. John's Guild, for maintenance of floating hospital, $25,000, and the Norwegian Lutheran Deaconess Home, Brooklyn, $25,000, by the will of Frederick Betuch.

Ann May Memorial Hospital, Spring Lake, N. J., $40,000 for the erection of a nurses' home, as a memorial to her husband, by Mrs. Blanche Roebling of Trenton.

Charity Hospital, New Orleans, for an isolation hospital, $30,000, and the Eye, Ear, Nose and Throat Hospital, New Orleans, $2,000, by the will of William G. Vincent, on the death of Mrs. Vincent.

Children's Hospital, Boston, and the Newport (R. I.) Hospital, each $25,000; Berea College, Kentucky, Hampton Institute, Virgina, and the Tuskegee Institute, Alabama, each $10,000, by the will of Arthur B. Emmons of Newport.

St. Luke's Home for Tuberculosis, Phoenix, Ariz., and the Allendale Farm for Orphans, Lake Villa, Ill., each $24,482, by the will of William V. Ames of Libertyville, Ill.

Women's Southern Homeopathic Hospital of Philadelphia, $11,500; $10,000, for the endowment of two beds and the remaining $1,500 for general purposes, by the will of Charlotte C. Hogan.

Presbyterian Hospital, Philadelphia, $10,000, by the will of Alter Megear.

Lawrence and Memorial Associated Hospitals, New London, Conn., $7,500, from a bazaar held in the hospital grounds by the Women's Auxiliary.

Methodist Episcopal Hospital, Philadelphia, $5,000, and the Children's Hospital of Philadelphia, $6,000, for the endowment of free beds, by the will of Marie M. Boyd.

Johns Hopkins Hospital, Baltimore, $1,000, by the will of Myer D. H. Lipman.

Lebanon, Mount Sinai and Beth Israel hospitals, New York, each $50, by the will of Meyer Goldberg.

Biloxi City Hospital, Biloxi, Miss., $100 toward construction of a nurses' home, by the Woman's Auxiliary.

Charlotte, Mich., for the establishment of a municipal hospital, to be known as the Guy Raymond Palmer Memorial Hospital, her home and property, on the death of her husband, Dr. Emory C. Palmer, by the will of Mrs. Palmer.

LATIN AMERICA

Venereal Disease Hospital in Guatemala.—The Director General of Police has opened a hospital for the exclusive treatment of venereal disease in the city of Guatemala.

Postponement of the Mexican Medical Congress.—The committee in charge of the arrangements for the Seventh National Medical Congress in Mexico has found it necessary to postpone the celebration of the congress from September 3-10, to September 22-30, 1922. A 50 per cent. reduction in railroad fares is made to delegates.

New Mexican Journal.—The Mexican army medical corps has begun the publication of a new journal, *Revista de Ciencias Médicas*. The editor is M. Godoy Alvarez, and the address is Hospital Militar de Instrucción, Cacahuatal 4, México, D. F. The Mexican army medical corps was organized, Jan. 1, 1917, as a special department in the army.

South American Conference on Sanitation.—The different South American countries have been invited by the state department of Uruguay to a sanitary conference of South American republics, which will be held in Montevideo in January, 1923. Among the subjects will be medical curriculums and the best means of furthering scientific interchange in South America.

Rockefeller Foundation Aids Honduras Sanitation.—According to the agreement between the Rockefeller Foundation and the government of Honduras, a hookworm disease section and a public health department were organized in that country. The Foundation will bear 66 per cent. of the expenses during the first year and 34 per cent. during the second, and the Honduras government will assume all expense from the third year on.

Special Number of Argentine Review.—The last issue of the *Revista del Círculo Médico Argentino* and *Centro Estudiantes de Medicina* is an elaborate number of more than 700 pages which bears the word "Homenaje" printed in gold across the cover. It is dedicated to "Foreign Editors" in general and to the twenty-four in particular whose names are published regularly on the cover as *redactores del extranjero*. The list includes Ascoli of Italy, Leriche of France, von Noorden of Germany, Maddock Bayliss and others of different countries, with the largest number in Spain and Portugal. The United States is represented in this list by W. J. Mayo and Charles H. Mayo. The number contains articles by twenty-four leading Argentine clinicians. Most of their research has already been summarized in THE JOURNAL but this profusely illustrated review brings the latest results.

Personal.—Dr. Alfredo G. Dominguez, Havana, Cuba, sailed August 23 on the *Paris* for Havre.——Dr. Rafael Hernández, sanitary delegate of the Mexican Public Health Department at Agua Prieta, Mexico, has spent several weeks in the United States, visiting Rochester and Chicago clinics and studying laboratory methods.——Dr. Luis Diaz has returned to Matanzas, Cuba, from his stay in the United States.——The Mexican Sociedad de Biología has elected to honorary membership Prof. Ramon y Cajal of Madrid and Prof. B. A. Houssay of Buenos Aires, a member of the editorial staff of the *Semana Médica*.——Prof. F. Fülleborn of the Institute for Tropical Medicine at Hamburg recently arrived in El Salvador and gave a lantern lecture in German in the university hall at San Salvador on "Modes of Penetration of Ascarids into the Human Body." He is making a trip down the Pacific coast of Latin America.——The *Anales de la Sociedad Médico-Quirúrgica* of Guayaquil reports that one of its editors, Dr. J. M. Estrada Coello, has been appointed the representative of the society and has left for the Child Welfare Congress in Rio de Janeiro.——The Liga Antialcoholica Nacional has been recently founded in Colombia by the initiative of the national public health service. It has been endorsed by the Academia Nacional de Medicina and the *Repertorio* appeals to physicians throughout Colombia to sustain this movement, saying that the time is propitious for an effectual campaign against the abuse of alcohol.

FOREIGN

The Record for Oil Immersion Lenses.—The German firm which recently produced its two hundred thousandth microscope, now has turned out its one hundred thousandth lens for oil immersion. It was sent to Prof. L. Aschoff, the pathologist of Freiburg.

Exhibition of War Wounds.—Three thousand specimens of war wounds have been mounted and placed in the museum of the Royal College of Surgeons of London. The collection is the property of the Army Medical Council, and will be available to Army medical officers.

Institute for Roentgen-Ray Research.—The organization founded to promote the welfare of the University of Bonn has endowed the university with an institute for research with the roentgen rays. Professor Grebe is in charge and it is expected that the institute will be inaugurated this fall.

Record of Arsphenamin Number.—The authorities in Germany have decreed that the number of the arsphenamin preparations used must be recorded each time by the physician, and the local health officer notified if untoward phenomena are observed with it. This will allow the defective series of the drug to be promptly withdrawn from sale.

Medical Service of the Irish National Army.—The Irish Army Medical Council has recently been formed by the Irish government, with Dr. Maurice R. J. Hayes as chairman, to organize on a regular basis the medical service of the army of the Irish Free State. Lieut.-Col. B. Forde and Dr. P. J. Smyth have been appointed full-time officers of the new medical council.

Hasler Hospital Memorial.—A memorial tablet containing the names of more than 200 medical officers and nurses of the British Navy who were killed in active service during the World War, was unveiled, August 17, by Sir Robert Hill, medical director general, Royal Navy, at the Hasler Hospital. This tablet is one of three to be erected; the others will be at Chatham and Plymouth.

Congresses Held in Europe.—The Association of German Scientific Men and Physicians held its one hundredth meeting at Leipzig, September 18-24. Prof. Albert Einstein gave one of the addresses at the meeting.——The one hundred and third annual meeting of the Swiss Scientific Society was held in Berne, August 24-27. Dr. C. E. Buye of Geneva spoke on "The Trend of Modern Physics."

Founding of Society for Industrial Hygiene.—Our German exchanges state that the hygiene institute of the University of Leipzig is organizing a German Gesellschaft für Gewerbehygiene. The leading men in the movement are Prof. K. R. Lehmann, director of the hygiene institute at Würzburg, Dr. Koelsch and Dr. Leymann of the state department of labor, Dr. Gottstein of the state department of public welfare, and representatives of employers and employed in the various industries.

Surgical Congress in Poland.—The *Polska Gazeta Lekarska* gives the details of the nineteenth congress of the Polish Surgical Association which was held at Warsaw late in June. The main papers read were by Jurasz of Posen on "Ulcer of the Stomach and Duodenum"; "Tuberculosis of Bones and Joints," by T. Ostrowski of Lwow; "Treatment of Surgical Tuberculosis in Sanatoria," by Lapinski of Warsaw, and "Tuberculosis of Internal Organs," by Lesniowski of Warsaw. The *Przeglad Chirurgiczny* of recent date contains the papers read at the preceding congress in 1921.

Seventy-Fifth Anniversary of Belgian Medical Journal.—The *Archives médicales Belges* is the official organ of the medical department of the army of Belgium, and the August number is the seventy-fifth anniversary of its foundation. It was founded by Dr. J. F. Vleminckx, who was a leader in the revolution of 1830 and organized the medical department of the Belgian army, and founded the Académie de médecine as well as the *Archives*. His name is known outside Belgium by his solution of lime and sulphur for seborrhea. This issue is devoted mainly to historical retrospection, tracing the history of the army medical department and of the monthly *Archives* down to date.

Pasteur Centennial.—The annual meeting this month of the Féderation médicale Belge at Antwerp was devoted to a celebration of Pasteur's centennial and also the centennial of a Belgian physician, Dr. Willems of Hasselt, who was a precursor of Pasteur in certain lines. A historical exhibition was one of the features of the meeting. It was arranged by the Cercle médical of Antwerp and the Belgian Société d'histoire de médecine. The only papers on the official program outside of those devoted to the centennials were on "The Plethora of Physicians in Belgium," and "Patent Medicines and the Fight Against Quackery." Dr. Waucomont was the speaker, opening the discussion on the last subject.

Fund Needed to Continue Laboratory.—Dr. Otto Lipmann of Berlin states that he will be forced to give up his scientific work unless funds are available for him to continue with his laboratory of applied psychology. The Emergency Society for German and Austrian Science and Art has announced that $200 will be voted by it, provided that American psychologists pledge an equal amount. At the suggestion of the president of the American Psychological Association, J. B. Miner of the University of Kentucky will receive contributions to the fund which will be used to aid Dr. Lipmann to continue his chosen work. Dr. Lipmann's assistance in founding and editing the *Zeitschrift für angewandte Psychologie* and its supplements, and his important contributions to educational and vocational psychology are well known.

Personal.—Dr. N. H. Choksy, Bombay, was presented by the president of the Medical Union, recently, with an illuminated address referring to his services to the city, extending over thirty-four years, and referring to his "courage, zeal, energy beyond all praise and rare devotion to duty in dealing with a strange and unknown disease."——Dr. S. M. Vassallo (Colonial Service) has been awarded the Duncan Medal by the London School of Tropical Medicine.——Dr. Vdenek Klan, of Czechoslovakia, sailed for Europe from New York, August 23, on the *Resolute*.——Sir James W. B. Hodsdon has retired as senior surgeon of the Royal Infirmary, Edinburgh.——Mr. Archibald William Cuff, F.R.C.S., surgeon to the Royal Infirmary, Sheffield, has been elected to the magisterial bench as a justice of the peace for the city.——Dr. Francis Warner, consulting physician to the London Hospital, has been awarded a Civil Service pension of $500 per annum in recognition of the services rendered by him in his investigation into the mental and physical conditions of defective children.

Deaths in Other Countries

Dr. **James A. Mansell Moullin,** for forty years connected with the Soho Hospital for Women, London, aged 72.——Dr. **John A. Turner,** health officer of Bombay, India, 1901-1919, August 21, in England.——Dr. **M. Carrington-Sykes** of London, August 25, aged 63.——Lieut.-Col. **A. F. Stevens,** August 20, at Gava, India, from cholera.——Dr. **Matthew M. Bird,** for thirty years superintendent of St. Mary's Hospital, London, August 27.——Dr. **Clement J. Baker,** Uganda Medical Service, August 7, at sea.——Dr. **Julian Taplin,** suddenly, at Nice.——Lieut.-Col. **Donald Elcum,** Indian Medical Service, August 13, in London, aged 69.

CORRECTION

Enrolment of Students at London, Ont.—In the item published two weeks ago, the limitation of students to be accepted by the Western University Medical School, London, Ont., should have been stated as fifty instead of fifteen. The report that the "medical colleges in Canada have turned out more physicians than the demand warrants" is also said to be incorrect.

Government Services

U. S. Veterans' Hospital No. 75

A department of academic training has been established at the government hospital for disabled ex-service men at Colfax, Iowa. This is designed to prepare those who want to take additional vocational training, and will be given to the men according to the extent of their disability. Those ranked as No. 2 will get free training with a cash allowance of $80, while those classed as No. 3 will receive training but no money. A moving picture screen has been erected in the hospital grounds, arranged so that every patient, including those in beds upstairs, can see the films. Dr. Walter A. Hodges is the executive officer of the institution.

U. S. Veterans' Bureau Hospitals

During the fiscal year ended June 30, the total cost of operating U. S. Veterans' Bureau hospitals was $23,530,916. During the fiscal period, there was rendered a total of 4,966,403 patient days of relief, resulting in a daily cost for each patient throughout the year of $4.74. This total operating cost is not the gross cost for the maintenance and upkeep of hospitals, but represents the net cost of operation and excludes the cost of all major repairs and alterations and the cost of nonexpendable equipment and supplies. The bureau is now operating thirteen tuberculosis hospitals in various parts of the United States, all of which were transferred from the U. S. Public Health Service, April 30. Temporary buildings are gradually being replaced by permanent construction.

Officers Rated "Average Efficiency" to Be Retained

Officers with a rating of "average efficiency" will be retained in the United States Army, Secretary of War Weeks announced this week, in discussing the bill recently passed by Congress, preventing the wholesale elimination of the commissioned personnel of the service by the 1923 appropriation bill. The army rating of "average" for officers is exceedingly high and as laid down in the regulations is defined as "Efficient: duty well performed; up to standard; qualification satisfactory." Before Congress amended the recent elimination law, Secretary Weeks pointed out, it would have been necessary to separate a large number of officers from the service with "average" ratings, but with the extended demotion list now provided, the men to be stricken from the rolls include only those below average rating. The change in the law is expected to facilitate the work of the elimination board and also hasten its work. Surg.-Gen. M. W. Ireland of the medical corps is a member of this board.

Resolution Offered for Investigation of Veterans' Bureau

Senator King has introduced into the Senate a resolution demanding an investigation of the entire activities and operations of the U. S. Veterans' Bureau. The resolution provides for the appointment of five senators to conduct the inquiry. In the resolution is included the charge that the U. S. Veterans' Bureau has failed properly to expend the moneys appropriated by Congress for the care and treatment of disabled war veterans. It is also alleged that the bureau is the subject of continual complaint because of the delay and dilatoriness in making physical examinations, awarding compensation and hospitalizing sick ex-service men. The resolution was referred to the committee on audit and control of the contingent expenses of the Senate. Another resolution of similar character was introduced in the House of Representatives by Representative Rosedale of New York, asking an investigation of the alleged brutal treatment of war veterans who are patients at U. S. Veterans' Bureau Hospital No. 81, in the Bronx, New York. The resolution cites that conditions existing at this government institution "constitute a disgrace to the nation." One patient, it is claimed, was brutally and violently assaulted; while reference is made to the charge that patients with mild nervous disorders are confined with violently insane patients for disciplinary purposes. Improper diet and denial of medicines to patients and the release of disabled inmates before they are cured, to roam the streets of New York, are among the other allegations.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Sept. 1, 1922.

Cremation in France

At the last general assembly of the Société pour la propagation de l'incinération, the general secretary of the society presented some interesting facts on the practice of cremation in France. In 1921, the number of cremations effected in Paris alone rose to 4,877, 2,727 of which were fetuses, 1,599 were bodies coming from the postmortem rooms of Clamart, Val-de-Grâce and the Faculté de médecine, while 551 cremations were carried out at the request of relatives or friends of the deceased. Of the latter, there were 269 bodies of males and 282 of females. Only sixty of these were cremated gratuitously—the remaining 491 cremations were paid for. The statistics show that 440 of the bodies were from Paris proper, sixty-five from the suburbs and forty-six from the provinces. The total number of cremations in 1921 is only nine less than in 1920, in spite of the high cost of labor, increased transportation charges and heavy funeral expenses, and notwithstanding the shutting down of the crematories in the provinces. At Lyons the situation remains unchanged, owing to the almost prohibitive prices demanded by the municipality. At Marseilles, interest in the movement has begun to increase again since December, 1921. Up to May 11, twenty-six bodies were cremated here in 1922. At Strasbourg a society for the promotion of cremation was founded last March. It is planned to form a federation of all similar societies in Alsace and Lorraine, after the type of the Paris federation. Thanks to the persevering efforts of the new society, a municipal crematory—a gigantic necropolis—begun eight years ago, has now been completed. The principal building consists of two funeral halls, in one of which is a crematory apparatus, together with adjoining rooms for various purposes, which, taking it altogether, constitutes a model equipment.

The fact must be recognized that, while the practice of cremation in France is not in a state of retrogression, as its opponents are pleased to declare is the case, the movement might, nevertheless, make more rapid progress if the public authorities gave it their support by proclaiming the superiority of cremation over inhumation, and emphasizing the dangers of interment.

Professor Pinard, president of the society, has made representations to the prefect of the department of the Seine with a view to obtaining a reduction from the present schedule of rates and certain other concessions with respect to the practice of cremation. He has met with obstacles of a financial nature principally, which under the present circumstances it does not seem possible to overcome. The fact cannot be disguised that the municipal administration, having to grapple with enormous difficulties in connection with the annual municipal budget, finds that inhumation, the cost of which may be reduced to a minimum, is, on the whole, more expedient than cremation at the present high rates. A campaign in favor of cremation would, therefore, be inopportune at present. Thousands of families are exhuming from military cemeteries at the front the remains of loved ones, at sight of which they are plunged anew in tears and grief. It would seem better if the period of mourning could be allowed to pass, and, later, steps could be taken and influence brought to bear on the public authorities at a time when the society for the promotion of cremation would be in a better position to develop the material, hygienic and moral advantages of cremation.

Pinard thinks that the *esprits libres,* more especially scientists and men of learning, ought gradually to adopt another practice which might be regarded as preliminary to cremation; namely, the dedication of their bodies to medical schools for purposes of study and dissection. The present extreme scarcity of anatomic specimens, which are absolutely indispensable for medical study, creates a peril which is constantly increasing. If all bodies are taken to the cemetery, none remain to serve for postmortem investigations and purposes of dissection. It is therefore the duty of the cremationists to bring about a reaction against the prejudice that it is a disgrace for one's body to be taken to the postmortem amphitheater before it is cremated. If our students should become entirely dependent on illustrations in gaining a knowledge of anatomy, it is to be feared that medicine and surgery will suffer a period of retrogression for which the living will have to pay heavily. In order to ward off this danger, apostles must needs rise up to point out the way of salvation. In this connection, it may be stated that Pinard has the great satisfaction of having secured the consent of his family that his body shall be turned over to a medical school, for purposes of study and dissection, before it is cremated. He expresses the hope that others may take similar action.

The Rockefeller Foundation and the Exchange of Sanitary Personnel

The exchange of sanitary personnel, a plan suggested by the League of Nations Health Conference and for which the financial cooperation of the Rockefeller Foundation has been assured (THE JOURNAL, Aug. 5, 1922, p. 485), will probably be begun the coming October. For a period of two weeks, functionaries of various nationalities—a Bulgarian, two Belgians, two Czechs, five Italians, five Poles, five Russians and two Serbians—will pursue an intensive short course at Brussels, following which they will spend two months in the public health services of different countries.

A Communication on Beethoven's Deafness

At the tenth international congress of otology, recently held in Paris, Dr. G. Canuyt of Strasbourg presented a communication on the deafness of Beethoven, which had its onset when the composer was 26 years old. At the age of 38, Beethoven had become completely deaf; he died at the age of 57. He was probably affected by a progressive type of bilateral sclerotic otitis. This diagnosis seems the most likely, judging from his personal statements, the clinical history of the affection, the results of necropsy and the accounts of his friends. Canuyt raised the question as to the effect of Beethoven's deafness on his work as a composer. He thinks that the sublime works of the great musician were written while he was in great pain. It was in this silence of night that he created his last five sonatas, his last six quartets, the Mass in D and the Ninth Symphony. Beethoven dwelt in a realm above mankind because he was separated from the world.

MADRID

(From Our Regular Correspondent)

Aug. 12, 1922.

Housing Problem

As a result of the rise in prices of construction materials and the constant increase in the cost of labor, coupled with shorter working hours and lowered efficiency, building operations have practically ceased in Madrid, and a period of much suffering is anticipated as regards men employed in the building trades, who, by the way, comprise the majority of workers in Madrid. Labor, aroused to this danger, is trying to center the attention of the public on the menace arising from crowding in the poorer sections of the city. Dr. Milla recently gave a lecture at the Casa del Pueblo (workingmen's hall) in which he dwelt on the unhealthfulness and expensiveness of lodgings in Madrid. He showed that crowding was one of the causes responsible for the high death rate. The Madrid death rate has ranged, in the last few years, between 27 and 30 per thousand; while in any country in which there is proper sanitation it should not exceed 15 per thousand. Madrid has, therefore, a mortality 50 per cent. higher than towns of this type in Europe and America. The number of houses (buildings) in Madrid is 14,977, while the number of lodgings or residences is 158,813, which gives a proportion of 6.43 persons to each lodging. In La Inclusa district, 100,000 people live in 932 buildings, with a total of 14,592 apartments, which shows a proportion of nearly ten persons to each apartment. In 120 houses in this district there are 55,667 persons. In the house at No. 16 Dr. Mendez Alvaro Street, having two floors and an attic, 635 persons are lodged, and in another, at No. 37 Ronda de Segovia, with three floors, there are 665 persons. Fifteen houses in the Latina Hospital and La Inclusa districts hold 6,235 persons. In the so-called hallway houses (tenements), the annual death rate is 50 per thousand. Besides crowding and promiscuity, we must take into account the lack of light and air in these houses in which the lower middle and the poor classes live or, rather, die. The complete lack of ventilation causes the residents to feel even more tired when they get up than when they went to bed. The average life expectation among workers is thirty years; in the well-to-do classes, fifty years. These things happen, according to Dr. Milla, because in Spain problems related to health and life are not properly studied. A senator stated recently that in the Spanish army ten millions are spent annually on music and only eight millions on sanitation. Dr. Milla suggests as a solution to the problem of securing healthful, cheap houses for the masses, a law providing for compulsory expropriation of any urban land not in use at present. This land could be sold afterward at the actual purchase price plus the interest on the funds spent.

Sanitary Survey by the King of Spain

Las Hurdes is an extensive area of poor land enclosed by rocky mountains, in the western part of Spain, in the provinces of Caceres and Salamanca. This region has been much studied throughout the centuries. It has been a subject coming up repeatedly for discussion at congresses, which have proposed varied solutions of the problems of poverty and disease arising in this great expanse of stony and rocky ground where practically the only living creatures are the malaria germ and its vector, the mosquito. At one of these congresses, the inability of Spanish statesmen to remedy our evils was exemplified, since one of the most cultured among them, Sr. Moret, suggested that the best way to redeem Las Hurdes was to install telephones there. At any rate, Las Hurdes has continued to be a neglected spot, with a few decaying villages scattered here and there. Hunger, malaria, destroying and atrophying the race from the oldest times, myxedema and tuberculosis have cooperated with the poverty of the land and the rough climate further to depopulate that stony area. Dr. Marañón, physician of the Public Assistance of Madrid, Dr. Goyanes, surgeon of the same organization, and Dr. Bardají, provincial inspector of Salamanca, only a few months ago made a visit to Las Hurdes, and put on record their impressions in a report on file in the central office of public health. Man is disappearing from Las Hurdes from exhaustion. If any human beings are left, this is because foundling asylums send their inmates there. These are welcomed by the villagers, anxious to receive the small subsidy paid by the government for the care of these children.

At a banquet attended by the king and by scientists, such as Ramón y Cajal, and Dr. Marañón, reference was made to Las Hurdes, and the king expressed a desire to do something for this small number of Spanish subjects so much in need of protection and charity. Dr. Marañón, who had just visited the region, suggested to the king the advantage of his making a direct survey of Las Hurdes, a thing never before done by any Spanish king. The king, who never spares himself when the public welfare is concerned, welcomed the idea, and a few days afterward all Spain learned with pleasure that the king was on his way to Las Hurdes. Public officials were not so well pleased, not taking kindly to the idea of a horseback trip of more than 60 miles through rocky mountain paths, having for its only purpose the survey of places so far only visited by poor village priests. Nevertheless, the king visited Las Hurdes. In five days, he covered more than 60 miles on horseback under a burning sun and in unbearable heat, as the climate is virtually torrid, snatching just enough sleep in army tents in the field to give a semblance of rest. In his inspection, the king and his escort saw lands parched through centuries of aridity; mountain torrents which break down and carry along rocks when it rains, but which bring no moisture to the land, which, because of its sloping character, becomes dry a few minutes after a flood; vast mountains without a single growing plant, and at the bottom of the valleys swampy ground where anopheles breed and intestinal parasites keep alive infection. When, perchance, a man was found, he was either hungry or malarial. Some of the people are cretins. It is now intended to solve the Las Hurdes problem, creating a commission charged with the special duty of supervising that region, and undertaking especially its sanitary improvement.

BUENOS AIRES

(From Our Regular Correspondent)

Aug. 18, 1922.

Enlargement of the Medical School

At a recent meeting at the medical school, attended, at the invitation of the dean, by several physicians who are members of congress, it was agreed to ask the national government to turn over to the school the four squares that surround the Hospital de Clínicas, which have already been expropriated in order to construct the Polyclinic Hospital, planned for several years. It is intended to preserve the present streets, thus eliminating the chief obstacle to the construction of the new hospitals. Several institutes relatively independent will be built. The intention is to provide Buenos Aires with hospitals as complete as the best in the world, in order that this city may become a first-class medical center.

Smallpox

Although the epidemic is subsiding, smallpox has not completely disappeared from Cordoba. Isolated cases have appeared in other provinces, especially Salta, where there is a small focus.

Federal Powers and Public Health

Our federal constitution endows each province with a large degree of autonomy, which naturally extends to the supervision and preservation of public health. But, in practice, as soon as an epidemic breaks out, they are compelled to ask assistance from the national government, either because of lack of the necessary sanitary resources or because these are not sufficient. However, as a rule, national assistance is requested only after the epidemics have become serious, because their spontaneous subsidence was expected, or the campaign against them has been poorly conducted. This gives rise to a real danger that such epidemics may spread to other regions. In order to obviate this difficulty, the national authorities intend to submit to congress a law authorizing the direct intervention of the government in matters related to public health throughout the country.

Conflict in the Charities Association

The large sums derived from the national lottery and other appropriations from the national government are devoted to the maintenance of the activities and hospitals conducted by the National Society of Charities. This association is directed by a group of society women, and its religious tendency is very marked. For a long time, this system has caused no protests, but little by little the number of persons against it is increasing. Several reasons are advanced against the continuation of the present system. Last year, the Argentine Medical Association protested against the public beds offered in the hospitals operated by the Charities Association, claiming that well-to-do-patients were admitted to them and thus the surgeons' business suffered. At a meeting of the directing board of the Charities Association, one of the most prominent Argentine surgeons, Dr. Belaustegui, stated that he did not favor the present organization, because of its old-fashioned tendencies. The president of the association admonished Dr. Belaustegui, who, rather than submit to any pressure, resigned as a surgeon of the Rivadavia Hospital, in which he had practiced for twenty-five years, with much success. This event has caused many protests on the part of physicians and even the public. It may be stated without exaggeration that this case is the most powerful argument so far presented against the present system. All this suggests that in a few years a change will be brought about by the growing pressure, due to public opinion.

BUCHAREST

(From Our Regular Correspondent)

Aug. 30, 1922.

Vienna Professors Leaving the University

A Vienna University lecturer who has had twenty-two years' continuous work in pathologic anatomy, and who has left Vienna and the university because he is unable to support himself and his family from his income, made the following statements:

The economical situation created by the war inflicts the greatest burden on the representatives of science. While some classes are abounding in worldly goods, the members of the middle class, teachers, officials, professors and physicians, suffer unimaginable misery. The financial evils have forced the most eminent professors of Vienna University to resign because they cannot see their families suffer from hunger. The position of university professors was not enviable in peace times. The great mental effort expended was out of all proportion to the small salary received; but they waited for better times. Since the war, most salaries have risen with the rising prices; only the salary of the university professor has remained below the level adequate for comfortable living. The total income of a Vienna professor in peace times (excepting, of course, professors of medicine and surgery, who had excellent salaries) was 12,000 crowns; that is, about $2,400. Today, it does not amount to 600,000 crowns, although every workman makes at least 1,200,000 kronen a year (one dollar is worth about 6,000 kronen in Vienna). The raising of salaries was contemplated, but instead a reduction is in prospect. Under the circumstances, it is impossible to live decently, or even less than decently. They cannot contemplate adding to their libraries or buying special journals, but are even forced to sell their books and scientific instruments in order to buy bread.

Those who could not endure the struggle long ago left this city of misery and luxury. Foreigners have received them kindly, with an appreciation of their knowledge, and have provided them with maintenance corresponding to their rank. Others, however, are determined to share the fate of the unfortunate city, as long as they have strength to do so. However, the limit of strength has been reached, and many are preparing to leave Vienna. Many are invited to foreign countries; for instance, Strigowsky, court adviser, magister and representative of the historical auxiliary sciences, has received an invitation to the University of Dorpat, which he has accepted. Luckily, among members of the medical faculty, only those having no private practice, that is, those cultivating theoretical sciences, are so ill off. In the Reichsratstrasse, there is a restaurant in the Café Arcadia, which was established by Columbia University for the aid of the staff of Vienna University. Here the members of the faculty gather for their meals. Late ministers, bearers of brilliant names, world-famed representatives of science, meet in this cellar; and they are already fearing what might happen if Columbia University should withhold its support.

Still more terrible is the situation of ex-service professors, whose only income is the little pension they receive. This pension varies from 2,000 to 5,000 crowns a month, and one tramway ticket costs 200 kronen. So they get ten tram tickets for one month to live on. Among those unfortunates are Exner the philosopher; Tacharnak, formerly lecturer, later professor of urology, and the mathematicians Lang, Horn and Nertens. Most of these, instead of demanding loudly and begging openly, are withdrawing themselves in proud seclusion, and the state forgets its duty toward its best citizens. There are a few exceptions, practicing medicine; these are professors of medicine and professors of the technical university who are connected with industrial enterprises.

Medical Supervision of Domestic Servants

In several towns of Roumania, domestic servants are supplying the greatest percentage of hospital inmates in the venereal wards. This is due partly to the fact that they are not under medical supervision, while all other girls practicing prostitution are medically examined twice weekly, and partly to the fact that the rise in prices has caused hundreds of families to dismiss their female servants. These girls turn to prostitution. The district medical officer in Transylvania now makes frequent surprise visits in large towns after 10 p. m., and all women who cannot prove that they have an occupation are taken to the police medical officer for examination. By so doing, the authorities have found a vast number of ex-servant girls suffering from venereal diseases. As most rendezvous are held after 10 p. m., the chief medical officer of Transylvania has issued an order to the effect that in large towns no servant girl shall walk on the streets after 10 p. m. without a certificate issued by her employer giving the reason why she is out. Those found on the street without such certificates are taken to the police and medically examined, and discharged only if found healthy.

The Cholera in Roumania

Since the beginning of the tropical heat, that is, the second half of July, sporadic cases of cholera have occurred in Bucharest, Lassy and some villages near the frontier of Bessarabia. All the cases were bacteriologically examined and found to be Asiatic cholera cases. The sanitary authorities could trace all cases without exception as coming from Bessarabia. On this account, the zone between Bessarabia and old Roumania is strictly quarantined. The minister of public hygiene in Bucharest received an official report from Russia stating that the cholera cases occurring between August 1 and August 20 were numerically as follows: European Russia, 925 cases; Ukrainia, 2,780; Crimea, 482; Caucasus, 406; Siberia, 2,027, in the ports and railways 552; altogether, 5,646 cases. The central soviet has ordered compulsory anticholera vaccination, in order to check the spread of the epidemic.

PRAGUE

(From Our Regular Correspondent)

Sept. 1, 1922.

Child Welfare Exhibit

August 25, a child welfare exhibit was opened in Brno, the capital of the province of Moravia. It is the largest undertaking of this kind since the beginning of social welfare activities in the Czechoslovak republic. The exhibit is located in a three-story building, and occupies all the rooms. A part of it is located on the ground floor of a museum because it was impossible to find sufficient room in the main building for all the articles which are being exhibited. The credit for the organization of the exhibit is to be given to Dr. Dobroslav Krejci and Dr. Jaroslav Kallab, both university professors in Brno, and leaders of the child welfare movement in the province of Moravia. The purpose of the exhibit is to show what has been accomplished in the field of child welfare, to demonstrate the present needs, and to develop a concrete program for the future, on the basis of facts instead of more or less accurate guesses.

In order to get the necessary data, the Moravian child welfare association, in October of last year, took a census of all children needing aid, on account of poverty, physical or mental defects, or sickness. The census has been taken by schoolteachers, and it includes 375,000 children under 18 years of age. It was shown that 46,000 will require some kind of assistance on account of their social or physical condition. A large part of the exhibit is devoted to a demonstration of the facts which have been brought out by the census. There are maps showing the distribution of feebleminded children throughout Moravia; others showing the number of orphans, etc. At the same time, a survey of all kinds of institutions for children has been made, and the results are also presented in the exhibit. It was an easy matter to conclude what is lacking on the basis of these facts and to construct a concrete program for the future.

The ministry of health has set up an exhibit dealing with the importance and value of clean milk, and its relationship to the spread of disease. It is presenting also facts concerning school hygiene, and many American posters and pamphlets are being shown. There are special sections devoted to tuberculosis, alcoholism and venereal diseases, where posters of the American Social Hygiene Association and the temperance league can be seen. One hundred and fifty-four social and public health institutions are participating in the exhibit, which promises to become a milestone in the development of child welfare in the Czechoslovak republic.

Postgraduate Study

The ministry of health will organize postgraduate courses for physicians in the months of September and October, in cooperation with the medical faculty in Prague. The courses were started in the fall of 1919, and have been repeated every year since, because their great value to medical practitioners has been demonstrated. The courses are being given by university professors and their assistants at the different institutes of the Czech medical faculty. Special attention is devoted to the latest developments and discoveries in all branches of medical science. All medical specialties are represented on the list of courses, including lectures on public health and social medicine. Those who will attend the lectures on the last two topics will be given special certificates, which will qualify them for positions in the public health service. There is no fee charged for attendance at the lectures. Only physicians who have spent at least three years in private practice outside a hospital will be admitted to the courses. A number of scholarships will be given by the ministry of health to those who would like to take the courses but cannot pay the living expenses in Prague.

Nationalization of Public Health Service

The law on nationalization of public health services in the Czechoslovak republic has been finally passed by parliament. It is an old project, which in principle has been once accepted already by the parliament but was postponed later for reasons of economy in the state budget. The smallest unit for the public health service will be now a district with from 3,000 to 6,000 inhabitants, which will have a part-time health officer. From ten to twelve such districts will be combined into a county, with a sanitary supervisor. The office of health officer in the small district existed before the project of this law, but the officers were so miserably paid that they could devote virtually no interest to the questions of public health. The law enumerates the new functions which the district health officers will have to perform. Besides measures against the spread of contagious diseases, participation in all social welfare activities is made compulsory for the district officers of health. All the communities which have more than 6,000 inhabitants have to appoint a local health officer, who must be given one assistant for every additional 6,000. The nationalization concerns only the salaries of the health officials. The material expenses connected with the public health campaign must be met from local funds. The positions of health officers are nationalized in the hope that, by this measure, the health officers will be made more independent of local influences, and that they will perform their functions more conscientiously than before. Besides that, the state will have a direct influence on the choice of the public health personnel even in the remotest districts of the republic. In this way, it will be also possible to fill the vacant positions in the poorest territories where no physican could make his living before. According to the provisions of the new law, physicians who have spent some time in such poor districts will be given preference when applying for a position in a better district.

BERLIN

(From Our Regular Correspondent)

Aug. 19, 1922.

Prussia's New Regulation in Regard to Midwives

The main feature of Prussia's new law with respect to midwives lies in the provision that in the future a special permit must be secured before a person can settle in any locality in Prussia for the purpose of practicing midwifery. The state plans to issue permits to only a limited number of midwives in a given district, basing the estimate of the needs on the average number of births occurring in the district. Midwives will, however, have the right to practice outside their own district. Besides giving advice to prospective mothers and taking charge during their confinement, midwives are expected to use their endeavors to promote the breast feeding of infants, and will also participate in public infant welfare. In the past, midwives often accepted employment of various kinds that tended to distract their attention from their regular line of work, for which reason the new law provides that before a midwife can accept any secondary employment she must obtain a special permit. A definite schedule of prices, varying with the circumstances of the client, has also been established. The midwife may claim an added compensation from the commune, provided her annual income, without neglect of duty on her part, falls below a certain minimum, varying at present between 6,000 and 12,000 marks, according to the cost of living. Special extra concessions may also be granted from time to time. The law further provides that midwives who voluntarily take out disability or old age insurance shall receive from the commune one half of the cost of the insurance. The general purpose of these provisions is to assure to midwives reasonably satisfactory living conditions. It is thought that with the improved outlook afforded by the new law more capable and better educated women will take up midwifery. In case a sufficient number of midwives do not volunteer for service in a given district, it becomes the duty of the authorities to employ district midwives and to guarantee them a minimum income. In case of permanent disability or after attaining the age of 65, such district midwives must be granted a regular allowance. Midwives are placed under the supervision of a government health officer, the *Kreisarzt*. In order that their qualifications may be controlled and improved, midwives are obliged, from time to time, to subject themselves to an examination to be given by the *Kreisarzt*, and must also attend a continuation course of several weeks in a school for midwifery. In every municipal and rural district a special body for the handling of affairs pertaining to midwives must be selected. These bodies will be composed of midwives chosen from the district, a representation of mothers, a representative of the communal authorities, the *Kreisarzt*, and two representatives of the public health insurance administration. They must be consulted by the authorities in regard to the formation of districts, the establishment of tariff schedules and in reference to any charges brought against midwives, as well as in various other important matters affecting their welfare. A similar controlling body, made up in like manner, will be chosen for each province, which will serve the same purpose within the province (decisions in regard to fees or complaints pertaining to provincial schools of midwifery). For the administration of the new system, including the district midwives, the state has made an annual appropriation of 25,000,000 marks.

The Vereinigung zur Förderung des deutschen Hebammenwesens, of which, besides certain experts, all the heads of the schools of midwifery and all university professors of obstetrics are members, adopted, at the congress held in Innsbruck last spring, the following resolution:

> The training of students of midwifery, which at present covers a period of only nine months, should be extended to two years, corresponding to the training course of nurses for patients and infants. The requirements for admission to the study of midwifery should be raised. Candidates should be required to pass a preliminary examination before a public health officer and an entrance examination before the head of the school of midwifery that they wish to enter. If, during the course of instruction, the student shows herself to be unfit for the work, she should be dismissed from the school. The review and continuation courses prescribed by the new law pertaining to midwives should be of three weeks' duration, and should furnish practical and theoretical instruction.

Marriages

Harold A. Schirrman, New Boston, Ohio, to Miss Agnes D. Doty of Mount Healthy, Ohio, August 9, at Cincinnati.

Prosser Elwin Clark, Clarksburg, Ind., to Miss Lois Thorne of Greensburg, Ind., recently at Indianapolis.

Andrew Browne Evans, Washington, D. C., to Miss Mary Virginia Noel of Huntington, W. Va., July 25.

William Michael O'Shea, Spokane, Wash., to Miss Violet Fowler of Fort Wayne, Ind., August 26.

Harold Monford Cox, Brookston, Ind., to Miss Victorine Firsich of Indianapolis, recently.

James B. Kile, Eddyville, Neb., to Miss Amelia C. Specht of Syracuse, Neb., July 12.

Benjamin C. Russum, Omaha, to Miss Harriett Jarrett of Milford, Neb., recently.

Leo John Full to Miss Margaret A. Evans, both of Chicago, August 31.

Maurice J. Sherman to Miss Rae Vebon, both of Chicago, July 19.

Deaths

Harold Clarence Ernst ⊕ Boston, professor of bacteriology in the Medical School of Harvard University since 1895, died September 7, aged 66, following an operation performed at the Jordan Hospital, Plymouth, Mass. He was taken suddenly ill on the Boston-Plymouth boat, and on arrival of the boat was taken directly to the hospital.

Dr. Ernst was born in Cincinnati, July 31, 1856. He received the A.B. degree from Harvard University in 1876, the M.D. degree in 1880 and the A.M. degree in 1884. He became demonstrator in bacteriology in his alma mater in 1885; instructor in 1889, assistant professor in 1891 and professor and head of the department in 1895. Since 1896 he has been editor of the *Journal of Medical Research.* In 1896 Dr. Ernst wrote "Infectiousness of Milk"; in 1898 "Infection and Immunity"; and in 1902 "Animal Experimentation." In addition, he contributed widely to medical periodical literature. In 1901 he became secretary of the Association of American Pathologists and Bacteriologists and held the position continuously until his death except for 1909 when he served as president of the organization. He was also a Fellow and Councilor of the American Academy of Arts and Sciences and a member of the Association of American Physicians, the American Society of Naturalists, and for ten years president of the Boston Society of Medical Sciences. In the university Dr. Ernst aided conspicuously in the development of the medical department, arranging in 1906 for the dedication of the new buildings of the Harvard Medical School and editing a history of the school. He was also an important factor in developing laws regarding medical education in Massachusetts, appearing frequently before the state legislators. By his death the medical profession loses a scientist with high ideals and of notable executive ability.

Francis Eppes Shine ⊕ Los Angeles; University of Virginia, Department of Medicine, Charlottesville, Va., 1895; at one time instructor and chief of clinic, Medical Department, Cornell University, New York, and on the staff of the New York Hospital; served as surgeon; Chinese Relief Expedition Hospital Ship *Maine,* 1900; formerly chief surgeon, El Paso and South Western Railroad; served in the M. O. R. C., with rank of major, during the World War; died, September 8, aged 51, at the American Hospital, Neuilly, France.

Carroll Dunham ⊕ Irvington, N. Y.; New York Homeopathic Medical College, New York, 1800, the Bellevue Hospital Medical College, New York, 1887, and the Medical School of Harvard University, Boston, 1887; died, September 5, aged 64, at Woking, England, following a long illness.

Edward Stephen Willard, Watertown, N. Y.; Albany Medical College, Albany, N. Y., 1880; for twenty years city health officer; formerly president of the Jefferson County Medical Society; died, August 28, aged 69, from heart disease.

Arthur Clifford Jordan ⊕ Pine Bluff, Ark.; Vanderbilt University Medical Department, Nashville, Tenn., 1886; formerly mayor of Pine Bluff; for several years member of the city council; died suddenly, August 29, aged 62, from heart disease.

Eugene Miller, Pasadena, Calif.; Detroit College of Medicine, Detroit, 1887; member of the Medical Society of the State of California; formerly city health officer; member of the school board; died, August 28, aged 71.

Joseph N. Cunningham, East Las Vegas, N. M.; Hahnemann Medical College and Hospital of Chicago, 1870; member of the New Mexico Medical Society; died in July, aged 75, from cerebral hemorrhage.

Walter Hopper Neilson ⊕ Milwaukee; Rush Medical College, Chicago, 1881; associate professor of clinical medicine, Marquette University School of Medicine, Milwaukee; died, September 12, aged 65.

Posethia L. Sanders, Bremerton, Wash.; Kansas City Medical College, Kansas City, Mo., 1901; member of the Oklahoma State Medical Association; aged 44; was found dead in a field, August 25.

George Cook ⊕ Concord, N. H.; Dartmouth Medical School, Hanover, N. H., 1869; formerly president of the New Hampshire Medical Society; died, September 1, aged 74, following a long illness.

Frank Fisher ⊕ Philadelphia; Jefferson Medical College, Philadelphia, 1875; for forty-three years on the staff of Wills Eye Hospital; died, September 5, aged 68, following a long illness.

Harry H. Dwyer, Lawrenceburg, Ind.; Pulte Medical College, Cincinnati, 1893; member of the Indiana State Medical Association; died, August 25, aged 54, from carcinoma of the stomach.

Charles Henry Fruth, Gibson, N. M.; Bennett Medical College, Chicago, 1907; member of the New Mexico Medical Society; died, July 18, aged 39, at Angangueo, Mexico, from peritonitis.

James Treloar Tresidder, Tipton, Ind.; St. Louis Hygienic College of Physicians and Surgeons, 1890; member of the Indiana State Medical Association; died, August 27, aged 58.

Joseph Henry Cunningham ⊕ Cambridge, Mass.; Medical School of Harvard University, Boston, 1892; aged 55; died, August 28, in London, England, while touring Europe.

John McIntyre Osborn, Seattle; Rush Medical College, Chicago, 1908; member of the Washington State Medical Association; died, August 24, aged 49.

Franklin Joseph Drake ⊕ Webster City, Iowa; Chicago Homeopathic Medical College, 1895; died in his office, August 29, aged 53, from cerebral hemorrhage.

Phillip Henry Matthei ⊕ Chicago; Rush Medical College, Chicago, 1860; University of Göttingen, Germany, 1874; died, September 11, aged 88, from senility.

J. Arthur Hines, Van Wert, Ohio; Georgetown University School of Medicine, Washington, D. C., 1869; died, August 31, aged 79, from angina pectoris.

Francis Gustavus Hendrick, Opelika, Ala.; Medical Department, University of Louisville, 1894; aged 48; died recently at Hartboro from heart disease.

John Griswold, Helix, Ore. (licensed, Oregon, 1891); member of the Oregon State Medical Association; died, August 29, aged 72, from carcinoma.

John Harlan Martin ⊕ Lead, S. D.; College of Physicians and Surgeons, Chicago, 1893; died, June 25, aged 57, at Fort Morgan, Colo., from uremia.

Fred H. Schols, Chicago; College of Medicine and Surgery (Physio-Medical), Chicago, 1910; died, September 12, aged 51, from heart disease.

Oliver S. Coffin, Alexandria, Ind.; Indiana Eclectic Medical College, Indianapolis, 1888; died suddenly, August 5, aged 81, from heart disease.

Isaac C. Boulson, Meeker, Okla.; Homeopathic Medical College of Missouri, St. Louis, 1884; died, August 26, aged 75, from pneumonia.

William T. Bailey, Hot Springs National Park, Ark.; Louisville Medical College, Louisville, Ky., 1884; died, August 6, aged 75.

Clifton Lewis Freas, Jermyn, Pa.; Jefferson Medical College, Philadelphia, 1891; died, August 12, aged 56, following a long illness.

Daniel W. Swiggart, Hamburg, Iowa; St. Louis Medical College, 1869; Civil War veteran; died, August 26, aged 91, from senility.

Charles M. Raynale, Birmingham, Mich.; Detroit Medical College, 1869; died, August 7, aged 76, from cerebral hemorrhage.

John D. Mullen, Latrobe, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1892; died suddenly, June 18, aged 52.

Eugene H. Blocker, Marshall, Texas; New Orleans School of Medicine, 1861; Civil War veteran; died recently, aged 85.

Arthur A. Reynolds, Scranton, Pa.; Baltimore Medical College, 1900; died, August 15, aged 46, from gastric ulcer.

Rose Margherita Lascola ⊕ Buffalo; University of Buffalo Department of Medicine, 1920; died, June 11, aged 25.

James H. Stipp, Putnam, Ill.; Rush Medical College, Chicago, 1879; died, August 17, aged 70, from paresis.

James M. Pruett, Oakland, Calif.; Medical College of Ohio, Cincinnati, 1875; died, August 21, aged 72.

Herbert Wheeler, Los Angeles (licensed, years of practice); died, August 23, aged 71.

Death of Dr. L. B. Clarke.—In The Journal, September 9, it was stated that Dr. Lee Ben Clarke of Atlanta, Ga., died from paresis; this was a typographical error for "paralysis." Dr. Clarke, we are informed, died from cerebral hemorrhage.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

THE ADVERTISING ETHICS OF ANGOSTURA BITTERS

We reproduce on this page an advertisement that has been run in newspapers and drug journals by the J. W. Wuppermann Angostura Bitters Agency, Inc., of New York City. The advertisement was brought to our attention recently by a physician who sent it in, torn from a newspaper, with the comment: "This seems *too bad* to be true." In the latter part of July The Journal received a letter from the American agency for Siegert's Angostura Bitters stating that "in order to draw the attention of the medical profession to the medicinal value of Angostura Bitters" it had been using "the opinion of the late Dr. W. C. Wile, at one time vice-president of your association" and that it trusted there would be "no impropriety in our using the endorsement of Dr. Wile."

As it seemed an obvious waste of time to appeal to the exploiters of this nostrum on the basis of the wretched taste involved in the advertisement, the concern was told that the advertisement was altogether misleading in that it failed to give the public the facts, these facts being:

1. Dr. Wile was *fourth* vice-president of the American Medical Association *thirty-six years* ago and was nominated for this position by a committee of which he himself was a member.

2. Dr. Wile was for many years in the nostrum business himself and was the practical owner of several nostrum concerns at Danbury, Conn. (the Vass Chemical Company, which made "Thialion"; the Valley Chemical Company, which put out "Apetol"; the Argol Co., the Taro Food Company, which exploited "Taroena," etc.

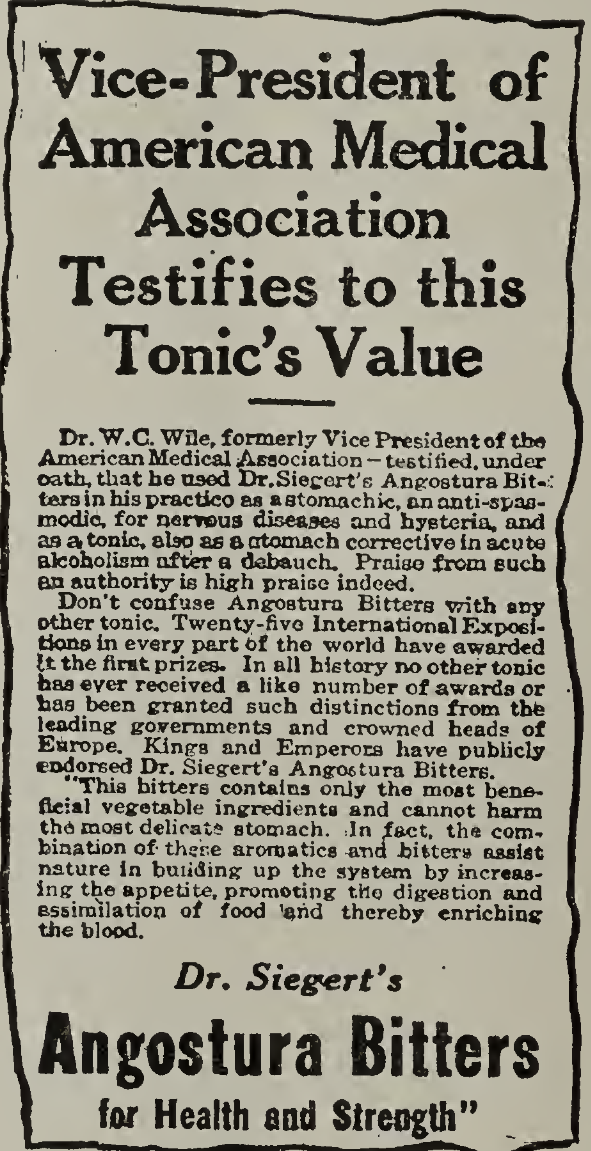
3. Dr. Wile also owned a printing establishment which got out the *New England Medical Monthly*, a so-called medical journal of the commercial type that advertised the products that Dr. Wile's concerns manufactured and other nostrums of similar type.

4. Dr. Wile gave testimonials for many nostrums such as "Gardner's Syrup of Hypophosphites," "Pepto-Mangan," "Thialion" (his own product), "Arsenauro," "Uricedin," "Apetol" (his own product), "Hydrozone," "Hayden's Viburnum Compound," "Taroena" (his own product), "Buffalo Lithia Water," etc.

5. Dr. Wile's testimony for "Angostura Bitters" was given in the course of his testimony when he appeared in the rôle of "expert" for the Angostura concern in 1905.

6. Dr. Wile has been dead more than nine years.

None of these pertinent facts can be determined or inferred from the Angostura advertisement. Neither can the public be expected to know that the attitude of the medical profession toward such activities as those credited to Dr. Wile is entirely different today from that of thirty-six years ago when Dr. Wile was fourth vice-president of the American Medical Association.



Vice-President of American Medical Association Testifies to this Tonic's Value

Dr. W. C. Wile, formerly Vice President of the American Medical Association—testified, under oath, that he used Dr. Siegert's Angostura Bitters in his practice as a stomachic, an anti-spasmodic, for nervous diseases and hysteria, and as a tonic, also as a stomach corrective in acute alcoholism after a debauch. Praise from such an authority is high praise indeed.

Don't confuse Angostura Bitters with any other tonic. Twenty-five International Expositions in every part of the world have awarded it the first prizes. In all history no other tonic has ever received a like number of awards or has been granted such distinctions from the leading governments and crowned heads of Europe. Kings and Emperors have publicly endorsed Dr. Siegert's Angostura Bitters.

"This bitters contains only the most beneficial vegetable ingredients and cannot harm the most delicate stomach. In fact, the combination of these aromatics and bitters assist nature in building up the system by increasing the appetite, promoting the digestion and assimilation of food and thereby enriching the blood.

Dr. Siegert's

Angostura Bitters

for Health and Strength"

This advertisement of Angostura Bitters is a good example of "patent medicine" advertising ethics. The reading public would naturally believe that the testimonial was a recent one by a man who had recently held office in the American Medical Association. The facts are Dr. W. C. Wile has been dead over nine years, gave the testimonial (when acting as an "expert" witness) seventeen years ago, was *fourth* vice-president of the A. M. A. thirty-six years ago and was, himself, an exploiter of nostrums.

The case in which Dr. Wile appeared as an expert for the Angostura people was a suit in equity, in which the exploiters of Siegert's Angostura Bitters seemed to have claimed that the public had been deceived into purchasing Angostura Bitters made by one Cornelius W. Abbott. In this case the Siegert concern submitted certain alleged "scientific opinions" of the "made in Germany" type. One of these was to the effect that Angostura Bitters was "entirely free from all . . . intoxicating ingredients." The judge before whom the case was tried held it as extremely unlikely that these alleged German experts ever existed and, referring to the claim that there was nothing intoxicating about Angostura Bitters, said:

> "Shall the courts give by judicial decree a monopoly to certain persons who represent to the public certain bitters as containing nothing intoxicating when concededly they contain over 50 per cent. of water and over 40 per cent of alcohol and about 8 per cent. of we know not what?"

The judge, in summing up the case against the Siegert concern, also said that they had "been guilty of such fraudulent misrepresentations in advertising and selling their bitters that they are not entitled to the protection of a court of equity."

It is significant that some years previously (in 1890) in a similar equity case involving "Angostura Bitters" and tried before the New York Supreme Court, the judge said:

> "Neither of litigants gave any evidence tending to show that the bitters prepared by them, respectively, possessed any medicinal qualities or had served any useful purpose except as an article of sale."

And the court concluded:

> "We do not think courts of equity should be swift or vigilant to protect the manufacturers of a compound advertised and sold as a valuable medicine, which is not shown to contain a single medical ingredient or to possess a single merit claimed for it, as against other manufacturers producing and selling a like compound."

As a matter of contemporary interest, it should be said that Siegert's Angostura Bitters is purchasable on the open market today. According to the label, it is "Made from pure rum containing about 45 per cent. alcohol." The dose is given as half a tablespoonful. It is also recommended as an addition to ginger ale, grape juice, mince pies, ices, etc. Angostura Bitters is said to "consist of a mixture of certain bitter aromatic and carminative substances together with alcohol, added as a preservative and solvent and . . are altogether free from admixture with any dangerous or deleterious compound. . . ." If this represents the facts, it would be interesting to know just how this product has escaped the eagle eye of the Prohibition Commissioner. Most preparations on the market today containing even less than 45 per cent. alcohol have had to be "doped up" with drugs to make their use as beverages impossible.

Independence of Growth of Tumors.—The independence of growth of tumors is well illustrated by the fact that they often grow with rapidity in individuals who are losing weight. Huge benign tumors of fat cells may occur in persons who are otherwise almost without fat tissue.—Wolbach, *New Growths and Cancer*, Harvard University Press, 1922.

Correspondence

COLLABORATORS IN THE STANDARDIZATION OF BIOLOGIC STAINS

To the Editor:—From time to time, reports from the Committee on Standardization of Biological Stains have appeared, dealing with the investigations in progress. Many congratulations have been received by the chairman of the committee on the results accomplished; but as these accomplishments would have been impossible had it not been for the very hearty collaboration of a long list of investigators, credit for the work should be given to whom it belongs, by publishing the following list of committee members and collaborators. The committee members are: F. W. Mallory, Boston City Hospital, Boston; F. G. Novy, University of Michigan, Ann Arbor, Mich.; S. I. Kornhauser, University of Kentucky, Louisville, Ky., in charge of the work for the American Society of Zoologists; L. W. Sharp, College of Agriculture, Ithaca, N .Y., in charge of the work for the Botanical Society.

[The list of collaborators—eighty-five names—is too long to reproduce.—Ed.]

The work so far accomplished by these collaborators includes an extensive study of American methylene blues, fuchsins, gentian violets and eosins for bacteriologic purposes, and a study of eosin, methylene blue, hematoxylin, orange G and safranin for various histologic purposes; while work is in progress at present on a number of other stains, including methylene green, Bordeaux red, brilliant green, brilliant cresyl blue, cresylecht violet, pyronin and acid fuchsin. The results accomplished are so promising that there is reason to believe that the most commonly used stains will have been standardized before the coming winter is over. It will then be possible to work out some method of certification of stains which come up to the standards.

None of this work would have been possible but for the cooperation of such a large number of investigators, who have responded to every call for assistance in a most gratifying way. It was not anticipated at the start that such a large number would be found to take part willingly in an investigation of this sort. The work, of course, has been entirely voluntary. The committee would like, whenever reporting on any stain, to give due credit to all of these collaborators; but as such a course is not practical, the best plan seems to take the present occasion to express appreciation for their assistance.

H. J. Conn, Washington, D. C.
Chairman, Committee on Standardization
of Stains, National Research Council.

SOCIALISTIC TENDENCY IN MEDICINE—FACTS VERSUS FEAR

To the Editor:—Has the critical sense of the medical profession sunk so low that it will accept a statement and argument on the topic of public medical service, based on such unsupported generalities as would certainly fail to convince if offered in the field of clinical medicine?

Are we prepared to condemn, with Dr. James A. Gardner, on the basis of his chairman's address published in The Journal, August 12, the efforts at prevention and control of venereal disease in which the leadership of such men as Dr. Morrow, formerly, and of his successors, Drs. Keyes, Walker, Stokes and many other eminent urologists has been an inspiration to the public and to the medical profession, and a guide to the policy of governmental and private health agencies?

We are told, apparently on the basis of Dr. Gardner's experience in Buffalo, as no reference is made to any other specific instances of abuse, that there are "many so-called reforms which in reality are little more than the outcome of emotional desires of restless faddists or of the ideas of extreme and radical discontents." And further it is suggested that these reforms have not followed the process of "patient investigation and study of causes unhampered by emotion and prejudice."

And yet what are the facts in Buffalo? Briefly, that at the request of the common council of Buffalo in 1910 a report based on an unusually careful study of the situation by the New York State Charities Aid Association recommended a program of hospital construction which so appealed to the good sense of the council that the decision was then reached to provide adequately for the then present and future needs of the sick.

Branch dispensaries were added to the plan, in no way differing in functions from the dispensaries operated in all the cities of the country in connection with municipal or private hospitals, except that they are logically and intentionally situated to meet the needs of the population and growth of the city, instead of being accidentally located to the great inconvenience of physicians and patients, as is commonly the way in most cities where there is no consistent plan of hospital development. These general dispensaries harbor under the same roof some of the appropriate district functions of the health department of the city, such as baby health clinics, tuberculosis diagnostic and treatment clinics, and venereal disease clinics, thus permitting an economy of cost to the public and a coordination of service which cannot be found in any other of the larger cities in the United States. Buffalo is still short of hospital beds for general medical and surgical patients, and lacks almost entirely facilities for the suitable care of chronic and convalescent patients. In only one respect has the program of hospital construction as proposed in 1910 exceeded the immediate present needs of the city, and that is for tuberculosis, in which the unforeseen and most hopeful reduction in the death rate in the last few years has required a revision in estimates of beds for this disease in 1922.

The hospital plan of Buffalo, including the free public dispensary system, is comprehensive and adequate, but not too elaborate or in any way superfluous. In fact, in one respect the hospital service of the city shows an important lack, namely, in the failure to provide for occupational therapy, that invaluable resource for shortening the period of hospital care by improving the morale of patients through interested employment.

A municipal hospital system which maintains an 88 per cent. use of its bed capacity for general medical and surgical patients throughout the year, as the Buffalo City Hospital did in 1921, deserves much credit for excellence of administration and for the confidence it has won among the medical profession and the public. Only Bellevue Hospital and Mount Sinai Hospital, of all the one hundred hospitals of New York City, equaled this record of performance.

Beyond this hospital and dispensary system serving the needs of diagnosis, prevention and treatment for the health department as well as for the department of hospitals and dispensaries, the only public agency dealing with the sick is the District Nursing Association, which is filling functions similar to those met by like organizations in scores of cities of the United States.

Good and adequate home nursing service for sickness, exclusively under physicians' orders, and for instruction in health protection, requires at least one nurse to 3,000 of the population (preferably one to 2,000). In Buffalo there is one such nurse available for each 6,419 persons, while the ratio in some other cities is as follows:

Boston	1 to 2,691	Chicago	1 to 5,371
Cleveland	1 to 3,887	Baltimore	1 to 6,271
New York	1 to 4,011	St. Louis	1 to 6,496
Detroit	1 to 4,023	Philadelphia	1 to 7,180
Pittsburgh	1 to 4,231		

Two further complaints are registered against existing conditions by Dr. Gardner: that "reformers and uplifters have been allowed to invade unopposed the practice of medicine and surgery," and that "there is no official dividing line between those whom they [public dispensaries] care for as free patients and those who are refused because of their ability to pay."

Any one acquainted with the New York State Medical Practice Act will wonder why any such violations of the law have not been brought to the attention of the Erie County Medical Society by Dr. Gardner, or prosecution sought through legal means. The practice of medicine and surgery cannot be invaded by uplifters and reformers unless these are themselves licensed physicians. Can Dr. Gardner point to an instance in Buffalo in which medical services are rendered by public or private health or treatment agencies except as expressly authorized by law?

As to there being inadequate protection of the public and the medical profession against abuse, by those able to pay, of facilities intended for the indigent, this, too, is a matter which comes within the scope of the admirable dispensary law of the state of New York.

The Erie County Medical Society took some pains to solicit from 668 of its members specific instances of abuse of the privilege of free medical treatment in Buffalo. Eight instances were reported among patients who had made 192,213 original and return visits to the public medical and health clinics of the city in the year. If there is any such abuse, its existence or extension can best be checked by prompt prosecution under the law. There has been no evidence presented by the medical profession in Buffalo in recent years leading to the conviction of any one of violating the law in this regard.

The Bureau of Public Welfare of the city is responsible for the investigation of all applicants for free hospital and dispensary treatment.

The following quotation from a report on an investigation of the Department of Hospitals and Dispensaries, which I had the privilege of presenting to the Citizens' Committee and the Erie County Medical Society in April, 1922, may serve to reduce the fear, evidently in Dr. Gardner's mind, that wholesale pauperization is rampant in the dispensary system of Buffalo:

> The patient or a responsible member of the family signs a sworn statement of inability to pay. Six hundred and seven applicants out of a total of 6,361 were refused assistance on the ground that they could afford the services of a private physician or private hospital care. Frequently patients are referred for pay care through an explanation that free care means acceptance of charity. Advice to return to the family physician and explain to him the financial problem which originally sent the case to the Department of Public Welfare frequently results in an agreement satisfactory to all parties concerned.
>
> Applicants are urged to return in partial payments as much as they are able on their bills for hospital care as well as for other relief furnished; $15,124.45 was returned in this way to the department last year.
>
> It is obvious, however, that no piece of work involving as many difficulties and bringing up so many unsolved sociological problems as this work does can be met with fairness to all concerned, without open and ready cooperation on all sides, the strictest honesty, the use of sound investigative methods and a common desire on the part of all to obtain the best possible medical care for every case.
>
> Recommendations by physicians for free care in the dispensary diagnostic clinic are accepted without further investigation. This is doubtless because of the general belief that a physician has one of the most intimate relationships with families that is humanly possible. In the light of modern social investigation methods and especially in the changed relation of the physician to his patients in an urban community, this is not, of necessity, true. That physicians have been mistaken in their estimate of the financial ability of patients to pay is a frequent complaint of the social organizations consulted in this investigation. An intermittent illness of either brief or long periods which has resulted in the inability of the patient to carry on his usual work has led eventually to application for aid to some charitable organization. This, in turn, has meant the referring of the case for free medical attention as the first and most fundamental step in the financial rehabilitation of the patient. Four specific cases claimed to be private cases taken out of the physician's hands by the District Nursing Association were not known to the District Nursing Association at the time, but upon investigation were found to be cases receiving aid from some charitable organization and sent by them to a city clinic.
>
> It was obvious from conversations had with several physicians that they had no definite idea of a minimum budget upon which a family could maintain its health efficiency.
>
> Few foreigners in the Buffalo community who are laborers are now earning sufficient for a minimum basis of living on an American standard. This does not of necessity mean that none of these persons can pay for medical care. It does mean that their medical attention must be supplemented by city aid in order that it be adequate to prevent their falling into the group of the incapacitated at an unnecessarily early age.

Of the 800 members of the Erie County Medical Society, 305 referred 752 pay patients to the Buffalo City Hospital in 1921, while 272 physicians sent in 772 patients to the free diagnostic clinic during the past two years.

The names of many more physicians, and some of them the most active complainants against free service, appear on the daily blotter of the admissions to the urologic clinic for free treatment as sponsors of the patients, than there were members of the Erie County Medical Society who registered complaints of abuse of service by fraudulent applicants.

Quoting again from the report above referred to:

> If the estimate of 10 per cent. of any modern industrial city population infected with venereal diseases holds for Buffalo, we might expect as many as 50,000 patients needing medical care. If we accept the figure of 4.47 per cent. of the men from Buffalo found to be suffering from venereal disease among the second million drafted men, and that ratio is applied to the present entire population of the city, we have an estimate of 22,350 cases of venereal disease in the city. There were 2,100 individuals treated for venereal diseases at the free urologic clinic at Health Center No. 5, under the auspices of the department of health in 1921. If we consider that even 10 per cent. of these were able to pay, this could hardly account for the 95 per cent. reduction in income from such patients, which has been complained of by a considerable group of physicians. It is doubted if any such claim would stand careful analysis.
>
> The opinion expressed by physicians in Cincinnati in response to an inquiry addressed to them by a committee of the Erie County Medical Society is held to be as true for Buffalo, to the effect that such abuses as exist or are likely to develop in the provision of medical services for the indigent can be prevented and corrected by good social service. . .
>
> It is believed that once the public recognizes the need for adequate social service and the physicians accept this new group of associates as trusted allies, the present roughness and mistakes due to misunderstanding and insufficient support will largely disappear.
>
> It must be a matter of common knowledge among physicians of Buffalo, as it is elsewhere, that the great reduction in the incidence and deaths from preventable diseases during the past twenty years has been the main factor in altering the character of medical practice and changing the sources of income.

Dr. Gardner complains of the lack of adequate individual clinical and laboratory diagnostic care for the patients accepted at the public urologic clinic. With the single exception that the open funnel instead of the single or twin glass cylinder method of administering arsphenamin was in use, it is my opinion that the methods, technic and thoroughness of care at the public urologic clinic at Buffalo will be found to compare favorably with the best hospital dispensary services for venereal diseases operating in our large cities, and to be far above the standards maintained in the practice of the great majority of physicians who deal with venereal diseases as a part of their general medical practice. It seems to me that Dr. Gardner has perhaps quite inadvertently done a serious injustice to a group of young physicians in his own city who are not only serving an important public need ably, but also maintaining high standards of personal service to a class of patients who are commonly made victims of medical quacks.

The continued pressure on our best medical schools to take in more and more of the well educated college academic graduates who wish to study medicine, the obvious leadership of the United States and England in the science and practice of preventive medicine, the rising prestige of whole-time health officers professionally trained to give skilled service, and the steadily falling death rate and sickness incidence from the major preventable diseases with the resulting increase in life expectancy, all seem to me to be sufficient answers to Dr. Gardner's gloomy forebodings as to the future of medicine and the misery which will follow in the wake of those who believe improvement is always possible and health an attainable goal for all, however lacking they may be in worldly goods.

One is sometimes inclined to warn the graduate in medicine that it is not the responsibility of the indulgent and long suffering public to provide him with a steady flow of the sick to his private office, but that it is his own privilege to make himself so indispensable that the well and the sick will seek his services for diagnosis and sometimes for cure.

Dr. Gardner puts up a straw man to knock him down. He pictures a propaganda for the "socialization of the medical profession," whatever that may be. I suspect that he refers to the attempts of the public and private health agencies to make clear to society that the medical profession is capable of giving much broader service than the usual clientele of physicians has yet appreciated, and a service which the wholly necessary reticence of the private practitioner as an individual forbids his advertising on his own behalf. There is no project at present pushed or presented to the public by private or public health agencies which does not carry with it a broader and more active use of the best technical private professional services of which the medical profession is capable. Every movement in preventive medicine has brought more practice to physicians, but in the nature of the case it is not always the general practitioner or the specialist who treated the end-results of disease who is the one sought by the public to teach and apply the remedy of prevention, generally based on particularly accurate early diagnosis.

HAVEN EMERSON, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BRUCK FLOCCULATION TEST

To the Editor:—1. Is the Bruck flocculation test for the diagnosis of syphilis (*Deutsch. med. Wchnschr.* **48:** 825 [June 23] 1922) the same as, or similar to, the Kahn precipitation test (THE JOURNAL, Sept. 9, 1922, p. 870)? 2. Is this the same Bruck who collaborated with Wassermann and Neisser in the introduction of the complement-fixation test?

HENRY ROSENFELD, M.D., St. Louis.

ANSWER.—1. Bruck's flocculation test for the serodiagnosis of syphilis is briefly described thus: The antigen is an alcoholic extract of human heart muscle (beef or horse heart may be used), and is prepared by adding to a given amount of ground-up muscle five times the amount of 96 per cent. alcohol; this is let stand two weeks, during which time it is shaken several times daily; now the alcohol is filtered off, and to 50 c.c. of the extract is added slowly—about 0.5 c.c. every three seconds—25 c.c. of physiologic sodium chlorid solution. The mixture is shaken slowly; 25 c.c. more of physiologic sodium chlorid solution is added quickly, and the mixture shaken again; this gives a turbid solution of antigen potent for two months. On standing, the lipoids precipitate out and fall to the bottom, but that does no harm, for they are easily redissolved by shaking before use in the test. In making the test, to 0.2 c.c. of the patient's serum, which has been inactivated at 56 C. for thirty minutes, 0.8 c.c. of a 10 per cent. sodium chlorid solution and 0.2 c.c. of the diluted and turbid antigen are added. The mixture is shaken, and then centrifuged for twenty minutes. When the tubes are removed from the centrifuge, the fluid is perfectly clear, but there is a white film on top. Now the tube is shaken gently. When a serum is negative for syphilis, the top film will dissolve and form a diffuse turbidity in the fluid without precipitation or flocculation; when a serum is positive, the top film decomposes into extremely characteristic small flakes; if the flakes swim on top while the fluid remains perfectly clear, the serum is a double plus; if the serum is somewhat turbid with fine floccules throughout, the result is a single plus.

2. Yes.

MELTZER LAW OF CONTRARY INNERVATION

To the Editor:—Please give briefly the Meltzer law of contrary innervation. Kindly omit my name.

E. M. H., New York.

ANSWER.—In THE JOURNAL (March 25, 1916) the law of contrary innervation was briefly stated thus by the author: "All living functions are continually controlled by two opposing forces: augmentation or action on the one hand, and inhibition on the other hand." "Thirty odd years ago," said Meltzer, in 1917, "I directed attention to the general principle that impulses inhibiting the action of antagonists must be an integral part of any kind of a movement in the animal body. For instance, simultaneously with each contraction of the extensors an inhibition of any form of contraction of the flexors, and vice versa, must take place; otherwise normal locomotion, for instance, would be practically impossible. I have demonstrated that this principle is an integral part of the respiratory mechanism. A few years before my general statement was made, we discovered that this arrangement is strikingly present in the mechanism of deglutition. The contractions of the lower parts of the esophagus and of the cardia become inhibited as soon as the upper end of the canal of deglutition begins to contract. Bayliss and Starling found that local stimulation of some segment of the intestines causes a contraction above and inhibition of the intestines below the stimulated part. They called it the law of the intestines. Evidently this is not merely the law of the intestines but a part of a general law. . . . Sherrington studied brilliantly this law, especially in the relations of the antagonistic muscles of the lower extremities. These relations exist there in a mutual way, and Sherrington termed them the reciprocal innervation. On account of the distinguished position of the investigator and the brilliancy of his work, physiologists are more familiar with this term. It is, however, evident that this is inappropriate to cover all phenomena manifestly belonging to this category. . . . I therefore designated all these relations by the more general term of the law of contrary innervation."

PREVALENCE OF GASTRIC CANCER

To the Editor:—1. Please inform me where I can find some information with regard to the prevalence of gastric cancer in the different races, especially the Balkans, India, China and Japan. 2. Is gastric cancer more common in some races than in others? 3. What is the death rate of gastric cancer in the United States? 4. What is the death rate in Europe? Please omit my name.

H. M., Detroit.

ANSWER.—1. References should be made to the following books and articles:

Hoffman, F. L.: The Mortality from Cancer Throughout the World, Newark, N. J., the Prudential Press, 1915.
Bunts, F. E.: Cancer of the Stomach, *Ohio State M. J.* **18:** 140 (Feb. 22) 1922.
The Statistical Evidence of Cancer Increase, editorial, THE JOURNAL, Dec. 22, 1917, p. 2117.
Wilcox, W. F.: On the Alleged Increase of Cancer, *J. Cancer Res.* **2:** 267 (July) 1917.
Race Distribution of Cancer, Budapest Letter, THE JOURNAL, Dec. 31, 1921, p. 2135.
Significant Cancer Statistics, THE JOURNAL, Nov. 8, 1919, p. 1462.
Strong, W. M.: Is Cancer Mortality Increasing? *J. Cancer Res.* **6:** 251 (July) 1921.
Mayo, C. H.: Carcinoma Developing on Gastric Ulcer, THE JOURNAL, July 16, 1920, p. 177.
Van Lier, E. B. H.: Gastric Cancer After 70, *Nederlandsch. Tijdschr. v. Geneesk* **2:** 837 (Aug. 13) 1921.
Mayo, W. J.: Cancer of Stomach, *Surg., Gynec. & Obst.* **26:** 367 (April) 1918; abstr., THE JOURNAL, April 20, 1918, p. 1191.
Incidence of Cancer, Berlin Letter, THE JOURNAL, Nov. 26, 1921, p. 1751.

2. Yes.

3 and 4. The mortality from cancer of the stomach and liver from 1908 to 1912, in the United States registration area, was 59.3 per hundred thousand population; 79.8 in Japan (1909-1910); 54 in Italy (1908-1912); 54.6 in Australia; 66.4 in Ireland; 126.9 in Holland; 141.3 in Switzerland (1906-1910); 72.7 in Uruguay; 2.71 in Ceylon (1911-1913), and 1.25 in Hongkong (1895-1904).

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arizona: Phoenix, Oct. 3. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

California: Sacramento, Oct. 16-19. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

District of Columbia: Washington, Oct. 10. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

Florida: Tallahassee, Oct. 10-11. Sec., Dr. W. M. Rowlett, Tampa.

Georgia: Atlanta, Oct. 10-12. Sec., Dr. C. T. Nolan, Marietta.

Hawaii: Honolulu, Oct. 9-12. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

Idaho: Boise, Oct. 3. Director, Mr. Paul Davis, Boise.

Illinois: Chicago, Oct. 10-12. Supt. of Registration, Mr. V. C. Michels, Springfield.

Iowa: Des Moines, Nov. 1-3. Sec., Dr. Rodney P. Fagen, State House, Des Moines.

Kansas: Topeka, Oct. 10. Sec., Dr. A. S. Ross, Sabetha.

Michigan: Lansing, Oct. 10-12. Sec., Dr. Beverly D. Harison, 504 Washington Arcade, Detroit.

Minnesota: Minneapolis, Oct. 3-5. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

Missouri: St. Louis, Sept. 25-28. Sec., Dr. Cortez F. Enloe, State House, Jefferson City.

Montana: Helena, Oct. 3. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

Nevada: Carson City, Nov. 6. Sec., Dr. Simeon L. Lee, Carson City.

New Jersey: Trenton, Oct. 17-18. Sec., Dr. Alexander MacAlister, State House, Trenton.

New Mexico: Santa Fe, Oct. 9-10. Sec., Dr. R. E. McBride, Las Cruces.

New York: Albany, Buffalo, New York and Syracuse, Sept. 25-28. Ass't, Professional Examinations, Mr. Herbert J. Hamilton, State Education, Albany.

Oklahoma: Oklahoma City, Oct. 10-11. Sec., Dr. J. M. Byrum, Shawnee.

Porto Rico: San Juan, Oct. 3. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.

West Virginia: Huntington, Oct. 10. State Health Commissioner, Dr. W. T. Henshaw, Charleston.

Wyoming: Cheyenne, Oct. 9-11. Sec., Dr. J. D. Shingle, Cheyenne.

Wyoming June Examination

Dr. J. D. Shingle, secretary, Wyoming State Board of Medical Examiners, reports the oral and written examination held at Cheyenne, June 5-7, 1922. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. Three candidates were licensed by reciprocity, and one candidate received an osteopath license by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Kansas City College of Medicine and Surgery	(1921)	82
Ohio Medical University	(1897)	75

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Hahnemann Med. College and Hospital of Chicago	(1910)	Texas
Tufts College Medical School	(1909)	New Hamp.
University of Nebraska	(1921)	Nebraska
Osteopath		Nebraska

New Mexico July Examination

Dr. R. E. McBride, secretary, New Mexico State Board of Medical Examiners, reports that 20 candidates were licensed on diploma at the meeting held at Santa Fe, July 10-11, 1922. The following colleges were represented:

College PASSED	Year Grad.	Number Licensed
Arkansas Industrial University	(1894)	1
University of Arkansas	(1909)	1
University of Colorado	(1922)	1
Atlanta College of Physicians and Surgeons	(1912)	1
University of Georgia	(1921)	1
Northwestern University	(1915)	1
State University of Iowa College of Medicine	(1913)	1
University of Louisville Medical Department	(1907)	1
Tulane University	(1910)	1
Johns Hopkins University	(1898)	1
American Medical College	(1877)	1
Barnes Medical College	(1906)	1
Washington University	(1907)	1
University of Buffalo	(1903)	1
University of Oregon	(1917)	1
Jefferson Medical College	(1904)	1
University of Nashville	(1903) (1905)	2
Vanderbilt University	(1917)	1
Medical College of Virginia	(1918)	1

Book Notices

The Breaking Point. By Mary Roberts Rinehart. Cloth. Price, $2 net. Pp. 356, with 1 illustration. New York: George H. Doran Company, 1922.

Mrs. Rinehart, wife of Dr. Stanley Rinehart, and herself a graduate nurse, should be eminently fitted to write a novel, such as this, with two physicians as important characters. The present novel is a mystery story turning on a case of amnesia following delirium tremens. Judson Clark, son of a multimillionaire, is involved with an actress, her brother and a lover, in an intrigue, during which the lover is killed. Clark is at the time drunk and on the verge of delirium tremens. He flees to the mountains and is taken in by some persons and sheltered. As a result of the illness and exposure, he loses his memory. He is then taken by an old general practitioner to an Eastern city where he is found, at the opening of the book, under the name of Dr. Livingstone, engaged in general practice. The elderly physician has introduced him to the community as a nephew. During the intervening period he has been educated at Johns Hopkins, has served in the war, and has practiced medicine for several years. The "throw-back" device is repeatedly employed in the novel, and serves excellently as a sustainer of interest. Moreover, during the interval, the search for the lost Judson Clark has died down. A chance observation by a newspaper man, of a meeting between Dr. Livingstone and the brother of the actress, revives the whole affair. Dr. Livingstone, anxious to marry but more anxious to clear up the mystery of his past, sets forth on a search for his antecedents. The shock of the discovery throws him back into his original Judson Clark personality. It is these various shocks that constitute the "breaking points" of the title, and that give the author opportunity for several brief discourses on psychology and psychanalysis. Strangely, in violation of known facts regarding both amnesia and delirium tremens, Judson Clark, following his second shock, takes up his alcoholism right where he left off, and though he has had no liquor in the intervening years, he wakes up quite drunk, on the edge of delirium, and desiring liquor much as a patient in that state would. Moreover, he eventually succeeds in reconciling his two personalities, retaining his medical knowledge, and resuming practice in the town in which the opening of the book finds him. He gives up voluntarily the great fortune which is his legally if he chooses to claim it. Of course, he marries the girl!

This plot, with all its intermingled love, adventure, life and observation, makes a first class story, quite definitely removed, however, from the bounds of probability and even of possibility. Mrs. Rinehart, with her opportunities for keeping scientifically within the bounds of reason, might well have done so. Her imagination and literary skill are assurance that any story she writes will be of good technical construction and worth reading.

La Roentgenthérapie des Tumeurs Malignes en Oto-Rhino-Laryngologie. Par Georges Portmann, Chef de Clinique Oto-Rhino-Laryngologique à la Faculte de Médecine de Bordeaux, et A.-P. Lachapèle, Assistant d'Electro-Radiologie à la Faculté de Médicine de Bordeaux. Paper. Pp. 106, with 7 illustrations. Paris: A. Maloine & Fils, 1922.

In a small, compact volume, the authors give a comprehensive account of the subject of roentgenotherapy of malignant tumors of the ear, nose and throat. An excellent historical review is first presented, from the discovery of the roentgen rays by Roentgen in 1896, to the report of Moore and Hautant at the French Congress of Otolaryngology in 1921. The principal authors and a number of abstracts of the work which appeared during this period are given, so that the reader gets a fairly complete idea of the whole subject in the space of fifteen or sixteen pages. The technic of irradiation and of the methods of obtaining the sections for diagnosis is described, and accurate instructions are given to avoid injury to the part which might favor the extension of the malignant growth. The next chapter deals with the clinical facts, and shows the results in the treatment by means of roentgen ray of malignant tumors of the tongue, palate, parotid gland, larynx, maxillary sinus, frontal sinus, ethmoids, nasopharynx, neck, cheek, lip, ear and orbital regions, in an aggregate of eighty-four cases, including epithelioma, sarcoma, osteosarcoma and fibrosarcoma. The authors voice the opinion that while a great many cases are helped by radiotherapy, it must be admitted that many cases will recur despite all the therapy. Furthermore, it is impossible to state whether a definite cure has been obtained until several years have elapsed. Nevertheless, it is advised that the patient be given the benefit of the doubt and roentgenotherapy applied. The last chapter is devoted to a discussion of deep roentgenotherapy. Written with the usual clarity of French authors, the book may be easily read and understood. It contains a wealth of practical, useful information.

The Mechanism of the Brain and the Function of the Frontal Lobes. By Professor Leonardo Bianchi, Professor of Psychiatry and Neuropathology in the Royal University of Naples. Translated from the Italian by James H. MacDonald, M.B., Ch.B., F.R.F.P.S., MacKintosh Lecturer in Psychological Medicine, Glasgow University, with a Foreword by C. Lloyd Morgan, LL.D., D.Sc., F.R.S., Emeritus Professor in the University of Bristol. Cloth. Price, $5.50. Pp. 348, with illustrations. New York: William Wood & Co., 1922.

This is not, strictly speaking, a medical book, but rather a discussion of the function of the brain on a broad biologic basis. It is the crystallized product of more than forty years of untiring research and study on cerebral function in its broadest sense, and is the work of one who is a philosopher as well as a naturalist. While it is based mainly on personal investigations, it keeps constantly in touch with the works and views of others. Sherrington, Flechsig and Jacques Loeb are among those whose results are frequently correlated with the author's work. Beginning with embryology, the author takes us through the domain of brain physiology and then leads us on to psychology and human behavior. His philosophy is well expressed in the final sentences:

> Today, when psychology helps us to explain the phenomena of history, it is our duty to devote careful and weighty consideration to scholastic methods, the one aim and object of which should be to establish in each individual the sure foundations of a higher consciousness, embracing the larger conception of life, which is an aggregate of human values, associated, coordinated and acting in concert with one another. It behooves us to apply our minds assiduously to the solution of this problem, which so intimately affects the life of the nation.
>
> We must change our ways. Above all, we should take care, in every grade of school, to get rid of methods and systems (perhaps even personnel) that favor slipshod and slovenly learning, that are concerned solely about the *quantum* necessary for the examination, drying up the springs of noble sentiments, and paying heed only to the expediencies of the moment, methods which arrest or hinder the difficult but enthusiastic work of integration and development of the higher consciousness and the powers of attention, which on the contrary should be developed, encouraged and brought to a higher potential, for such is the source from which are derived the success of the individual and the fortune of the race.

History of Medicine and Surgery and Physicians and Surgeons of Chicago. Endorsed by and Published Under the Supervision of the Council of the Chicago Medical Society. Cloth. Pp. 928, with illustrations. Chicago: The Biographical Publishing Corporation, 1922.

This volume was published, with the approval of the Chicago Medical Society, by a corporation composed of laymen. It was financed through subscriptions of $25 each from some 1,500 physicians, whose portraits and biographies constitute a little more than half the book. The volume is printed on good stock, but in the selection of type, and in the arrangement of pages, there is little artistry. The chief value of the work lies in the history of medicine and surgery in Chicago, which contains the biographies of many noted physicians, now dead, and brief accounts of the medical schools, hospitals and organizations of the city. The book is full of valuable information which should have been placed on record long ago. Unfortunately, the information is not presented in a literary form which will attract readers. The sketches are usually mere compilations of fact. They lack the literary quality and romantic interest which appears, for example, in the biographies of the well known Kelly and Burrage book. The portraits of the early physicians of Chicago and the information concerning them were gathered by Mr. F. du Souchet, under the guidance and with the cooperation of Dr. George H. Weaver. They must have cost a long and arduous search. Certainly they are worth while; and they will afford opportunity for character study, for reminiscences and for the stirring up of old memories.

Medicolegal

Liability of Hospital for Negligence of Physician

(Jenkins v. Charleston General Hospital & Training School (W. Va.) 110 S. E. R. 560)

The Supreme Court of Appeals of West Virginia says that the plaintiff, while in the employ of a fuel company, had his left arm broken. First aid was given him by a local physician, who put the arm in splints. Then the plaintiff, with his employer's certificate of admission, went to the defendant hospital, with which the fuel company had contracted for the medical and surgical treatment of its employees, in consideration of small monthly contributions by the latter. He remained there but a few hours. After registration and the making out of a chart, a roentgenologist was called in, at the expense of the hospital, and a roentgenogram of the arm was taken. A letter, dated the following day and received two days later by the plaintiff's father, stated that the roentgenogram revealed fracture of both the ulna and the radius in upper third, with very little displacement, and that new splints would not have to be applied. More than three months later, after several consultations with a local physician, the plaintiff went to a surgeon who found, by roentgen-ray examination, that the radial head had been dislocated and never replaced, and that it was necessary to open the wound and cut away portions of the bones, in an effort to obtain union and a straighter arm. Subsequently, this action to recover damages was brought, and the plaintiff obtained a judgment; which, however, is reversed, and the case remanded for a new trial, on the ground that the issue was submitted on an erroneous theory, and the verdict was manifestly contrary to the law and the evidence. The defenses were that the only physician who attended the patient was an independent contractor; that, if this defense failed, there was no negligence in the diagnosis or treatment; and that, if there was such negligence, recovery was barred by contributory negligence.

As is the law of the case, the court holds that a hospital conducted for private gain is liable to its patient for injuries sustained by him in consequence of incompetency or negligence of a physician treating him at its instance, under a contract binding it to furnish him proper treatment. A physician so employed is not an independent contractor. One bound to performance of a duty by contract cannot absolve himself from such obligation by devolution thereof on a stranger to it. More specifically, for two good reasons the defense of injury by an independent contractor could not be maintained. The roentgenologist was employed and paid by the defendant to perform work in discharge of its own contract and undertaking to diagnose and treat the injury. In the next place, the taking of the roentgenogram, whether properly or negligently done, was partial performance of the diagnosis, or rather one method of investigation, and not necessarily conclusive. The picture had to be read and interpreted and judgment passed on the conditions disclosed by it. From those conditions, it was necessary to say whether treatment was necessary, and that lay clearly beyond the province and employment of the roentgenologist.

Failure of a hospital, through its physicians and surgeons, to treat its contract patient, within the period of its employment, for part of a wound from which he is suffering, superinduced by lack of discovery of such part through negligence, the investigation not having extended to it at all, is actionable and constitutes ground of liability for the consequent detriment, in the absence of contributory negligence on the part of the patient. But if the patient, on being advised of the necessity of further diagnosis and treatment, within the period of such relation and within a reasonable time after the date of the wound, ignores it and neither returns to the hospital nor procures treatment elsewhere until after the trouble has become irremediable, his right of recovery is limited to such damages as accrued before his negligence occurred, if the prior and subsequent damages can be separated by the jury. A verdict for the plaintiff in such case, found in a trial conducted on the theory of the defendant's unconditional liability for the entire damages sustained, should be set aside.

Identification of roentgenograms by the surgeon under whose general direction and for whose use they were made, and by whom they were used in his diagnosis of a wound, is sufficient for their admission in evidence, although the pictures were not taken or developed in his presence.

In the fact that at the date of the alleged negligence the staff of the hospital had been disrupted and depleted by enlistments in the military service of the country, there was no legal justification for any dereliction of duty of the defendant; but it bore strongly on the moral aspects of the case.

Liability of Employer for Fatal Injury Secondary to Inoculation

(Freedman v. Spicer Manufacturing Corporation (N. J.), 116 Atl. R. 427)

The Court of Errors and Appeals of New Jersey, in affirming a judgment for the petitioner, Nathan Freedman, says that the supreme court filed an opinion which stated the finding of the following facts: Harry Freedman, aged 21, was employed by the defendant company as a clerk. During the influenza epidemic in the fall of 1918, in an effort to check the spread of such disease, the company obtained and administered through its physician a vaccine to such of its employees as were willing to take the treatment, and also to the members of their families. Oct. 23, 1918, Harry Freedman was invited, recommended and induced by the company to accept such inoculation, and was inoculated at the company's plant along with the other men in his department. On his returning to his desk after the inoculation, and as a result of the inoculation, he fainted and fell to the floor. As a result of the fall, he fractured his skull, and his death ensued on the following day, the result of the accident. The injury was caused by an accident arising out of and in the course of the employment.

The supreme court thought that this finding justified the judgment entered in favor of the petitioner, and affirmed it, with costs. The court of errors and appeals merely adds that the judgment under review herein should be affirmed, for the reasons expressed in the opinion of the supreme court.

Treatment of "Persons" Understood—"Adjusting" Implies Diagnosis—"Mode of" Equivalent to "System of"

(People v. Cochran (Calif.), 205 Pac. R. 473)

The District Court of Appeal of California, Second District, Division 2, in affirming a judgment of conviction of the defendant, says that the information charged that he "did wilfully, unlawfully, and feloniously practice, attempt to practice, and advertise and hold himself out as practicing, a system and mode of treating the sick and afflicted in the state of California, without then and there having a valid unrevoked certificate authorizing him to practice a system or mode of treating the sick and afflicted in the state of California, from the state board of medical examiners." The principal contention of the defendant was that the information did not state facts sufficient to constitute a public offense. The court's attention was called to the fact that, in addition to the medical practice act (Statutes of 1913), there is a statute in force in the state of California regulating the practice of veterinary surgeons. But the court thinks that no person of common understanding could fail to know, from a reading of the information, that it charged the defendant with having treated sick and afflicted persons in violation of the medical practice act rather than having violated the statute concerning the practice of veterinary surgeons. The information was fully sufficient to charge a public offense.

The defendant asked the court to declare a legal distinction between "adjusting" and "treating" persons suffering from disease or discomfort. The court was told that the defendant declared that he did not diagnose any case, and so informed the patients who came to him; that he only "adjusted the vertebra" in order that nature might correct the difficulty. It was urged that, unless a diagnosis is made, it cannot be said that a physician "treats" a patient. However, the proposition here argued is not an open question in California. In *People* v. *Jordan,* 172 Cal. 391, 156 Pac. 451, the supreme court of the state announced the law to be that "it is impossible to disassociate diagnosis from the practice of the art of healing by any physical, medical, mechanical, hygienic or surgical means." It was not contended that the adjustments given by the defendant did not involve physical means.

Another contention was that the information was defective in not alleging that the defendant practiced a "system," whereas the offense charged to have been committed by the defendant was "practicing a mode of treating the sick," etc. But the court finds it difficult to understand how a criticism on this ground could be directed against the information in this case; for the charge was clearly of "practicing a system and mode of treating the sick and afflicted." Besides, the opinion in *Ex parte Greenall,* 153 Cal. 767, 96 Pac. 804, recognizes the word "mode" as being the equivalent of "system."

Again, the information in this case was attacked because it did not specify whether or not the defendant was charged with having used drugs. Under the Act of 1913, applicable here, such an allegation is unnecessary to state an offense under its provisions. It prohibits practicing or attempting to practice "any system," etc.

Expert Testifying to Statements Made to Him

(Estes et al. v. Babcock et al. (Wash.), 205 Pac. R. 12)

The Supreme Court of Washington sees no error in the fact that a physician called as an expert witness in this personal injury case was permitted to testify as to statements made to him by the injured plaintiff regarding her condition, on which he based his opinion. The court says that such evidence is admissible for the purpose of affording the jury some means of determining the weight to be given to the opinion of the physician, but not as evidence tending to prove the actual condition of the patient at the time. This, the court thinks, is the general rule.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Minneapolis, Sept. 19-23. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Sec'y.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Albany, N. Y., Sept. 19-21. Dr. James E. Davis, 111 Josephine Ave., Detroit, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. Louis J. Mitchell, 29 E. Madison St., Chicago, Secretary.

American Child Hygiene Association, Washington, D. C., Oct. 12-14. Miss G. B. Knipp, 111 Cathedral St., Baltimore, Md., Secretary.

American Electro-Therapeutic Association, New York, Sept. 19-22. Dr. Richard Kovacs, 223 E. 68th St., New York, Registrar.

American Public Health Association, Cleveland, Ohio, Oct. 16-19. Mr. A. W. Hedrich, 370 Seventh Ave., New York, Secretary.

Association of Military Surgeons of the United States, Washington, D. C., Oct. 12-14. Col. James Robb Church, M. C., U. S. Army, Medical Museum and Library, Washington, D. C., Secretary.

Central States Pediatric Society, Cincinnati, Oct. 16-17. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.

Colorado State Medical Society, Colorado Springs, Oct. 3-5. Dr. F. B. Stephenson, Metropolitan Bldg., Denver, Secretary.

Delaware State Medical Society, Dover, Oct. 9-10. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Indiana State Medical Association, Muncie, Sept. 27-29. Dr. Charles N. Combs, Terre Haute, Secretary.

Kentucky State Medical Association, Paducah, Oct. 16-19. Dr. J. A. McCormack, 532 W. Main St., Louisville, Secretary.

Medical Association of the Southwest, Hot Springs, Ark., Oct. 16-18. Dr. W. H. Bailey, 115 West 21st Street, Oklahoma City, Okla., Sec'y.

Minnesota State Medical Association, Minneapolis, Oct. 12-13. Dr. Carl B. Drake, Central Bank Building, St. Paul, Secretary.

Mississippi Valley Medical Association, Rochester, Minn., Oct. 10-12. Dr. Henry Enos Tuley, 244 Francis Bldg., Louisville, Ky., Secretary.

Missouri Valley, Medical Society of the, St. Joseph, Mo., Sept. 21-22. Dr. Charles W. Fassett, 115 E. 31st St., Kansas City, Mo., Secretary.

Nevada State Medical Association, Reno, Oct. 6-7. Dr. Horace J. Brown, Goldfield, Secretary.

New England Surgical Society, Burlington, Vt., Sept. 22-23. Dr. P. E. Truesdale, 151 Rock Street, Fall River, Mass., Secretary.

Pennsylvania, Medical Society of the State of, Scranton, Oct. 2-5. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Tri-State District Medical Society, Peoria, Ill., Oct. 30-Nov. 2. Dr. William B. Peck, Freeport, Ill., Managing Director.

Vermont State Medical Society, Burlington, Oct. 12-13. Dr. W. G. Ricker, St. Johnsbury, Secretary.

Virginia, Medical Society of, Norfolk, Oct. 31-Nov. 3. Mr. G. H. Winfrey, 104½ W. Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Review of Tuberculosis, Baltimore

August, 1922, **6**, No. 6

*Treatment of Diabetes and Tuberculosis. H. R. M. Landis and E. H. Funk, Philadelphia.—p. 429.
*Studies in Chemotherapy of Bacterial Infections. III. Experimental Tuberculous Pleuritis as Aid to Chemotherapeutic Investigations in Tuberculosis. J. A. Kolmer and I. Ogawa, Philadelphia.—p. 437.
*Brief for Investment in Adequate Prevention of Tuberculosis. H. Emerson, New York.—p. 454.
Criticism of Recent Interpretations of Annular Shadows in Lung Roentgenograms. M. P. Burnham and P. K. Brown, San Francisco.—p. 469.
Roentgenographic Pleural Annular Shadows in Pulmonary Tuberculosis. J. A. Honeij, Boston.—p. 477.
Further Studies of Roentgenographic Pleural Annular Shadows in Pulmonary Tuberculosis. J. N. Amberson, Jr., New York.—p. 480.
*Report of Twenty Years' Work in Treatment of Tuberculosis at New Mexico Cottage Sanatorium: With Estimation of Part Played by Climate. E. S. Bullock and F. T. Fahlen, Silver City, N. M.—p. 484.

Treatment of Diabetes and Tuberculosis.—Landis and Funk believe that these two diseases are more commonly associated than is generally considered, and that in practically all cases diabetes is the initial disorder and the active tuberculosis a subsequent development. The diabetes probably determines in most instances the development of tuberculosis in the person in whom both are found to be present. The authors are quite convinced that in that particular group of tuberculous patients in whom diabetes is present, weight increases have less significance, as far as the improvement of the tuberculous condition is concerned, than in others, and this is in keeping with knowledge of the prognosis of diabetes. The undernourished diabetic keeps well longer than one who tends rapidly to put on weight. The tuberculosis will improve even though there is no considerable gain in weight, if the diabetes remains under control at a given weight. The important point in regard to the fats is to know how to adust the diet so that a maximum of fat may be given without disturbing the fat metabolism, with the resulting formation of ketogenic substances and acidosis. The ratio between fatty acids and glucose should not exceed 1.5 to 1. It is of first importance, therefore, to know that a given quantity of carbohydrate yields in the body 100 per cent. glucose and no fatty acid, proteins yields 58 per cent. glucose and 46 per cent. fatty acid, and fat yields 10 per cent. glucose and 90 per cent. fatty acid. With this information it is possible to calculate the diet, so that the ratio of fatty acids to glucose of 1.5 to 1 is not exceeded.

Chemotherapy of Bacterial Infections.—For chemotherapeutic investigations in bacterial infections, localized are better than generalized infections for the study of medicaments possessing but a slight margin between the toxic and curative doses. For chemotherapeutic investigations in tuberculosis, it is recommended by Kolmer and Ogawa that experimental tuberculous pleuritis and pneumonitis be employed as a lesion offering more hope for successful therapy than generalized infections. For the production of experimental tuberculous pleuritis, the animal should be of a species possessing some natural immunity, in order to reduce invasiveness of the bacilli and the development of lesions in distant organs; the cultures should be of moderate rather than high virulence. Experiments with guinea-pigs, rabbits, dogs and white rats, employing human and bovine strains of tubercle bacilli, have shown that the best lesions, largely confined to the side of injection, were produced in rats by bovine bacilli (Strain H) and in dogs by human bacilli.

Prevention of Tuberculosis.—It is believed by Emerson that if three population groups of approximately 200,000 each, one in New York City, one in a city of the second class in New York State, and one including a smaller city and a large rural or county area in New York State, were so served by the judicious investment of $3 per capita for the prevention and treatment of tuberculosis among them, in addition to the expenditures now made by these various communities for purposes directly or remotely assisting in the control and care of tuberculosis, as to reduce the death rate per hundred thousand per annum in five years by 50 per cent., the effect on the district selected, on the nation, and on the opinion and wealth of the world, as a whole, would be such as to convince all nations and communities of their obligation to make at least the same effort and probably to oust tuberculosis from its position of the greatest single destroyer of life and property today.

Climate in Treatment of Tuberculosis.—The statistical nature of Bullock and Fahlen's paper does not permit making a brief abstract—but the subject of treatment of pulmonary tuberculosis is discussed in all its phases on the basis of analysis of results in about 1,500 cases and with reference to climate the authors are firm in their belief that the "sicker they are, the more they need what our climate has to give them."

Archives of Internal Medicine, Chicago

August, 1922, **30**, 2

*Absorption of Digitalis in Man. C. Eggleston and J. Wyckoff, New York.—p. 133.
*Delayed Conduction Through Right and Left Branches of Atrioventricular Bundle. H. M. Korns, Cleveland.—p. 158.
*Studies on Physiology of Liver. III. Effect of Administration of Glucose in Condition Following Total Extirpation of Liver. F. C. Mann and T. B. Magath, Rochester, Minn.—p. 171.
*Studies of Cerebrospinal Fluid and Blood of Syphilitic and Normal Persons; with Special Reference to Immunity Reactions and Colloidal Gold Test on Original and Ultrafiltered Fluids and Serums. C. E. Nixon and K. Naito, Minneapolis.—p. 182.
*Efficient and Practical Method for Counting of Red Blood Cells. R. R. Waugh, Montreal.—p. 216.
Mechanism of Hay-Fever. F. M. Rackemann, Boston.—p. 221.
*Factors in Leukocytosis. D. K. Bacon, St. Paul; F. O. Novy and H. H. Eppler, Detroit.—p. 229.
Blood Pressure and Pulse Rate Reactions. T. Addis, San Francisco.—p. 240.

Absorption of Digitalis in Man.—The absorption of high grade specimens of tincture of digitalis from the digestive tract of man, Eggleston and Wyckoff state, is almost invariably sufficiently uniform to permit the establishment of a satisfactory working average total dose in terms of the cat unit of activity per pound of the patient's body weight. Specimens of tincture of average biologic activity are occasionally encountered which are therapeutically unsatisfactory on account of poor absorption from the alimentary canal. Tincture of digitalis shows definite evidences of action on the heart in from two to four hours after oral administration to man. Poorly absorbed tinctures may require more than five hours for the development of demonstrable cardiac action. A method of preparing and standardizing a purified tincture of digitalis is described. The purified tincture is shown to be absorbed from the human digestive tract more rapidly and more nearly uniformly than are different specimens of official tincture of average biologic activity. Considerable variation in the capacity of different individuals to absorb digitalis is shown to exist. Evidence is offered to show that digitalis causes nausea or vomiting in man by reflexes arising in the heart as a result of its intoxication. An average total dose of the purified tincture for oral administration to man is established on the basis of its cat unit of activity and the patient's body weight.

Delayed Conduction Through Atrioventricular Bundle.—It is suggested by Korns that the older routine methods which have been depended on to show the normal and abnormal anatomy of the Purkinje system be subjected to rigid criticism. Recent work has made it clear that these methods have been inadequate. Recent experimental work on the subject of delayed branch conduction is reviewed. A case is reported in which electrocardiograms parallel in a striking fashion those seen in experiments. Attention is directed to eight similar cases in the literature. If the refractory period of the right or left branch of the atrioventricular bundle is longer than the refractory period of the A-V node, conduction through that branch is delayed provided the rate of impulse discharge from the ventricular pacemaker be sufficiently high. Digitalis may directly lengthen the refractory periods of the individual branches to a degree sufficient to produce delay in branch conduction.

Blood Sugar Decreased Following Hepatectomy.—The experimental work done by Mann and Magath shows that the total removal of the liver is followed by a definite and progressive decrease in blood sugar. Coordinate with this decreasing blood sugar, a characteristic group of symptoms develops. If glucose in suitable amounts is injected intravenously into an animal exhibiting these characteristic symptoms, it is immediately restored to normal. If glucose is administered so that the blood sugar does not decrease, the symptoms do not develop.

Colloidal Gold Test Reviewed.—It is evident from experiments made by Nixon and Naito that two factors are concerned in the colloidal gold reaction. In fluids giving a curve there is present a precipitating substance; there may also be present a protective substance which modifies the action of this substance. Both precipitating and protecting substances are present in pathologic cerebrospinal fluid. Curves in Zones I, II and III are due to varying amounts and proportions of the precipitating and protecting substances. Albumin and globulin may possess both precipitating and protecting power. Ultrafiltrates of syphilitic and nonsyphilitic serums give curves that are more or less similar, but there tends to be a greater difference between the zones of reduction of the original and filtered serum in syphilitic than in normal cases. The protecting substance is decreased by ultrafiltration to a greater degree than the precipitating substance. Changes in the state of the protein modified precipitating and protecting powers. The salt solution used in the colloidal gold test partially neutralizes the protective action.

Counting Red Blood Cells.—Employing the same principle of comparing the elements to be counted with those of a titered standard suspension, as in Dreyer's method, a procedure has been devised by Waugh which has distinct advantages for the enumeration of erythrocytes and offers a method which is rapid, accurate and clinically practicable.

Nature of Leukocytosis.—A picture is drawn by Bacon, Novy and Eppler which portrays the leukocytes and fever (if one wishes to consider that an immune reaction) as a second line of defense against infection, responding only after invasion due to a let down of primary humoral immunity, if such it be, and then responding to nonspecific stimuli which arise from quantitative alteration in the bodily metabolism rather than directly from the infecting organisms; the same stimuli which on a smaller scale produce variations of normal values in the absence of infection.

Arkansas Medical Society Journal, Little Rock

August, 1922, **19**, No. 3

Permanent Cure for Trigeminal Neuralgia. W. T. Coughlin, St. Louis.—p. 45.
Darwinian Theory. T. Douglass, Ozark.—p. 48.
Auricular Fibrillation with Paroxysmal Tachycardia. S. T. Rucker, Memphis, Tenn.—p. 55.

California State Journal of Medicine, San Francisco

August, 1922, **20**, No. 8

*Nondysenteric Amebiasis. A. C. Reed, San Francisco.—p. 253.
*Plan for Intensive Treatment of Congenital Syphilis. H. Schussler, San Francisco.—p. 257.
Diphtheria Problem. W. W. Roblee, Riverside.—p. 260.
*Is Meltzer-Lyon Technic for Diagnosis and Treatment of Gallbladder Disease an Asset or a Liability? W. C. Alvarez, San Francisco.—p. 262.
Lethargic Encephalitis. N. T. McArthur, Imola.—p. 263.
Anatomic and Embryologic Study of Perineum. M. B. Wesson, San Francisco.—p. 269.
Early Hospital History in United States. J. B. Cutter, Watsonville.—p. 272.
Curability of Syphilis. V. G. Vecki, San Francisco.—p. 274.
Hay-Fever: Its Cure by Alcoholic Injection. D. H. Trowbridge, Fresno.—p—. 275.
Effect of Massage, Heat and Exercise on Local Circulation. A. W. Hewlett, San Francisco.—p. 276.

Nondysenteric Amebiasis.—Reed and some of his associates examined the stools in twenty cases of Type II arthritis. Of these only one showed *Endameba histolytica.* This patient was put on intensive treatment for amebiasis with the result or accompaniment that his arthritis become distinctly worse and remained worse. Cysts had not reappeared in his stools within two months after stopping treatment but physiotherapy had to be resumed to relieve his pain. During the same period Reed saw seven other cases of Type II arthritis. One only of these harbored *E. histolytica.* One of these patients who gave no evidence of amebiasis was put on moderately severe amebic treatment none the less and received immediate improvement which has lasted for some two months. Reed believes the explanation lies in the free elimination secured by the treatment and is along the line frequently noted of improvement following the use of colon irrigations and a diet designed to decrease putrefactive changes in the bowel. A second case was infected with an ameba which Kofoid diagnosed as Councilmania. The amebiasis was cured by specific emetin treatment and the clinical improvement was marked and has lasted some three months. Such a so-called therapeutic test as this seems to Reed worthless, however, as showing any relations between ameba and arthritis, for the reason stated. Immediate improvement in the symptoms of arthritis after treatment with emetin preparations would in no sense argue for an amebic cause for the arthritis, but rather for immediate removal or subsidence of some focus of toxic absorption in the intestine. This is in line with mature clinical judgment. Settlement of the present question of the causation relationship of the ameba will depend not on therapeutic experimentation but on demonstration of definite association histologically between ameba and bone lesion, and the experimental production specifically of such lesions.

Intensive Treatment of Congenital Syphilis.—Schussler describes a plan of treatment for congenital syphilis which is in use at the Children's Clinic of Stanford University Medical School. Three intravenous injections of neo-arsphenamin are given at forty-eight hour intervals. Three mercurial inunctions are given every week for eight weeks. Three more neo-arsphenamin injections are given at forty-eight hour intervals. Mercurial inunctions are given as above for four weeks more. A rest period of four weeks is permitted, at the end of which a Wassermann test is done. This schedule covers a period of about four months. It is repeated regularly until the Wassermann test is negative, after which one more course is given with step three omitted. Then all treatment is stopped, and the Wassermann is repeated every six months for three years. If all are negative, and no clinical evidence of the disease has appeared, the patient is considered as probably cured. Sodium iodid is given almost continuously to all patients over 1 year old, being omitted and a tonic of iron and cod liver oil substituted during the rest periods. If the patient has an active or open lesion, the initial series of neo-arsphenamin is increased to six injections on alternate days, the rest of the course being as usual. This first course is considered the most important, and it should be made intensive. In weak athreptic infants, the first arsenical series may be preceded by a week or two of mercury rubs. Spinal puncture is done (1) if the central nervous system is clinically involved; (2) if the Wassermann reaction is very resistant to treatment; (3) in cases with mental deficiency, and (4) at the time of the first negative blood Wassermann, if involvement of the nervous system has ever been suspected. Intraspinal treatment in children is rarely used and is not recommended for general practice. The dosage of neo-arsphenamin varies with the age, weight, arsenical tolerance, and general physical condition of the patient. It is much higher, in proportion, than the doses commonly used in adults.

Value of Meltzer-Lyon Method in Gallbladder Disease.—It seems pretty clear to Alvarez that as a diagnostic procedure the method has hardly a leg to stand on. Therapeutically, there is only one thing to do with a chronically diseased gallbladder if a cure is desired, and that is to take it out. Individual cases will always have to be treated individually, however, and in the present state of knowledge it is often hard to decide when a patient should be urged to go to the surgeon, and when she should be advised to let well enough alone. The method is worth trying on certain people who for one reason or another cannot submit to operation, or who have had unsuccessful or partly successful operations. Furthermore, it should be tried on every rebellious case of catarrhal jaundice. The method may occasionally be helpful in establishing the presence of severe cholecystitis, but Alvarez would never think of relying on it for the diagnosis of early or obscure forms of the disease.

Canadian Medical Association Journal, Montreal

August, 1922, **12**, No. 8

Hospitalization Problems—Hospital Standardization. M. T. MacEachern, Vancouver.—p. 520.
Evolution of Surgery as I Have Seen It in My Own Practice. A. Groves, Fergus.—p. 527.
Typhoid Fever in Infancy and Childhood. H. S. Whiting, Montreal.—p. 531.
*Effects of Ultraviolet Rays on Calcium and Inorganic Phosphate Content of Blood Serum of Rachitic Infants. F. F. Tisdall, Toronto.—p. 536.
*Starvation Treatment of Epilepsy. A. Goldbloom, Montreal.—p. 539.
Postoperative Complications of Respiratory Tract. H. R. Decker, Pittsburgh.—p. 541.
Block and Local Anesthesia. H. O. Howitt.—p. 549.
Statistical Study of Fermentative Diarrhea, Infectious Diarrhea, Acute Intestinal Intoxication and Decomposition. M. A. Cox, Toronto.—p. 554.
Fear—Harmful Emotion: How May We Eliminate It from Surgical Patient's Mind? D. Guthrie, Sayre, Pa.—p. 559.
Value of Wassermann Test. F. T. Cadham, Winnipeg.—p. 563.
Effects of General Anesthetics on Liver. C. La Rocque, Montreal.—p. 566.
*Case of Bromid Eruption in Nursing Infant. F. H. Boone, Toronto.—p. 570.

Effect of Ultraviolet Rays on Blood Calcium in Rickets.—Tisdall reports that exposure of rachitic infants to ultraviolet rays from a mercury vapor quartz lamp, for very short periods, caused a marked increase in both the calcium and inorganic phosphate content of the blood serum. The increase in the calcium and inorganc phosphate content of the serum was followed by clinical and roentgenographic evidences of healing. No increase in the serum calcium and inorganic phosphate was obtained by prolonged exposure to the rays from an ordinary 500 watt incandescent lamp. In all cases the whole body was uncovered and exposed to the rays of the mercury vapor quartz lamp. The distance of the lamp from the body was 60 cm. and the duration of the exposure generally fifteen minutes.

Starvation Treatment of Epilepsy.—Experience has convinced Goldbloom that the starvation treatment of epilepsy is effective only while it is continued and while the patient remains in bed, but it has no enduring qualities. The explanation of the improvement is first that the patient is kept in bed and secondly that the fermentative and putrefactive intestinal processes, so often the exciting causes of convulsions even in a nonepileptic child, are reduced for the time being to a minimum. Hence reliance must still be placed on one or other of the sedatives, such as bromids or luminal or both for a greater degree of relief.

Bromid Eruption in Nursing Infant.—Boone reports the case of a nursing baby, 6 months of age, receiving sufficient bromids through the mother's milk to produce marked cutaneous signs of bromid poisoning. The mother was receiving 45 grains of sodium bromid per day, over a period of seven and a half weeks. Not until four and a half weeks after bromids were started did the first symptoms of intolerance appear in the baby. The mother never developed any eruption. When the tonic was discontinued, the baby's condition showed a steady and gradual improvement.

Colorado Medicine, Denver

August, 1922, **19**, No. 8

Brill's Psycho-analysis. L. V. Tepley, Denver.—p. 159.
Plea for Earlier Administration of Artificial Pneumothorax. A. Minnig, Denver.—p. 162.
Plea for Conservative Surgery in Tuberculous. M. D. Brown, Denver.—p. 165.
Classifications in Tuberculosis. M. I. Marshak, Edgewater.—p. 166.
Some Advantages of Local Anesthesia in Abdominal Surgery. L. E. Likes, Lamar.—p. 168.

Illinois Medical Journal, Oak Park

August, 1922, **42**, No. 2

*Tumors of Breast from Standpoint of General Practitioner and General Surgeon. A. D. Bevan, Chicago.—p. 85.
Why Is a Doctor? J. J. O'Reilly, Brooklyn.—p. 93.
Flies on Chariot Wheel. G. F. Lydston, Chicago.—p. 97.
System of Applying Local Anesthesia. R. E. Farr, Minneapolis.—p. 101.
Combined Intranasal and Extranasal Operation for Cure of Dacryocystitis, Freeport.—p. 104.
Necessity for Narcotic Drug Investigation. L. D. Volk, New York.—p. 111.
Grown Together Twins and Last Illness of Blazek Twins. B. H. Breakstone, Chicago.—p. 123.
Psychoanalysis of So-Called Borderline Pulmonary Tuberculosis. H. I. Leviton, Los Angeles.—p. 130.
Diagnostic Surveys by Diagnostic Commissions for Asylum Populations. C. A. L. Reed, Cincinnati.—p. 132.
Roentgen-Ray Diagnosis of Peptic Ulcer. H. B. Magee, Peoria.—p. 136.
Diagnosis and Treatment of Eczema. B. B. Beeson, Chicago.—p. 140.
Vitamins. C. B. Johnson, Champaign.—p. 144.

Tumors of Breast.—Speaking of postoperative management of these cases, Bevan says that the roentgen ray is of very much more value in the after-treatment of breast amputations for carcinoma than radium. It should be employed in every case, and by an expert. Time and again he has seen gross recurrent carcinomatous lesions, the size of a bean or the size of a cherry, disappear under roentgen-ray treatment. It seems perfectly clear that if these gross, visible, tangible lesions can be made to disappear under the roentgen ray that the microscopic group of cells from which they sprang could be very much easier destroyed if the roentgen ray is used immediately after radical operation. This should be advised in every case. There comes a time, of course, in hopeless cases when the roentgen ray evidently is of no value, when it holds out no prospect of benefit and when some other agent, such as morphin, had better be used for the purpose of making the patient as comfortable physically and mentally as possible without adding any possible injury from roentgen-ray treatment.

Iowa State Medical Society Journal, Des Moines

August, 1922, **12**, No. 8

Digitalis in Cardiac Disease. H. A. Christian, Boston.—p. 307.
*Effect of Occlusion of Coronary Arteries on Heart's Action and Its Relationship to Angina Pectoris. W. T. Longcope, New York.—p. 314.
Syphilitic Aortitis, Cause of Sudden Death. L. R. Woodward, Mason City.—p. 319.
Causes of Failure of Operations for Chronic Appendicitis. C. J. Rowan, Iowa City.—p. 322.
Vincent's Angina as Seen in Civil Practice. J. E. Rock, Davenport.—p. 326.
Hospital and Laboratory as Aid in Diagnosis and Treatment of Diabetics. E. L. Rohlf, Waterloo.—p. 329.
Mental Measurement in Relation to Medicine. R. H. Sylvester, Des Moines.—p. 330.

Effect of Occlusion of Coronaries on Heart Action.—Longcope states that sudden stoppage of the circulation in one or the other coronary artery which is otherwise normal, probably leads to immediate or fairly sudden death, possibly from fibrillation of the ventricles. Thrombosis usually but not invariably occurs in arteries that are previously diseased and narrowed by sclerosis. Occlusion either by thrombosis of sclerosis under these circumstances may be compatible with life for varying periods of time, though death when it comes is usually sudden. In a small group of cases, the disease pursues its course as a rapidly progressive cardiac insufficiency without features of particular note. But in the great majority of cases, there are significant symptoms and signs that frequently allow of a fairly accurate diagnosis. Most important of these are pain often with a particular radiation, the appearance of transient pericardial friction rubs, often associated with the acute onset of myocardial insufficiency and various forms of tachycardia and cardiac arrhythmia, all occurring in an elderly person usually without signs of valvular heart disease. Unfortunately, there does not seem to be any one electrocardiographic sign that occurs in all cases.

Johns Hopkins Hospital Bulletin, Baltimore

August, 1922, **33**, No. 378

*Generalized Megalokaryocytic Reaction to Saponin Poisoning. J. Firket and E. S. Campos, Baltimore.—p. 271.
*Survival of Cells After Death of Organism. W. H. Lewis and C. C. McCoy, Baltimore.—p. 284.
*Study of Austin-Stillman-Van Slyke Index of Urea Excretion. C. H. Hitchcock and R. Loveland, Baltimore.—p. 294.
*Studies on Experimental Rickets. XXII. Conditions Which Must Be Fulfilled in Preparing Animals for Testing Antirachitic Effect of Individual Foodstuffs. E. V. McCollum, N. Simmonds, P. G. Shipley and E. A. Park, Baltimore.—p. 296.

Saponin Produces Megalokaryocytic Reaction.—A peculiar case of extreme anemia in which there was complete aplasia of the bone marrow together with a new formation, in the liver and spleen, of myeloid tissue in which megalokaryocytes predominated, led Firket and Campos to make a study of the condition which could not be explained on the basis of anything that could be learned of the man's history, but in attempting to imitate it, the authors found that a very similar condition could be produced by saponin poisoning.

Survival of Cells After Death of Organism.—Small pieces of tissue from various organs of the rat, examined by Lewis and McCoy at varying periods after death, showed that most types of cells survived for a time and certain types of cells survived longer than others, in approximately the following order: tissue macrophages, cartilage cells, kidney tubule cells, smooth muscle cells, salivary gland cells, bladder epithelium, tracheal epithelium, tongue epithelium, endothelium, lymphocytes, large lymphocytes, microcytes, lung epithelium, leukocytes, Kupffer cells, brain macrophages, pancreas cells, red blood corpuscles, liver cells, Sertoli cells, mesenchyme, ovarian follicular cells, epididymis epithelium, adrenal cells, intestinal epithelium, and nerve cells. Macrophages survived for about 240 hours; brain cells for less than an hour; striated muscle developed no granules or vacuoles.

Urea Excretory Coefficient in Renal Insufficiency.—Twenty-seven cases are analyzed by Hitchcock and Loveland in which the Austin-Stillman-Van Slyke urea excretory coefficient was determined. In borderline conditions, as well as in cases presenting marked evidence of renal damage, and also during the relapses of pernicious anemia, there was found a definite lowering of the value of the coefficient. Hence, it is concluded that the Austin-Stillman-Van Slyke coefficient of urea excretion may be of value in demonstrating renal insufficiency, and, particularly in borderline cases, it deserves further study.

Experimental Rickets.—Dietary conditions are discussed by McCollum et al. which must be fulfilled in conducting the "line test" for the calcium depositing substance (antirachitic effect) of foodstuffs. The importance of selecting the highest quality of food grains; of using a rational system of protein purification; the use of salts of proven quality, and of taking into account the content of fat soluble A in alcoholic extracts of wheat germ or other substance which may be employed as sources of water soluble B, are discussed and emphasized. The pronounced anatomic changes which are brought about by relatively small variations in the composition of the diet, with respect to those factors which play a rôle in bone growth, are illustrated by specific examples from our experimental data. The lactate of calcium proved a less satisfactory source of this element for promoting growth of the bones than did the carbonate. The cause of this difference must await further investigation.

Journal of Biological Chemistry, Baltimore

August, 1922, 53, No. 2

Proteins of Lima Bean, Phaseolus Lunatus. D. B. Jones, C. E. F. Gersdorff, C. O. Johns and A. J. Finks, Washington, D. C.—p. 231.

*Distribution of Sodium, Potassium, Calcium and Magnesium Between Corpuscles and Serum of Human Blood. B. Kramer and F. F. Tisdall, Baltimore.—p. 241.

Study of Certain Protein Precipitants. A. Hiller and D. D. Van Slyke, New York.—p. 253.

Determination of Three Dissociation Constants of Citric Acid. A. B. Hastings and D. D. Van Slyke, New York.—p. 269.

Effect of Ether Anesthesia on Acid-Base Balance of Blood. D. D. Van Slyke, J. H. Austin and G. E. Cullen, Philadelphia.—p. 277.

*Studies on Experimental Rickets. XXI. Experimental Demonstration of Existence of Vitamin Which Promotes Calcium Deposition. E. V. McCollum, N. Simmonds, J. E. Becker and P. G. Shipley, Baltimore.—p. 293.

Type of Ophthalmia Caused by Unsatisfactory Relations in Inorganic Portion of Diet. Ophthalmia Not Due to Starvation for Fat-Soluble A, and Not Curable by Its Administration. E. V. McCollum, N. Simmonds and J. E. Becker, Baltimore.—p. 313.

Creatinin and Creatin in Muscle Extracts. III. Concerning Presence of Enzymes in Muscle Tissue Which Have Creatin and Creatinin as Their Substrates. F. S. Hammett, Philadelphia.—p. 323.

Analysis of Camel's Colostrum. H. L. Fales, New York.—p. 339.

Effects of Ether Anesthesia Alone or Preceded by Morphin on Alkali Metabolism of Dog. R. L. Stehle, W. Bourne and H. G. Barbour, Montreal, Can.—p. 341.

Metabolism of Sulphur. V. Cysteine as an Intermediary Product in Metabolism of Cystin. H. B. Lewis and D. A. McGinty, Urbana, Ill.—p. 349.

Adaptation of Pentabromoacetone Method to Quantitative Determination of Citric Acid in Urine. W. B. McClure, Chicago.—p. 357.

Electrochemical Study of Condition of Several Electrolytes in Blood. B. S. Neuhausen and E. K. Marshall, Jr., Baltimore.—p. 365.

Determination of Uric Acid. H. Jackson, Jr., and W. W. Palmer, New York.—p. 373.

Calcium and Phosphorus Metabolism in Childhood. H. C. Sherman and E. Hawley, New York.—p. 375.

Influence of Position and of Temperature on Reaction of Aliphatic Amino Nitrogen with Nitrous Acid. M. S. Dunn and C. L. A. Schmidt, Berkeley, Calif.—p. 401.

Water Soluble Constituents of Alfalfa Plant. T. B. Osborne, A. J. Wakeman and C. S. Leavenworth, New Haven, Conn.—p. 411.

Phosphoric Esters of Some Substituted Glucoses and Their Rate of Hydrolysis. P. A. Levene and G. M. Meyer, New York.—p. 431.

Sulphuric Esters of Some Substituted Glucoses and Their Rate of Hydrolysis. P. A. Levene and G. M. Meyer.—p. 437.

Preparation and Analysis of Animal Nucleic Acid. P. A. Levene, New York.—p. 441.

Benzylidene-Ethyl-Chitosaminate and Benzylidene-Ethyl-Diazogluconate (Mannonate). P. A. Levene, New York.—p. 449.

Fate of Some of Phenylacetylated Amino-Acids in Animal Organism. G. J. Shiple and C. P. Sherwin, New York.—p. 463.

Relation Between Age and Concentrations of Protein Fractions in Blood of Calf and Cow. P. E. Howe, Princeton, N. J.—p. 479.

Rate of Hydrolysis of Wheat Gliadin. H. B. Vickery, New Haven, Conn.—p. 495.

Abnormal Milk and Influence of an Aseptic Udder Inflammation on Composition of Milk. B. Sjollema and J. E. Van Der Zande, Utrecht, Holland.—p. 513.

Earthy Metals in Blood Corpuscles and Serum.—Kramer and Tisdall found that the corpuscles of human blood do not contain appreciable amounts of sodium or calcium. The average concentration of potassium per hundred c.c. of corpuscles found in thirteen normal adults was 428 mg. The concentration of magnesium in whole blood is slightly higher than that of serum. The extent to which the concentration of sodium, potassium, calcium, and magnesium in whole blood and corpuscles may vary is indicated in the tables. Evidence is presented showing that there is an excess of about 16 per cent. of basic radicles over the well known acid radicles in both serum and corpuscles. It is likely that the excess is in combination with proteins. Sodium represents about 92 per cent. of the fixed base of serum; potassium, practically all that of corpuscles.

Fourth Vitamin has Calcium Depositing Properties.—The evidence presented by McCollum et al. demonstrates that the power of certain fats to initiate the healing of rickets depends on the presence in them of a substance which is distinct from fat soluble A. These experiments clearly demonstrate the existence of a fourth vitamin whose specific property is to regulate the metabolism of the bones. Coconut oil which had received no chemical treatment whatever possesses demonstrable calcium depositing properties, whereas it does not show a comparable antixerophthalmic effect.

Journal of Experimental Medicine, Baltimore

August, 1922, 36, No. 2

*Loss of Hemolytic Capacity by Fraction of Culture of Hemolytic Streptococcus Without Change in Agglutination Characteristics. E. Valentine and C. Krumwiede, New York.—p. 157.

Organotropic, Bacteriotropic and Leukocytotropic Actions of Certain Organic Chemicals. L. D. Felton and K. M. Dougherty, New York.—p. 163.

Significance of Colostrum to New-Born Calf. T. Smith and R. B. Little, Princeton, N. J.—p. 181.

*Influence of Glands with Internal Secretion on Respiratory Exchange. IV. Effect of Suprarenal Insufficiency in Cats. W. J. M. Scott, New York.—p. 199.

*Experimental Production of Periarteritis Nodosa in Rabbit with Consideration of Specific Causal Excitant. W. H. Harris and A. V. Friedrichs, New Orleans.—p. 219.

*Studies on Experimental Measles. II. Enanthematous, Exanthematous, Pyrexial, and Leukocytic Syndrome Produced in Rabbit by Intravenous Inoculation of Blood from Cases of Human Measles. C. W. Duval and R. D'Aunoy, New Orleans.—p. 231.

*Studies on Experimental Measles. III. Symptom-Complex in Guinea-Pig and Rabbit Following Intratracheal and Intravenous Injections of Filtered Nasopharyngeal Secretions from Cases of Human Measles. C. W. Duval and R. D'Aunoy, New Orleans.—p. 239.

Changes in Number of Small Lymphocytes of Blood Following Ligation of Thoracic Duct. F. C. Lee, Baltimore.—p. 247.

Loss of Hemolytic Capacity by Hemolytic Streptococcus.—Valentine and Krumwiede discuss an instance in which a culture of hemolytic streptococcus developed a nonhemolytic fraction which as determined by its agglutinogenic, agglutination and agglutinin absorption characters was identical with the hemolytic fraction, the only variation being one of function, or physiologic action. This functional variation has proved permanent, as long as observed, for both fractions have continued to breed true. This study is offered as additional evidence in favor of the hypothesis that functional changes among bacteria are, at most, only very infrequently associated with changes in the antigenic matrix of bacteria.

Effect of Suprarenal Insufficiency on Heat Production.—Scott states that severe and sufficient nonfatal injury to the suprarenal cortex by freezing or by ligation in cats causes a significant and prolonged increase in heat production. Lethal injury to the suprarenals by freezing, ligation, or partial excision in cats causes a fall in heat production. Insufficient injury to the suprarenals by freezing, ligation, or partial excision in cats produces no significant alteration in heat production. Further evidence of a close thyroid-suprarenal cortex interrelationship is indicated by the rapidity of thyroid hyperplasia and by the effects of potassium iodid after suprarenal crippling.

Experimental Production of Periarteritis Nodosa.—The material employed by Harris and Friedrichs was derived from a typical case of periarteritis nodosa. The patient had suffered from general weakness, pain in the epigastric area and lower abdomen and vomiting. The necropsy was performed seventy-two hours after death. The coils of the small intestine adhered on the right side to a mass about the size of a cocoanut, consisting of a blood clot surrounding the right kidney. Another large clot was present beneath the omentum, and numerous more recent smaller clots were between the coils of the intestines. The gastro-epiploic artery presented two large fusiform aneurysmal dilatations. The source of the hemorrhage around the right kidney was a ruptured aneurysmal sac within the outer portion of the cortex of the kidney. The external surface of this kidney presented multiple bizarre shaped areas of mottled red and buff color. Composed of arboriform injected vessels, some of which had ruptured, giving rise to petechial extravasations. Scattered irregularly along the course of the coronary arteries and their rami were multiple discrete nodosities. Certain arteries in the liver and afferent arteries to the mesenteric lymph nodes presented the microscopic changes of periarteritis nodosa. Portions of the nodules were ground up with physiologic solution of sodium chlorid and some of this material was injected into rabbits. The lesions induced in rabbits were identical with those occurring in man and consisted of exudative and degenerative processes within the walls of the smaller arteries resulting in aneurysmal formations and thromboses. Hence it is concluded that periarteritis nodosa is a specific infectious disease which is transmissible to the rabbit. The micro-organism inducing the disease is capable of going through a Berkefeld N filter and is therefore to be classed with the group of so-called filter passers.

Experimental Measles.—Defibrinated human blood obtained from measles cases at the stage of temperature height was used by Duval and D'Aunoy for inoculation. The results obtained appear to show that an active transmissible virus exists in the blood of measles patients during the eruptive stage of the disease. This virus produces in rabbits after intravenous injection a specific reaction analogous in all essential features to that of the human infection. Repeated passage of the virus of measles through the rabbit seems to increase its virulence. It is a noteworthy fact that the pneumonia so common in fatal cases of human measles was not evident in any of the experimental animals. The authors believe this to be of considerable significance, especially in elucidating the direct etiologic factor of the fatal pneumonias so often present in human measles cases. Apparently such infections in man can be explained purely on the basis of the destruction of normal defense barriers by the specific excitant of the infectious disease, and the lack of host resistance to the ordinary pyogenic micro-organism.

Filter Passing Virus Cause of Measles.—The reaction produced in animals as a result of the introduction into their circulatory and respiratory systems of filtered nasopharyngeal washings from cases of human measles indicates that there is present as a causal agent in the nasopharyngeal secretions of measles cases a filter-passing virus.

Journal of Industrial Hygiene, Boston

August, 1922, **4**, No. 4

Industrial Hygiene of Fur Cutting and Felt Hat Manufacture. A. Hamilton, Boston.—p. 137.
Time and Motion Study. E. Farmer.—p. 154.
Tuberculosis as It Affects Industrial Worker. F. A. Craig, Philadelphia.—p. 170.
Certain Aspects of Problem of Zinc Toxicity. P. Drinker, Boston.—p. 177.

Journal of Nervous and Mental Diseases, New York

August, 1922, **56**, No. 2

*Spinal Drainage Following Intravenous Arsphenamin. C. B. Craig and L. B. Chaney, New York.—p. 97.
*Memory Defect of Korsakoff Type Observed in Multiple Neuritis Following Toxemia of Pregnancy. F. A. Ely, Des Moine, Iowa.—p. 115.
*Two Cases of Epidemic Encephalitis Showing Unusual Neurologic Findings. J. H. Leiner, New York.—p. 126.

Spinal Drainage Following Intravenous Arsphenamin.—As a result of clinical research and experience in treating syphilis of the nervous system with the various arsenical preparations by simple intravenous administration, by the safe intraspinous methods and combinations of these with mercurial treatment, the authors are of the opinion that no single method of treatment is applicable in all cases, and that the intravenous administration of arsphenamin is the method of choice. Spinal drainage after this procedure is not hazardous. It will prove of benefit in some cases which have arrived at a position of inertia under intravenous administration alone. As satisfactory clinical and serologic results may be obtained by intravenous arsphenamin and drainage as are obtained by the intraspinous method and without the severe root pains frequently set up by the latter method.

Multiple Neuritis Following Toxemia of Pregnancy.—Ely is convinced that multiple neuritis is a frequent sequel of vomiting of pregnancy; that it may develop during gestation or in the puerperium without any obtainable evidence of underlying infection. A mild psychosis of the Korsakoff type is very prone to occur in this type of multiple neuritis. Therapeutic abortion, Ely suggests, is perhaps too long delayed in many cases. It is the best remedial measure and the most assured means of preventing multiple neuritis. Four cases are cited by Ely. The chief point of interest was the memory defect aside from the ordinary polyneuritic symptoms. It was identical with that observed in cases of alcoholic neuritis or carbon monoxid poisoning.

Unusual Nervous Symptoms in Epidemic Encephalitis.—Two cases are reported by Leiner which showed an acute febrile onset, sore throat, sneezing, headache, etc., followed by hemiplegia, cranial nerve involvement with hemianopsia, mental confusion, disorientation, etc. Both cases showed a typical neuritis with slow recession. An additional striking feature was that both cases evidenced thalmic involvement.

Journal of Radiology, Omaha

August, 1922, **3**, No. 8

*Radiotoxemia: Cause and Prevention. E. G. Beck, Chicago.—p. 301.
*Bone Diseases: Nonsuppurating Osteomyelitis (Garré); Infectious Ossifying Peritostitis (Bloodgood). J. C. Bloodgood, Baltimore.—p. 310.
Value of Imbedding Radium in Treatment of Carcinoma of Breast. R. H. Boggs, Pittsburgh.—p. 317.
Effect of Roentgen Ray on Germ Cells. J. W. Mavor, Schenectady, N. Y.—p. 320.
System of Roentgen-Ray Anthropometry (Skull). A. J. Pacini, Washington, D. C.—p. 322.

Prevention of Radiotoxemia.—Beck says that by radical surgery to expose the tumor and remove as much of it as is consistent with safety to the patient and then leave the wound open no matter how large it may be, so as to be able to give direct application of the radioactive agent into the cancer bed, the toxemia may be prevented.

Infectious Ossifying Periostitis.—Although he discourages drawing conclusions on the material analyzed, Bloodgood is convinced that apparently there is a definite type of nonsuppurating ossifying periostitis or sclerosing osteomyelitis. He has sufficient cases to demonstrate that trauma and syphilis may produce it. It is observed as a posttyphoid and postinfluenzal lesion, and apparently it may be secondary to any type of infection. As a single lesion in the early stage it will present difficulties in differentiating it from periosteal sarcoma. When it is multiple, sarcoma can be excluded. The roentgen-ray picture differentiates it from multiple osteitis fibrosa and metastatic carcinoma. The most important points in treatment are the administration of arsphenamin intravenously and a search for the focus of infection, which, when found, should be removed. No evidence is at hand as yet that incision with removal of the new bone formation is helpful.

Journal of Urology, Baltimore

August, 1922, **8**, No. 2

Value of Blood Transfusion to Urologist. W. F. Martin, Battle Creek, Mich.—p. 105.
*Undiagnosed Renal Hemorrhage. I. S. Koll, Chicago.—p. 115.
Intrarenal Pressure. B. A. Thomas and J. E. Sweet, Philadelphia.—p. 131.
*Carbuncle of Kidney. H. L. Kretschmer, Chicago.—p. 137.
Nephrolysis and Ureterolysis. G. Kolischer, Chicago.—p. 149.
Duplication of Renal Pelvis and Ureter: Unsuccessful Heminephrectomy. F. S. Schoonover, Rochester, Minn.—p. 155.
Cystography an Aid in Diagnosis of Certain Urologic Conditions. N. Moore, St. Louis.—p. 159.
Character and Treatment of Bladder Ulcers. E. L. Keyes, Jr., New York.—p. 167.
Urinary Lithiasis in Children. G. J. Thomas and C. O. Tanner, Minneapolis.—p. 171.

Undiagnosed Renal Hemorrhage.—In two cases of hematuria unaffected by rest in bed or medicinal treatment Koll did a nephrectomy. In one case the pelvis was seen to be engorged with blood which extended up and around the entire kidney between the capsule and the parenchyma; the ramifications of the calyces were filled with blood. Otherwise the organ appeared entirely normal, the structures standing out well. In the second case there was marked hemorrhage into the parenchyma at the upper pole, finally disappearing about the midthird of the kidney into the pelvis. Several hundred sections from each specimen taken at various points showed microscopically, in the first case the bleeding most profuse in the pelvic supporting tissue and into the larger divisions of the calyces, extending around the kidney subcapsularly. There is also considerable engorgement of the intertubular connective tissue but the tubules and glomeruli are practically free from blood. There was no round cell infiltration, no degeneration of the tubular epithelium and no fibrous tissue formation. In the second case the collection of blood was markedly intertubular and intraglomerular, the former more pronounced. The pelvic tissue also contained accumulations of blood and many of the pelvic blood vessels were engorged. Again there was a total absence of involvement of the tubules and no evidence of any fibrous tissue. The conclusion is drawn that these two cases belong to a classification of renal pathology the etiology of which is as yet unnamed.

Carbuncle of Kidney.—By carbuncle of the kidney is meant a metastatic infection of the kidney by staphylococci, secondary to an infection elsewhere by this organism, such as a carbuncle or felon, in which the lesion of the kidney has the gross appearance of a carbuncle as seen in other parts of the body. Kretschmer cites two cases, one unilateral and the other bilateral, in which the primary foci were demonstrable. In one case this was a felon of the right thumb. The kidney symptoms pointed to involvement of the left kidney. It was removed. Several large abscesses, which contained thick, greenish-yellow pus were situated mostly in the anterior half of the cortex. In close proximity to the larger abscesses were seen several smaller areas that had the appearance of typical carbuncles. When these areas were pressed, thick, greenish-yellow pus came to the surface. Cultures of the pus from the abscesses showed hemolytic staphylococci. At the time the patient came under observation the felon had completely healed; hence it was not possible to obtain cultures to determine whether or not the organisms found in the kidney were identical with the organisms which produced the felon. The second patient had a carbuncle of the neck. The right kidney became involved and its removal was necessitated. In the medulla, at the center of the kidney, were many small, white, opaque areas, irregular in form and irregularly distributed, which proved to be small isolated abscesses which on cut surface had the gross appearance of a carbuncle. Pus from the abscesses showed culture of pure *Staphylococcus aureus*. Several months afterward the left kidney became affected and the patient died. The kidney contained many pus pockets. The only uninvolved kidney tissue was at either pole, a little more toward the lower than the upper pole.

Kentucky Medical Journal, Bowling Green

August, 1922, **20**, No. 8

Diagnosis of Tertiary Syphilis. E. E. Butler, Louisville.—p. 517.
Preventable Blindness. I. A. Lederman, Louisville.—p. 522.
Interesting Roentgen-Ray Study of Foreign Body (Honey Locust Seed) in Right Bronchus. C. E. Purcell, Paducah.—p. 529.
Intensive Roentgen-Ray Therapy. W. J. Young, Louisville.—p. 532.
Emergencies and Complications in Obstetrics: Case Report. H. M. Rubel, Louisville.—p. 537.
Id. Case Reports. C. W. Karraker, Louisville.—p. 539.
*Toxemia of Pregnancy Associated with Pellagra. H. E. Tuley and T. F. Hale, Louisville.—p. 541.
Fat Intolerance. J. W. Bruce, Louisville.—p. 545.
Thyroid Glands. H. C. Clark, Falmouth.—p. 547.
Quartz Light Therapy. S. J. Rose, Winchester.—p. 549.
Syphilitic Anemia: Banti's Disease; Case Reports. L. W. Frank, Louisville.—p. 551.
Puerpural Infection. D. H. Kash, Jackson.—p. 557.
Talma's Operation for Cirrhosis of Liver; Splanchnic Anesthesia. M. Casper, Louisville.—p. 558.
Mouth Sepsis as Related to Systemic Disease. O. W. Brown, Falmouth.—p. 560.
Malignant Conditions of Face and Neck. C. K. Beck, Louisville.—p. 562.
Endocrines and Their Relation to Future Medicine. P. K. Holmes, Lexington.—p. 567.
Symptoms and Treatment of Puerpural Infection. R. C. Burrow, Cunningham.—p. 570.
Preventive Medicine and Its Achievements. J. H. Harrison, Hawesville.—p. 572.
*Unusual Case of Congenital Hernia. W. T. McConnell, Louisville.—p. 574.
Two Diabetic Cases in Young. R. H. Davis, Louisville.—p. 576.

Toxemia of Pregnancy Associated with Pellagra.—A woman, three and one-half months pregnant, had pernicious vomiting of pregnancy. After a thorough trial of the usual remedies without avail, it was decided that the only way to relieve the symptoms was by evacuating the contents of the uterus. This was done, but instead of improving, the patient went from bad to worse. She lost flesh rapidly; she had a considerable amount of hallucinations, not very much rise in temperature, a rapid rise in the pulse rate; but the feature which impressed Tuley and Hale most forcibly was a peculiar bronzing of the skin on the forearms, legs and cheeks with a tremendously dry tongue suggestive of pellagra. The patient died.

Congenital Abdominal Hernia.—In McConnell's case practically all of the small intestines, the vermiform appendix and part of the cecum were protruding through a complete perforation in the abdominal wall, lying loose and free on the surface of the abdomen. The opening was circular, located about 1 cm. to the right of the umbilicus, and measured 1.5 cm. in diameter. The parietal layer of the peritoneum was completely fused with the abdominal skin around the edge of the opening, making a smooth firm border, having the appearance of healthy tissue. The recti muscles were widely separated, the aperture being well to the mesial side of the right rectus. The coils of intestine were very dark looking, swollen and congested. It was with great difficulty that the protruding mass was returned into the abdominal cavity. McConnell then injected some 5 per cent. argyrol into the abdomen through this opening, and applied a dressing held tightly in place with strips of adhesive plaster. About the third day severe peritonitis developed, the abdomen becoming very much distended, the child vomiting yellowish-green material frequently and passing a watery, greenish stool about once every hour. In about four days this condition began to subside. By the time the baby was two weeks old the distention had practically disappeared, the stools were about normal, and the baby was taking its nourishment regularly, vomiting only occasionally, and then nothing but curdled milk. The opening in the abdomen had contracted until it was almost closed and had a healthy appearance. On the nineteenth day the abdomen distended very rapidly. In two or three hours the distension disappeared suddenly, the child went into profound shock, and died within one hour.

At the time of death a match could not be passed through the abdominal opening. About four months prior to the birth of the child, the maternal grandmother was operated on for a very large umbilical hernia. The recti muscles of the child's mother are also very widely separated, and the abdominal wall is very thin in the umbilical region, but as yet she has no hernia.

Laryngoscope, St. Louis

August, 1922, **32**, No. 8

Anatomic Studies of Dorello's Canal. H. H. Vail, Cincinnati.—p. 569.
Optic Nerve in Sinus Disease. C. W. Cutler, New York.—p. 576.
Case of Chronic Purulent Otitis Media Complicated by Perisinal and Extradural Abscecesses, with Severe Meningeal Symptoms. D. S. Dougherty, New York.—p. 587.
Relation Between Thyrotoxicosis and Tonsillar Infection. L. E. Brown, Akron, Ohio.—p. 590.
Frontal Lobe Abscess Secondary to Sinusitis. J. Friedman and S. D. Greenfield, Brooklyn.—p. 608.
Odor from Healing Mastoid Wounds Simulating That from Necrosing Bone Associated with Secondary Invasion of Diphtheroids. A. M. Dunlap, Pekin, China.—p. 614.
Case of Sinus Phlebitis with Normal Middle Ear at Time of Operation. I. Friesner, New York.—p. 617.
Case of Brain Abscess in a Syphilitic. T. L. Saunders, New York. —p. 619.
Case of Temporosphenoidal Abscess Complicating Chronic Purulent Otitis with Spontaneous Rupture and Hernia into the Mastoid Antrum. D. S. Dougherty, New York.—p. 621.
Ethmoiditis and Sphenoiditis in Relation to Eye Disturbance; Report of Three Cases. M. A. Warlow, Philadelphia.—p. 623.
New Instrument for Resecting Internal Wall of Maxillary Sinus. W. Bishop, Minneapolis.—p. 631.
Report of Two Cases of Syphilis of Eighth Nerve and Inner Ear. E. G. Gill, Roanoke, Va.—p. 634.

Missouri State Medical Association Journal, St. Louis

August, 1922, **19**, No. 8

*Treatment of Pelvic Infections by Injections of Milk. G. Gellhorn, St. Louis.—p. 341.
Glaucoma Following Cataract Operations. J. S. Lichtenberg, Kansas City, Mo.—p. 345.
Missouri Blind-Pension Law from Ophthalmologist's Standpoint. H. D. Lamb, St. Louis.—p. 346.
Medical Economics. W. R. Beatie, Springfield.—p. 351.
*Study of Intradermic Vaccination. Report of Six Hundred and Twenty Cases. T. Twyman, Independence.—p. 353.
Suggestion for Modification of Medical Course from Student Viewpoint. L. D. Cady and M. F. Weymann, St. Louis.—p. 358.

Foreign Protein Therapy in Pelvic Infections.—Attention is directed by Gellhorn to the part which foreign protein therapy seems to be destined to play in gynecology. Pelvic infections due to the gonococcus are the principal field for the foreign protein therapy, but successes may also be obtained in infections due to other causes. Milk has been found to be a very suitable, though not the only, medium for treatment. It is introduced by intramuscular injections. Dosage and technic are described. No untoward by-effects or after-effects need be anticipated; in particular, there is no danger of anaphylactic shock. The general condition is improved in every case. Of ten cases of gonorrhea of the tubes, six were cured completely; of these, two had large tumors which disappeared entirely. Two patients were improved. Two were unimproved. Three patients with rather rare pathologic conditions in the pelvis were cured or materially benefited by the milk injections. From personal observations and the study of the literature it appears to Gelhorn that mainly the tubes, the uterus, and possibly the bladder are favorably influenced by foreign protein therapy. The ovaries seem to remain refractory. Exudates are brought to absorption, but adhesions are left undisturbed. In order to protect the method from discredit by injudicious use, the cases to be treated should be selected carefully. The gonorrhea of the cervix itself remains unaffected by the treatment. For the sake of preventing reinfection, the cervix should be treated separately. The milk injections are no cure-all. A certain small percentage of failures is unavoidable. But in the majority of cases a complete cure can be accomplished without pain, risk, or mutilation where formerly only serious operations gave any promise of relief.

Intradermic Vaccination.—Intradermic vaccination is the injection of the virus of vaccina or cowpox between the layers of the skin for the purpose of immunizing against smallpox or mitigating its effects. Twyman reports on the study of 620 cases in which the records are complete. The percentage of primary takes was 80.9. The percentage of takes on those who were vaccinated more than once was 92.8. The percentage of takes in the previously vaccinated, not excluding the immune, was 54. Of those claiming to have had smallpox (twenty-three cases), ten took. A cutaneous reaction of anaphylactic nature may or may not occur in the injected area of the previously successfully vaccinated and in those who have had smallpox. There were no secondary infections observed in this series. There was little or no complaint of pain. Five cases of vaccina were observed. Scarring may be entirely absent. It would seem that intradermic vaccination is the method of choice when the individual is liable to rub off the vaccine or apply antiseptics to prevent vaccination from being a success. It would seem advisable to try intradermic vaccination on those individuals who repeatedly fail to react to ordinary vaccination methods.

New York State Journal of Medicine

August, 1922, **22**, No. 8

Value of Eye Observations in Fractures of Skull and Severe Head Injuries. J. A. Kearney, New York.—p. 341.
Relation of Certain Ocular and Cerebral Conditions to Infections in Nose and Throat. E. R. Faulkner, New York.—p. 344.
Surgical Treatment of Cranial and Intracranial Injuries. E. J. King, New York.—p. 347.
Significance of Papilloedema in Brain Tumors. I. S. Wechsler, New York.—p. 354.
Relation of Syphilis to Diagnosis and Surgery. A. M. Crance, Geneva. —p. 357.
Dr. James Primrose and His Vulgar Errors. W. R. Riddell.—p. 360.
Mosquito Elimination in Nassau County. A. D. Jaques, Lynbrook. —p. 371.
Cornell Pay Clinic. A. W. Ferris, Watkins.—p. 372.

Pennsylvania Medical Journal, Harrisburg

August, 1922, **25**, No. 11

Rôle of Nonmedical Graduate in Medical Laboratory. C. Y. White, Philadelphia.—p. 755.
Goiter; from Standpoint of Clinician. C. E. Ervin, Danville.—p. 760.
*Achylia Gastrica. J. Sailer, Philadelphia.—p. 767.
*Eclampsia; Studies in Etiology. J. S. Lawrence, Philadelphia.—p. 771.
What Cases of Eclampsia Shall We Section? W. E. Parke, Philadelphia.—p 775
*Xeroderma Pigmentation; Report of an Unusual Case. W. H. Guy, Pittsburgh.—p. 780.
Difficulties and Practicability of Infant Feeding in a Country Practice. F. P. Simpson, Mapleton Depot.—p. 782.
Jobson's Tonsil Forceps. G. B. Jobson, Franklin.—p. 785.
Laryngeal Diphtheria. J. B. McMurray, Washington.—p. 786.
Bony Projections into Tonsils: Case Report. G. R. S. Corson, Pottsville.—p. 788.
Suggestions Concerning County Tuberculosis Sanatoria in Pennsylvania. A. P. Francine, Harrisburg.—p. 789.
Acute Perforating Duodenal and Gastric Ulcer with Report of Cases. J. D. Singley.—p. 794.
Bacteriologic Examination of Pus from Mastoid Operation with Complications from Various Organisms. R. Milligan.—p. 795.
Subhyaloid Hemorrhage in Pregnancy. E. B. Heckel.—p. 796.

Achylia Gastrica.—The prognosis for cure of achylia gastrica, Sailer asserts, is most unfavorable. Patients may have periods during which the hydrochloric acid reappears in the stomach contents, but in his experience this return has never been anything but temporary and in the forms of achylia for which no definite cause has been found it can be expected that they will remain without secretion of gastric juice throughout life. With persistence in the treatment, however, they achieve a degree of comfort which is practically that of normal health. The nutrition remains good, or if not good, improves. The associated symptoms are relieved or diminished and the duration of life does not seem to be shortened.

Eclampsia.—Lawrance analyzes 144 cases which are divided into three groups according to stage: (1) mild; (2) severe; (3) convulsive. The analysis indicates that the eclamptics belonged to the physical and mental types commonly found in the mild and severe stages and that they exhibited symptoms previous to the convulsion that were similar in variety and incidence to those of the mild and severe stages. A decline in the activity of the maternal antibodies, or hemolysins, manifested itself clinically. This period of progressive decrease in the activity of the maternal antibodies is followed by a short period in which the body is swamped with uncombated protein poisons—chorion. Then comes the sharp anaphylactic reaction manifested by acute cerebral and pulmonary edema and the convulsion. The clinical evidence that the convulsion is an anaphylactic reaction, is as follows: (*a*) favorable influence on the convulsions of attempts at raising antibody activity, for instance, by colonic irrigation, lavage or morphin; (*b*) favorable influence on convulsions of attempts at decreasing the amount of protein poison (chorionic) discharged into the maternal circulation; (*c*) unfavorable influence on the convulsions of lowering antibody activity. The sequence of events is summarized as follows: A. Mild state: Mental deficiency, unhygienic living; symptoms, constipation, etc.; acidosis; decrease in antithrombin, increase in fibrinogen. B. Severe state commences: Appearance of renal and hepatic lesions; breakdown in antibody and ferment protections. C. Convulsive state commences: Placental elements swamp the system; pulmonary and cerebral edema acute; anaphylaxis; convulsion.

Xeroderma Pigmentosum.—The case reported by Guy is that of a man 30 years of age who kept himself fairly comfortable by complete avoidance of sunlight. He worked in a coal mine, entering the mine early in the morning and leaving after dark, and slept in a darkened room.

Southern Medical Journal, Birmingham, Ala.

August, 1922, **15**, No. 8

*Food Allergy as Cause of Abdominal Pain. W. W. Duke, Kansas City, Mo.—p. 599.
Roentgen-Ray as an Adjunct in Diagnosis of Gastro-Intestinal Diseases. F. H. Clark, Oklahoma City, Okla.—p. 606.
Rationale of Digestive Therapy. E. H. Gaither, Baltimore.—p. 611.
*Intracranial Hemorrhage in New-Born: Case Report. E. Rosamond, Memphis.—p. 618.
Apparently Hopeless Case of Polyglandular Disturbance with Infantile Genitalia in Body Seventeen and One-Half Years: Complete Cure at Twenty-One Years. C. E. Boynton, Atlanta, Ga.—p. 619.
Control of Typhoid in Rural Communities. A. P. Harrison, Austin, Tex.—p. 621.
Soil Pollution, Public Health Problem of Today. E. L. Bishop, Nashville, Tenn.—p. 625.
Unorganized County Problems and How Best to Take Care of Them. E. G. Williams, Richmond, Va.—p. 631.
*Surgical Treatment of Bronchiectasis. E. A. Graham, St. Louis.—p. 639.
Spinal Anesthesia. J. R. Garner, Atlanta, Ga.—p. 646.
Prostatectomy: Preoperative and Postoperative Treatment. R. Thompson, Charlotte, N. C.—p. 650.
Ocular Manifestations Resulting from Fifth Nerve Irritation. E. H. Cary, Dallas, Tex.—p. 657.
Laryngeal Tuberculosis. J. B. Greene, Asheville, N. C.—p. 664.

Food Allergy as Cause of Abdominal Pain.—This subject was discussed by Duke in the *Archives of Internal Medicine* **28**:151 (Aug.) 1921, and six cases were reported.

Intracranial Hemorrhage in New-Born.—Out of seventeen cases of convulsions in the new-born seen by Rosamond in the past twelve months, fourteen manifested delayed bleeding-clotting time and were in all probability due to cerebral hemorrhage. The points of interest in the one case cited were the occurrence of an intracranial hemorrhage in a cesarean baby, the absence of all external bleeding, the severity of the convulsions, their duration of thirty-six hours before efforts to stop the hemorrhage were made and the prompt cessation of the convulsions when the bleeding was stopped. The thirteen other cases all responded promptly to blood therapy. Since a routine determination of the blood coagulability would reduce the mortality of the new-born practically 50 per cent., and, furthermore, since it would probably prevent a large number of the cases of birth palsies, Rosamond thinks it is well worth the extra time and care it would take to make this a universal, routine procedure.

Surgical Treatment of Bronchiectasis.—The treatment of bronchiectasis has always been unsatisfactory. Certain cases of recent origin, Graham says, respond to the comparatively simple procedure of artificial pneumothorax and are made free from symptoms. In some cases a foreign body is present which should be removed. Radical surgery should probably not be attempted until after less radical measures have been tried. There are certain cases in which satisfactory results can be obtained only by radical means. Pneumotomy with simple incision and drainage of the cavities has generally proved unsatisfactory. The most rational radical measure is lobectomy when the process is confined to a single lobe. The fourth case in which lobectomy has been performed with an entirely satisfactory result is described.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

August, 1922, **3**, No. 4

*Experiments Employing Quantitative Method in Study of D'Herelle Phenomenon. H. B. Maitland, Toronto.—p. 173.
*Vitamins, Exposure to Radium and Intestinal Fat Absorption. J. C. Mottram, W. Cramer and A. H. Drew.—p. 179.
Indicators for Culture Media Containing Varying Acids and Buffers. I. W. Hall.—p. 182.
Variation Phenomena in Streptococci, with Special Reference to Colony Form, Hemolysin-Production and Virulence. M. L. Cowan.—p. 187.
Experiments on Infectivity of Typhus Virus Contained in Lice (Pediculus Humanus and Pedicinus Longiceps). E. E. Atkin and A. Bacot.—p. 196.
Relation of Natural Diphtheria Antitoxin in Blood of Man to Previous Infection with Diphtheria Bacilli. S. F. Dudley.—p. 204.
Nature of Action of Potato on Growth of B. Influenzae. P. Fildes.—p. 210.
Cultivation of Spironema Duttoni from Case of Relapsing Fever. I. J. Kligler.—p. 215.

Quantitative Method in Study of d'Herelle Phenomenon.—A quantitative method for estimating the strength of a sample of the active principle which causes the d'Herelle phenomenon is described by Maitland. Employing this method the rate of increase of active principle in a bouillon culture was determined. There was an early period of lag, a short period of rapid increase and an indefinitely prolonged period of equilibrium. The increase of the active principle did not coincide with any constant alteration in the total bacterial content of the culture in which it was increasing. Lysis did not always occur; sometimes there was increase in the total number of bacteria. Increase was shown to require three factors—active principle, living bacteria, and some additional factor. Several substances were found to contain this factor.

Vitamins, Exposure to Radium and Intestinal Fat Absorption.—The histochemical study of fat absorption from the intestine made by Mottram et al. demonstrates that the functional activity of the intestinal epithelium as regards absorption is profoundly affected by the presence in the food of vitamins A and B, particularly the latter. These "food-accessory factors" have a stimulating action on intestinal absorption, and probably also on intestinal digestion, even in quite normal animals which have not been subjected previously to any special diet. On the other hand, in the absence of vitamins there is no delay in the passage of food in such animals. After exposure to radium sufficient to produce a lymphopenia the absorption of food is impaired in the same way as if vitamins were absent, and this effect cannot be counteracted by an abundant supply of vitamins in the food. The observations confirm the view previously expressed by the authors that lymphocytes play an important part in the absorption of food, and that the marasmus resulting from a deficiency of the water-soluble vitamin is due to an impaired absorption and assimilation of food from the intestine.

China Medical Journal, Shanghai

July, 1922, **36**, No. 4

Amebic Dysentery. W. B. Billinhurst.—p. 287.
Rupture of Abdominal Wall, with Coils of Intestine Prolapsed Through Perforation in Woman Five Months Pregnant. J. H. Montgomery.—p. 297.
Treatment of Secondary Anemia, When Caused by Infection with Ancylostoma Duodenalis. F. R. Whelply, Jr.—p. 301.
*Unusual Bullet Wound Case. F. R. Whelply, Jr.—p. 302.
Pharmacognostic Notes (1) Chinese Materia Medica. B. E. Read.—p. 303.
Size and Weight in Two Hundred and Sixty-Nine Chinese Children and Young Adults.—p. 305.
Effect of Surface Tension of Culture Medium on Bacillus Tuberculosis. P. Y. Chang.—p. 311.
Slide Rule for Computing and Converting Chinese Dates and Ages. P. H. Stevenson.—p. 327.
Women's Work and General Hospital. J. P. Maxwell.—p. 333.
*Sachs-Georgi Test for Syphilis. H. W. Y. Taylor.—p. 344.
Medical Evangelism. G. W. Leavell.—p. 359.

Unusual Bullet Wound.—In Whelply's case the entrance wound was in the scapula about midway and just under the spinous process. Its exit was through the pectoral muscles 2¼ inches up from the anterior axillary fold at a point 7 inches from the midline, giving a wound course which apparently showed injury to the lung and pleura. There was profuse hemorrhage and a probe showed the entrance wound to pass outward toward the head of the humerus. The bleeding vessels were high up in the axilla and were direct branches from the axillary artery. Also the posterior and internal cords of the brachial plexus had been severed. The bullet had glanced from the head of the humerus and gone forward and internal for its exit, this causing the severance of the nerve trunks with practically no arterial injury.

Value of Sachs-Georgi Test.—Seven hundred serums were tested by Taylor by the Sachs-Georgi test. There was 92.2 per cent. correspondence with the Wassermann test. The Sachs-Georgi test, performed with an extract of the heart of the black pig common to North China, is considered a reliable test for syphilis. The test is simple, cheap and specific. In the Wassermann laboratory it is very useful as a supplementary aid to blood and spinal fluid test.

Edinburgh Medical Journal

August, 1922, **29**, No. 2

Urethroscope as Aid in Diagnosis and Treatment of Gonorrhea. C. C. Brown.—p. 49.
*Action of Quinidin Sulphate in Three Cases of Auricular Fibrillation. W. M. Walwyn and J. S. Fowler.—p. 65.
Spinal Anesthesia. D. N. Kalyanvala.—p. 74.

Quinidin Sulphate in Auricular Fibrillation.—The three cases of auricular fibrillation reported by Walwyn and Fowler were probably influenzal, rheumatic, and secondary to emphysema of the lungs and arterial disease, respectively. One was a case of fibrillation of a few weeks' duration with good compensation. A normal rhythm was established after 2 gm. quinidin had been given, and was maintained thereafter. The second case was of longer standing—at least one year's duration—and was complicated by disease of the mitral valve and associated with signs of failure of the myocardium. It offers a good illustration of the value of quinidin (1) in restoring normal rhythm, (2) in maintaining the normal rhythm when given in smaller doses. Three times, when quininidin was stopped, did fibrillation return, to be again abolished by the resumption of the drug. To maintain normal rhythm a dose of not less than 1.2 gm. daily was at first required; latterly 0.8 gm. was found sufficient. In the third case there was no response whatever to quinidin in the doses given.

Japan Medical World, Tokyo

July, 1922, **2**, No. 7

*Prophylaxis and Serum Treatment of Spirochetosis Icterohemorrhagica. R. Inada.—p. 189.
Overwintering of House Flies. H. Kobayashi.—p. 193.
So-Called Para-Agglutination. Y. Watanabe.—p. 196.
*Internal Secretion of Pituitary and of Parathyroids. G. Izumi.—p. 199.

Serum Treatment of Spirochetosis Icterohemorrhagica.—Inada states that the effect of intravenous injection is more rapid than the subcutaneous injections. It was found that immune bodies appear in the blood within five minutes after intravenous injection, while it took eight hours by subcutaneous injection and then only incompletely. In three cases out of the forty-one there were chills and fever following the injections, and three patients had erythema all over the body. The fever usually appears after the first injection, but rarely after the second or third injection. Twenty c.c. of serum is enough for the slight or moderate case. The death rate is markedly lowered since the introduction of the intravenous injection of the immune serum from 30.6 to 19.1 per cent. The earlier the administration of the serum the better the result. It has marked influence on hemorrhages. The hemorrhages from the mouth cavity are reduced to about one tenth, and intestinal hemorrhages to one seventh, and the other hemorrhages are also reduced markedly. Abscess formations were seen in 24 per cent. of the untreated cases. When the serum is intravenously given within from six to seven days, abscess formation was reduced 4.9 per cent. in the second report and there was none in the third report. The production of immune bodies is more marked with intravenous injection than in the case of subcutaneous injection.

Internal Secretion of Pituitary and Parathyroids.—In order to determine the function of the endocrinous glands, especially of the pituitary and parathyroid, Izumi studied the reciprocal relations between the pituitary and parathyroid, the pituitary and thyroid, the thyroid and parathyroid, and the pituitary and gonads of forty-nine cats and rats. The parathyreoprivale rats and cats showed that the chromophil cells, especially basophils, decreased remarkably in number and size in pars anterior of the pituitary; while the chromophobe cells, especially transition and mother cells, increased in number. After the removal of the parathyroid, the pituitary body of the rat, in almost every case, became smaller; while that of the cat always enlarged from two to four times the normal size. The source of this enlargement is mainly the proliferation of the cellular element of the pars intermedia. In the thyreoprivale cats, enlargement of the pituitary was the rule, caused principally by the proliferation of pars anterior, partially through the hypertrophy of the lobulus peduncularis. The pituitary of castrated rats is larger than normal due to the appearance of the castratcells in pars anterior. The feeding of the parathyreoprivale rats with phosphorus cod liver oil and calcium lactate had no therapeutic influence on their opaque degenerating teeth. The total or partial removal of the thyroid or total castration had no clinical effect on the course of tetany.

Journal of Obstetrics and Gynaecology of the British Empire, Manchester

1922, **29**, No. 2

*Problems of Fetal Postmaturity and Prolongation of Pregnancy. J. W. Ballantyne and F. J. Browne.—p. 177.
*General Edema of Fetus. N. B. Capon.—p. 239.
*Glycosuria in Pregnancy. R. L. M. Wallis and J. P. Bose.—p. 274.
*Hyperthyroidism in Pregnancy. A. L. Robinson.—p. 296.
*Treatment of Pernicious Vomiting of Pregnancy. C. Oldfield.—p. 303.
Two Cases of General Vascular Carcinoma. J. B. Hunter.—p. 308.
Case of Acute Torsion of Uterus with Hematoperitoneum. B. Whitehouse.—p. 320.
Unilateral Blood Pressure Changes in Gynecology and Obstetrics. E. F. Cyriax.—p. 322.

Fetal Postmaturity.—Postmaturity of the fetus, Ballantyne and Browne state, is a condition which has a real existence, although it may not be possible to diagnose it from any one of its several anatomic or physiologic characters. It may, however, be recognized from the presence of a group of anatomic characters, such as excessive length, weight and ossification, and easy separability of the dura mater, especially when these are associated with advanced senile changes in the placenta and cord. It is impossible to state with certainty what are the causes of fetal postmaturity and the prolongation of pregnancy, although several conditions, both in the mother and in the unborn infant, have been alleged to be of etiologic importance; until the cause of causes of the supervention of labor at the normal time have been discovered it will be impossible, or at least unwise, to dogmatize about the cause of prolonged gestation. The clinical evidence on which the diagnosis of the prolongation of pregnancy is founded consists of a number of data none of which is absolutely free from fallacy; the most reliable is the determination of the size of the uterus made by a competent observer, using the bimanual examination on several occasions from the second or third month onward. While the length of the menstruation-delivery interval can be ascertained, there is no means of calculating the impregnation-delivery period to within eight or ten days, which represents the maximum insemination-impregnation period. It is impossible, therefore, to state the exact duration of any pregnancy. At the same time, the establishment of prolongation of pregnancy is a possibility and depends on analogy with what is known to occur in the lower animals (e. g., the cow) and on several clinical details in history and symptomatology, which, taken together, are sufficient proof; in medicolegal cases, in which the medical evidence is conflicting, moral considerations often play a determining part. It is impossible to fix an upward limit to the duration of pregnancy; but the greater the deviation from the normal, the stronger must be the direct and collateral evidence. The dangers both to mother and child of a prolonged pregnancy are undoubted; they are chiefly associated with difficulty in the passage of the child, and are greatly increased by reason of the unexpectedness of their emergence. Adequate antenatal supervision provides a means by which the element of surprise can be eliminated from cases of postmature labor with immediate improvement in prognosis (material and infantile). The treatment is prevention of prolongation of pregnancy by means of induction of labor at or soon after the carefully calculated full term of gestation. The method by means of the administration of quinin followed by pituitary extract should be given a trial.

General Edema of Fetus.—Eight cases are cited by Capon. Maternal clinical histories, though similar in several respects, did not reveal any pathognomonic features. The mothers were generally about the middle of their child-bearing period; each had been previously pregnant at least twice. A mechanical cause for the edematous state was found only in one case. Histologically, hematopoiesis was the most prominent finding in the cases of nonmechanical origin. The spirochetes of syphilis were not found in any instance. The etiology of general fetal edema of nonmechanical origin remains obscure. It is probable that maternal toxins of unknown nature are causative. Histologic examination of the placentae shows that crowding of villi occurs and also that the overgrowth of the intravillous connective tissue has been out of proportion to the increase in the total epithelial surface. This placental change is dangerous to the fetus, for the chorionic vessels become compressed, fetal nutrition is impaired, and the increase in peripheral resistance in the placental vessels will cause a rise in fetal blood pressure, with cardiac hypertrophy. At the same time, the fetus responds to the impairment of nutrition by an increase in blood cell formation. When the pathologic changes have reached this stage, and exaggerated red cell formation within the fetus does not suffice to maintain healthy tissue metabolism, exudation of fluid into the hypertrophied placental villi and into the fetal serous sacs and subcutaneous tissue will occur. It is certain that the rise in fetal blood pressure will play a part in this process. There are several points of resemblance between polycythemia of the fetus, as observed in examples of general edema, and the rare disease of adult life, erythremia. Enlargement of the liver and spleen, the presence of erythroblasts and scanty myelocytes in the blood stream, and sometimes superficial hemorrhages, are common to both.

Glycosuria in Pregnancy.—Two types of glycosuria are met with in pregnancy, according to Wallis and Bose, (*a*) intermittent or transitory glycosuria; (*b*) severe glycosuria and true diabetes mellitus. The intermittent or transitory glycosuria shows certain characteristic features, and may be diagnosed by means of blood and urinary analysis, and the glucose tolerance test. A new method of estimation of sugar in the urine in normal and abnormal amounts is described, and the value of this method in cases of glycosuria in pregnancy emphasized. This new microchemical method represents a combination of the Bang and Folin and Wu methods with the elimination of most of the pitfalls peculiar to these methods. By means of the glucose tolerance test it is possible to correlate the occurrence of intermittent glycosuria of pregnancy with hyperactivity of the pituitary body. The application of blood and urinary analysis to cases of glycosuria in pregnancy renders it possible to differentiate between the two types. The importance of differential diagnosis is emphasized by the fact that the treatment of the two conditions is totally different, the intermittent or transitory type requiring little, if any, dietetic treatment.

Hyperthyroidism in Pregnancy.—Of fifteen cases cited by Robinson, eight women were delivered. All had normal labors, no bleeding or superinvolution, and no sign of thyroid disturbance has been seen in the babies. The clinical picture is, therefore, one of mild or atypical exophthalmic goiter. Later on the association of prolonged lactation and deficient nutrition suggested calcium depletion as an important etiologic factor, while certain of the clinical features (e. g., muscle cramps and increased nervous excitability) had a clear resemblance to tetany, which is itself a manifestation of calcium deficiency and parathyroid disease, and a common condition of pregnancy in some countries. On these grounds Robinson has employed parathyroid and calcium lactate for all cases, usually 1/10 grain of the former and 20 grains of the latter each night. Apart from the occasional complaint of nausea and itching in one or two cases, there have been no ill effects. He has permitted lactation in those patients who have not been seriously affected, and continued the treatment with calcium lactate, omitting the parathyroid. In the severer types Robinson has forbidden lactation and given calcium and pituitary extract. The results have been encouraging. All these patients have improved; the eye signs become less marked and the general health and muscle tone have improved.

Pernicious Vomiting of Pregnancy.—His clinical experience leaves Oldfield in no doubt that all cases of pernicious vomiting of pregnancy are of neurotic origin, and that the more severe cases are later or advanced stages of neurotic vomiting. These patients can be cured quickly, as a rule, and with a high degre of certainty by the removal of the patient to a hospital or nursing home and by feeding on ordinary diet. Induction of abortion is seldom or never necessary.

Lancet, London

Aug. 19, 1922, 2, No. 5164

Influence of Light in Prevention and Cure of Rickets. A. F. Hess.—p. 367.
*Value of Respiratory Exercises. C. B. Heald.—p. 370.
*Vital Capacity Constants Applied to Study of Pulmonary Tuberculosis. G. Dreyer and I. S. T. Burrell.—p. 374.
*Bed Isolation of Cases of Infectious Disease. C. Rundle.—p. 376.
Experience at Plaistow. D. MacIntyre.—p. 377.
*Operation for Removal of Living Extra-Uterine Child at Full Term. E. O. Croft.—p. 380.
Fourth Disease or Parascarlet. K. Simpson.—p. 381.
*Case of Spontaneous Short Circuit. E. C. Bevers.—p. 382.
Case of Diphtheria Complicated by Hemiplegia with Aphasia. H. G. Smith.—p. 282.

Value of Respiratory Exercises.—Respiratory exercises, according to Heald, are only of real value (1) if the exact nature of the abnormality it is desired to remove is known and if the abnormality presents no insuperable mechanical obstruction to improvement; (2) if a measure of this abnormality has been secured and if the progress of treatment is checked and followed by remeasuring; (3) if the treatment is able to combine and utilize knowledge of electrotherapeutics, massage, and remedial exercises so that accurate and detailed prescriptions may be drawn up based on a sound knowledge of the errors of each individual case.

Vital Capacity in Pulmonary Tuberculosis.—Conclusions arrived at in 1920 with regard to the value of vital capacity (V. C.) determination in cases of pulmonary tuberculosis are reiterated here by Dreyer and Burrell. There is a definite decrease in V. C. Improvement in the clinical condition of the patient is found to be accompanied by an increased V. C., while an advance of the disease results in a decreased V. C.; the determination of the V. C. is useful for the classification of cases. As an aid to diagnosis even a single, but more particularly a repeated, examination of the V. C. of doubtful cases will also prove useful. A systematic study of the V. C. in its proper relationship to body size has given important information as to the beneficial effects of different treatments of pulmonary tuberculosis. After many thousand observations the authors have seen no ill effect from taking V. C. It is far less strain to the patient than even a mild attack of coughing.

Bed Isolation of Infectious Diseases.—Rundle says that an inspection of the wards and case records has made it very clear that the incidence of secondary infection is considerably less with bed isolation work than that commonly observed in a one disease ward. The administrative and economic advantages are equally obvious.

Operation for Removal of Living Extra-Uterine Child at Full Term.—The pregnancy in Croft's case appears to have originated in the left fallopian tube with erosion and extension into the broad ligament and subsequent perforation of the posterior layer of the broad ligament into the peritoneal cavity, the fetal membranes having remained intact.

Spontaneous Short Circuit of Intestine.—Bevers reports a case of ulceration of a carcinoma of the colon into the small intestine producing a short circuit.

Practitioner, London

Jaundice in New-Born. H. Rolleston.—p. 1.
Summer Diarrhea in Infancy. W. J. Pearson.—p. 5.
*Constipation in Infancy and Childhood. E. Pritchard.—p. 16.
*Vomiting in New-Born and Young Infants. C. P. Lapage.—p. 24.
Rickets. H. Thursfield.—p. 34.
Proprietary Foods and Milks. E. Cautley.—p. 44.
Orthopedic Points in Childhood. H. A. T. Fairbank.—p. 51.
Aural Sepsis in Infancy and Childhood. W. Stuart-Low.—p. 57.
Skin Diseases of Infancy and Childhood. A. M. H. Gray.—p. 67.
Heart in Severe Blood Diseases of Childhood. F. J. Poynton.—p. 79.
Sleeplessness in Infants. C. E. Sundell.—p. 89.
Spontaneous Reduction of Intussusceptions. D. C. L. Fitzwilliams.—p. 93.
Roentgen Ray in Diagnosis of Gastro-Intestinal Disease in Childhood. H. M. Berry.—p. 99.

Treatment of Constipation in Infancy.—If in breast-fed infants constipation continues after errors of quantity and quality in the food have been adjusted, the educational regimen is reinforced by Pritchard by a small daily dose of the following aperient mixture: tincture of aloes, 3 minims; tincture of belladonna and tincture of nux vomica, each 1 minim; syrup of senna, ½ dram; syrup of figs, 1 dram. As the condition improves, the dose may be gradually "tailed off" until a daily action results without such artificial aid. If the motions still remain unduly hard, petroleum emulsion may be substituted in this mixture for the syrup of figs, or it may be given independently in doses of from 1 to 2 teaspoonfuls after each feeding. This line of treatment is the antithesis of the usual methods employed, which, by their very violence, bring about dilatation of the bowel or dislocation of the delicate mechanisms concerned in the function of defecation.

Vomiting in New-Born.—Lapage classified the causes of vomiting as: metabolic, toxemic (secondary to infection); physical and mechanical; functional and nervous, and injury, shock, nervous organic. If the vomiting is metabolic in nature, a period of starvation, the length of which depends on the severity of the symptoms, must be adopted, and, in the meantime, the dietetic error eliminated. If there is overfeeding with breast milk, the mother's diet must be revised, and, if necessary, the breast pump used to diminish the amount taken by the infant. For protein vomiting sodium citrate (2 grains to 1 ounce milk) is a useful remedy, though it causes constipation. Peptonizing or the use of predigested foods may help. Finally, resort may have to be made to whey and meat-juice, or whey and albumin-water. Sometimes a sweetened, condensed milk is useful before coming down to whey. Whey mixtures are hardly sufficient to nourish a baby for long, and after four days, or, at the most, a week, it is better to find some more sustaining food. For fat vomiting, which is common, milk and water mixtures without any added cream can be used. One of the most useful mixtures for outpatient babies is milk and water, sterilized for thirty minutes and sweetened, with no cream but with extra fat in the form of emulsion of cod liver oil, half a teaspoonful three times a day to infants aged from 6 months to 1 year. Many babies who vomit on a full fat mixture will take this well. It is important to treat vomiting by methods other than the use of medicines. Lavage is of great use in vomiting, washing out the stomach with a weak sodium bicarbonate solution.

Archives de Médecine des Enfants, Paris

August, 1922, **25**, No. 8

*Protracted Slight Fever in Children. J. Comby.—p. 449.
*Serotherapy in Dysentery in Children. M. de Biehler.—p. 464.
*Staphylococcus Septicemia. M. Laurent and E. Abel.—p. 478.
The Equipment for the Fight Against Tuberculosis in France. J. Comby.—p. 486.

Protracted Slight Fever in Children.—Comby refers to temperatures up to 38 C. (100.4 F.) toward the close of the day, or in the morning, noted for weeks, months or even years. A similar study of this subject by Comby was reviewed June 10, 1922, p. 1853. The assumption of a "growth fever" must be abandoned. Some unrecognized infection or digestive autointoxication or instability of the thyroid is usually responsible. Three cases have been published in which a cure was realized under thyroid treatment alone.

Serotherapy of Dysentery in Children.—De Biehler extols the advantages of giving a polyvalent serum at once in every case that suggests the possibility of dysentery, while waiting for bacteriologic differentiation. In her 129 cases of diarrhea suggesting dysentery during the last few years, the condition was very grave in twenty-one, and three were practically moribund when first seen. The others all recovered under the serotherapy.

Staphylococcus Septicemia.—Laurent and Abel report the case of a boy of 9 with vague fever and a painful inflammatory process in the right hip joint. The knee had been transiently affected first. The fourth day general symptoms of septicemia and meningitis developed, and the necropsy findings confirmed the assumption of staphylococcus septicemia responsible for these two four-day phases. The mortality of staphylococcus septicemia has been estimated at 75 per cent. at least, but a few cases of recovery under vaccine therapy justify some hope in this line.

Gazette des Hôpitaux, Paris

July 29, 1922, **95**, No. 59

*Anaphylaxis to Radiant Energy. Foveau de Courmelles.—p. 954.

Anaphylaxis to Roentgen and Radium Rays.—Foveau de Courmelles presents arguments to prove that the susceptibility of certain persons to roentgen burns or reactions with chill, high fever or actual shock, after exposure to the roentgen or radium rays, is a manifestation of radio-anaphylaxis. A typical instance of this is the case of a manufacturer of roentgen apparatus who was finally affected by the rays. Although apparently cured, a Crookes tube could not be set in action anywhere in the factory without his experiencing pains, and he had to sell his business. The eight fatalities reported from England among radiologists outweigh the thousands of cases in which radiant energy is borne without harm. At the necropsy of the radiologist, Tiraboschi, who died at Bergamo in 1914, the blood was found extremely pathologic. A number of instances of anaphylactic disturbances after roentgen exposures are related, although at the time no one thought of explaining them as anaphylaxis. He says that any kind of irradiation is liable to sensitize against other forms. There is a prospect of being able to desensitize against this radio-anaphylaxis with minute doses, or by ingestion of photosensitive substances, like quinin or eosin. He exclaims in conclusion, "This radio-anaphylaxis is a new world opening before us."

Journal de Radiologie, Paris

August, 1922, **6**, No. 8

Radium Therapy of Cancers. S. Laborde.—p. 349.
Deep Radiotherapy. R. Ledoux-Lebard.—p. 361.
Medical Applications of Diathermy. Mme. G. de Brancas.—p. 364.
*Injection of Gas to Outline the Kidney, Delherm, Laquerrière and Morel-Kahn.—p. 369.
Modern Methods of Electrodiagnosis. A. Strohl.—p. 375.

Injection of Gas to Outline the Kidney.—Carelli and Sordelli's method of injecting gas to outline the kidney was described in The Journal, Oct. 1, 1921, p. 1108.

Nourrisson, Paris

July, 1922, **10**, No. 4

Multiple Tuberculous Osteitis in Infants. A. Broca.—p. 209.
*Rachitis. A. B. Marfan.—p. 228.
Mothers' Homes. L. Bernard.—p. 240. Idem. A. B. Marfan.—p. 245.
*Infants of Tuberculous Parents. R. Debré and L. Laplane.—p. 249.

Rachitis.—In this third of Marfan' series of four lectures on rachitis, he discusses the symptoms and lesions which accompany the bone changes, the course, the duration, the outcome. He also compares congenital with tardy rachitism. He ascribes to the latter essential scoliosis, genu varum and valgum and flatfoot in older children.

Infants of Tuberculous Parents.—Debré and Laplane have compiled the complete data in 127 families in which the mother was tuberculous. The proportion of children born normal in every particular was as large as in nontuberculous families in all, except when the mother's tuberculosis was grave and progressing, apparently speeded up by the pregnancy. In these conditions, premature delivery occurred in 43 per cent. of the cases, and the children were below the average weight. They reiterate that from every point of view heredity of tuberculosis is nonexistent.

Paris Médical

July 22, 1922, **12**, No. 29

*Bismuth in Treatment of Venereal Diseases. F. Balzer.—p. 81.
*False Incontinence in Children. R. Morichau-Beauchant.—p. 83.
Localization of Spinal Cord Lesion by Reflexes. Lévy-Valensi.—p. 89.

Bismuth in Treatment of Syphilis and Gonorrhea.—Balzer recalls his publications on the toxicity of bismuth in 1889.

False Incontinence of the Sphincters in Children.—Morichau-Beauchant describes a number of cases, out of a much larger experience, with what he calls paragenital auto-erotism. The children hold back their urine or their stools on account of a pleasurable sensation from the excitation of the mucous membrane in the anus and bladder or urethra. This voluntary holding back is finally overcome by the imperious demands of nature, and the child's garments are soiled. The children are not degenerates, and this pseudo-incontinence is merely a survival of the auto-erotism of the infant. He adds that by watching monkeys we can appreciate the heavy load of coprophile and auto-erotic heredity with which we are burdened. The weakening of the sexual instinct and the return to auto-erotism explains some of the phenomena observed in the senile. The children may be partially unaware of their voluntary repression of their impulses. The physician must explain kindly to the child that he does it on purpose, and show him how the yielding to this pleasurable sensation is reprehensible and degrades him in his own eyes and disgraces him before others. The parents are usually harder to manage than the children; they are either so prudish that they refuse to believe the physician's explanation, or they judge the child as if he were an adult and the prey of the worst perverted instincts. The parents have to be impressed with the fact that a bad habit is not corrected by punishment, and that only gentle means should be employed. "Parents who cannot comprehend this are preparing sad tomorrows for themselves." The paragenital auto-erotism generally disappears of itself in time, but these children require special supervision as this tendency may return in a graver form later unless warded off by wise training.

Presse Médicale, Paris

July 22, 1922, **30**, No. 58

*Lesions of the Aorta. L. Bard.—p. 621.
*Dyspepsia and Erythremia. M. Loeper and G. Marchal.—p. 623.
*Multiple Sclerosis. J. Mouzon.—p. 624.

Lesions of the Aorta.—Bard discusses the suppression of pulsation in the left arm, and the existence of two opposed circulatory regimes in cases of disease of the aorta. He explains that the pulsability of the arteries is only one factor in the progression of the blood.

Gastric Disturbances in Erythremia.—Loeper and Marchal compare five cases of polycythemia in which digestive disturbances dominated the clinical picture. The symptoms in some simulated gastric ulcer; in one case there were intestinal hemorrhages. The erythremia had been overlooked in all, and the congestive, vasomotor and nervous disturbances had been ascribed to the dyspepsia, but they had proved refractory to the entire arsenal of measures to act on the stomach. All benefited notably from small venesections and sodium citrate. Every dyspeptic inclined to plethora should always have his blood count taken and the viscosity measured. In three of the five cases, the stomach bled readily, even at the slightest contact with the stomach tube. This readiness to bleed is an important sign of this gastric erythremia. Treatment should leave the stomach alone, and aim to rinse out the blood, by drinking water profusely between meals. Diuretics and purges exaggerate the viscosity of the blood, while sodium citrate reduced it by 50 per cent. in a few days in their cases. They gave to 3.4 or 6 gm. a day; it aids in combating gastric acidity as well as in reducing the viscosity, while it has a mild cholagogue and laxative action. The diet should be restricted mainly to white meat, milk and green vegetables, avoiding foods rich in iron.

Multiple Sclerosis.—Mouzon analyzes recent literature on the infectious origin of disseminated sclerosis. He remarks that the conception of this disease as a spirochetosis opens new fields for its study and treatment.

Revue Médicale de la Suisse Romande, Geneva

April, 1922, **42**, No. 4

Action of Quinin and Quinidin on the Heart. Turrettini.—p. 209.
*Tardy Inherited Syphilis in Adults. C. Du Bois.—p. 219.
*Effect on Diabetics of Lumbar Puncture. G. Bickel.—p. 231.
Invagination of Intestine Due to Ascarid. Dunant and Koechlin.—p. 233.
Amebic Hepatitis. J. Morin.—p. 235.
Present Status of Congenital Heart Disease. Saloz.—p. 243. Cont'd.

Tardy Inherited Syphilis.—Du Bois reports some sensational cases in which apparently healthy adults developed symptoms of advanced syphilis as the first recognized manifestations of inherited syphilis. Serologic tests may be negative, and only the prompt cure under treatment for syphilis may clear up the diagnosis. He insists that it is far more common than generally supposed. A positive serologic test from latent inherited syphilis, before marriage, might save families from shipwreck when the positive response is discovered later and ascribed to an extraconjugal source. He adds that a serologic test in many supposed tuberculous lesions in glands and joints might save operations and tedious courses of treatment.

Lumbar Puncture in Diabetes.—Bickel reports a drop in the sugar in the urine after lumbar puncture from 83 to 38 gm. per thousand in a diabetic woman of 73. The sugar content of the blood, fasting, also dropped from 3.39 to 2.25 per thousand. Lhermitte recently reported an analogous observation. His patient was a man of 76, and the glucose in the urine dropped temporarily after lumbar puncture from 28.45 gm. to 0.72 gm. while the output of urine was only 1 liter instead of the preceding 2.5 liters.

May, 1922, **42**, No. 5

Classification and Treatment of Diabetes. Labbé.—p. 273.
Present Status of Epilepsy and Its Treatment. F. Machon.—p. 283.
*Salicylate Test of Liver Function. M. Roch.—p. 291.
Glandular Disease of Syphilitic Origin. J. Golay.—p. 296.
Electrolysis in Treatment of Eyes. P. Fietta.—p. 298.

June, 1922, **42**, No. 6

Epilepsy and Alcohol. V. Demole.—p. 337.
Guaiac Test for Occult Blood. G. G. Moppert.—p. 343.
The Colloidal Benzoin Test in Neurosyphilis. E. Benveniste.—p. 353.
Present Status of Slow Endocarditis. P. Gautier.—p. 359.
The Syndromes from Disease of Central Grey Nuclei. G. Bickel.—p. 365.

Sodium Salicylate Test of Liver Functioning.—Roch says that a normal liver transforms 4 cg. of sodium salicylate, taken an hour after the first breakfast, so that none can be refound in the urine during the five following hours. With insufficiency of the liver, there is a positive response when the urine is added, a drop at a time, to a 1 per cent. solution of ferric chlorid. A violet cloudy zone at the contact of the fluids is the positive reaction. The salicylate induces formation of glycuronic acid in the liver, and hence the test is based on the same principle as Roger's test, although so much simpler. The findings were constantly reliable in the 100 patients tested to date.

Chirurgia degli Organi di Movimento, Bologna

July 1922, **6**, No. 3-4

*Congenital Deformity of Hands and Feet. L. G. Gazzotti.—p. 265.
*Circumscribed Ossification After Trauma. G. Ferrarini.—p. 281.
Humerus Varus in Cretins, Etc. A. Merlini.—p. 329.
Apparatus for Fracture of Arm Bones. G. Toschi.—p. 345.
*Surgery of Spinal Nerve Roots. G. Serra and A. Ferraro.—p. 363.
Classification of Contracture and Ankylosis. M. Sarcevic.—p. 421.
*Wounds of Blood Vessels. F. Rossi.—p. 425.
Hemangioma of Rectus Muscle. E. Angeletti.—p. 449.
*Neurotrophic Disturbances. N. V. Bedarida.—p. 457.
Congenital Luxation of Head of Radius. A. Steindler.—p. 483.

Deformity of Hands and Feet.—The unusual deformity of both hands and feet in the two cases described was alike in both. They were father and son, and the brother of the father and this brother's daughter presented the same anomalies, as shown in the fifteen illustrations.

Ossification After Trauma.—In Ferrarini's nine cases the patients were all young. In only five of the cases was the elbow involved. The trauma had been a contusion, sprain or luxation, and soon after there had been more or less swelling of the part which then slowly retrogressed, the region sometimes regaining its normal outline, but usually a hard lump could be palpated. The swelling was deep in the tissues, indolent and hard; even as early as the sixteenth hour, the tumefaction felt hard as bone, although casting only a trace of a roentgen shadow. Even after the lapse of two years it is impossible to estimate the extent of the disability that may be entailed by these osteomas. They develop as the terminal expression of a state of chronic irritation in the interstitial connective tissue, from the stretching and strain on the soft parts from the trauma. Repeated mild trauma seemed to be more harmful in this respect than a single severe injury. Serial roentgenoscopy showed the osteoma growing smaller but progressively more opaque at the periphery. An operation was proposed in one case but refused, and this was the only case in which normal function of the elbow was finally restored. The others were given workmen's compensation for 20 per cent. disability.

Surgery of Nerve Roots.—This illustrated communication from two of the institutes of the University of Sassari presents evidence that it is possible and feasible, in dogs, to join the peripheral stump of a spinal nerve root with the central stump of the spinal nerve root just above. Three nerve roots were thus transplanted in a series, the upper one thus restoring motor function to a leg previously paralyzed by severing the nerve root or severing the spinal cord. Serra and Ferraro are convinced that these experiments justify the hope of analogous successful intervention in clinical cases of paralysis from spinal cord lesions. The only American work in this line mentioned in the bibliography is C. H. Frazier's in The Journal, Dec. 21, 1912, p. 2202, and his book on surgery of the spinal cord (1918).

Wounds of Vessels.—Rossi reports nineteen operative cases and three in which no operation was attempted.

Neurotrophic Disturbances.—Bedarida refers to neurotrophic disturbances consecutive to war wounds or amputations.

Riforma Medica, Naples

July 3, 1922, **38**, No. 27

*Treatment of Trichophytosis. C. Maderna.—p. 625.
*Drainage in Pelvic Cellulitis. L. Girolamo.—p. 629.
Copper in Treatment of Cutaneous Sarcomatosis. A. Tomaselli.—p. 631.
Soluble Tuberculous Toxin in Treatment of Tuberculous Dermatitis. C. Felugo.—p. 633.
Illusions and Realities of Radiotherapy. V. Maragliano.—p. 634.
Treatment of Traumatic Injury of Vertebrae. E. Aievoli.—p. 636.

Trichophytosis. — Maderna gave progressive doses by the vein of a mixture of 1 gm. iodin and 2 gm. of potassium iodid in 300 gm. of distilled water. His dose was from 1 to 5 c.c. in 10 c.c. of water on alternate days. The lesion healed and disappeared under this more rapidly and permanently than with any other treatment known.

Drainage with Pelvic Cellulitis.—The purulent affection had developed after an operation for a suppurating inguinal hernia, and Girolamo opened a way for the subperitoneal pus by removing the coccyx. A complete cure followed, after the suppurative process had been weakening the man for eighteen months. The drainage through the inguinal canal had never been effectual, and the suppuration had invaded all of the subperitoneal tissue in the iliac fossa and throughout the pelvis.

Brazil-Medico, Rio de Janeiro

July 1, 1922, **2**, No. 26

*Protein Therapy in Typhoid Fever. R. Kraus.—p. 1.
*Perforation of Esophagus into Pleura. Cardoso Fonte.—p. 4.
The Public Health Campaign in Brazil. Decio Parreiras.—p. 6.

Protein Therapy in Typhoid. — Kraus refers to his antiserum which has been in use for a number of years in treatment of typhoid. It is effectual only when given early, and hence can seldom find application in the hospitals. He experimented later with vaccines, and found that the colon bacilli proved as effectual as the typhoid bacilli. The mortality in 81 cases treated by this heterobacteriotherapy was 13.5 per cent. Injection of other protein substances, not bacterial, gave equally favorable results. He here relates 54 cases in which normal beef serum was used for this protein therapy, with a mortality of 12.8 per cent. Colloidal silver was tried in other cases, the result of all these various treatments being the recovery of all but 12.7 per cent. of the 166 typhoid patients. None of the numerous theories as to the action of protein therapy is generally accepted, but all agree that its effect is indirect, stimulating the cells to produce the defensive substances to combat micro-organisms and their toxins.

Perforation of Esophagus Into Pleura.—Fonte reports a case of suppuration in the pleura explained by a perforation in the esophagus, 2 cm. above the cardia, probably of syphilitic origin. The perforation had been ascribed to the stomach but nothing was found at the laparotomy, and the man soon died. In a second case, the suppuration in the pleura kept up for two years and three months, unmodified by several operations until the end of this period when a clinical cure was realized. Towards the last the man tasted in his mouth the fluid being injected into the pleural cavity, which explained the process as perforation of the esophagus. There had been a contusion of the left thorax two months before the pleural focus was diagnosed.

Semana Médica, Buenos Aires

June 1, 1922, **1**, No. 22

*Treatment of Anthrax. R. F. Vaccarezza, F. F. Inda and R. Posse.—p. 865. Cont'd.
*Gastro-Intestinal Disturbances in the Tuberculous. A. Cetrángolo.—p. 908.
*Modification of Fixation Reaction. W. Karmin.—p. 909.

Protein Therapy of Anthrax.—This long study of hundreds of cases of anthrax treated by various methods asserts that normal beef serum proved as effectual as the specific antiserum, but that its action is merely that of protein therapy. Consequently, the beef serum can be substituted by some substance which does not sensitize, and does not induce serum sickness. Peptone seems best adapted for the purpose, and it proved so satisfactory that in the last six months it has been used exclusively in all cases, even those with septicemia. Nolf's technic is followed: an intragluteal injection once or twice a day of 30 c.c. of a 5 per cent. solution of peptone: 5 gm. of Witte's peptone with 0.5 gm. of sodium chlorid in 100 gm. of distilled water. The full data of forty-three cases thus treated are appended. Further details and figures were given in the Buenos Aires Letter, recently, on page 755.

Calcium Chlorid in Treatment of Gastro-Intestinal Disturbances in the Tuberculous.—Diarrhea and abdominal pains were cured by five daily injections of 5 c.c. of a 10 per cent. solution of calcium chlorid in several tuberculous patients. In others the tendency to vomit was effectually combated by ten or twelve injections. No effect was apparent in two of nineteen cases reported from a sanatorium, but all the others showed marked benefit.

Modification of Serologic Test.—Karmin uses three tubes, and notes the time required for total hemolysis. Each serum takes a different and exclusive time for this. When hemolysis is complete in the third tube, if it is also complete in the first and second, the test is negative.

June 8, 1922, **1**, No. 23

*Loose Bodies in Joints. R. Rodríguez Villegas.—p. 921.
*Losses of Calcium in the Pregnant. Remigio Bustos Morón.—p. 922.
Treatment of Leprosy. Oreste Calcagno.—p. 928.
*Source of Error in Serologic Tests. César Clariá.—p. 969.

Loose Bodies in Joints.—Rodríguez Villegas comments on the annoying way in which loose bodies in joints with an effusion float out of reach during the operation. This can be avoided by taking the foreign body between the left thumb and forefinger before beginning the incision and driving through the skin into the foreign body—under local anesthesia—a sharp awl which holds it firm through all the succeeding manipulations. The article is illustrated.

Decalcification in the Pregnant.—The calcium content was below 8 mg. in 100 c.c. of blood in 3 of the 56 pregnant women tested, and below 9 in 31, and it reached 10 only in one of 21 others. In the 2 cases of eclampsia, the one that proved fatal had 8.05 mg., and the other, who recovered, had 8.94 mg. The 10 nonpregnant women had from 8.82 to 9.70 mg. No connection could be detected between the manifestations of pregnancy intoxication and the calcium content of the blood.

Source of Error in Serologic Tests.—Clariá is chief of a laboratory of the public health service, and he complains that the specimens of blood sent in for examination always contain more or less water left from rinsing the syringe and the container. Even this small amount of water lakes the blood and interferes with the tests.

Beiträge zur klinischen Chirurgie, Tübingen

1922, **126**, No. 1. Kümmell Festschrift, Second Half

Analogon in Women to Varicocele in Men. F. Engelmann.—p. 218.
*New Standpoints for Treatment of Cancer. Kotzenberg.—p. 226.
Minor Technical Points. Bertelsmann.—p. 237.
Tumors and Pseudotumors of the Orbit. T. Ringel.—p. 239.
Topography of Cervical Ribs. O. Aichel.—p. 248.
Voice After Removal of One Vocal Cord. Albanus.—p. 258.
*Intrathoracal Esophagoplasty. H. Kümmel, Jr.—p. 264.
*Antethoracal Esophagoplasty. H. v. Engelbrecht.—p. 278.
*Surgical Treatment of Sciatica. Graff.—p. 287.
Origin of Hydronephrosis. O. Rumpel.—p. 296.
Torsion of Intra-Abdominal Organs. Kehl.—p. 310.
Roentgen Localization of Foreign Bodies. A. Wepfer.—p. 317.
Foreign Bodies in Gastro-Intestinal Tract. Tillmann.—p. 320.
Toxic Action from Lead Bullet in the Tissues. F. Bonhoff.—p. 324.
Idem. O. Schumm.—p. 333.

Cancer Research.—Kotzenberg explains the premises on which he bases the treatment of cancer with a serum obtained by injecting rabbits with chromatin. The rabbits develop defensive substances against this excess of chromatin.

Intrathoracal Esophagoplasty.—Kümmell reports two cases as a contribution to this subject, although the operation proved a failure in both cases. They teach that a reliable differential pressure apparatus is indispensable. The feasibility of mobilizing the stomach and drawing it up to suture it to the oral stump of the esophagus has been amply demonstrated, as also the superior advantages of this technic in many respects. It takes comparatively little time; does not require a mutilating operation for access; the suture is made outside the chest, and the whole procedure is complete at one sitting.

Antethoracal Esophagoplasty.—Engelbrecht reports a case in which twenty different operations were required in turn. The mistakes in this case confirm the advantages of forming a tube from skin, reaching from the larynx to the fistula into the stomach. As soon as this is healed, the upper end of the tube is sutured to the upper stump of the esophagus. A rubber tube is used to connect the skin tube with the stomach fistula. When entirely healed, a skin flap tube is made to bridge this gap, and the rubber tube is discarded.

Surgical Treatment of Sciatica.—Graff exposes the sciatic nerve at its emerging point, and mobilizes the nerve centrad as far as possible, and then stretches it gently. This has always cured rebellious sciatica in his experience, and he reiterates that it is an entirely harmless measure. He has applied it in seventeen cases, and says that it is reliable. He does not attempt to separate the fibers of the nerve but merely loosens it with his fingers up to the sacral foramen, and then stretches it, but not very much. Bleeding should be scrupulously checked so no hematoma can develop. He has not attempted to drain in his later cases. A hematoma formed in one instance, but it was aspirated the fourteenth day without harm. The sciatica was cured at once but the patients complained for a time of numbness. The altering of the relations between the nerve and its environment is evidently responsible for the benefit, rather than the stretching itself.

Medizinische Klinik, Berlin

July 16, 1922, **18**, No. 29

*Cesarean Section. M. Henkel.—p. 917.
*Hypersecretion in the Stomach. N. Jagic and G. Spengler.—p. 920.
*To Enhance Action of Drugs on Nervous System. A. Löwenstein.—p. 924.
Enlargement of Spleen in Incipient Syphilis. B. Peiser.—p. 925.
Treatment of Cracked Nipples of Nursing Mothers. E. Bedö.—p. 928.
*The Finer Structure of Tissues. G. Bucky.—p. 930.
Hernia from Standpoint of Workmen's Compensation. Engel.—p. 934.
Rudiments of Obstetrics. E. Runge.—p. 936. Cont'n.
Recent Literature on Infant Feeding. Rietschel.—p. 938.

Cesarean Section.—Henkel deplores that we have no certain means for determining positively whether a case is infected or not. He regards abdominal, intraperitoneal section of the cervix as the method of choice, but says that the cervix must be dilated enough to allow drainage of lochia. He operates through a median incision, slitting the vesical peritoneum across and pushing the bladder and peritoneum downward as far as possible. The incision is made in the middle of the cervix and the inferior segment of the uterus is thus opened up. If there is difficulty in extracting the child, a small forceps can be used. With transverse presentation it may be necessary to carry the incision farther up, and the possibility of this is one of the great advantages of making the section in the cervix rather than in the body of the uterus. The minute the child is extracted and the cord cut, he begins to suture the incision at once, working up from the bottom. When the incision is half sutured, he separates the placenta by Credé expression from without, and draws it out through the upper half of the wound. The suture of the cervix incision is facilitated by the assistant's pressing the uterus up from without, compressing it through the abdominal walls. He closes the incision with button sutures about 1 cm. apart, not passing through the mucosa. The broad flat expanses of serosa are sutured together with a running catgut suture, and the peritoneum is rinsed out with ether the last thing before suturing the abdominal wall. In suturing the uterus each layer of tissue must be coaptated separately, not allowing any mucosa to get into the muscle suture, for example. He never raises the pelvis, but gives an intramuscular injection of ergot beforehand, to promote elastic contraction of the uterus. He had two deaths under chloroform in cesarean section, and since then uses ether alone.

He adds that difficult, tedious delivery by the natural route may be more exhausting for the woman than a cesarean section. With the technic described, the results have been so satisfactory that he extends the indications now to cases of prolapse of the cord, transverse presentation with one arm protruding and other conditions in which there is little probability of saving the child by other means. With placenta praevia, experience has shown that cesarean section spares the woman further loss of blood, but the viability of the child and the seat of the placenta are the decisive factors here, especially with the centralis type in a primipara. Under these conditions, the earlier it is done the more favorable the outlook. The hemorrhage is more easily controlled with cesarean section than otherwise, as a suture thread can be run around the bleeding vessels and the aorta can be compressed with the fingers. He never trusts to instrumental compression, as the aorta is apt to slip to one side, while the artery can be compressed with the hand wrapped in gauze introduced into the peritoneum. In eclampsia he has noted that the patients are predominantly primiparae and the pelvis is often of the generally contracted type. The severity of the eclampsia may justify the intervention, and the incision may have to be in the body of the uterus.

Excessive Secretion in the Stomach.—This is a lecture in a postgraduate course, and a distinction is made between hypersecretion, hyperacidity and hyperchlorhydria, and between the digestive and the continuous forms of each, and their causes. What used to be called idiopathic hypersecretion is now known to be, Jagic and Spengler say, "an excitative secretory disturbance alone or in combination with spasms in stomach and bowel from a functional neurosis modifying both the secretory and motor functions."

Treatment of Metasyphilitic Disease of the Nervous System.—The cerebrospinal fluid does not take up drugs out of the blood to any extent, and this is the reason why intravenous medication has so little effect in neurosyphilis. To force the fluid to take up more of the drug, Löwenstein advocates lumbar puncture at the same time as the intravenous injection of the drug. To enhance the effect still more, he suggests to blow air into the spinal canal. This induces a mild, brief meningitis from the irritation. In case of a tabetic affection of the optic nerve he would supplement this with direct local irritation of the eye. For this, a strong solution of sodium chlorid might be given in subconjunctival injection, with or without aspiration of the vitreous body. By these means for "biologic enrichment of the cerebrospinal fluid" we may be able to arrest incipient degeneration of the optic nerve and other similar manifestations of neurosyphilis.

The Finer Structure of Matter.—Bucky describes a method for obtaining spectrograms of the roentgen rays, and states that with this we are able to study atoms and molecules beyond the highest magnifying power of our microscopes.

Münchener medizinische Wochenschrift, Munich

June 30, 1922, **69**, No. 26

The Causative Agent in Scarlet Fever. R. Degkwitz.—p. 955.
Protein from Tubercle Bacilli in Diagnosis of Tuberculosis. E. Toenniessen.—p. 957.
Threshold Irritative Vaccinotherapy in Staphylococcus Affections. E. Keining.—p. 960.
Lessened Central Perception of Color Distinctions Following Physical Exertion. Boehmig.—p. 962. See Berlin Letter, page 909.
Pathogenetic Significance for the Whole Organism of the Respiratory Tract. L. Hofbauer.—p. 963.
The Azure Granules of Michaelis and Wolff and Their Normal Qualitative Blood Picture According to Arneth. Arneth and Stahl.—p. 963.
Psychophysical Constitutional Types. W. Jaensch.—p. 964.
Remarks on Undernutrition in Infancy. F. Hamburger.—p. 965.
The Foundation in Plastic Surgery. J. F. Esser.—p. 966.
Malformation of Peritoneum as Factor in Ileus. W. Haas.—p. 968.
*Saccharin Poisoning. P. Heilmann.—p. 968.
*Calcium Chlorid in Cocain Poisoning. F. Fabry.—p. 969.
Epinephrin Poisoning. F. Kleeblatt.—p. 970.
Indications for Ball Insoles. E. Petco.—p. 970.
*Radium Emanations in Migraine. S. Loewenthal.—p. 971.
"The Mechanistic and the Teleologic Theories of Life." Reply. F. Bruck.—p. 972.
Treatment of Whitlow. A. Krecke.—p. 973.

Saccharin Poisoning.—Heilmann reviews accounts in the literature of saccharin poisoning, and reports his own observations on an undernourished rachitic boy of 9 who helped himself to 200 saccharin tablets weighing 0.07 gm. each and containing 0.0175 gm. each of refined saccharin. The remainder of the tablets consisted of bicarbonate of soda. In the absence of his parents, the boy dissolved the 200 tablets in something more than a liter of water and drank the solution, although it tasted bitter. That evening he complained of pains in the stomach before going to bed. He slept during the night and was awakened to go to school. While dressing he became dizzy and reeled about the room like a person intoxicated. He was put to bed and a confession of his bad conduct was made. Then he sat up in bed and in a loud voice, with accompanying gestures, imitated the playing of a band and the tones of various instruments. He did not respond to questioning. The parents applied cold compresses to the heart and in doing so noticed that numerous large water blisters had appeared on his chest and back. He then vomited his breakfast and toward noon vomiting occurred again. During the next few days the blisters broke open and the patient began to feel normally well, and fully conscious. Ten days after the accident he was admitted to the hospital. Here, across the chest and the upper abdomen, a superficial, continuous erythema of varying intensity was noted. From the middle of the left shoulder to the navel ran a narrow strip that was intensely red. On the whole surface there were many vivid red spots with the edges of the epidermis thickened but showing no coating. Scattered over the whole chest were dry, dark-brown shreds of epidermis. The back presented much the same appearance. Heilmann estimates that the boy must have ingested 14 gm. of soluble saccharin, equal to 3.5 gm. of refined saccharin. This is, as far as his knowledge of the literature goes, the largest single dose ever taken. When we consider the weakly condition of the lad, it is evident that we may assume that saccharin is comparatively nontoxic. Then, too, the boy may have had an idiosyncrasy for saccharin. The urticaria is, Heilmann thinks, an entirely new finding following the ingestion of saccharin. But urticarias occur frequently after very slight irritations.

Calcium Chlorid in Cocain Poisoning.—Fabry relates a case in which injection of a 10 per cent. solution of calcium chlorid dispelled the toxic condition arising in a nurse of 19 following the injection of 7 mg. of morphin, 3 mg. of atropin and the application as a spray of a 10 per cent. cocain-epinephrin mixture to the laryngeal mucosa, and the painting of the tonsils and the palatine arch with the same mixture in connection with tonsillectomy. The calcium chlorid was given very slowly, intravenously. After two minutes, during which 2 c.c. had been injected, a marked change for the better set in. The convulsions ceased; the rapid, superficial breathing became slow and deep, and the rigid extremities relaxed. At the same time, the pulse grew stronger. A total of 7 c.c. was injected of the calcium chlorid solution in seven minutes. Convulsions returned several times, but the intervals became longer and the convulsions milder, yielding readily to the administration of camphor. It was Karl Mayer of Basel who first recommended calcium chlorid in cocain poisoning. Mayer emphasizes the need of great caution in order that none of the solution may be injected perivascularly, since severe infiltrations that heal very slowly may thus arise.

Radium Emanation in Migraine.—Loewenthal has of late years applied radium emanations in 37 cases of migraine, of which 9 were apparently permanently cured, 8 were much improved, 8 were slightly improved, 2 were not affected, while in 10 cases the later results were unknown as the patients were lost sight of. He was very careful to exclude borderline cases from this series. These 37 patients with migraine received radium-emanation treatment in from 20 to 30 sittings of two hours each, and breathed air containing about four Mache units of radium emanation to the liter.

Wiener klinische Wochenschrift, Vienna

June 22, 1922, **35**, No. 25

*So-Called Acute Abdomen. J. Schnitzler.—p. 555. Conc'n No. 26.
Posthypnotic Painless Delivery. H. Kogerer.—p. 558. Conc'n.
*Embryology of Heart Malformations. Spitzer.—p. 561. Conc'n in No. 26.
The Action of Ergot Preparations. Peters.—p. 564.
*Quartz Lamp in Treatment of Erysipelas. A. Czepa.—p. 564.
Roentgen Irradiation of Thymus in Psoriasis. Schneider.—p. 565.
*Local Generation of Iodoform. K. Preis.—p. 566.

Diagnosis of Acute Conditions Within the Abdomen.—Schnitzler discusses the attitude of the practitioner toward cases of so-called "acute abdomen" in which he must quickly decide on a definite line of action, and especially, whether surgical intervention must be instituted. He refers to critical abdominal cases in which at first the diagnosis is not the main thing but rather the prognosis in regard to the presumable further course the case will take. The physician must make up his mind whether or not prompt and active treatment is necessary to prevent an unfavorable outcome, and he must also decide whether an unfavorable outcome will be harder to ward off or possibly become inevitable if he delays to institute active treatment. In certain serious conditions the decision is not so difficult: With absolute intestinal occlusion, there is no question that a delay of a few hours may be disastrous. That we are very near the critical danger line we may know if meteorism is highly marked, if the tension of the intestine or of a single palpable loop is very high, or if fecaloid vomiting occurs. That the line has been crossed will be feared if the sensorium commune is not functioning normally and the pulse is thready or if the extremities feel cool to the touch. Schnitzler discusses, therefore, at considerable length, the various symptoms by which the practitioner must be able to recognize promptly in advance that the condition is a critical one, and that within a few hours or even minutes the time for rendering aid will have passed. The threatening complications must not be merely waited for; they must be foreseen. Unfortunately there is no single symptom that will tell us definitely that the moment has come that imperatively demands intervention. On the other hand, the presence of a whole series of tranquillizing symptoms or the absence of alarming symptoms does not prove that the patient is not in danger. A relatively low temperature and a relatively high pulse is an unfavorable indication, but the absence of this incongruity should not be too comforting, and to wait for such a symptom before operating would be entirely out of place. It would be equally bad, if intestinal occlusion were plainly indicated, to wait until fecaloid vomiting occurred, before intervening. In the case of a sudden hemorrhage, we must not forget that the excessive pallor of the patient cannot be taken as a true indication of the seriousness of the case. The pallor may be due as much to the suddenness of the hemorrhage as it is to the quantity of blood lost. The writer relates a case in which he mistook bleeding from varicose veins of the esophagus as resulting from gastroduodenal ulcer, operated and lost the patient, a man of 23, within eight hours.

Embryology of Malformations of the Heart.—Spitzer discusses the phylogenesis of the partition in the heart of vertebrates, and its significance for the explanation of heart anomalies in man.

The Quartz Lamp in the Treatment of Erysipelas.—Czepa reports excellent results from the use of the quartz lamp in the treatment of about 100 cases of erysipelas, and thinks the method should be universally adopted.

Local Generation of Iodoform.—Preis states that if potassium permanganate is injected into the empty bladder of a subject taking potassium iodid, the odor of iodoform becomes perceptible. He cites further experiences which indicate that the combination generates iodoform in the tissues. He has thus generated iodoform in venereal chancres by local treatment with tincture of iodin and 10 per cent. potassium hydroxid.

Zeitschrift für Urologie, Leipzig

1922, **16**, No. 6

*Tests of Kidney Functioning. A. Renner.—p. 249.
*Practice in Cystoscopy. F. W. Oelze.—p. 276.
*Present Status of Blood-Borne Kidney Disease. Schlayer.—p. 278. Cont'd.

Tests of Kidney Functioning as Aid to Surgery.—This is Renners' graduation thesis, based on study of 750 operative cases in which up to eight various functional tests were applied and the results compared with the findings at operations. The electric conductibility of the urine from each kidney was compared, and the power of concentration and of dilution, in addition to the tests with a stain, phlorizin glycosuria, the freezing point and the nonprotein nitrogen in the blood. He emphasizes the number of functions, so that no one test is comprehensive enough to include them all. It is like a mosaic picture. Only by fitting all the responses together and estimating them in their proper proportions, do we get an instructive oversight of the functional capacity of the kidneys. And even this is only for the moment. We have no means of knowing the amount of reserve energy which might allow one kidney to substitute the lacking function in its mate. We are still unable to estimate the force of the extrarenal factors, and the influence of changes in the condition of the circulation. Consequently, even at the best, our functional diagnostic measures will not succeed in eliminating all fatalities from kidney operations.

Practice in Cystoscopy.—Oelze advises the general practitioner and the newly fledged urologist to have a sound, the exact shape and size of the cystoscope, and to use this whenever possible in the final stage of urethritis, etc. The aim is to acquire skill in introducing the true cystoscope when the latter is really required.

Blood-Borne Kidney Disease.—Schlayer analyzes what the last ten years have taught us in regard to hematogenous disease of the kidney. Classification by the pathogenesis represents progress, but to date the grouping is arbitrary and not well founded, either anatomically or clinically, as the biologic and toxicologic elements have not been duly considered. Not the quantitative but the qualitative changes in the secretion of urine are the first and most sensitive signs of disease in the kidney. A single test is never decisive, on account of the varying extrarenal factors, and the individual behavior of the emunctories, as each person has his own special type of elimination. Another point to be borne in mind is that the same change in function may be induced by a number of different causes, and, further, that there is no regular proportion between the severity of the injury and the intensity of the modification of function. The freezing point of the blood is almost disregarded by the internists now, but they are careful to record the nonprotein nitrogen and urea, the indican and the creatinin content on suspicion of renal insufficiency. The latest research has demonstrated that neither positive nor negative findings as to the nonprotein nitrogen can be accepted as an absolute gage of retention or its degree. Extrarenal factors may send up the nonprotein nitrogen in the blood to a figure such as we associate with pronounced kidney disease. The article is continued.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

June 17, 1922, **1**, No. 24

Medical Science and Politics. G. van Rijnberk.—p. 2384.
*Resection of Transverse Colon with Cancerous Stomach. W. Noordenbos.—p. 2386.
*Artificial Leg After Exarticulation of the Knee. J. van Assen.—p. 2398.
*Leg Reflex in Mental Disease. D. Schrijver.—p. 2403.
Treatment of Epilepsy. A. Willemse.—p. 2407.
Radium Treatment in Medical Practice. H. Folmer.—p. 2409.
Early Syphilitic Nephritis. K. A. Rombach.—p. 2414.
Rupture of Tendon from Contusion. J. H. Drielsma.—p. 2417.

Resection of Transverse Colon with Cancerous Stomach.—Noordenbos says that the operative mortality was 33.9 per cent. in the thirty-nine cases on record in which more or less of the transverse colon was resected en masse with the stomach. He has done this himself in two cases, and one of these patients is still in good health, eight years since the operation. The cancer was extremely cellular, glands were already involved, and the woman was only 39—which render the permanent cure the more remarkable. The interval since the first symptoms was only two months. The other patient had both syphilis and gastric cancer, and did not survive the operation. The ulcer was on the body of the stomach, and it had perforated into the colon, but the vomit was not fecaloid except in odor, and there was no diarrhea or lientery, but a blue tinted fluid injected into the rectum appeared in a few minutes in fluid aspirated from the stomach. The fistula was plainly evident in all of five roentgenograms taken in the course of six successive hours. He reproduces some of them.

Artificial Leg.—Van Assen gives an illustration of a special hinge which locks firmly when bearing a weight and swings loose when the pressure is removed. It is particularly useful for the knee joint in artificial limbs, and to correct a paralyzed knee. A case is illustrated showing the almost perfect function of the artificial legs with this hinge in a case of congenital defect of the legs amounting to exarticulation of both knees which no surgeon could have improved upon.

Leg Reflex in Mental Disease.—Schrijver noted plantar flexion of all the toes on light percussion of the patellar ligament and median surface over the tibia and entire thigh in from 10 to 86 per cent. of 200 male patients with eight different forms of mental disease.

June 24, 1922, **1**, No. 25

*Autotoxic Sulphemoglobinemia. A. A. Hijmans van den Bergh and H. Engelkes.—p. 2499 and p. 2510. Idem. I. Snapper.—p. 2520.
*Estimating Body Temperature from the Urine. S. van Creveld.—p. 2526.
Syphilis Simulating Pernicious Anemia. J. H. Landwehr.—p. 2529.

Autotoxic Sulphemoglobinemia.—Twenty cases are tabulated, including 5 personally observed by van den Bergh and 2 by Snapper, all encountered within a short period. In 5 of the total 20 there was mechanical obstruction of the bowel, and the sulphemoglobinemia subsided after the operation for the ileus. All the other cases were in women, and the disturbances seemed to be functional, although suggesting autointoxication, with occasional partial or total loss of consciousness. All were weak and pale. In one case there was no tendency to constipation. The cyanosis in some cases was so intense it suggested grave heart disease, but the cardiovascular system was apparently sound, and only the spectroscope explained the cases by the characteristic line in the spectrum. The findings with various spectroscopic and chemical tests are described, and tests on other patients taking sulphur for different reasons. Sulphemoglobinemia was found as a physiologic phenomenon in 23 of the 60 healthy adult rabbits; in 4 of them the amount was considerable, up to 10.5 per cent. in the aorta blood and 12.5 per cent. in the portal blood, on gas analysis. In Snapper's 2 cases the women had been taking acetphenetidin for seven and twelve months, and it subsided after suspension of the drug, but returned rapidly on its resumption. Bowel functioning was normal in both.

Body Temperature Estimated from the Urine.—Van Creveld's experiences confirm the convenience and reliability of this method of testing the temperature by the urine, provided—a very important point—that the vessel receiving the urine has been warmed to 40 C. or a vacuum bottle at this temperature is used.

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TREATMENT OF HYPERTENSION *

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NEW YORK

It is customary to speak of hypertension as an entity, in the same way that we might speak of fever. This is due to the fact that the clinical estimations of blood pressure in the beginning were applicable only to the systolic phase and not until more recently, after the auscultatory method had been discovered, were we able to make estimation of the diastolic pressure as well. At present it is not correct to speak of an elevation of blood pressure without designating both systolic and diastolic phases. When we study blood pressure curves by determinations that have been carried out under control conditions, we find peculiarities in the systolic and diastolic phases which make it impossible to explain the departures from normal in so simple a way as is usually done. For example, we notice elevations in both systolic and diastolic phases, and this is the most common type of hypertension which comes under clinical observation (Chart 2). We find also cases in which the systolic is considerably elevated above normal, but the diastolic is either normal or only slightly elevated (Chart 1). Occasionally there is also observed distinct, though slight, elevations in the diastolic pressure without corresponding elevation in the systolic pressure (Chart 3). From a physiologic point of view these different types of abnormal elevation in blood pressure must be explained by different factors in the circulation. The commonly cited theory, for example, that all elevations in blood pressure are due to peripheral resistance cannot explain an elevation of systolic pressure without elevation also of the diastolic pressure. In Chart 1 the rise is systolic. That is a high pulse pressure.

This indicates that there are two main factors in operation in producing abnormal elevations in blood pressure of all types. These factors are, first, increased peripheral resistance dependent on vasoconstriction induced primarily through the central nervous system. The second factor is increased heart output. An increased cardiac output will first of all increase the systolic blood pressure and only secondarily increase the diastolic, so that cases presenting the combination of high systolic and normal diastolic pressure, in other words, a high pulse pressure, fall into this group. When the systolic and diastolic are both elevated we have a combination of two factors, increased heart output and a narrowing of the peripheral field of circulation due to vasomotor influences, as in Chart 2. These physiologic considerations are sufficient to indicate the futility of attempting to treat all cases of hypertension as though of common origin.

HYPERTENSION IN NEPHRITIS

I desire to make a specific application to definite disease groups wherein some type of hypertension is a symptom. The most common disorder under this heading is, of course, nephritis. While we do not understand the immediate causation of hypertension in nephritis, some principles are fairly familiar, so that our methods of treatment are not wholly empiric. There are many reasons for believing that nephritis is associated with an intoxication, and one manifestation of this intoxication is the increase in blood pressure through the action of a toxin on the vasomotor centers. As a foundation for treatment, I wish to call attention to some facts suggesting a relationship between blood pressure in general and nutrition. The most important of these facts is that more than half of all cases of hypertension, so-called, occur in persons who are definitely overweight. It would be erroneous to draw the deduction so often made that obesity is invariably a result of overeating. While some cases of obesity are undoubtedly dependent on an unnecessarily large food consumption, other cases are just as distinctly a manifestation of a nutrition disorder. The second fact that is worthy of consideration is that low blood pressure occurs usually in the undernourished. It has been definitely demonstrated by Benedict [1] that undernutrition in healthy young persons has as one of its consequences a marked slowing of the pulse rate and a very low blood pressure. Pulse rates below 50 and blood pressures of 90 systolic and 60 diastolic are surprising in healthy young men. However debatable as a mode of life in health, these two facts give a useful hint for the management of hypertensive disease in general and of nephritis hypertension in particular.

Unfortunately, the majority of cases of nephritic hypertension come under observation when the disease is already well advanced. This, of course, is due to the fact that the disorder may be latent and without symptoms for an indefinite period. The most definite characteristic of nephritis associated with hypertension is the tendency to store in the tissues nitrogenous bodies which should be excreted in the urine. For some time we have been utilizing this fact in the treatment of nephritis in general. The effect of low protein diets in some cases of chronic nephritis becomes apparent in the blood pressure curve, as well as in the general symptoms of the disease. Chart 4 is from a case of chronic nephritis, and shows the effect of restricting protein food to approximately 30 gm. a day. This change in diet was the only change in therapeusis made during this period. Previous to this period the patient had been kept at rest without any notable change in the blood pressure curve.

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* Read before the Section on Pharmacology and Therapeutics at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Benedict, F. G.: Proc. Nat. Acad. Sc. 4: 149, 1918.

One source of failure in securing favorable results in cases of this type is due to the expectation of the physician that results will be shown in a relatively short time. This is not the case. A low protein diet may be maintained for a number of weeks without any detectable result in the blood pressure. But in many cases at least, if the method is persisted in for a couple of months, the blood pressure becomes definitely lower, along with an improvement in the general condition of the patient and an increase of his strength and his ability to withstand fatigue. Of course this is not invariably so. When the renal lesion is advanced and the lowest grade of protein metabolism taxes renal function, then little, if anything, can be accomplished in the reduction of the blood pressure any more than in the amelioration of other symptoms (Chart 2). But, on the whole, the method is always worth trying in my estimation, not primarily to relieve hypertension but to improve the condition of the patient, the hypertension being in a sense a guide, in a way that a temperature chart is a guide in infectious disease.

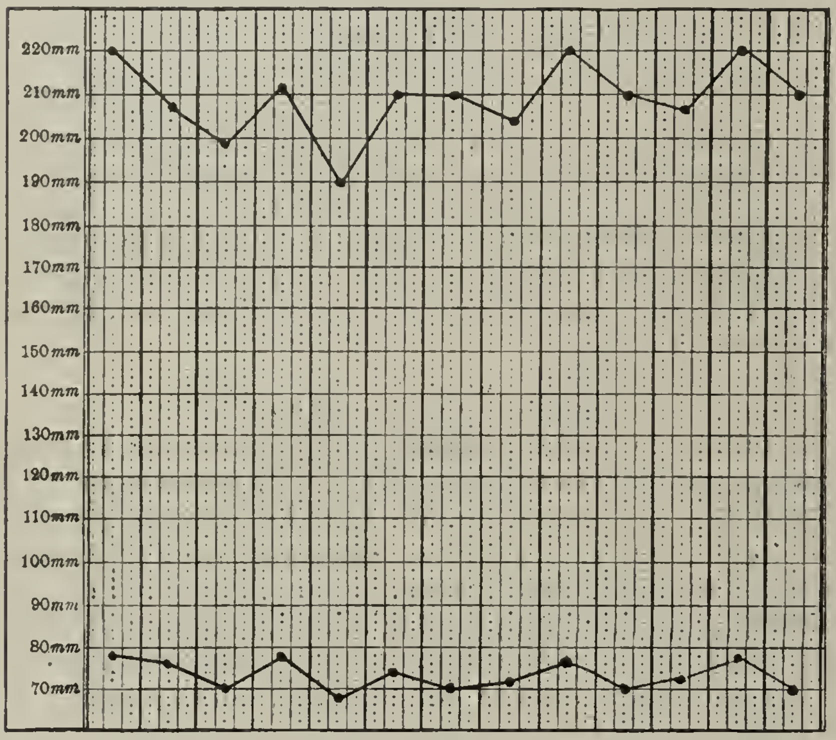

Chart 1.—Blood pressure of a patient admitted to the hospital on account of sciatica. Diagnosis, chronic nephritis, early; cardiac hypertrophy; arteriosclerosis; neuritis of sciatic nerve. Note high systolic pressure and normal diastolic phase.

Occasionally one observes cases of hypertension associated with renal disease when the renal disease is not demonstrable. In some of these cases a sharp curtailment in the amount of salt taken with the food produces favorable results. These persons are likely to be large eaters and use abnormally large amounts of salt. One of the results of restriction of salt is that less food is taken, less protein food especially. A second consequence is that there is less thirst, and less fluid is drunk.

CASES IN WHICH HYPERTENSION IS ONLY SIGN

Next in frequency to the hypertension of renal disease is that ill-defined group of disorders wherein hypertension may be the only definite sign of abnormality. The majority are early cases of nephritis, a few are not. When these patients are seen early, the vascular hypertonus is confined to the systolic phase, the diastolic being relatively low or quite normal. This group includes the hypertension of the climacteric, certain anxiety neuroses and some cases of nontoxic goiter. In this group obesity is even more conspicuous than in the nephritic group. While a small percentage of these cases justify Vaquez' designation of "benign hypertension," since the hypertension may exist for years without the development of symptoms or vascular accident, nevertheless the majority of the patients finally do develop symptoms and signs of organic disease referable to heart, arteries or kidneys. The modes of death confirm this.

In a certain sense this is the most difficult type of hypertension to treat because, at the time when treatment is effective, the patient feels well and naturally objects to restrictions or an altered mode of life. Some of the patients of this class first discover the hypertensive disorder in the course of examinations for life insurance.

MANAGEMENT

The principle which is most likely to be useful in the management of this disorder is to regard vascular hypertonus in this group of cases as a symptom of an intoxication. The nature of the intoxication, frankly, we do not understand. It seems to affect primarily the vasomotor system and, so long as the elevation of blood pressure is confined to the systolic phase, the disorder cannot be regarded as seriously menacing health. But it cannot be forgotten that the disease ordinarily is progressive and that, in time, the diastolic blood pressure also becomes elevated. The diastolic phase measures the extra work imposed on the vascular system. From statistical evidence we know that these cases progress to cardiac disorders and vascular accidents. Having in mind the usual course of events, it is mandatory on us to do all that we are permitted to do to correct the disorder in its earliest stage—the only stage in which we can expect restitution to normal. Some of these cases occur in persons who are very active, who have abundance of energy, and who their life long have been accustomed to an unusual amount of responsibility. Just as likely we see cases among the

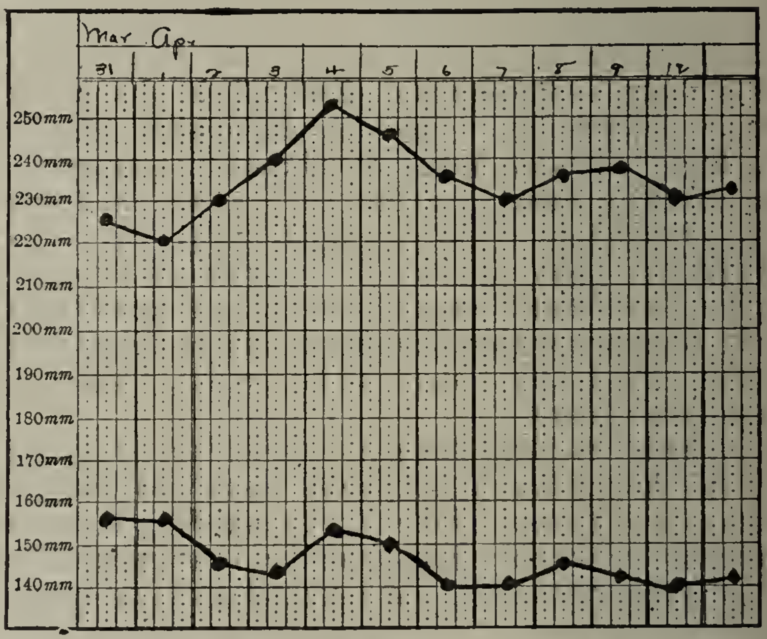

Chart 2.—Blood pressure of a patient admitted to the hospital on account of headaches, nausea and dyspnea. Diagnosis, advanced chronic nephritis; incipient uremia (urea nitrogen of blood much elevated; phenolsulphonephthalein below 10 per cent.; albuminuric retinitis); cardiac hypertrophy and dilatation; chronic passive congestion of lungs, liver and kidneys. Note systolic and diastolic phases both elevated; compare with Chart 1.

class who have been free of the ordinary responsibilities of life and have led a physically inactive and protected existence. As I have mentioned before, a large percentage of both classes is overweight.

In the management of these cases it is essential to know, not only the details of the physical state of the patient so far as it is possible to know them, but also to become acquainted with the temperament and the habits of the patient, especially in respect to work (both physical and mental), food and sleep. The primary object in regulating the treatment is to correct modes of life which are unwholesome. In the case of the person who has been accustomed to little or no exercise, it becomes necessary to increase the exercise gradually until he is able to do as much as a person of his age should do. His diet should be regulated according to his proper weight and not according to his real weight. That is to say, if a person weighs 200 pounds (91 kg.) and his proper weight for his height is 180 pounds (80 kg.), his diet should be on the basis of maintaining his weight at 180, which will, along with proper exercise, produce a gradual loss of weight to a suitable level.

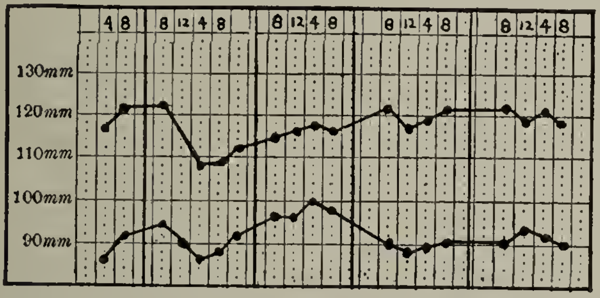

Chart 3.—Blood pressure of a woman, aged 38, under observation for five years on account of congenital cystic kidneys; only during the last year have there been detectable signs of defect in renal function; no failure of concentration as shown in specific gravity of urine, or nocturnal polyuria. Usual functional tests are negative. Blood nonprotein nitrogen becomes elevated on increased protein diet. Note constant abnormal elevation of diastolic pressure, the systolic phase remaining normal.

One other feature in respect to the diet in this class of case worthy of mention is that the protein intake should not be above the actual needs. Eight-tenths gram of protein per kilogram of body weight is ample for adults. The necessary fuel value of the diet can be made up by carbohydrates and fats.

This simple regulation of diet and exercise is sufficient in some instances to produce surprising results in benefiting the general health of the patient and correcting the metabolic disorder on which an increased blood pressure depends. With other patients it is necessary to take them out of their accustomed environment in order to secure freedom from responsibilities and worries and the time necessary to carry out proper hygienic measures. I cannot insist too strongly that no result worth securing can be attained in a short period of time. In some instances, patients have remained in sanatoriums for as long as a year, under a regimen of diet and exercise, a regimen which practically amounts to reeducation. As a general rule the treatment of hypertension cannot be carried out successfully in the home. The reasons for this become evident on a moment's thought. The object that we are endeavoring to attain is the regulation of the patient's mode of life, and for that regulation it is necessary that the patient change, first of all, his mental attitude toward his environment.

Comment has frequently been made that these patients often belong to the overbusy, driving type of successful man of affairs. Nothing can be accomplished by diet or by exercise if the incentive to drive be left unmolested. For this reason, primarily, it is my belief that early cases of hypertension should be treated in special sanatoriums. I say *special* because not every sanatorium is either equipped or conducted in a way to carry out effectively the necessary treatment. There are a few that are conducted very much along the lines of the boys' summer camp. The mental atmosphere is primarily one of sport; vigorous exercise is the rule, but in the form of games and of sports rather than in gymnasiums. The objection to gymnasium exercise is that it is more or less mechanical and does not require a concentration of attention. The mind being left free to wander, it fixes upon its customary pursuits. This is not possible in a game, and for that reason, primarily, almost any game is superior to exercise in a gymnasium.

Under a regimen in this sort of atmosphere, the patient receives a kind of reeducation, his philosophy of life is corrected, and values assume a better perspective. Physically, the flabby individual becomes hard, and all of his bodily functions are toned up accordingly. Instead of consuming more calories in food each day than he expends, he will, for a period, expend more than he consumes and lose weight in consequence.

What I have said applies particularly to the early cases of hypertension, there being as yet no significant damage to the myocardium. When there is a suspicion, or even evidence, of impaired cardiac function it is necessary to precede exercise by an adequate period of rest, and the exercise after this must be begun gradually and under careful supervision.

When it is possible to secure the cooperation of patients so that one may carry out a careful regimen through a sufficiently long period of time, elevated blood pressure in early cases is susceptible of cure.

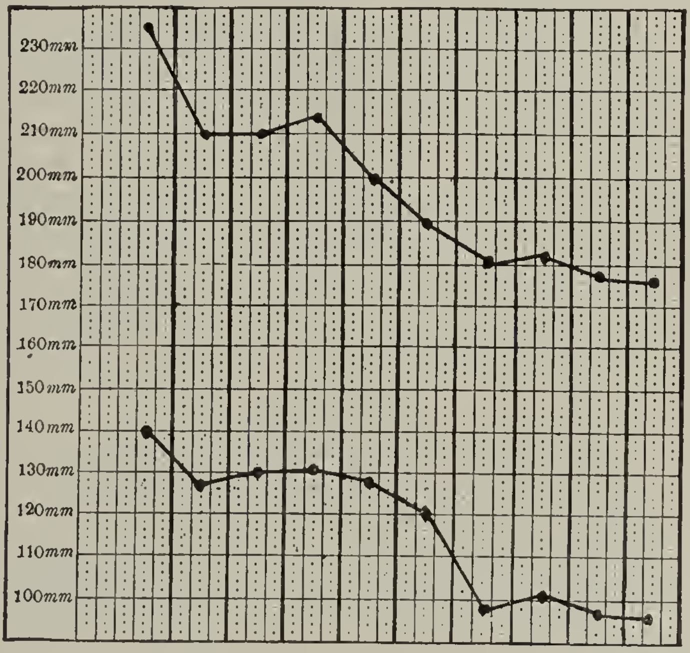

Chart 4.—Blood pressure of a patient in whom the symptoms were largely referable to cardiac embarrassment. There was cardiac hypertrophy, sclerosis of the retinal arteries, and evidence of some impaired renal function (estimated at 15 per cent.). Rest for about two months, largely in bed, had produced no evident change in hypertension. The chart shows a summary of the next month when the diet consisted chiefly of rice, sugar, cream, butter, and fruit for fuel, and limited amounts of milk for protein.

The chief obstacles to treatment are, first, that the patient will not cooperate because he still feels perfectly well at a stage in his disorder when treatment offers the best prospect of a successful issue (Chart 5).

The second obstacle is economical in the sense that relatively few persons can afford to devote themselves exclusively, for a number of months, to the cultivation of their health. But it is well to recognize exactly in what the difficulties of treatment consist. It is not so much that the disease cannot be remedied as that the remedy is not attainable for many.

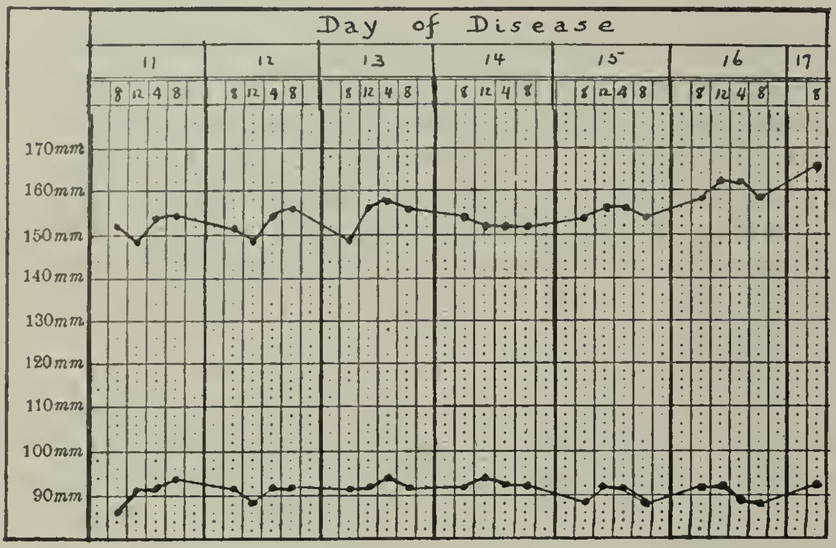

Chart 5.—Blood pressure of a man who presented very indefinite symptoms, chiefly referable to ease of fatigue. There were doubtful cardiac hypertrophy, and a slight, significant decrease in renal function. Probably there was an early stage of nephritis. This period promises best hope of cure.

When the patient cannot give up enough of his time to carry out a routine such as that outlined, the best compromise consists in directing therapeutic effort to the adjustment of the diet, so that it shall be adequate for the patient but not a surplus, and secondly, regulating the life of the patient to insure as much exercise and diversion as is compatible with his necessary routine activities.

FOCI OF INFECTION

A good deal has been said with regard to the relation of foci of infection to hypertensive disease. While there is not a vestige of evidence pointing to a causal relation of infections to hypertension, yet, on the other hand, foci of infection should not be ignored, because they predispose to the vascular and renal degenerations which are so commonly sequals of long standing increases of blood pressure. Then, too, foci of infection, whether in the tonsils or in the gallbladder, are obstacles to the return of full health. From this point of view, then, infections, of whatever origin, should be given every possible attention.

PROPHYLAXIS

This is a suitable place, perhaps, to say a word concerning the prophylaxis of vascular hypertension, since the prevention of disease must always be more important than the treatment of a person. The immediate causal factors for the basal vasomotor disorder underlying hypertension we do not, as I have already said, understand. Some general considerations are worthy of attention. Mention has already been made of the well established fact that hypertension is most commonly observed in persons who are overweight. Of course, it cannot be maintained that all who are obese consume an excess of food, but many do. Among Anglo-Saxon peoples, and in this country especially, good living is synonymous with a high protein diet; and until relatively a few years ago it was quite generally believed that such a diet was necessary for the maintenance of a high state of physical vigor. But that position cannot longer be successfully defended. Protein food is an easily utilized and highly nutritious diet, but it has the peculiar characteristic, in contrast to fats and carbohydrates, of raising the elevation of body metabolism or, as we might say, speeding up the machinery. Experiments are available which seem to indicate that a high protein diet, in animals at least, induces vascular and renal disease. Whether that is also true in human beings is not yet proved. The fact that meat-eating races seem more prone to vascular disease than vegetarian races is possibly dependent not only on diet but also on other modes of life. The subtle danger in meat diet lies in the fact that it tempts the palate and leads to the taking of more food than is necessary for the satisfaction of the appetite.

The observation of a large number of cases of hypertension has led me to believe that the disorder is far more common among those of sedentary occupations than among persons who do vigorous manual labor; and among the well-to-do the disease seems to me more common with those persons who take little or no exercise in the form of games. Considerations of this kind, I think, are helpful in suggesting the sort of advice that should be given by the general practitioner to his patients in respect to the prevention of hypertension and its associated vascular degenerations. It might perhaps be summed up in a slogan—Keep fit and Keep hard.

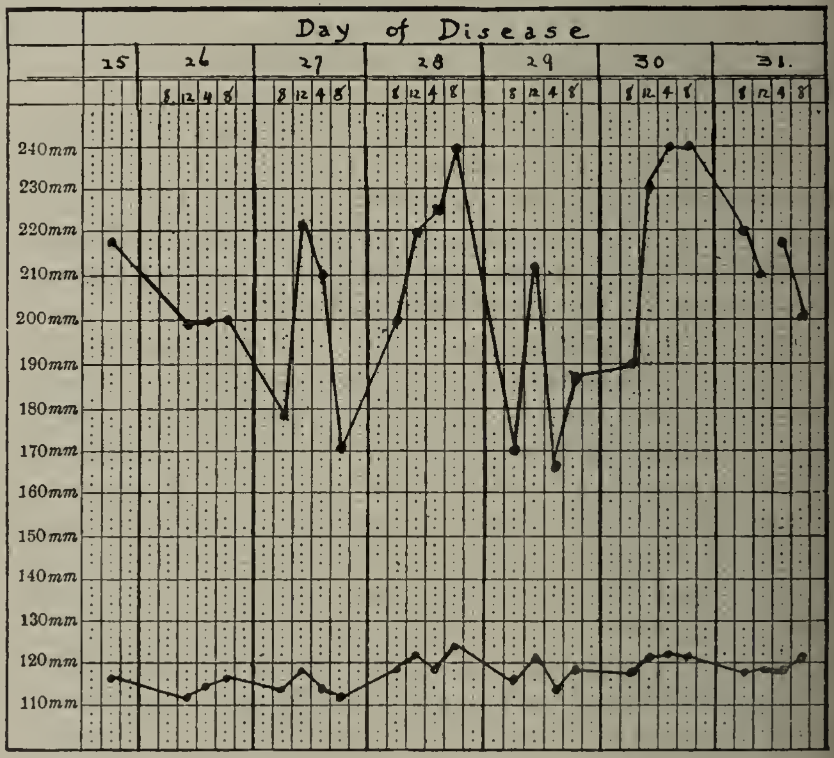

Chart 6.—Blood pressure in a very neurotic woman with a history of hypertension of years' duration. There was clear evidence, in the eye grounds, of nephritis, day and night urine volume, and functional tests. Note persistence of vasomotor instability in the systolic phase.

LATE CASES

Many cases of hypertension come first under observation at a period when the heart is already seriously damaged and when a considerable degree of arterial degeneration and sclerosis is detectable. Many of these patients also have a serious impairment of the renal functions. At this stage in the disease, little or nothing can be done for the treatment of hypertension. The best that can be hoped for is, through conserving strength by rest, to diminish in some degree the burden on the laboring heart. The rest treatment has been much lauded as a general method of handling cases of hypertension, but it is essentially a conservative treatment, with the idea of diminishing the rate of progress of the disease, rather than any attempt at cure. It is doubtless true that proper rest, a sparse diet and vigorous catharsis will prolong the lives of many persons who have passed the stage for more active methods of treatment, but we must remember that these are palliative methods, and our primary object should be to detect cases at an earlier period, when there is opportunity for a better measure of success. In the later periods of hypertensive disease, acute attacks of cardiac failure may be associated with extremely high degrees of hypertension. The blood pressure in these cases may be too high to be recorded on the ordinary instruments. Since these extreme degrees of vascular tension are the immediate burden on a laboring heart, many attempts have been made experimentally at the rapid reduction of blood pressure.

I am frequently asked whether bleeding will effect this end. The immediate result of withdrawal of a pint of blood from the vein, under these circumstances, is usually a fall in the systolic pressure of something less than 50 mm. of mercury. But this lower blood pressure seldom persists for more than six or eight hours. Consequently, little or no benefit can be expected from bleeding.

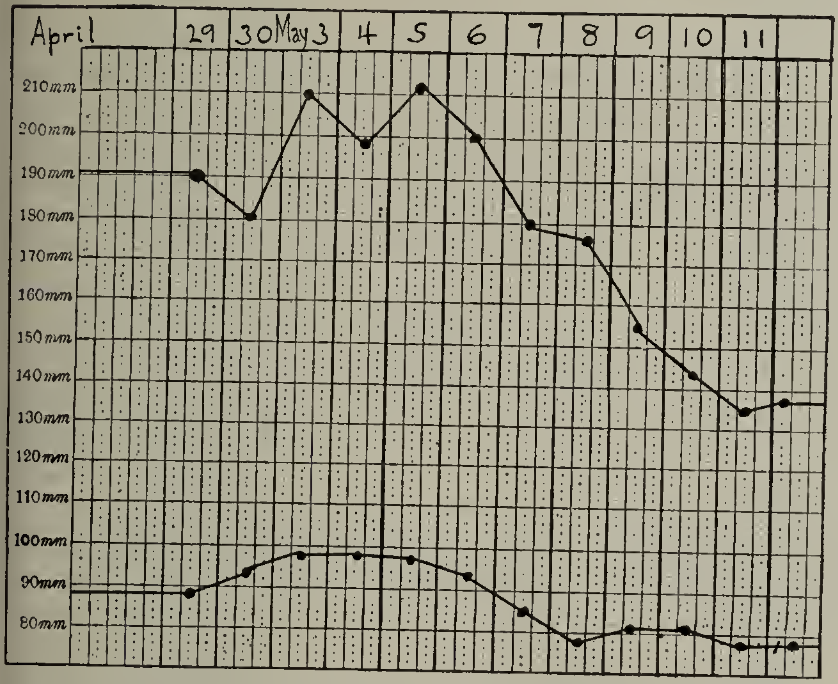

Chart 7.—Blood pressure in a patient with chronic nephritis with nitrogen retention. The usual functional tests were confirmatory. Note fall in pressure following rest in bed, influencing chiefly the systolic phase.

Absolute rest, with the use of sufficient sedatives, is always indicated. For the last year it has been our custom to perform lumbar puncture on all patients of this type. We have found that the cerebrospinal fluid is usually under increased pressure, and if considerable fluid is withdrawn the patient is quite often relieved of the sensation of throbbing tension in the head and, in very many cases, the blood pressure is lowered appreciably in both the systolic and the diastolic phase.

ABSTRACT OF DISCUSSION

Dr. Leonard G. Rowntree, Rochester, Minn.: As one who comes in constant daily contact with a large group of cases of hypertension, I want to subscribe to the soundness of the principles emphasized by Dr. Foster. He is wise in dividing these cases into groups, but the groups, as constituted at present, are very arbitrary in nature. There are some fundamental factors in relation to hypertension with which we are not familiar as yet. I am particularly interested in the emphasis laid on the time element in treatment. It is wise to consider also what is equally important and in many instances more important and in most instances more difficult to handle, viz., a prolonged regimen for the patient after he has left the institution—in other words, the follow-up system. It is not a disease of a day or a week, but in the majority of cases of years or a lifetime. Consequently, an effective follow-up system is essential to the best results. This has been a feature of treatment to which we have given great attention in Rochester. I was interested also in noting that he laid no stress on the use of drugs. This, to my mind, is correct. In the vast majority of cases, vasodilators do not accomplish much. Entirely too much emphasis has been laid on drug therapy instead of on the principles outlined by Dr. Foster. On the other hand, I object to the total omission of reference to drugs. Symptomatic relief can be brought to many patients, but adherence to the principles outlined by Dr. Foster will yield better results in the handling of cases of hypertension. We have observed a considerable number of cases with low diastolic and high systolic pressure, and some of them are extremely resistant to treatment. A considerable proportion of these cases is associated with adenoma of the thyroid. Nearly ten years ago, Dr. Henry Plummer asserted that hypertension is frequently associated with evidence of increased metabolism. As other accurate methods of determining the metabolic rate came into common use, we find that Dr. Plummer's statements in this regard are correct.

Dr. Lester J. Palmer, Seattle: Although the paper is primarily on treatment, I should like also to hear about prognosis. About a year ago, in going over histories and sending out follow-ups on a group of these cases, the point was brought to our attention that all of the patients, regardless of the treatment they had received, whose diastolic blood pressure was over 120, were either in very poor condition or dead at the end of about two years.

Dr. W. W. Tomkins, Charleston, W. Va.: What constitutes the pathologic condition of blood pressure? How low a blood pressure is compatible with health? Does a low blood pressure incapacitate a man for his work? Dr. Foster laid great stress on the fact that these cases run over a very long period of time. In other words, a man who has a low blood pressure goes to a medical life insurance examiner and is rejected. If he has no symptoms, physical or mental or otherwise, is his a pathologic condition? Should he go to a sanatorium and be treated?

Dr. George E. McKean, Detroit: We hear very much nowadays—apparently from some good sources—about salt in the diet. I should like to have Dr. Foster give us his ideas on that.

Dr. Nellis B. Foster, New York: I did not go into drug therapy at all. In the later stages of the disease when nothing else can be done, drug therapy has a place. I ignored that point because I wished to bring about the recognition of the fact that hypertension is a controllable disease. But it is controllable at a time before symptoms occur. The other form of treatment, the form we are too often confined to, unfortunately, because we do not see the patient early, is palliative treatment. In New York we see very few thyroid disorders, so I am not prepared to state whether the condition of high blood pressure that Dr. Rowntree spoke of is associated with adenoma or thyroid disease. I have wondered about idiopathic cardiac hypertrophy. A type of hypertension would be the result of such an hypertrophy and increased heart output. But it is a point I do not think we understand, and I do not want to leave the impression that we do understand very much of this. I agree with Dr. Palmer that the majority of cases in which there is an elevated diastolic pressure of 120 mm. of mercury are terminated at the end of two years. There are exceptions. There is a wavelike progression in this disease that fools frequently. That is especially so if the blood pressure is taken under varying conditions. I do not regard blood pressure as taken in the office, especially at the first examination, as being of particular value. There is excitement, and the test is unreliable. Dr. Tomkins wished to know in regard to a standard. If an adult has a blood pressure of more than 140 systolic, no matter what the diastolic may be, the case should be regarded with suspicion. It is well to remember what the physiologic variations are. Free of excitement, free of those conditions known to elevate blood pressure, does the blood pressure persist elevated? If it does, then it is abnormal. And that is just the period when one can do the most in treatment, and it is just the period when it is hardest to get men to revise their mode of life. In regard to the salt-poor diet advocated from time to time, doubtless restrictions in salt are occasionally operative in reducing blood pressure. I doubt that it is the salt deprivation. From my observation, those who eat large amounts of salt are usually persons who eat an excessive amount of food, particularly of protein. If you restrict their salt, you destroy the appetizing feature of their food and they unconsciously eat less. It is because their food intake is less that one gets results from the salt restriction, and not because of the salt per se.

SOME RECENT ADDITIONS TO THE KNOWLEDGE OF ASCARIASIS *

B. H. RANSOM, Ph.D.
WASHINGTON, D. C.

Before this Association at its session three years ago, I [1] called attention to the striking discovery made by Stewart [2] relating to the life history of the common roundworm, *Ascaris lumbricoides,* and gave some of the results of investigations on the same subject carried on by Foster and myself subsequent to Stewart's important discovery. Stewart had observed, as Davaine had done fifty years earlier, that when the eggs of this parasite in their final development were fed to rats and mice, they hatched out in the small intestine. A few hours after feeding the animals, he recovered free larvae in the feces, also in confirmation of Davaine's observations.

In addition, however, to the confirmation of these long known and comparatively insignificant facts, Stewart demonstrated that not all of the newly hatched larvae thus passed out of the body. From four to ten days after feeding his experimental animals with *Ascaris* eggs, he detected larvae in later stages of development in the liver and lungs. He observed also that rats and mice that had been fed large numbers of *Ascaris* eggs developed pneumonia within a few days after feeding, and usually died before the tenth day. Further, he observed a migration of the larvae from the lungs after they had reached a length of from 1 to 2 mm., up the trachea and then down the esophagus to the stomach and intestine. The larvae, thus returning to the intestine a week to ten days after the feeding of the eggs from which they hatched, lingered a few days in the intestine, particularly in the cecum, and finally passed out of the body in the feces without undergoing further development.

Having failed in two attempts to rear adult worms in the intestines of pigs by feeding them *Ascaris* eggs, Stewart, in interpreting the results of his experiments on rats and mice, suggested the possibility that these animals act as intermediate hosts of *Ascaris,* becoming themselves infested by swallowing the eggs scattered in the feces of human beings and pigs and, in turn, by contaminating food and drinking water with their own feces, passing on the parasites, after a partial development, to human beings and swine. From a hygienic standpoint, this hypothesis, if it were substantiated, would of course be of great importance because of its direct bearing on the question of the prevention of ascariasis. As a result, however, of other work [3] following Stewart's earlier experiments, some of which was mentioned in my paper of three years ago and concerning which a number of publications have since appeared, it may now be accepted as definitely established that rats and mice play no part as normal intermediate hosts in the life history of *Ascaris.*

The conception of the life history prevailing before Stewart's discovery has not yet been shown to require any modification so far as concerns the manner of spread of the parasites from one human being or pig to another. It is quite certain that *Ascaris* has a direct life history and that no intermediate host is required. Our present conception of the life history, however, differs from the former in that we now know, thanks to the work of Stewart, supplemented by that of other investigators who have interested themselves in the subject, that the newly hatched worms, instead of simply settling down in the intestine of the human being or pig to undergo their development to maturity, first leave the intestine, pass to the liver and then to the lungs in the blood and lymph circulations, and finally come back again to the intestine by way of the trachea and esophagus just as they would do in a rat or a mouse. The essential difference in the two cases is that in the human being or pig the larvae, when they return to the intestine after having undergone a partial development during their tour, are able then to continue their development and to reach fertile maturity, which they cannot do in a rat or mouse, or in a guinea-pig or a rabbit. It has been shown that in guinea-pigs and rabbits the larvae behave as they do in rats and mice.

Lambs and young goats occupy an intermediate position, in their adaptability as hosts, between the smaller animals that have been mentioned and the more completely adapted hosts, man and the pig. It has been experimentally shown [4] that, in lambs and young goats, the larvae that return to the intestine after their migration through the lungs may settle down and continue their development. This development, however, at least in the case of lambs, is very slow, and apparently the worms never reach fertile maturity. From our present knowledge, it is clear that the so-called *Ascaris ovis* of sheep is nothing more than *Ascaris lumbricoides* in an unusual host. Sheep, however, are of no evident hygienic importance as carriers of the parasite, as indicated by the fact that the females of *A. ovis* have been examined in a considerable number of cases of infestation but have never been found to contain fertile eggs. In the spread of *Ascaris,* the only carriers that need be considered as of practical importance are the two common hosts of the adult parasite, man and the pig.

The roundworm of man and the roundworm of the pig are certainly of the same species. They have repeatedly been compared morphologically, and no differences have been established. Also, in complement fixation tests Bakker [5] has found that the roundworms of the pig and man act reciprocally in an identical manner. It is barely possible that the two forms represent distinct races or varieties, each of which is specifically adapted to its own host and unlikely, if not unable, to live in the other. Instances of such adaptations among parasites are well known. For example, among the scab mites in some genera there are forms, variously interpreted as species or varieties, that cannot be distinguished from one another by morphologic differences, yet these similar forms are more or less strictly limited to their own host species and in some cases cannot live at all on a strange species of host, though this host may be subject to infection with an apparently altogether similar parasite. From a hygienic standpoint, it is evident that such biologic differences in host relationships are of the highest importance. In the case of ascariasis, however, even if we admit that the human *Ascaris* and the pig *Ascaris* are sufficiently different biologically to prevent a successful interchange of the parasites in either direction between man and the pig—in other words, if we assume that the pig need not be taken into practical consideration in the prevention of human ascariasis and, conversely, that the parasites cannot spread indifferently from man to the pig, there are nevertheless good reasons, which have come out of the work done in recent years, why the ascariasis of pigs must be given consideration in human hygiene.

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* From the United States Bureau of Animal Industry.

* Read before the Section on Pathology and Physiology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

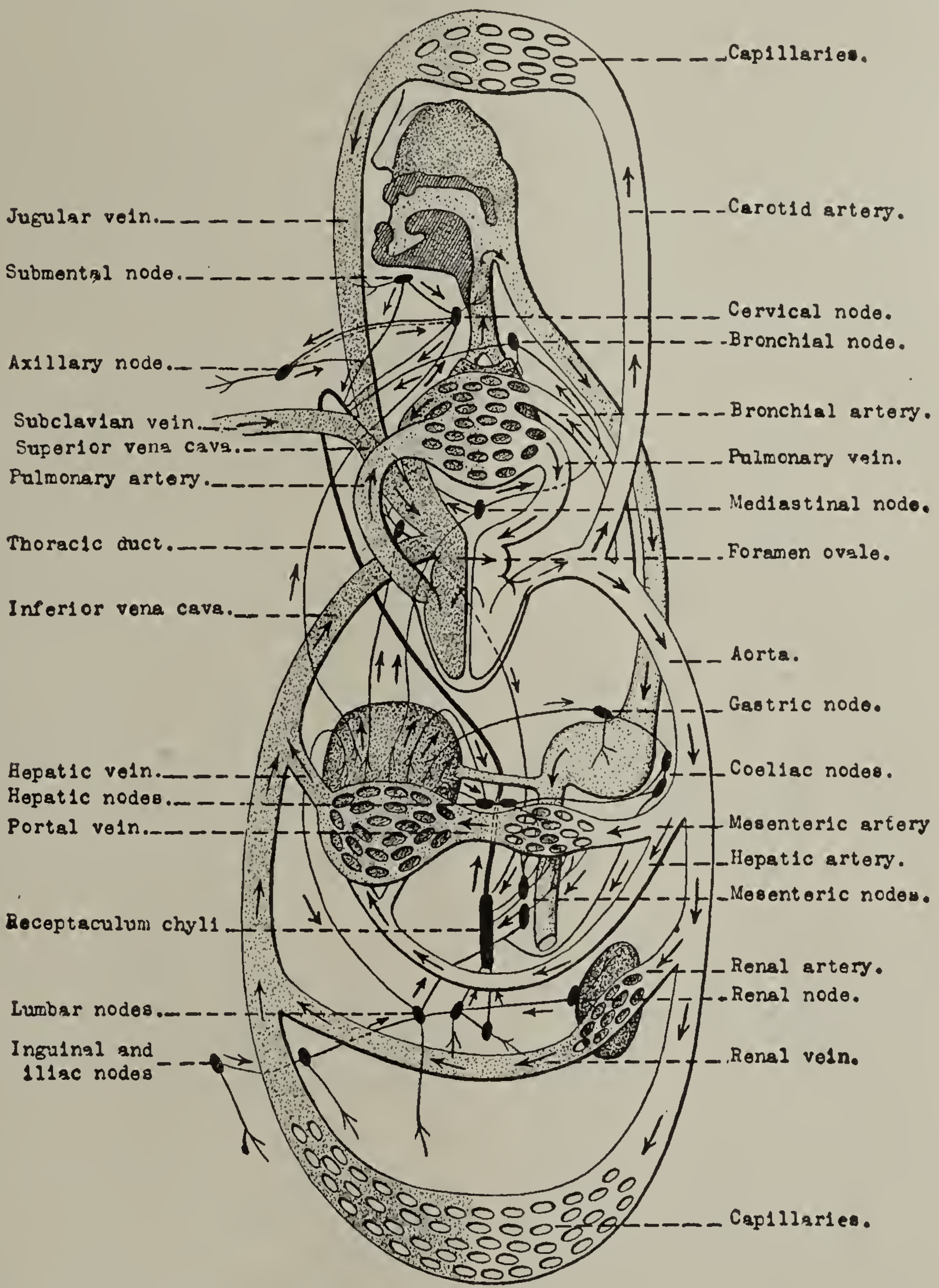
1. Ransom, B. H.: A Newly Recognized Cause of Pulmonary Disease—Ascaris Lumbricoides, J. A. M. A. **73**: 1210-1212 (Oct. 18) 1919.

2. Stewart, F. H.: Life History of Ascaris Lumbricoides, Brit. M. J. **2**: 5-7 (July 1) 1916; Life History of Ascaris Lumbricoides, ibid. **2**: 474 (Sept. 30) 1916; Further Experiments on Ascaris Infection, ibid. **2**: 486-488 (Oct. 7) 1916; Life History of Ascaris Lumbricoides, ibid. **2**: 753-754 (Dec. 2) 1916.

3. Ransom, B. H., and Foster, W. D.: Observations on Life History of Ascaris Lumbricoides, Bull. 817, U. S. Dept. Agric. (May 12) 1920; Stewart, F. H.: On Life History of Ascaris Lumbricoides L., Parasitology **13**: 37-47 (March) 1921.

4. Ransom, B. H., and Foster, W. D.: Footnote 3, first reference).

5. Bakker, C. R.: Over de Identiteit van Ascaris Lumbricoides en Ascaris Suilla, Tijdschr. v. Vergel. Geneesk. **6**: 160-230 (May 30) 1921.



Scheme of circulation: Arrows indicate direction of blood and lymph flow, and paths of migration of Ascaris larvae, including both theoretically possible and proved paths.

The migration of large numbers of larvae of *Ascaris* through the lungs, it has been proved,[3] may produce pneumonia not only in small laboratory animals, but also in pigs, and in addition to other possibilities of injury, the possibility is not at all excluded that such invasions, even when very slight, may be the effective means of bringing about or preparing the ground for a serious superimposed infection by other organisms, either coincidental with the worm invasion or following it, perhaps even after a long interval. The occurrence of more or less serious lung trouble as an immediate result of invasion by *Ascaris* larvae has been repeatedly demonstrated experimentally in pigs, and altogether similar occurrences have been common in the field. Many of the cases of so-called thumps, a very prevalent malady among pigs, are caused primarily by *Ascaris* larvae in the lungs. That pulmonary ascariasis of a more or less severe form occurs also among human beings cannot be doubted. In fact, one or two cases in young children, apparently of pulmonary ascariasis, have been mentioned in the recent literature,[6] and it is of interest to note that Mosler in 1867 and Lutz in 1888, long before Stewart's discovery of the migration of *Ascaris* larvae in small experimental animals, recorded the occurrence of pulmonary symptoms in human beings following the experimental administration of *Ascaris* eggs. In the light of our present knowledge it is very probable that these symptoms were the result of the invasion of the lungs by migrating *Ascaris* larvae.

It is true that human beings, because of their mode of life and their food habits, are less likely than pigs to ingest a sufficiently large number of *Ascaris* eggs at one time to cause a heavy invasion of the lungs by the larvae, but the possibility of such an occurrence is not remote, especially in the case of children exposed to close contact with soil that has been heavily polluted by feces either of human beings or of swine. So far as the invasion of the human lung by *Ascaris* larvae is concerned, it is proper to assume, for all practical purposes, that it makes no difference whether the parasites are of human or of suilline origin. Hence, in reference to pulmonary ascariasis, the conservative hygienist must take the position that heavy fecal contamination of the soil is likely to be equally dangerous to human beings, whether the contamination originates from human beings or from pigs.

In view also of the suggested possibility that very slight invasions of the lungs by *Ascaris* larvae may be followed more or less remotely by serious secondary or indirect consequences, it is evident that the protection of human beings from ingestion of even small numbers of the eggs of the pig *Ascaris* is a matter of potential hygienic importance, irrespective of whether such ingestion results in the development of egg-producing adult worms in the intestine. Moreover, the invasion of the liver, spleen, lymph nodes, thyroid, brain, kidneys and other organs besides the lungs by *Ascaris* larvae affords an additional reason for avoiding the ingestion of the eggs in either large or small numbers, not merely of the human *Ascaris* but also of the pig *Ascaris*.

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[6] Steiner, G.: Neure Forschungsergebnisse über die Lebensgeschichte der Ascaris Lumbricoides und ihre medizinische Bedeutung, namentlich als Ursache von Pneumonie, Schweiz. med. Wchnschr. **50**: 334 (April 22) 1920.

How the larvae reach these various locations is indicated by the accompanying diagram. The larvae that hatch out in the small intestine, after the eggs containing them have been swallowed, promptly enter the wall of the intestine; they then pass to the liver in the portal circulation and, after crossing the capillary zone of the liver lobules, enter the central veins, by which they reach the hepatic veins, vena cava and right side of the heart. The newly hatched larvae measure about 0.25 mm. in length and about 0.012 mm. in diameter. They may pass rapidly through the liver or be delayed for several days, in the latter case undergoing growth and development, before they continue their journey. Some larvae may be permanently stopped in the liver, become encapsulated and die there. From the right side of the heart, the larvae are carried to the lungs, in which they enter the air sacs. Finally, after having developed to a length of from 1 to 2.5 mm. they pass up the trachea and down the esophagus through the stomach to the intestine, and develop to maturity in about two months. Some larvae that reach the lungs, however, apparently again return to the heart, and are then distributed to various parts of the body in the peripheral circulation. They may be recovered from peripheral lymph nodes as early as twenty-four hours after the eggs from which they hatched have been swallowed, and have been found still alive in such locations as late as thirty days after infection. Fülleborn [7] has recovered them from the brains of experimental animals.

In cases in which there is an open foramen ovale, it is theoretically possible that the larvae may reach the peripheral circulation by passing directly from the right to the left side of the heart without going through the lungs. The presence of the larvae in the peripheral lymph nodes of experimental animals in whose hearts the foramen ovale was closed would seem to preclude the possibility of their direct passage from the right to the left side of the heart, and force the conclusion that they had passed through the lungs. As to the possibility that the larvae in peripheral lymph nodes might have followed the lymphatics exclusively, it is inconceivable that in a few hours they could have worked their way for the distance they would have to travel by this route against the lymphatic current and past intervening lymph nodes and the valves of the lymph vessels. It should be mentioned that some larvae that hatch in the intestine, instead of passing directly to the liver in the portal system, find their way in the lacteals to the mesenteric nodes; some of the larvae that reach these nodes succeed in escaping from them, in some cases perhaps passing to the liver in the portal circulation, in other cases perhaps to the chyle receptacle in the lymph circulation and then, of course, to the right side of the heart by way of the thoracic duct, these two alternatives appearing more likely than that the larvae escape into the body cavity. Details of the experiments in which the migrations of *Ascaris* larvae in the body have been followed step by step, have been given in another paper.[8]

Another point of importance which has been made evident by recent work on *Ascaris* is that in the case of pigs, and probably also in the case of human beings, though perhaps in less degree, it is the young animal which is most susceptible to *Ascaris* infection and also most liable to suffer seriously from pulmonary ascariasis.[3] As the pig grows older, more or less complete immunity generally develops within a few months, often to a considerable degree within a few weeks. In case such older pigs swallow infectious *Ascaris* eggs, the worms hatching in the intestine do not succeed in effecting their migration and development or, if some of them do succeed, they cause no conspicuous disturbance. Available evidence indicates that this immunity or resistance to infection is related to age rather than to earlier infections, the pig becoming more resistant because of increasing age and not because one invasion by the parasites has a protective action against later invasions. It is barely possible that there may be also an immunity of the latter sort, but age in itself is an important factor in the production of complete or partial immunity to *Ascaris* infection.

The decreasing susceptibility to *Ascaris* infection that comes with advancing age is an exceedingly important point in the control of ascariasis among pigs, and has been taken advantage of in the development of methods for preventing or minimizing worm losses.[9] By taking special precautions to protect the young pigs from infection until they reach an age of about 4 months, a very remarkable reduction in the losses of young pigs from ascariasis and associated diseases has been accomplished on many farms in which formerly heavy losses occurred. Under usual farm conditions in which a plan of prophylaxis designed to protect pigs of all ages from infection would be practically impossible, a plan designed to give special protection to the young pigs has been found which is easily applicable and economically profitable. In the case of children, age immunity, if it may be so called, is evidently not so rapidly established and perhaps never so completely established as in the case of pigs. Moreover, the fact that among people living under fair sanitary conditions children as a rule are more likely to harbor roundworms and to be more heavily infested than adults may be more dependent on differences in habits involving greater exposure to infection in the case of children than on a difference from adults in their susceptibility to infection.

Age immunity to parasites commonly varies in the case of the same species of parasite with different species of hosts. For example, chickens are readily susceptible to and likely to be seriously injured by infection with the common gapeworm (*Syngamus trachealis*) only while still quite young.[10] Adult chickens rarely harbor gapeworms. On the other hand, turkeys of all ages show little difference in the readiness with which gapeworm infection may be brought about experimentally, and gapeworms may occur naturally in a high percentage of adult turkeys in the same localities in which none can be found in adult chickens, although common enough in young chickens in these localities as in turkeys of all ages. Because of these facts and because of other evidence, it would seem that the turkey is the natural host of the gapeworm, the host with which it has been the longer associated and on which its continued existence as a species is particularly dependent, and that the chicken is merely an incidental host to which the gapeworm is rather poorly adapted and with which also its association has been comparatively recently established.

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[7] Fülleborn, F.: Ueber Ascaridenlarven im Gehirn, Vorläufige Mitteilung, Arch. f. Schiffs. u. Tropen-Hyg. **25:** 62-63.

[8] Ransom, B. H., and Cram, E. B.: Course of Migration of Ascaris Larvae, Am. J. Trop Med. **1:** 129-159 (May) 1921; Course of Migration of Ascaris Larvae from Intestine to the Lungs, Anat. Rec. **20:** 207 (Jan. 20) 1921.

[9] Ransom, B. H.: Prevention of Intestinal Worms in Pigs, J. A. Vet. M. A. **59:** 711-715 (Sept.) 1921.

[10] Ransom, B. H.: The Turkey an Important Factor in the Spread of Gapeworms, Bull. 939, U. S. Dept. Agric., April 23, 1921.

It is possible that the relationship of *Ascaris* to its two hosts is somewhat similar to that suggested in the case of the gapeworm. The differences in the adjustment of *Ascaris* to its two hosts are less marked, however, than the differences in the adjustment of the gapeworm; and although it seems probable, considered from an evolutionary standpoint, that of its two hosts, man is the older, better adapted and more essential host of *Ascaris lumbricoides*, and that the association of the parasite with the pig is more recent, more casual, and less adequate to its continued existence as a species, our present knowledge is too incomplete to justify the acceptance of such a view, except as a hypothesis for further examination. This hypothesis is advanced merely as a suggestion, which at this time it would be useless to attempt to support by argument, because the facts now available are not sufficient either to prove it or to disprove it. I have ventured to mention it, however, because, in addition to whatever value it may have as a working hypothesis, it may be useful from a practical standpoint in reminding us that the problem of *Ascaris* control is perhaps essentially more difficult in the case of man than in the case of the pig, and that even if due allowances are made for the evident differences between the two hosts in their habits and environmental relationships, there may be yet other and less apparent differences between the two, in the relation of host and parasite, that are profoundly important and of such a nature as to require much more stringent control measures to secure successful results in the one case than in the other.

THE CONGENITAL FACTOR IN CHRONIC RENAL DISEASE *

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The purpose of this report is to record briefly the clinical notes and pathologic findings in three uncommon cases of chronic renal disease occurring in comparatively young persons, associated with a marked degree of nitrogen retention and running a rapidly fatal course. In addition, because of the absence of a definite etiologic factor, together with an unusual appearance of the kidneys at necropsy, the importance of a congenital basis is emphasized, as an etiologic factor in these and similar cases.

REPORT OF CASES

Case 1.[1]—J. M., a white man, aged 37, a policeman for the last fifteen years, who was admitted to the Jefferson Hospital in the service of Dr. H. A. Hare, April 12, 1921, complained of shortness of breath. His family history was negative. He had had typhoid fever at 13, gonorrhea at 22 and influenza at 33, from all of which he had apparently made a good recovery. For the last two or three years, he has had to get up once or twice at night to urinate, but otherwise he enjoyed good health until seven weeks prior to admission, when he was suddenly seized with dyspnea during the night, and this had continued.

The patient was fairly well nourished and had marked pallor. The area of cardiac dulness was somewhat increased to the left; the blood pressure on admission was 220 systolic and 180 diastolic; there was no edema. Urinalysis revealed a cloud of albumin and a few hyaline and granular casts. Hemoglobin was 56 per cent.; the Wassermann test of the blood and spinal fluid was negative. Eye ground examination disclosed a moderate albuminuric retinitis. The phenolsulphonephthalein test gave only traces of dye elimination in two hours. The two hour test of urine indicated a fixation of specific gravity at about 1.011 and a total volume, in the twenty-four hours, of 1,080 c.c.

The general condition of the patient grew steadily worse; his nocturnal dyspnea increased in severity. April 19, seven days after admission, he became drowsy and developed a persistent diarrhea, which continued for three days before yielding to treatment. He vomited occasionally and, April 26, a pericardial friction rub was heard. May 1, there was a decided change for the worse, and death occurred, May 4.

Of greatest help from a prognostic standpoint were the estimations for nitrogen retention in the blood. An initial blood urea nitrogen of 93 mg. rapidly rose and, twelve hours before death, eighteen days later, reached 304 mg. The creatinin, 13 mg., and nonprotein nitrogen, 401 mg., paralleled this remarkable rise in the urea nitrogen.

The necropsy, performed on the day of death, revealed a marked chronic interstitial nephritis, arterial disease, and left-sided cardiac hypertrophy, with an ulcerative colitis and serofibrinous pericarditis.

The kidneys weighed only 80 gm. each, and did not present quite the usual picture of marked chronic nephritis, in that they were not so coarsely granular; advanced scarring was not a feature, and there was no increase of pelvic fat; in other words, the kidneys seemed naturally small, rather than atrophic. The microscopic picture was that of a marked chronic interstitial nephritis with great fibrous tissue increase, thickened capsule, shrunken and fibrosed glomerular tufts, periglomerular small cell infiltration, atrophy and dilatation of tubules, the formation of retention cysts, and sclerosis of the blood vessels.

Summary: A congenital basis for this case of renal disease is suggested by the absence of a definite etiologic factor in the history and physical examination of this comparatively young man, who had shown a rapidly progressive loss of renal functional power, an enormous nitrogen retention and death from asthenic uremia; with the findings at necropsy of kidneys which appeared hypogenetic rather than atrophic, and with but slight sclerosis of the systemic bloodvessels.

Case 2.—S. K., a white man, aged 26 years, who was first admitted to the tuberculosis wards of the Philadelphia General Hospital, Nov. 16, 1921, gave a history of a dry, hacking cough of five or six years' duration; pain in the chest; blood-tinged sputum in the last month or two, and a loss of 40 pounds (18 kg.) in weight in the last four months. A good history could not be obtained, as the patient was a foreigner and spoke English with difficulty; but later the further facts were elicited that about five months previously he began having severe frontal headaches, epigastric discomfort and vomiting after meals, and edema of the face and ankles. For the last three or four years, he had had nocturia. He was transferred to the medical wards, in the service of Dr. Riesman, November 23.

The family history of the patient was unimportant except that his father died at 56 of "kidney trouble." His own history disclosed nothing important; he did not recall the diseases of childhood, and denied venereal disease and the use of alcohol. He had a slight attack of influenza in 1918.

The patient was fairly well nourished; there was slight edema of the face. The heart was slightly enlarged; the peripheral vessels were soft; the pulse was 90; the systolic blood pressure was 180; the diastolic, 135.

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[1] Reported from the standpoint of nitrogen retention by Weiss Edward, and Garner, V. C.: J. Lab. Clin. Med. 7:229 (Jan.) 1922.

Urinalysis revealed a specific gravity of 1.010, a cloud of albumin, and occasional granular casts. The patient failed to eliminate any of the dye in two hours in the phenolsulphonephthalein test. Examination of the eye grounds disclosed an albuminuric retinitis with hemorrhages.

November 23, a pericardial friction was heard, and this persisted until December 5, about which time the the patient became stuporous, and died, December 15.

November 22, the blood urea nitrogen was 126 mg., and creatinin 7 mg. Both abruptly rose, and the day before the death of the patient, twenty-two days later, had reached tremendous figures: 327 mg. of blood urea and 20 mg. of creatinin.

Necropsy, the following day, revealed an advanced chronic interstitial nephritis; hypertrophy of the heart; hydroperitoneum and bilateral hydrothorax; hemorrhagic pericarditis, and a slight degree of atheroma of the aorta.

The kidneys were small, the left weighing 115 gm., the right, 95 gm., and fairly firm, but the capsules stripped easily and left finely granular surfaces. The incised surfaces were pale; the cortices were only slightly narrowed, and the pelvic fat had not increased in amount.

The microscopic picture was that of a well advanced chronic interstitial nephritis with a superimposed acute tubular lesion.

Summary: This rapidly fatal chronic nephritis in a young man, associated with very marked nitrogen retention, the absence of a definite etiologic factor and, again, the appearance at necropsy of kidneys which seemed naturally small rather than shrunken, suggests in this case even more strongly than in the former one, because of the younger age, a congenital basis. The microscopic finding of a superimposed acute tubular lesion suggests that this was the determining cause of death and that, up to the time at which this lesion occurred, the kidneys were sufficient for ordinary demands, breaking down under the strain of an acute lesion probably brought about by a slight cause—an otherwise negligible infection.

Case 3.—M. H., a white girl, aged 15, who was admitted to Jefferson Hospital in the service of Dr. Loux, Dec. 13, 1921, complained of pain in the left side of the back, weakness and severe headache. One brother, a pale and poorly developed lad, died at the age of 18 of "kidney trouble." The mother later stated that this boy's illness was very similar to his sister's, and that death occurred in the same manner. Otherwise the family history was negative. The patient had whooping cough at the age of 2 and measles at 4, but no other infectious diseases, and had always enjoyed fairly good health. The menses were established at 13, but had not been present since September, 1921.

The present illness began in the latter part of September, 1921, with pain in the left side of the back that had a tendency to radiate to the groin. With this she had chills and fever, and was confined to bed for two weeks. Since then she had been up and about, but had not felt well enough to go to school. Occasionally she had chilly sensations and pain in the back at night. During the two weeks prior to admission, she had a recurrence of her former symptoms; pain in the left flank, severe headache, attacks of vertigo, nausea and vomiting, and marked burning on urination, but a decreased frequency. She voided only once daily, and then only a small amount of dark colored urine. There was edema of the face in the morning, which disappeared later in the day.

She was pale and moderately well developed; the temperature, pulse and respiration were normal. The blood pressure was 120 sytolic, and 80 diastolic. The urine had a specific gravity of 1.010, a heavy cloud of albumin, red and white blood cells in abundance, and occasional hyaline and granular casts. Blood examination revealed: hemoglobin, 43 per cent.; red blood cells, 1,980,000; white blood cells, 20,300. The blood nitrogen retention, December 18, was very marked; the urea nitrogen, 240 mg.; the nonprotein nitrogen, 300 mg., and the creatinin, 3.1 mg. The eyeground examination was negative. Urine culture demonstrated the colon bacillus.

Cystoscopy revealed the left ureteral orifice normal; the right, slightly inflamed; ureteral catheterization was unsuccessful. The indigocarmin test indicated no excretion from either side in twenty-five minutes.

Roentgen-ray examination disclosed considerable gas in the abdomen blurring the outline of the kidney. There was a dense calcareous shadow in the region of the right upper abdomen.

During her ten days in the hospital, the patient voided only 3.5 liters of urine. She became progressively weaker, more and more stuporous, and died, December 23.

Necropsy, limited to the abdomen, was performed the same day. Both kidneys were small, each weighing 70 gm. The capsule of the left kidney stripped readily, leaving a finely granular, grayish-red surface; the organ cut with markedly increased resistance; the cut surface was pale and the cortex uniformly narrowed; the pelvis and ureter appeared normal, and the renal vessels were smooth and soft. The right kidney was very similar in appearance, but had a dilated pelvis that was intensely inflamed, and contained a stone, which measured 3 by 2.8 by 1.5 cm. The ureter was also dilated and inflamed.

Microscopically, the kidneys were extensively fibrosed. The glomeruli, except for the swelling due to dilated capillaries, seemed but little affected, although the capsules of Bowman were almost universally greatly thickened. A striking feature was the presence, in many of the tubules, of calcific deposits that stained deeply purple. These occurred in the lumina or in the epithelial cells. Tubules in all parts of the kidney, from capsule to pelvis, were affected, and the process was even more pronounced in the right kidney. The pelvis of the right kidney was fibrous, showed leukocytic infiltration, and had lost most of its epithelial covering. The right ureter also showed desquamation of epithelium, and the lumen contained epithelial cells, leukocytes and many masses of calcareous substance.

The condition of the patient was diagnosed as chronic interstitial nephritis associated with extensive tubular deposits of calcium salts, and nephrolithiasis of the right kidney, pyelitis and ureteritis.

Summary: The finding of small, fibrosed kidneys with considerable calcific deposit[2] in a girl of 15, who had shown a rapidly progressive loss of kidney functional power with no previous infection worthy to be considered a causative factor, and a history of a similar condition in a brother who died at the age of 18, strongly suggest a congenital basis. This hypothesis becomes even more attractive if we assume that, although her kidneys had been below par since birth, they were capable of meeting the ordinary demands of kidney function, and showed functional incapacity only when subjected to the strain induced by a large kidney stone and an associated infection.

COMMENT

While frequent references have been made to hereditary and congenital factors in arterial disease, insufficient attention has been paid, in my opinion, to the same factors in the determination of a renal lesion. Coplin,[3] however, has for many years contended that there is a type of renal anomaly of developmental origin which predisposes to, or renders inevitable, some form of nephritis. He refers particularly to hypogenesis, and believes that the original fault is probably primarily a defective arteriogenesis. He concludes that nephritis or uremia coming on in young persons without adequate cause should arouse our suspicion of this type of renal lesion.

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[2] Kidd made a similar observation in a study of Bright's disease extending through three generations (The Inheritance of Bright's Disease of the Kidney, Practitioner, London **29**: 104, 1882). He found extensive calcium deposits in the kidneys in two cases of chronic renal disease occurring in young persons.

[3] Coplin, W. M. L.: Unilateral Renal Hypoplasia and Dysplasia Due to Defective Arteriogenesis; Relation to So-Called Hypogenetic Nephritis, Am. J. M. Sc. **153**: 381 (March) 1917.

Ringer,[4] from a clinical point of view, expresses his dissatisfaction with our present views in regard to the etiology of nephritis, stating as his belief that the various infections and intoxications which are usually held to be responsible play but a secondary rôle, i. e., merely an exciting rôle, and that the primary seat of trouble lies in the kidney itself. He says, "We can readily conceive of organs in the human body at birth being of functional capacity below par." He quotes Stockard as saying: "Every person dies from the disease with which he is born, . . . and . . . during the period of differentiation the organ is marked out which is the weak link in the chain." Ringer then concludes that, so long as the individual remains well, the renal condition goes unrecognized; but any insult, in the form of infection, or any strain, as pregnancy, may cause a break in the weak link, with the onset of a clinically recognizable nephritis.

Babes[5] has observed six cases of chronic renal disease occurring in young, frail and anemic subjects, usually under the age of 30, with no history of previous nephritis or conditions supposed to cause nephritis. In each case, a slight infection precipitated a sudden grave uremia, with coma and death in a few days. In a discussion of the kidney findings at necropsy, he mentions an excessive diminution of volume and certain characteristics of indurated and granular atrophy, or of arteriosclerotic kidney, differing essentially from the two forms or their combination. Therefore he states that in these cases it is not a question of ordinary sclerotic nephritis, of simple arteriosclerosis, of insufficiency of the arteries or of a combination of these pathologic processes, but rather a particular state of the kidney: a true hypogenesis. He believes that during the lifetime of the individual the kidneys are at the limit of their capacity, and that a comparatively minor infection results in a fatal uremia. He concludes that one must think of a nephritis grafted on a hypogenetic kidney if, in a young poorly developed subject without renal antecedents but with hypertrophy of the heart, a fulminating uremia follows a slight malady.

CONCLUSION

It is impossible, of course, to be certain regarding the etiology of the renal lesion in the three cases on which this report is based. It does seem, however, that they correspond closely to those outlined by Babes. The subjects may therefore be regarded as individuals congenitally predisposed to the development of a renal lesion, probably because of a "weak link" (hypogenetic kidneys) in the cardiovascular-renal chain, with a determining factor in the form of an infection or strain resulting in the rapid onset of a fatal uremia.

It is obvious that such a suggestion, partly based on the gross and microscopic appearance of the kidneys, is not in keeping with the modern clinical classification of nephritis on a functional rather than a structural basis. But I do not believe we are wholly justified in disregarding the appearance of the kidneys at necropsy and, although the justice of the present day clinical classification is acknowledged, still it is to be regretted that the tendency is away from the pathologic basis, which is necessary for a just conception and further progress in the study of disease.

1906 Walnut Street.

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[4] Ringer, A. I.: Chronic Nephritis, from the Point of View of the General Practitioner: Its Diagnosis, Prognosis and Treatment, Am. J. M. Sc. **161:** 798 (June) 1921.

[5] Babes, V.: La néphrite hypogénétique, Semaine méd. **25:** 63 (Feb. 8) 1905.

A STUDY OF EXOPHTHALMIC GOITER AND THE INVOLUNTARY NERVOUS SYSTEM

VIII. A CLINICAL AND LABORATORY STUDY OF THE INVOLUNTARY NERVOUS SYSTEM *

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Our clinical study[1] of exophthalmic goiter suggested an investigation of the involuntary nervous system. The manifestations of exophthalmic goiter may be divided into the metabolic disturbance measured by the basal metabolism, and the sympathomimetic symptoms (tachycardia, exophthalmos, polyrrhea, sweating, etc.). The latter have been so called because they may be produced by stimulation of the thoracicolumber division of the involuntary nervous system. Not all persons with sympathomimetic symptoms have elevation of the basal metabolism. To a clinical association of sympathomimetic symptoms and normal basal metabolism, we have applied the term "autonomic imbalance."[2]

Our clinical studies of autonomic imbalance failed to reveal the predisposing causes. The exciting causes may be divided into physiologic and pathologic. The most prominent physiologic factor is the sex epochs, particularly in the female, and the most frequent pathologic factor is foci of infection in the nasopharynx. Our patients showed considerable range in their symptoms: In some but one organ, such as the heart, was involved; in others the symptoms were so widespread that there was a general imbalance.

The commonest symptom was lability of the pulse rate, and in every patient an apparently idiopathic tachycardia was present at one time or another. Thyroid enlargement was second in frequency. About 20 per cent. of the patients presented one or more of the eye signs of exophthalmic goiter. A tremor was noted in about one fifth of all patients. In 84 per cent., both tachycardia and goiter were present; in 12 per cent., tachycardia, goiter and eye signs; in 10 per cent., tachycardia, goiter and tremor; and in 11 per cent. of the eighty-six patients, the four clinical cardinal symptoms of exophthalmic goiter were simultaneously observed. In only one of the eighty-six patients was basal metabolism elevated, and in her it was found only in the first of three determinations. It is apparent, therefore, that while these persons presented many or even all of the classical clinical symptoms of the textbook picture of exophthalmic goiter, they did not suffer from that disease. The necessity for accurate differentiation from exophthalmic goiter was urgent. Nearly all had been told that they were suffering from thyroid disease, and many had already received specific treatment referable to the thyroid gland.

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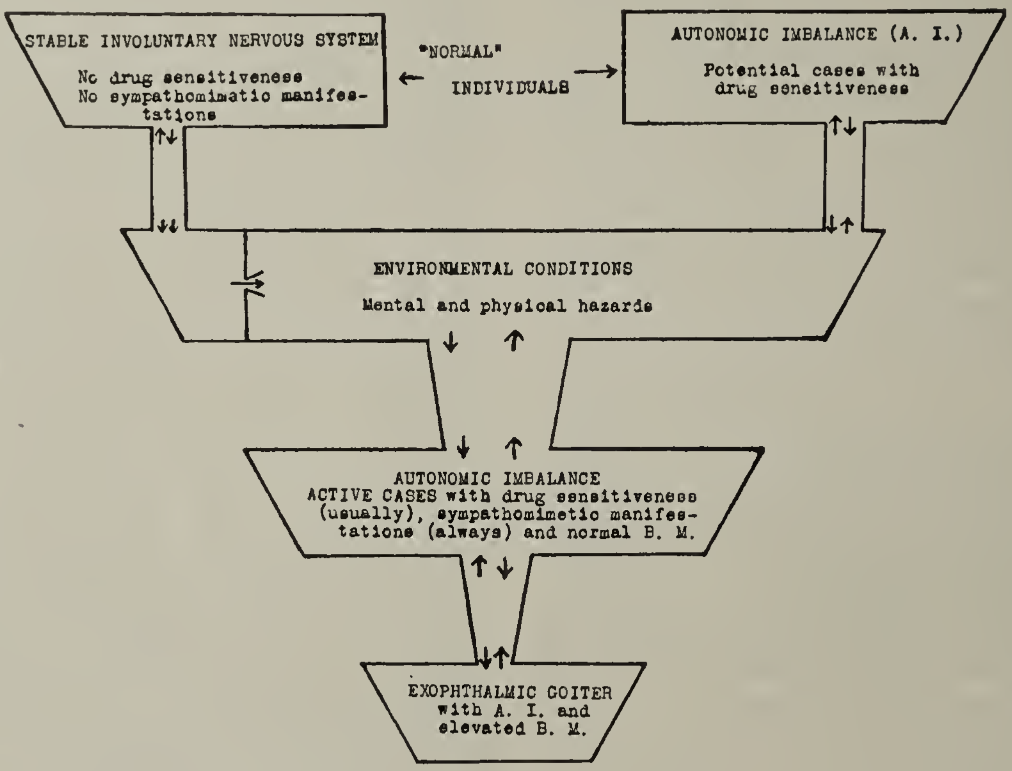
* Read before the Section on Pharmacology and Therapeutics at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Kessel, Leo, and Hyman, H. T.: A Study of Fifty Consecutive Cases of Graves' Syndrome, to be published.

[2] Kessel, Leo, and Hyman, H. T.: The Clinical Manifestations of Disturbances of the Involuntary Nervous System (Autonomic Imbalance, to be published.

Interesting phenomena were frequently encountered in those patients suffering from symptoms referable to but one organ. Six patients had such prominent cardiac symptoms that they had previously been treated in cardiac clinics. In addition to tachycardia, there were various abnormalities in the cardiac rhythm: extrasystoles, auricular flutter and paroxysmal tachycardia. The general picture was that of the cardiac war neuroses. The abdominal symptoms resembled closely the clinical picture of gastric or duodenal ulcer or of "chronic appendicitis." Neuroses or psychoneuroses were observed in six patients; the most prominent were of the anxiety and sexual types. In almost every case a diagnosis of disease of the organ presenting the symptoms had previously been made, and in none was the rôle of the involuntary nervous system recognized.

In attempting to discover a pathognomonic clinical test, we were led to investigate the response to various drugs, especially atropin and epinephrin. As controls, two groups of "normal" persons were studied: thirty medical students at the College of Physicians and Surgeons, and fifty convalescents at Mount Sinai Hospital. Of these "normals," a few gave evidence of a mild grade of autonomic imbalance, but 33 per cent. reacted to epinephrin and 25 per cent. to atropin. This indicates that abnormal drug reactions can exist in the absence of active autonomic imbalance. Drug tests were made on a few patients with active autonomic imbalance and fifty cases of exophthalmic goiter. The type of reaction did not permit clinical grouping into sympathicotonia and vagotonia; the intensity of drug reactions did not parallel the severity of the presenting symptoms. Only 6 per cent. of these patients failed to react to one or the other drug. The absence of response may be explained pharmacologically: epinephrin stimulates the myoneural junctions of the thoracicolumbar, and atropin paralyzes those of the bulbosacral division of the involuntary nervous system. These responses are not indicative of the tonicity of the involuntary nervous system.


STABLE INVOLUNTARY NERVOUS SYSTEM
No drug sensitiveness
No sympathomimetic manifestations
"NORMAL"
INDIVIDUALS
AUTONOMIC IMBALANCE (A. I.)
Potential cases with drug sensitiveness
ENVIRONMENTAL CONDITIONS
Mental and physical hazards
AUTONOMIC IMBALANCE
ACTIVE CASES with drug sensitiveness (usually), sympathomimetic manifestations (always) and normal B. M.
EXOPHTHALMIC GOITER with A. I. and elevated B. M.

Rôle of involuntary nervous system in "normals," autonomic imbalance and exophthalmic goiter.

In our animal experiments [3] we attempted to find an index of the activity of the involuntary nervous system, and through it to study the natural and artificial regulation of this system. The response of the pithed cat to repeated injections of similar doses of epinephrin was finally accepted as the most serviceable index obtainable. It was soon found that epinephrin repeatedly injected at short intervals caused a progressively increasing vascular response, which we interpret as an artificial "sensitization." An analysis of this phenomenon was undertaken in the hope of throwing light on the mechanisms of autonomic imbalance and exophthalmic goiter. The negative effects of extirpation and of injections of potent extracts of various ductless glands excluded them as participants in the sensitization (thyroid, suprarenal, parathyroid, spleen and kidney, by ablation; thyroxin, epinephrin, pituitary extract and ovarian extract, by intravenous administration). Since every known variable was carefully controlled, we were forced to conclude that the phenomena of sensitization were the result of a physicochemical change induced by epinephrin and involving the myoneural junctions of the thoracicolumbar system. We disagree with the interpretation that an increased response to epinephrin signifies hypersecretion of the thyroid. We have found no evidence that thyroxin increases the epinephrin response; [4] we have produced sensitization in the absence of the thyroid; we have found sensitiveness to epinephrin in a large number of "normal" human subjects. We are therefore convinced that the epinephrin reaction (Goetsch) is independent not only of the normal but also of the hyperplastic thyroid gland. We also believe that an increased reaction to epinephrin is no indication of excessive tonus of the thoracicolumbar [5] (sympathicotonia). Confirmation of our belief is found in the law that a tissue in high tonus is less reactive to a stimulus than the same tissue in a state of low tonus or atony. Therefore, an increased response to epinephrin is suggestive of a low rather than of a high tonus of the thoracicolumbar.

Attempts to alter the epinephrin response of the pithed cat were made with a view to a therapeutic application of the findings. Injections of the buffer salts (sodium acid phosphate, sodium carbonate and sodium bicarbonate); of the cations (sodium [Na^+], hydrogen [H^+], potassium [K^+] and calcium [Ca^{++}]); of the anions (chlorid [Cl^-], sulphate [$SO_4^=$], carbonate [$CO_3^=$], bicarbonate [HCO_3^-], acid phosphate [$H_2PO_4^=$], iodid [I^-], bromid [Br^-], oxalate [$C_2O_4^=$] and citrate), and of the alkaloids (morphin, atropin, physostigmin), failed to alter the reaction. Magnesium sulphate depressed strongly, and cocain augmented greatly the degree of the response.

Previous workers, using the same preparation and obtaining similar results, have invariably interpreted this "sensitization" as a specific hormone effect. That the sensitization is not a hormone effect is amply demonstrated by our inability to obtain sensitization with thyroxin and other hormones, and by the occurrence of sensitization after extirpation of the endocrine glands. The factors regulating the tonicity of the involuntary nervous system remain unknown. There is certainly no proof that they are the secretions of the ductless glands; nor have we been able to find any evidence in support of a theory assuming that these hormones are capable of acting as emergency stimulants of the involuntary nervous system. It seems unwise to designate the conditions of exophthalmic goiter and autonomic imbalance as endocrine disorders, and we therefore favor the abolition of such terms as "hyperthyroidism", "dysthyroidism" and "suprarenal insufficiency."

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[3] Lieb, C. C., and Hyman, H. T.: The Vascular Response of the Pithed Cat to Single Intravenous Injections of Adrenaline; The Vascular Response of the Pithed Cat to Repeated Injections of Equal Doses of Adrenaline; Attempts to Alter the Vascular Response of the Pithed Cat to Repeated Injections of Similar Doses of Adrenaline; On the Mechanism of the Sensitization of the Pithed Cat to the Subcutaneous Injections of Adrenaline, to be published.

[4] Levy, R. L.: Studies on the Conditions of Activity of the Endocrine Glands, Am. J. Physiol. **49**: 492 (Oct.) 1916.

[5] Eppinger and Hess: Vagotonia.

Autonomic imbalance presents all the symptoms of exophthalmic goiter with the single exception of increased basal metabolism. The majority of patients presenting exophthalmic goiter give a history, past or present, of autonomic imbalance. The actual transition from autonomic imbalance to exophthalmic goiter has been observed. The transition is characterized by an augmentation of the symptoms of autonomic imbalance plus a metabolic upset, as evidenced by an elevated basal metabolism.

Though thyroid enlargement and autonomic imbalance may be independently present, their frequent association is probably more than a mere coincidence. The causative relation between these has not yet been determined, but it seems improbable that thyroid hyperplasia is the cause of the imbalance.

We have but one therapeutic suggestion to offer—namely, the use of atropin in disturbances of the bulbosacral division of the involuntary nervous system. Whether tonus is increased or decreased, atropin may be employed. If the tonus is low, small doses are indicated; they stimulate the center without affecting the nerve endings. If the tonus is high, large doses paralyze the endings and nullify the excessive central action.

ABSTRACT OF DISCUSSION

Dr. A. J. Carlson, Chicago: This report deserves attention because of the analytic and critical manner of attack of a problem, not infrequently considered settled. If "hyperthyroidism" was more frequently subjected to similar searching analyses, we should make more rapid progress in this difficult field. There is a tendency among internists to consider the visceral nervous system and the endocrine glands as being supplementary, if not identical, in function. I need not say that theories and therapies based on this assumption are not only guesswork, but probably in many instances wrong guessing at that. The uncritical use of such terms as "hyperthyroidism," "vagotonia" and "sympatheticotonia" in the sense of established etiology of well known disease complexes retards medical progress. I hope that the authors themselves regard their present work as a "report of progress," rather than as a final conclusion. I further hope that they will also give some attention to the sensory side of the visceral nervous system. It is not improbable that visceral sensory factors may raise the basal metabolic rate above the normal, even without reflex hyperactivity of any endocrine gland. Physiologists are now gradually realizing that we must be careful in drawing physiologic conclusions from experiments on animals under anesthesia. That is equally true of experiments on decerebrated animals, at least for two or three days after the decerebration, because of shock.

Dr. H. T. Hyman, New York: We used very little anesthesia, just enough to do a tracheotomy. So we feel that it was not a factor. Sometimes the epinephrin injection is not made for two or three hours afterward. We are unable to keep the animals alive more than seven or eight hours. We have never been able to keep an animal alive over night. The English institutes can do that but we cannot, despite the fact that we use as ideal conditions as possible. A number of things the speaker said are of extreme importance. I should like to call attention to one point particularly. The relations between the sympathetic and vagus are not clear. Most people have the conception that the systems are antagonistic. For instance, if one gives small doses of atropin one may stimulate the vagus center; if large doses, one paralyzes, so that one gets certain antagonistic effects. If one uses small doses, one gets depressor effects; if large doses, pressor effects. We have seen it in the same animal and converted the depressor effect to a pressor effect, so that one cannot try to reach conclusions as to the effects of these drugs. The dosage is not the same for the same animal at the same time, or different times. In other words, there is an extreme variability in this whole business. Then, of course, different animals have different tonus in regard to their vagus and sympathetic systems. As to a conclusion about the drug reaction clinically, it is simply impossible to determine the positive reaction of the drug. The tendency of the endocrinologist and the drug therapy salesmen is to attribute all the things enumerated to upsets in the various hormones. There is no proof of it.

A NEW METHOD OF CLOSING THE EUSTACHIAN TUBE IN THE RADICAL MASTOID OPERATION

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CHICAGO

Failure to secure a dry ear, following the radical mastoid operation, which has for its purpose the cure of suppurative ear disease, is due almost exclusively to an open eustachian tube, the persistence of hyperplastic mucosa and the presence of dead bone. Of these factors the former is the most frequent cause of failure. The matter may be stated in this way: With a patulous tube, a permanently dry ear is impossible, no matter how successful we may be in removing the hyperplastic mucosa and dead bone. Such failures are estimated by different writers at from 10 to 50 per cent. Various methods to secure closure of the tube have been employed, but though the technic of any of them may be as closely followed as possible, the results, so far as concerns closure of the tube, are always uncertain. It is the experience of competent operators that they may follow precisely the same technic in, say, three cases, and in one there results a closed tube, while in the others there remains a widely patulous or only a partially closed tube.

THE PROBLEM

The eustachian tube consists of two parts, a movable and an immovable part. The movable part is composed of cartilage and soft tissue, and is closed except when certain movements of the pharynx and velum palati cause it momentarily to open. When the muscular acts which cause the tube to open cease, the tube is again closed, with the result that the air which entered it during the open phase is forcibly injected into the bony or immovable portion and thence into the cavum. The immovable portion is a bony canal and the point at which the two portions join is the most constricted portion of the tube, called the isthmus. Surgical attempts at closure of the movable portion are rendered undependable because of its inaccessibility by the ordinary methods, and because the rather rapidly recurrent physiologic movements of this portion of the tube tend to prevent the formation of adhesions. The bony portion with its noncollapsible walls is difficult to close because the injection of air through it from the movable portion, at rapidly recurring intervals, tends to prevent the formation of adhesions. Thus is explained the uncertainty of results following the introduction of irritants and curettage, on which methods surgical closure has heretofore depended.

It would seem, then, that if a method could be devised by which the tube could be at least temporarily closed and the caval end sealed over by a flap of tissue having periosteum on the side coapting with the bony surface and on the caval surface epithelium, which flap is held firmly and immovably in position, we might hope that closure of the tube could be obtained with far greater certainty than is secured by the methods employed up to the present time. A sine qua non for the success of the procedure is that a means be provided by which the flap of tissue intended for the tubal closure shall be held immovable and with proper firmness in position. Packing cannot be depended on to accomplish this, as the unavoidable movements imparted to the flap during the process of redressing will inevitably cause its displacement and thus cause failure of adhesion.

A technic is presented with the belief that by its use the hope expressed in the foregoing paragraph may be realized. The number of cases in which this method has been employed is too small and the elapsed time too short to warrant broad conclusions being drawn. It may be said that the results at present are highly satisfactory. No increased danger is added to the operation, and only a small increment of time to the performance of it. The publication of this method by myself is hastened by the fact that an article by a German writer has just appeared, which shows that he has been working along the same lines as I have. However, he missed the most important factor in the technic; namely, the securing of the flap firmly and immovably in position.

TECHNIC

The usual postauricular curved incision is made about 1 cm. from the attachment of the auricle. The incision should not be farther than this from the auricular fold, as will develop later. It is slightly curved forward above to the attachment of the temporalis. Below, the attachment of the sternocleidomastoid is severed with curved scissors, and care is exercised on elevating the periosteum that it is preserved intact. The usual radical mastoid operation is now performed. The posterior wall of the osseous canal is removed to a level with the inferior wall until only a small residuum covering the facial nerve remains. It is important to do this, not only because it insures the better coaptation of the inferior flap, but also because it prevents undesirable adhesions between the flap secured from the posterior auricular region, which will be described later.

After thoroughly removing the external wall of the epitympanic space and the external minute projections about the caval end of the eustachian tube, we proceed to remove the contents of the cavum. After the malleus and the incus have been accounted for, we carefully but thoroughly curet out the granulation tissue and mucosa. Particular attention is directed to the floor of the cavum, where the mucosa is especially thick and persistent. Trabeculae of bone are broken down until the floor presents a smooth, denuded surface. Special caution is necessary when we are using the curet in the region of the oval and round windows, but all accessible mucosa must be removed. The wound is now flooded and reflooded with hydrogen peroxid, after the eustachian tube has been plugged with cotton. The foaming peroxid is removed by washing with 10 per cent. aqueous solution of sodium bicarbonate. This procedure demarcates black bone, which is then removed. All sharp angles are rounded and leveled, and we are ready to deal with the tube.

An eustachian catheter is introduced through the nose into the pharyngeal opening of the tube. Through this a bougie is passed until it emerges into the cavum. We then proceed thoroughly to curet the bony portion of the tube. Tubal cells are broken down. The mucoperiosteum is forced backward into the lumen of the tube rather than scraped out from within outward. If this part of the operation were done before introducing the bougie, the inverted mucosa might prevent its passage. It is important that all mucosa and periosteum be removed from the tube and its surroundings. The end of a strand of No. 2 catgut is now tied to the end of the bougie projecting into the cavum, by means of very fine silk. That is, a double loop of silk is thrown around the end of the kangaroo tendon and another back of the bulbous point of the bougie, allowing an inch to intervene. The catgut and bougie are not spliced together. The bougie and catgut are then withdrawn through the catheter, and the catheter is removed. The end of the catgut which is tied to the bougie is then cut off. A thick composite knot is then tied in the catgut about 20 inches from the end which projects from the nose. The knot is then drawn into the tube. If it slips through the isthmus, the catgut is withdrawn through the nose and the size of the knot increased by knotting one or more strands over the original knot. It is again drawn into the tube. When it is firmly wedged in the isthmus, the strand is withdrawn through the nose and cut off within a centimeter of the knot. Again the knot is drawn into the tube, until it is firmly anchored in the isthmus. It is presumed that this inverts the lining of the tube so that denuded surfaces are brought into contact and held there.

We now proceed to the securing of the flap from the tissues covering the exterior of the mastoid to stitch over the caval end of the tube. The distance from the upper extremity of the external incision to the caval end of the tube will correspond with the length of the primary mastoid incision. If not, the incision may be prolonged downward. A second incision is now made parallel with the original mastoid incision, and separated from its posterior lip by 1 cm. If there is very densely intimate insertion of the muscle in the bone, it may be well to use the chisel to remove a very thin slice of bone with the lower end of the flap, a fact to be borne in mind when first removing the cortex if the mastoid cavity promises to be very large. The incision is carried upward to a point corresponding to the upper extremity of the original incision. It includes the periosteum, which is elevated and becomes an integral part of the flap. It is then cut free in a rounded manner from its lower extremity, and hangs from the upper pedicle, from which it derives its nourishment.

The strand of catgut issuing from the caval end of the tube is now threaded through a curved needle, which is passed through the lower portion of the external flap, at a place which, when it is drawn down along the strand of catgut into the cavum, causes it to coapt nicely over the tubal opening. To keep this in position, a perforated B. B. shot, held in artery forceps, is run along the catgut, and when it is rather tightly in contact with the flap covering the tubal opening, it is forcibly compressed. If one is dexterous enough, one may tie a knot close to the flap. It is unnecessary, perhaps, to say that there should not be the slightest tension on the flap when secured in this position. The flap will now occupy the upper portion of the mastoid wound and cavum, covering, it may be, the oval window. It may readily be seen that although the chief purpose of this flap is to cover the opening of the eustachian tube, it serves also as a considerable element in supplying epidermis for the entire upper portion of the cavity.

We now proceed to make our flap from the movable portion of the external auditory canal. One large flap to cover the floor is best. The flap from the exterior of the mastoid occupies the upper portion of the cavity. Therefore, the incision through the tissues of the movable canal must be well forward through the superior plane so that the posterior surface of the anterior remnant fits well with the anterior edge of the tongue flap. This incision begins at the detached end of the canal, and is continued outward to the rim of the concha. Another incision at right angles to this is carried downward to the floor following the conchal ridge, but just inside it. This flap is held in place by a suture passed through it and into the external periosteum. The external auditory canal is then lightly packed, the posterior cavity is packed from behind, and the end of the packing is carried out of the lower angle of the external wound, which is then closed with stitches. The skin covering the upper portion of the tongue flap may be incised so that the posterior incision may be closed over it, or this may be done at a later period.

The after-treatment is very important in securing the success of the operation, and may well be the subject of a special communication later. Suffice it to say that recently I have been removing all packing twenty-four hours after the operation. A large, short glass tube is then introduced into the external auditory meatus, and a small rubber tube into the lower end of the mastoid wound, and the Carrel-Dakin method carried on. For the purpose of locating the shot, I have had attached to it a small ring, to which is tied a strand of silk; or the end of the catgut passing through the shot may be allowed to project into the external auditory canal from 3 to 5 cm. In any case it is removed within ten days.

COMMENT

The technic as described above may appear difficult and complicated, but it will be found simple and easy by any one who is properly trained in the anatomy and surgery of the parts involved.

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TREATMENT OF ABDOMINAL PAIN DUE TO URETERAL OBSTRUCTION *

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Pain due to ureteral obstruction and pain produced by intra-abdominal conditions are often confused with each other. To differentiate between them frequently requires the most painstaking investigation, and presupposes a comprehensive knowledge of the exact mechanism of ureteral obstruction as well as a familiarity with those intraperitoneal conditions which produce pains simulating those caused by ureteral obstruction.

I realize the occasional difficulty of properly interpreting the clinical symptoms and physical findings in a given case, but by means of the cystoscope, roentgen ray and a well equipped laboratory, the nature of the majority of such conditions can be ascertained very definitely. The presence of pus in the urine may not signify serious trouble, since it may have its origin in the genitalia or urethra, yet grave conditions, such as tuberculosis of the kidney, pyelonephritis, ureter or kidney stone, may exist with comparatively few pus cells in the urine. The same is true of hematuria. A few blood cells in the urine may mean slight bladder congestion or injury, or they may signify nephritis; ureteritis; pelvic papilloma; bladder, ureter or nephritic stone; kidney tuberculosis; hypernephroma, or hypertrophy of the prostate gland.

Many patients have had the appendix removed, gallbladder drained, uterus suspended, and one or both ovaries removed without relief, when a careful urologic examination would have shown the presence of ureteral stone, ureteral stricture or kink, stone in the kidney, movable kidney, pyelitis, pyelonephritis, hydronephrosis or hydropyonephrosis. Hydronephrosis is the result of ureteral obstruction and is accompanied with bladder symptoms and abdominal pain. Movable kidney and kinked ureter are intimately associated. The pain due to ureteral obstruction is largely the result of back pressure, and such obstruction is frequently the predisposing cause of nephritic infection. Any condition which restricts the kidney pelvis from emptying itself completely will produce abdominal pain and, if not relieved, kidney destruction will result. The most frequent causes of ureteral obstruction are: ureteral stone, pressure from tumor, pregnant uterus, kinked ureter, ureteral stricture, bladder wall hypertrophy, and residual urine due to hypertrophy of the prostate gland or lesions of the central nervous system.

Recently two cases came under our care for treatment, each giving a definite history of severe and frequent attacks of kidney colic. Investigation revealed large saccular dilatations of the ureter just above the bladder wall in each case. In one case there were on the right side two normal pelves and one normal ureter, while the other ureter showed a large saccular dilatation about 2 inches (5 cm.) long just above the bladder wall. This contained ten ureteral stones, one of which was very large. In the other case, the dilatation was not so large and contained no stones, but was accompanied with far greater clinical symptoms. In the one case, the stones were removed by ureteral anesthesia and ureteral dilatation, and the symptoms disappeared. The second patient was cured by operation. In the latter case, we were at first persuaded that there was a stricture, but the ureteropyelogram cleared up the diagnosis. Such sacculations will certainly cause a pull on the withdrawal of a bulb. Many cases of abdominal pain are produced by ureteral dilatation from thickened or hypertrophied bladder walls. Such conditions may be brought about by chronic bladder irritation or infection, hypertrophy of the prostate gland or urethral stricture. Certain lesions of the central nervous system will cause partial bladder paralysis resulting in chronic retention or residual urine, and this, in turn, causes ureteral dilatation and abdominal pain by back pressure from the residual urine. We have such a case in a woman, aged 18, under our care at present.

Muscular spasm and its location is of great clinical significance. It is practically always present over the site of trouble, whether inflammatory or noninflammatory, and its presence is more important than pain. The pain elicited by deep percussion over the kidney, as well as that caused by pressure over the descending and transverse colon, is very significant in differentiating between appendicitis and right ureteral stone.

All patients having abdominal pain should be roentgenographed, and most of them should have the ureters catheterized before operation. Roentgenography alone will not differentiate between kidney and intraperitoneal lesions, but it may be the means of locating a renal or ureteral calculus. Gallstones may be detected in this way, but these should be differentiated from nephritic stone, as well as intra-ureteral and extra-ureteral shadows, by ureteral catheterization, pyelograms and ureteropyelograms.

There is seldom any difficulty in differentiating between acute intraperitoneal infections and those of the kidney. The fever in acute kidney infections is much higher than it is in intraperitoneal infections. The pulse and temperature are out of proportion in

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* From the Crowell Clinic of Urology and Dermatology.

* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

the two conditions in that, in the acute kidney infections, chills with a temperature ranging from 103 to 104 F, with a pulse of from 85 to 100, are of frequent occurrence; but with such elevation of temperature in intraperitoneal infections, the pulse rate is much more rapid. The leukocyte count is not so high in kidney infections, without ureteral obstruction, and does not fluctuate so readily as it does in intraperitoneal infections. The low leukocyte count in the gangrenous appendix is the exception to this rule. The leukocyte count seldom, if ever, rises higher than from 16,000 to 18,000 in acute kidney infections, unless complicated with perinephritis, when it runs extremely high. Nausea and vomiting are far less frequent in acute kidney infections, without complete ureteral obstruction, than in the intraperitoneal infections. They almost invariably occur in the latter and occasionally in the former. Especially is this true in the beginning of the infection.

The coincidence of gallstone and renal infection is an occasional occurrence. Hematuria and pain in the right hypochondriac region, with a roentgen-ray shadow on that side, do not mean that the blood is coming from the right kidney. The shadow may be in the gallbladder when the blood is coming from the left kidney or the urinary bladder.

An acutely inflamed appendix or a tubo-ovarian inflammation may cause pyuria. No one is warranted in exploring the abdominal cavity for either of these conditions without first having ascertained the source of the pus. A brief report of a case will illustrate the value of this precaution:

Mrs. A, aged 19, with negative family history and no previous severe illness, complained of a severe pain in the right side which began two weeks before. On inspection the patient appeared undersized and rather poorly nourished. The abdomen was distended and very tender to touch. Her expression was that of a very sick woman in great pain. The temperature was 101, pulse 90, leukocyte count 15,500, red blood corpuscles 3,500,000 and hemoglobin 75 per cent. The tongue was dry, and the patient was distinctly toxic. She was having irregular chills and profuse sweats. A large mass was felt on the right side, but it was impossible to ascertain whether or not it was kidney, on account of a pregnancy of about six months' duration and tenderness in the region of the mass. Roentgenography was negative for stone. The bladder urine showed pus cells and a trace of albumin. This was the key to the real condition. Ureteral catheters were passed; we noted a very large hydropyonephrosis on the right side and a normal urine coming from the left kidney. The tumor mass disappeared, the diagnosis was cleared up, and the patient was spared an operation for appendicitis, which might have been disastrous. The predisposing cause of infection in this case was due to pressure from a pregnant uterus.

The importance of properly interpreting data obtained by ureteral catheterization and roentgenography is evident. Obstruction to the passage of a ureteral catheter may signify ureteral stone, ureteral kink and, occasionally, ureteral stricture. Ureteral stricture is, comparatively speaking, infrequent and, when it does occur, it is usually associated with tuberculosis of the bladder or kidney. While recognizing the wonderful contributions that Dr. Hunner has made to surgery, I am obliged to differ from him in his ideas of ureteral stricture and in his plan of diagnosing it. I have seen him exhibit some beautiful pictures of waxed catheters with complete circular indentations which, he stated, had been produced by ureteral stricture. The pictures were good, but his interpretation of the cause of the indentations was erroneous. No one ever saw a fibrous stricture open to allow an instrument to pass in and clamp down sufficiently to produce such indentations and then allow removal of the instrument without even making other marks in the wax. Fibrous tissue does not so contract and relax. Muscular contraction or spasmodic stricture may cause such indentations.

The lumen of a normal ureter is greatly changed by its regular, rhythmic contractions from above downward. We have ureteropyelograms showing ureteral narrowings at times and, at other examinations, these are seen to have entirely disappeared. The movement of a foreign body in the ureter, such as a bougie, will produce muscular spasm and cause a pull in almost any ureter, and may be misleading. No one method or attempt to diagnose ureteral conditions is sufficient. If we are to be accurate, repetition of effort and combination of methods are necessary.

Ureteral kink is probably one of the most frequent causes of abdominal pain. Any chronic, nontuberculous infection of the kidney pelvis and ureter will cause both lengthening and dilatation of the ureter. The result is ureteral kink.

In tuberculous infections, the lumen of the ureter is not enlarged, as a rule, but its walls are thickened. Other possible causes of ureteral kink are aberrant blood vessels, nephroptosis, and adhesions following abdominal operations.

The treatment of these conditions is obvious. When the pain is caused by ureteral stone, it is relieved by removal of the stone. I believe that practically all recently impacted ureteral stones can be removed by ureteral anesthesia and ureteral dilation. If for any reason this procedure is not practicable, the stones should be removed by ureterolithotomy.

Pelvic lavage, in cases of pyogenic infections, will prevent kink in the early stages of infection and, when kink occurs, lavage will be very beneficial in many cases. Kidney fixation, in cases of nephroptosis, is about the only procedure from which we may justly expect beneficial results. When the kink is due to aberrant blood vessels, they should be ligated and severed. Beneficial results may be obtained, when the symptoms are produced by adhesions, by breaking up the aberrant blood vessels and freeing the ureter. I believe that the ureteral catheter should be left in from twenty-four to forty-eight hours after any one of these operations.

I have seen beneficial results follow the use of the ureteral retention catheter in cases of ureteral kink due to infection. In a case of two right-angle kinks in one ureter, excellent results followed the use of the retention catheter for three days; I shall try it further when a suitable case presents itself. Best results may be expected from this plan of treatment when the infection has not been of long standing, and when the ureters are not greatly dilated.

ABSTRACT OF DISCUSSION

Dr. Bransford Lewis, St. Louis: With reference to kink in the ureter and conditions of obscure diagnosis, I had one impressive case in a young woman, married only a few months, who had a persistent pain in the right kidney, with pus in the urine. The surgeon who was consulted took out a diseased kidney on that side (the right). Later, when the pain continued and the various symptoms of sepsis continued, the patient was sent to me, and I found an enormous amount of pus coming from the remaining kidney. We could not get a catheter into the diseased side, but by injecting bromid and lifting the pelvis we took a picture which disclosed not only that the left ureter was dilated but also that it executed kinks and loops in its descent to the bladder. The sole remaining kidney was almost destroyed and had only that corrugated and tortuous ureter to drain it. All that could be done was to drain the kidney directly through the loin. To my mind, the mistake was in not pursuing the investigation in the first place by precise methods. These symptoms of pain, etc., are very misleading, but many of the general profession do not know that and place their reliance on them. With relation to the pyelitis of pregnancy, I have seen a case in which the temperature rose to 106 F., and life seemed to be definitely threatened, yet the chills, which were those of urinary sepsis, all disappeared after the introduction of the ureteral catheter and the retention of the catheter for from one to ten days. On the too early removal of the catheter, I have seen a return of the condition; but, on leaving the catheter for a longer time, I have seen it clear up again. Possibly a kink would also be relieved in that way. Another question that seems practical is whether roentgenography in the presence of pregnancy is a safe procedure—whether it endangers the life of the child. I have seen no indications that it is dangerous, but, if it is, I think that some one should state the facts.

Dr. A. B. Cecil, Los Angeles: I became interested in abdominal pain in diseases of the kidney and ureter when pyeloroentgenography was first used. At that time, in Baltimore, we observed many people who had had operations on the gallbladder and appendix whose real trouble proved to be, in many instances, hydronephrosis. About three years ago, in reviewing 300 cases in which a complete urologic investigation had been carried out, I noted that abdominal pain was very common in diseases of the kidney and ureter, and that frequently this pain occurred in the region of the gallbladder or appendix. In 28 per cent. of the cases of stone in the kidney and ureter, surgical attacks had been made on the gallbladder or appendix without relief of pain, and in hydronephrosis a higher percentage of operations on these organs was observed. It is recognized, however, that one would much better err on the side of safety in questionable pain which might be due to the appendix. In regard to differentiating intra-abdominal diseases from diseases of the kidney and ureter, I do not believe that one can tell from the localization of the pain, from fever, from the blood picture, or from the clinical picture in general, whether he has to deal with an acutely inflamed appendix or an acute infection of the kidney. In some instances I have thought that the respiratory wave had some significance. In acute infections of the kidney, as a rule, the respiratory wave sweeps over the abdomen, while in appendicitis it is limited. In acute infections of the kidney, however, there undoubtedly is in many instances a certain degree of muscle spasm over the lower abdomen.

Dr. Arthur L. Chute, Boston: I wish to express a word of caution about being too fearful lest one mistake a ureteral stone for an appendicitis and remove a normal appendix. This is undesirable, but it does not compare with the tragedy of mistaking an acutely inflamed appendix for a ureteral stone. I have seen two cases in the last few years in which, on account of what was supposed to be blood in the urine, this mistake was made with a fatal outcome. These were perfectly clear appendicitis cases, but the presence of blood cells had led these men to suspect a ureteral stone and to postpone operation until it was useless. If after careful, but not too prolonged, study one is not sure whether he has to deal with a ureteral stone or an acute appendicitis, one had better have some one take out an appendix that proves to be normal than to wait and find that one has something one cannot control.

Dr. Joseph H. Smith, Memphis, Tenn.: The general and abdominal surgeon should know more about urology than he does, and the urologist should know more about general surgery. I believe the abdominal surgeon is too prone to do an abdominal section on vague symptoms. The urologist, when there is abdominal pain and he suspects stone in ureter or kidney, is in a position, by his knowledge of cystoscopic technic, to verify his diagnosis. The abdominal surgeon is in the dark unless he can rely on a competent urologist to verify his suspicions. Recently a woman was referred to me because of abdominal pain in the lower right quadrant. She was very large, weighing about 185 pounds (84 kg.), and an examination was difficult. The surgeon at one time obtained a history of hematuria, and the patient said she thought she passed a stone. Hematuria in women does not mean anything after 45. The surgeon suspected a stone in the ureter or the kidney. She was put through the usual cystoscopic tests, and the examinations from kidneys were negative. I told the surgeon that examination of the kidneys was negative, and that the patient evidently had some pathologic condition in the abdomen. The history indicated that she had had an abdominal operation four years before, with removal of the tubes and ovaries and, supposedly, the appendix. I advised that he get the history of that operation and see whether there was any pathologic condition that could be causing the trouble. It was not my place to make a digital examination to determine whether she had some abdominal pathologic condition. He examined the patient completely again and then asked me to repeat my examination. I did so and found nothing. The patient was still suffering and was getting impatient on account of colicky pains in the lower right quadrant, so I advised exploratory laparotomy. Omental adhesions in the retrocecal region were found to be the cause of the trouble. This shows the importance of knowing something about abdominal pains outside one's own particular specialty.

Dr. Edward L. Young, Jr., Boston: I do not believe that an uncomplicated appendicitis ever is accompanied by a temperature of 103 F. or more. I have been watching this for a number of years and have yet to see such a case. In the presence of such a temperature, there is either something else or a ruptured appendix. It is better to remove a good appendix than to leave a bad one in case one is not sure of the diagnosis. As to the question of pus in the urine from pyelitis, I do not believe that a colon bacillus infection can exist in the pelvis without pus. A colon bacillus infection, starting as a septicemia, may later localize in the pelvis and may be seen without pus in the early stages.

Dr. Hermon C. Bumpus, Jr., Rochester, Minn.: We make frequent use of the overdistention test in our routine cystoscopic examinations. If the pain produced by distending the renal pelvis is different from the patient's original complaint, we feel confident that the origin is extrarenal. If the distention causes pain identical with that first complained of, a pyelogram is indicated and the physician should hesitate to diagnose the disease as of renal origin. A pyelogram often reveals a normal kidney in these cases.

Dr. A. J. Crowell, Charlotte, N. C.: The object of this paper was to emphasize the importance of a careful investigation of all cases of abdominal pain, and discourage the use of any one method to arrive at a diagnosis. With regard to temperature and leukocyte count associated with abdominal pain, as a rule, the leukocyte count is higher in intraperitoneal infections than in kidney infections, but there are exceptions, as mentioned in the paper. No hard-and-fast rules can be laid down with regard to these cases.

Treatment of Enuresis in Children.—Zuber has noted that the urine of children subject to enuresis is alkaline or hypoacid. By giving a drug to render the urine frankly acid, the incontinence subsided. The *Bulletins de la Société de pédiatrie de Paris* **20**:193, 1922, contain his report of ten cases cured last winter by this means. When the urine gives an alkaline reaction, he orders from one to four teaspoonfuls to be taken before meals of the Joulie solution of phosphoric acid. This is a mixture of 17 gm. of official phosphoric acid; 34 gm. sodium phosphate, and 250 gm. distilled water. Whenever the urine reaction veered to acid, a cure was usually realized. He assumes that the reflex which closes the bladder sphincter requires an acid stimulus for it to occur.

PRODUCTION OF ARTERIOSCLEROSIS IN RABBITS BY DIETS RICH IN ANIMAL PROTEINS *

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AND
SARAH CLARKSON, M.S.
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In a note published two years ago, Newburgh and Squier[1] reported the occurrence of atherosclerosis in two small groups of rabbits, eleven in all, that had been fed high protein diets. While the evidence at hand indicated that the vascular lesion had been caused by the diets, such a conclusion was not safe because the experiments were too few to permit a generalization.

The present communication is an abstract[2] of the further investigation of the effect of high protein diets on the arteries of rabbits.

The term atherosclerosis, as used by most pathologists, is intended to designate a primary disease of the intima and to exclude lesions of the intima which result from disease of the media or vasa vasorum. The gross and histologic characteristics of this primary intimal disease are so well known to this group that further description is unnecessary.

Two series of animals have been fed the experimental diets. The first series received food containing 36 per cent. of protein, and the second series ate a diet containing 27 per cent. of protein. The diet yielding 36 per cent. of protein was made by mixing together equal parts by weight of dried, powdered lean beef (81 per cent. protein), wheat flour and bran, to which was added 1 per cent. of sodium chlorid and 5 per cent. of "baking powder," and enough water to make a stiff dough. The mass was baked in a hot oven for about one hour. The mixture containing 27 per cent. of protein was prepared in the same way except that one part of the powdered beef was mixed with two parts each of flour and bran.

In addition to this food, the rabbits were given about 100 gm. of greens one or twice a week.

Rabbits that had been raised outdoors under excellent conditions were selected. They were housed during the experiment singly or in small groups in unheated pens protected from rain and wind.

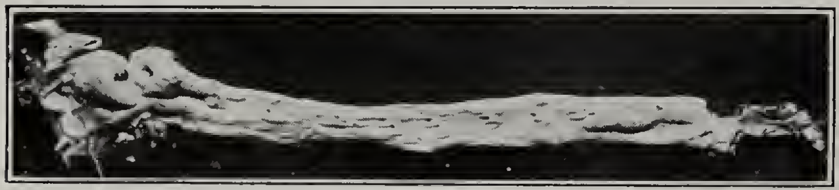

Fig. 1.—Aorta of rabbit given a diet containing 27 per cent. of protein for nine months; note the irregular plaques and streaks; the normal intima of the arch is entirely replaced by a broad confluent plaque.

Twenty-four animals lived for four weeks or more on a diet containing 36 per cent. of protein. These twenty-four animals may be conveniently divided into three groups determined by the duration of the experiment. In the first group are ten animals that lived from four to eight weeks on the diet. Two of these showed very early intimal disease. Six rabbits lived on the diet from ten to sixteen weeks, and four of them showed early intimal disease. The remaining eight rabbits ate the high protein mixture from eighteen to thirty-six weeks, and all of them showed marked and extensive atherosclerosis.

Fifty-one animals were fed the diet containing 27 per cent. of protein. These rabbits fall naturally into two groups: forty that lived less than twenty-six weeks, and eleven that lived from twenty-six to fifty-nine weeks. None of the forty rabbits that lived for less than six months on the diet containing 27 per cent. of protein showed atherosclerosis of the aorta; whereas, eight of the eleven animals that lived on this diet for more than six months presented aortic lesions which were grossly and histologically typical of true atherosclerosis. The vascular lesions in seven of these eight rabbits were advanced and extensive. The eighth rabbit that had eaten the diet for just six months showed an early but widely distributed process.

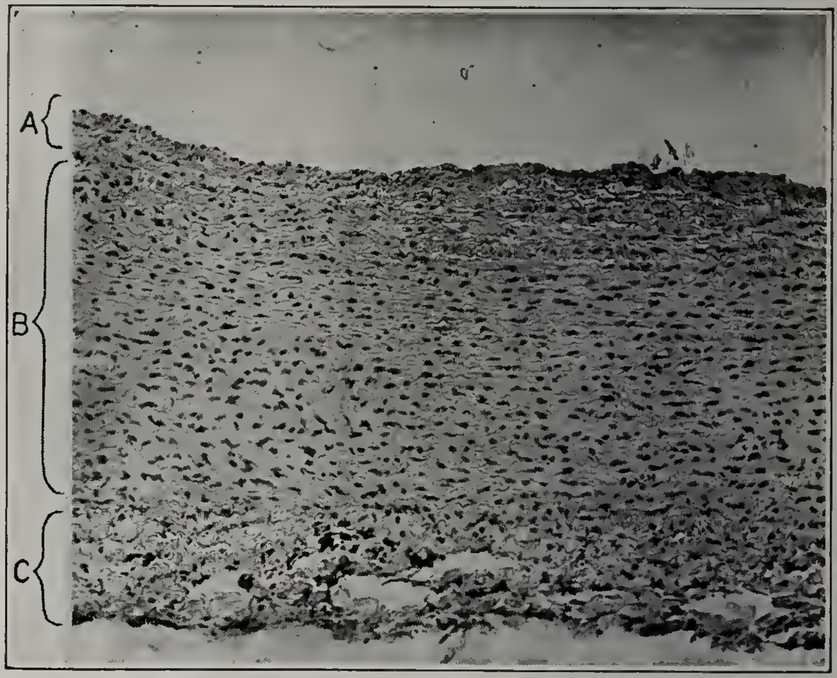

Fig. 2.—Normal aorta: *A*, the narrow intima; *B*, broad muscular media; *C*, adventitia.

From this summary of results it is evident, first, that animals which ate a diet containing 36 per cent. of protein showed the atherosclerosis sooner than the rabbits that received only 27 per cent. of protein; and, secondly, that the occurrence and extent of the atherosclerosis is roughly proportional to the duration of the feeding.

These facts strongly suggest that the vascular lesions were produced by the diet; but before being certain that such is the case, it is necessary for us to investigate two sources of error. It is not inconceivable that rabbits which are confined in laboratories for many weeks or months may be exposed to some conditions which in themselves are capable of causing atherosclerosis. In order to answer this question, nineteen rabbits were set aside in a large pen and were cared for as ordinary stock animals, except that, when one of these nineteen rabbits came down with an infection, he was not removed but was, on the contrary, allowed to remain with his fellows until he eventually died. This was done in order to accentuate the unfavorable conditions of the laboratory and thus make the control more rigid. Twelve of these animals lived more than six months. Not a single example of atherosclerosis was found in these nineteen rabbits. Hence the vascular lesions seen in the animals that ate the high protein diets were not an outcome of mere residence in the laboratory.

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* From the Department of Internal Medicine, University of Michigan Medical School.

* Read before the Section on Pathology and Physiology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Newburgh, L. H., and Squier, T. L.: High Protein Diets and Arteriosclerosis in Rabbits, Arch. Int. Med. **26**: 38 (July) 1920.

[2] A complete report of these studies will shortly be published.

A second possible source of error is in the question of how often spontaneous atherosclerosis occurs in rabbits. We have examined the aortas of 116 supposedly normal rabbits. Four of them or 3.5 per cent., showed small, wartlike lesions of the upper aorta. Steinbiss [3] found no arterial lesions in 500 normal rabbits, and Loeb [4] found only normal aortas in 483 control rabbits examined by him. Spontaneous vascular disease, accordingly, is a negligible source of error in our experiments.

Since neither the conditions prevailing in our laboratory nor the spontaneous occurrence of aortic lesions will account for the atherosclerosis in our experimental animals, we feel justified in asserting that this atherosclerosis was caused by the diet.

This lesion, as seen by the unaided eye, is made up of discrete and confluent, raised, opaque, white streaks and plaques. The process is always most marked in the upper thoracic aorta and, in early cases, may be limited to a few closely set, tiny plaques restricted to the arch. As the process becomes older and more marked, the individual lesions become larger and extend farther down the aorta. In advanced examples, one of which is shown in Figure 1, the plaques and streaks are thickly distributed along the whole aorta, and may even extend a few centimeters into the great vessels given off by the aorta. In the upper aorta, the fusion of the plaques often results in the entire disappearance of normal intima. Not infrequently, the lesion extends into the aortic valves, causing them to become thick and stiff. In a few instances, the mitral valve was similarly involved.

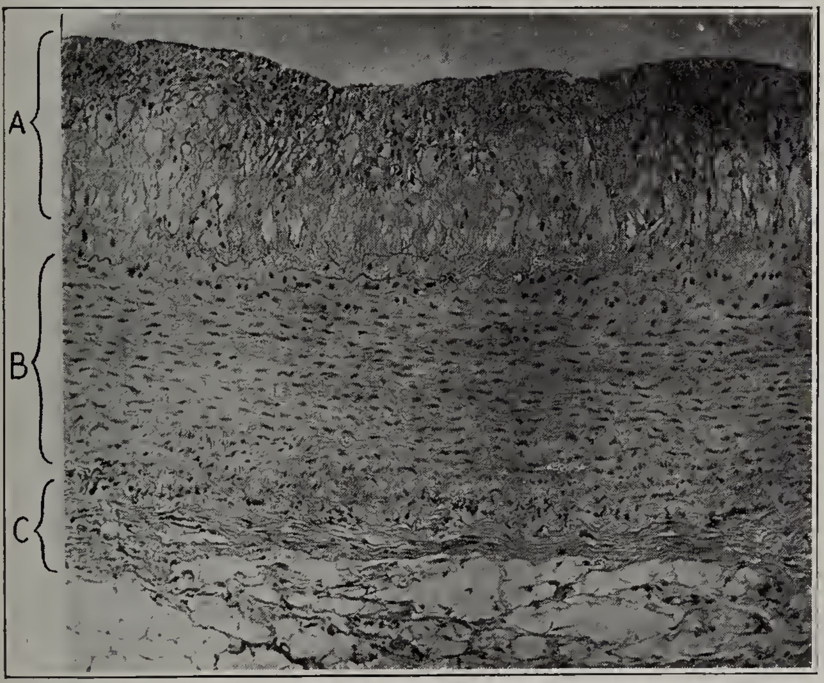

Fig. 3.—Aorta of rabbit in which atherosclerosis was moderately advanced; a diet containing 27 per cent. of protein was fed for nine months. *A*, great thickening of intima brought about by the large vacuolated cells and a hyperplastic elastic tissue; fat stains demonstrate that the vacuoles are filled with fat; *B*, normal media; *C*, adventitia.

The lesion, when examined with the microscope, is clearly a primary disease of the intima. It begins with a necrosis or fatty degeneration of the endothelial cells. The initial injury is very quickly followed by great thickening of the intima, owing to the presence in it of large cells loaded with fat and embedded in a hyperplastic elastic tissue (Fig. 3). At a somewhat later stage, when repair is being attempted, the picture will have added to it a broad band of fibrous tissue on the lumen side of the lesion (Fig. 4). Below this is the area of degeneration, which may have by now invaded the media to a variable degree and which will still show enormous amounts of fat.

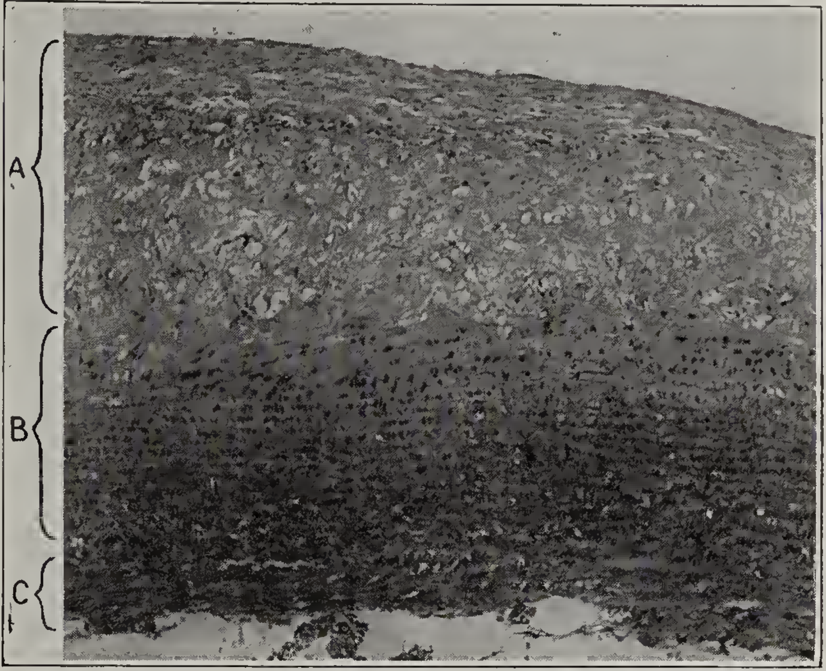

Fig. 4.—Aorta of rabbit in which atherosclerosis was far advanced; a diet containing 27 per cent. of protein was fed for eleven months. *A*, intima, showing a band of dense fibrous tissue on the lumen side of the vessel below this arc; degenerated, fat-containing cells; *B*, the degeneration has progressed far into the media; *C*, adventitia. Other sections of this aorta show masses of calcium scattered irregularly through the area of degeneration.

Investigators have from time to time claimed to have discovered an etiologic agent of human atherosclerosis, on the ground that this agent had caused vascular injury in rabbits. Before such claims should be given any weight, their supporters should demonstrate that the experimental arterial lesion bears at least a very close resemblance to the disease in the human being.

More often than not, the vascular lesions obtained by students in this field have failed to suggest human atherosclerosis. Among the relatively few successful investigations, the work of Ignatowski [5] is of great importance. In summing up his results, he pointed out that all rabbits that were fed animal protein showed primary intimal disease of the aorta. The accompanying description of the lesion, although far from complete, was nevertheless sufficient to indicate that it bore a strong resemblance to human atherosclerosis. This work was soon followed by a number of investigations directed toward an analysis of the chemical mechanism which is responsible for the deleterious effect of animal diets on the arteries of rabbits.

Both the gross and the histologic pictures seen in the experimental aortic lesions resulting from our high protein diets, are so similar to corresponding stages of human atherosclerosis as to leave no doubt that the human type of primary intimal disease has been produced.

In spite of the close resemblance between our experimental atherosclerosis and the disease as it occurs in man, it is not claimed that the abuse of protein causes human atherosclerosis. The available experimental facts do not permit a final answer to this question. The vascular system of omnivorous man may have acquired an insusceptibility to the products of protein metabolism, not possessed by the herbivorous rabbit. It may, on the other hand, be true that the arteries of man are as easily injured by the derivatives of protein as are those of the rabbit; or, finally, that man has acquired only a partial immunity which may be broken down by years of a protein intake two or three times greater than is needed to maintain health.

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[3] Steinbiss: Arch. f. path. Anat. **212**: 152, 1913.

[4] Loeb: Deutsch. med. Wchnschr. **39**: 1819, 1913.

[5] Ignatowski: The Action of Animal Protein upon the Aorta and Parenchymatous Organs of Rabbits, Arch. f. path. Anat. **198**: 248, 1909.

SUMMARY

Spontaneous atherosclerosis is a very rare disease in rabbits. Diets containing 27 and 36 per cent. of protein derived chiefly from beef have produced true atherosclerosis in the rabbit. The time of appearance and the extent of the lesion were roughly proportional to the amount of protein in the diet and the duration of the feeding.

ABSTRACT OF DISCUSSION

Dr. M. W. Lyon, Jr., South Bend, Ind.: I am glad that Dr. Newburgh was uncertain whether the lesion in rabbits could be exactly comparable to similar lesions in human beings on account of the zoologic difference between the subjects. I think anatomic and zoological investigations in human beings would establish the fact that men have had a rather high protein diet for many generations and have become accustomed to it; whereas, the rabbit is one of the most strictly herbivorous mammals known. It is even more strictly herbivorous than many of the true rodents. The real origin of rabbits is probably from some preungulate ancestor. It seems to me that it might be advisable to try the experiments on an animal which has a diet much more like that of human beings than the rabbit, such as the ordinary hog. The hog has probably been eating a protein diet for a long time. I think there are few hogs in the wild or the domestic state that will not eat much protein if they can get it. I doubt that we should conclude that we can produce arteriosclerosis in ourselves by a protein rich diet, despite these experiments which have been performed so carefully. I do not doubt that Dr. Newburgh does produce it in rabbits, but I think we should be cautious in applying his observation to man.

Dr. L. H. Newburgh, Ann Arbor, Mich.: Dr. Fox of Philadelphia has examined all of the animals that have died in the Philadelphia Zoological Garden. His conclusions are of interest in this connection. He pointed out that the carnivora had chronic vascular and renal lesions, and that they were practically the only ones that had such lesions. I wrote to Dr. Fox, asking him whether I was justified in assuming that a definite relationship existed between the carnivorous diets and these chronic lesions of the arteries and kidneys. In his reply, he stated that this certainly was true, that the meat-eating animals showed a high incidence of chronic disease of the arteries and the kidneys as compared with all the other animals on which he had performed necropsies.

Injuries to the Patella.—The patella alone is rarely the seat of a chronic sinus. Splintering or perforation of the bone is rapidly followed by healing, if the joint has not been seriously affected. When joint complications occur, the bone is as a rule removed early. A missile, after perforating the patella, may injure the opposite limb. In one such case early in 1918, after removal of the right patella, I performed arthrotomy on the left knee, removing a missile that had been lodged in the joint after traversing the right patella.—Bizarro, A. H.: *Chronic Traumatic Periosteomyelitis of Femur and Tibia Near Knee,* Lisbon: National Printing Office, 1922.

CLINICAL STUDIES OF QUINIDIN

IV. THE CLINICAL TOXICOLOGY OF QUINIDIN *

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NEW YORK

In the treatment of certain of the cardiac irregularities, particularly auricular fibrillation, quinidin sulphate is, at times, a useful agent in altering the cardiac mechanism.[1] A number of untoward effects have been noted in patients receiving this drug, and several fatalities have been ascribed to its use. It is of interest to inquire as to what has been the clinical experience with this alkaloid in the past, and it is important properly to evaluate the significance of the accidents that have more recently followed its administration.

HISTORICAL

The alkaloid quinidin was first isolated by van Heijningen [2] in 1849 from a substance called chinoidin, a by-product in the preparation of quinin. He described it under the name "beta-chinin."

In 1853, Pasteur [3] prepared the same drug, perhaps in somewhat purer form, and named it "chinidin." Hesse,[4] in 1868, in referring to it, called it "conchinin"; other less used designations are "cinchotin" (Hlasiwetz), and "beta-chinidin" (Kerner). The sulphate is the form that has commonly been employed for therapeutic purposes.

In his original communication, van Heijningen makes casual mention of the fact that Bauduin, a Dutch clinician, found "beta-chinin" just as effective in the treatment of malaria as quinin. The first to make extensive use of quinidin in the clinic was Wunderlich,[5] who gave it to patients with malaria. In the second edition of his Handbuch he says:

> I have tried out the neutral sulphate of quinidin in more than 100 cases and have found it to be a preparation fully as efficacious as quinin, and at the present time give it almost exclusively in hospital practice because it is cheaper. In mild cases, 10 grains suffice; in more severe infections one may use 15 to 25 grains, seldom more, just as with quinin.

Why later Wunderlich abandoned the use of the drug is not clear. In the Leipzig clinic it was again extensively employed by Strümpell,[6] who reported on its antipyretic action in fifty cases of infectious disease—malaria, typhoid, pneumonia, erysipelas, puerperal fever and pulmonary phthisis. The largest individual dose given was 1.5 gm. In typhoid fever, in addition to lowering of the temperature, there was observed slowing of the pulse, vomiting (occurring from one-quarter hour to three hours after taking), tinnitus aurium, sweating, faintness and, in one instance, collapse and death. This was in a woman of 32, who had received quinidin with good antipyretic effect on several occasions, but who, by mistake, swallowed 4 gm. in 60 c.c. of water, the solution having been prepared for use as an enema. She vomited at once, and there were symptoms of collapse. Next day she had apparently recovered. Suddenly, however, and without ascertainable cause, she became unconscious, and heart and respiration temporarily ceased. She revived, but died seven days later without regaining consciousness.

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* From the Hospital of the Rockefeller Institute for Medical Research, New York.

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2. Van Heijningen, J.: Ueber Chinoidin und B-Chinin, Pharm. Centralbl. **20:** 465, 1849.
3. Pasteur, L.: Recherches sur les alcaloides des quinquinas, Compt. rend. Acad. d. sc. **36:** 26, 1853.
4. Hesse, O.: Ueber Conchinin, Ann. d. Chem. u. Pharm. **146:** 357, 1868.
5. Wunderlich, C. A.: Handbuch der Pathologie und Therapie, Ed. 2, Stuttgart, 1856, p. 512.
6. Strümpell, A.: Ueber die Anwendung und die antipyretische Wirkung des Conchinins, Berl. klin. Wchnschr. **15:** 679 (Nov. 18) 1878.

TABLE 1.—SYMPTOMS ATTENDING QUINIDIN ADMINISTRATION IN TWENTY-FIVE CASES OF AURICULAR FIBRILLATION

							Quinidin Therapy			Symptoms													
Case No.	Age, Years	Etiology	Mitral Disease	Mitral and Aortic Disease	No Valve Lesion	Cardiac Enlargement	Total Amount, Gm.	Duration of Admin., Days	Result	Headache	Tinnitus Aurium	Giddiness	Palpitation	Dyspnea	Nausea or Vomiting	Epigastric Distress	Diarrhea	Fever	Precordial Pain	Mental Symptoms	Flushing	Sweating	Comment
							Cases in Which the Normal Rhythm Was Restored																
1	55	Syph.	..	..	+	+	4.6	6	+	..	..	..	..	..	..	..	..	..	..	..	..	..	
2	26	Rheum.	+	..	..	++	1.6	2	+	..	..	..	..	..	..	..	..	..	..	..	..	..	
3	49	Rheum.	+	..	..	++	8.4	7	+	..	..	..	+	+	+	+	..	..	..	..	..	..	Ventricular tachycardia induced; duration of normal rhythm only 14 days
12	32	Rheum.	+	..	..	+	0.4	1	+	..	..	..	..	..	..	..	..	..	..	..	..	..	
14	39	Rheum.	+	..	..	+	2.0	2	+	..	..	+	+	..	..	..	..	..	..	..	..	..	
17	43	Syph.	..	..	+	+	3.2	3	+	..	..	..	..	..	..	..	..	..	..	..	..	..	
18	33	?	..	..	+	+	1.2	1	+	..	..	..	..	..	..	..	..	..	..	..	..	..	
21	38	Syph.	..	..	+	+	0.4	1	+	..	..	..	..	..	..	..	..	..	..	..	..	..	
22	31	Rheum.	..	+	..	++	1.6	1	+	..	..	..	..	..	..	..	..	..	..	..	..	..	
24	45	Rheum.	+	..	..	++	6.8	6	+	+	..	..	..	..	..	..	+	..	..	..	..	..	Cerebral embolus 40 min. after onset of normal rhythm; died 2 weeks later with thrombosis of abdominal aorta
25	40	?	..	..	+	+++	3.2	3	+	+	..	+	+	..	+	..	..	..	+	..	+	..	Died suddenly 1 hour and 40 minutes after onset of normal rhythm
							Cases in Which the Normal Rhythm Was Not Restored																
4	32	Rheum.	..	+	..	++	4.8	5	0	+	..	..	+	..	..	..	..	..	..	..	..	..	Died 3 months later
5	19	Rheum.	..	+	..	+++	4.2	7	0	+	..	..	+	..	..	..	..	..	..	..	..	..	
6	23	Rheum.	+	..	..	+++	3.6	5	0	+	+	..	+	+	++	..	..	..	..	..	..	..	Ventricular tachycardia induced
7	58	Arteriosclerosis	..	..	+	+++	3.2	5	0	+	..	..	+	..	+	..	..	..	..	..	..	..	Ventricular tachycardia induced
8	34	Rheum.	+	..	..	+++	6.2	8	0	+	..	..	+	..	+	+	+	..	..	..	..	+	
9	33	Rheum.	+	..	..	++	2.4	3	0	+	..	..	..	..	..	..	..	..	+	..	..	..	
10	46	Syph. & Rheum.	..	+	..	++	3.0	4	0	+	..	..	+	+	..	+	..	..	..	+	..	..	Died 4 mos. later; at necropsy there was a thrombus in the left auricle, thrombosis of the pulmonary arteries and pulmonary infarction
11	55	Arteriosclerosis	..	..	+	+++	6.8	5	0	+	..	+	+	..	..	+	+	+	+	..	..	..	
13	23	Rheum.	..	+	..	+++	4.4	5	0	+	..	+	..	..	..	..	..	+	..	..	..	..	
15	37	Rheum.	..	..	+	++	8.4	10	0	+	..	..	..	..	+	+	+	..	..	..	+	..	
16	48	Rheum.	+	..	..	+++	3.6	3	0	+	..	..	+	..	+	..	..	..	..	..	..	..	Ventricular tachycardia induced
19	46	Rheum.	+	..	..	++	6.0	4	0	..	..	..	+	..	..	..	..	..	..	..	..	..	
20	30	Rheum.	..	+	..	++	7.6	5	0	+	..	..	..	..	..	..	..	..	..	..	..	..	
23	23	Rheum.	..	+	..	+++	1.6	2	0	..	..	+	+	..	++	..	..	..	..	..	..	..	Ventricular tachycardia induced

TABLE 2.—REPORTED CASES OF EMBOLISM AFTER QUINIDIN

	Embolism			
Author and Publication	Site	Time After Establishment of Normal Rhythm	Result	Comment
1. Benjamin and von Kapff: Deutsch. med. Wchnschr. **47**: 10 (Jan. 6) 1921	Lung	12 hours	Death	
2. Sappington: J. A. M. A. **78**: 59 (Jan. 7) 1922	Brain	24 hours	Death	
3. Frey and Hagemann: Ztschr. f. d. ges. exper. Med. **25**: 290, 1921	Lung	2 hours	Recovery	
4. Ellis and Clark-Kennedy: Lancet **2**: 894 (Oct. 29) 1921	Lung, kidney	24 hours	Recovery	
	Popliteal artery	....	Recovery	Same case as above; embolism occurred before onset of normal rhythm
5. Ellis and Clark-Kennedy: Lancet **2**: 894 (Oct. 29) 1921	Spleen	24 hours	Recovery	
6. Wilson and Herrmann: J. A. M. A. **78**: 865 (March 25) 1922	Brain	8 hours	Recovery	Residual palsy
7. Carter, Dieuaide and Burwell: J. A. M. A. **78**: 1921 (June 17) 1922	Kidneys	?	Death	Death from uremia
8. Carter, Dieuaide and Burwell: J. A. M. A. **78**: 1921 (June 17) 1922	....	?	Death	Details not given
9. Levy: New York State J. Med. **22**: 276 (June) 1922	Brain	40 minutes	Recovery	Death 3 weeks later with thrombosis of abdominal aorta

At necropsy, there were found numerous deep typhoid ulcers in the intestine, and several small hemorrhages on the inner surface of the dura mater. The findings were otherwise negative. It is doubtful, Strümpell concludes, whether quinidin may be regarded as the cause of death. But he warns against large doses (from 3 to 5 gm.), such as were evidently being used in other clinics.

Two years after these cases were described, Freudenberger [7] recorded two sudden deaths in patients ill of typhoid, following the taking of comparatively small doses of quinidin. In one case, the severity of the disease may have been in large part responsible for the fatal issue. In both cases gastro-intestinal symptoms, i. e., nausea, vomiting and abdominal pain, were produced. He believed that death may have been due to violent vagus irritation and, reflexly, cessation of heart and respiration. As contraindications to the use of the drug, he cites cardiac weakness or signs of irritability in the domain of the vagus, as evidenced by vomiting, signs of peritoneal irritation or severe gastric catarrh, such as occurs in chronic alcoholism.

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[7] Freudenberger, J.: Ueber Conchinin und seine therapeutische Verwendung, Deutsch. Arch. f. klin. Med. **26**: 577, 1880.

Steffen,[8] in 1882, reported two deaths in children, both of whom were suffering from scarlet fever. A girl, aged 8½ years, received 1 gm. on the day of admission to the hospital, and two doses of 0.5 gm. each on the following day. One hour after the second dose, there were vomiting, collapse, convulsions and death in a few minutes. No necropsy was performed. The second patient, a girl, aged 4 years, received 9.5 gm. in seventeen days, usually not more than 1 gm. being given in a twenty-four period. One hour after the last dose, there were vomiting and convulsions, and thirty minutes later, death. Necropsy revealed inflammation of the pia mater, bronchitis and peribronchitis, inflammation and exudation in all the serous cavities, and inflammation of the kidneys. It is reasonable to question whether the last dose of the drug was entirely responsible for the fatal outcome in so sick a patient.

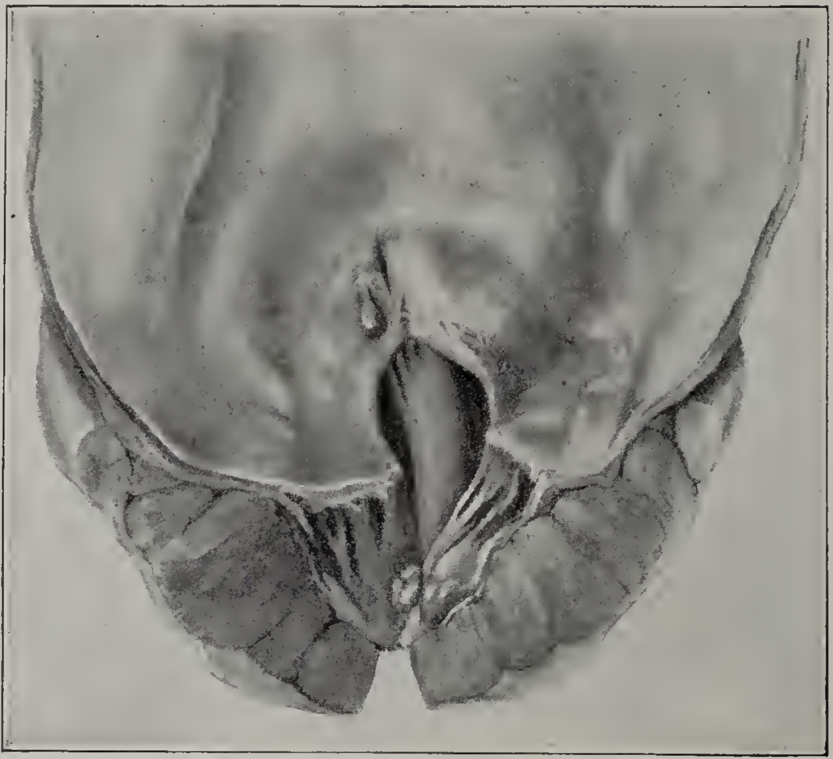

Fig. 1 (Case 24).—Drawing of the auricular aspect of the mitral valve.

In the same communication is found a report of the occurrence of edema after quinidin. A boy, aged 7½ years, with typhoid fever, received 12 gm. of quinidin in five days. He vomited several times, usually from one-half to one hour after taking the drug. On the fifth day, edema of the face and lower legs appeared, and on the sixth day there was general anasarca, with diarrhea. On the seventh day, diuresis, with a urinary output of 3,000 c.c., began, and continued on the eighth day, on which there was an output of 2,700 c.c. The transudates coincidentally disappeared.

Next day, because of the recurrence of fever, 2.5 gm. of quinidin was given. Again general anasarca resulted, with diuresis and disappearance of the edema on cessation of therapy. There was no dilatation of the heart, says Steffen, but the pulse was irregular and feeble.

The foregoing account of certain clinical experiences with quinidin during the period in which it was extensively employed in cases of malaria and as an antipyretic in the acute infectious diseases serves to indicate that even at that time undesirable effects were attributed to its use.

UNTOWARD EFFECTS OF QUINIDIN IN AURICULAR FIBRILLATION

More than 460 cases of auricular fibrillation treated with quinidin have been reported during the last four years. Undoubtedly many more patients have received this drug. A variety of undesirable effects have been recorded; a number of accidents are, as I am well aware, not yet reported in the literature. The untoward effects may, for the purpose of discussion, be divided into six groups: (1) unpleasant symptoms attending administration; (2) induction of heart failure; (3) sudden collapse; (4) occurrence of heart rhythms indicating intoxication of the heart muscle; (5) embolism, and (6) sudden death.

1. *Unpleasant Symptoms.*—In our own experience, these have been relatively uncommon in the group of patients in whom normal rhythm was established (Table 1). The dose in these cases has ranged from 0.4 to 8.4 gm., given in from one to seven days. The average dose was 3 gm. given over a three day period, according to a plan previously outlined.[9] Two patients in this group who complained of discomfort are worthy of special mention. In both (Cases 3 and 24) the normal rhythm was of short duration, i. e., fourteen days and thirty-six hours, respectively. In Case 3, it was not possible on another occasion to restore the sinus rhythm. Case 24, discussed in more detail later, exhibited evidence of cerebral embolism. In short, these patients were unfavorable subjects for quinidin therapy.

In contrast to the paucity of complaints among this group, unpleasant symptoms were common in the cases in which it was not possible to restore the sinus rhythm. Headache and palpitation were the chief sources of discomfort. Next in frequency were nausea or vomiting, epigastric distress, giddiness, diarrhea, precordial pain, fever, tinnitus aurium, mental depression, excitement, flushing and sweating. Urticaria and scarlatiniform eruptions have also been observed, the latter notably by Ellis and Clark-Kennedy. Tachycardia was the rule. The dose ranged from 1.2 to 8.4 gm. given in from two to ten days. The average dose was 4.7 gm. given over a five day period. The average figures both for dose and for duration of administration are a little higher in this group and account perhaps in part, though certainly not entirely, for the discrepancy in the number of symptoms produced; for the complaints were usually made early in the course of therapy and, unless truly distressing, were disregarded in the hope that subsequently a change in cardiac mechanism might be produced.

2. *Induction of Heart Failure.*—In a previous communication,[10] attention was directed to the possibility of the occurrence of heart failure as a result of the acceleration of ventricular rate caused by quinidin, and an illustrative case was reported in some detail. Another instance has been recorded by Eyster and Fahr.[11] By careful clinical observation, such an occur-

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[8] Steffen, A.: Ueber Conchinin und Hydrochinon, Jahrb. f. Kinderh. **18**: 71, 1882.

[9] Levy, R. L. (Footnote 1, third reference).

[10] Levy, R. L. (Footnote 1, second reference).

[11] Eyster, J. A. E., and Fahr, G.: Observations on the Use of Quinidin in Auricular Fibrillation, Arch. Int. Med. **29**: 59 (Jan.) 1922.

rence can be avoided; or, if it should transpire, the symptoms can be speedily alleviated by prompt and adequate digitalis therapy.

3. *Sudden Collapse.*—In one of his early papers, Frey,[12] who is responsible for pointing out the therapeutic possibilities of quinidin, cited two cases in which this accident occurred. Two more are reported by Haass,[13] and a fifth by Frey and Hagemann.[14] All recovered. Frey's description serves to illustrate the course of events. Both of his patients received, on the first day, two doses of 0.4 gm. each; on the second day, five doses of 0.2 gm. About three hours after the last dose, symptoms occurred suggesting cerebral paralysis. The patients first complained of dizziness and of feeling hot. Shortly thereafter they sank suddenly into a state of deep unconsciousness. They became pale, the respirations were slowed and then stopped, and soon no pulse was palpable. Artificial respiration, epinephrin, camphor and caffein were resorted to, with resultant resumption of respiration and cardiac activity.

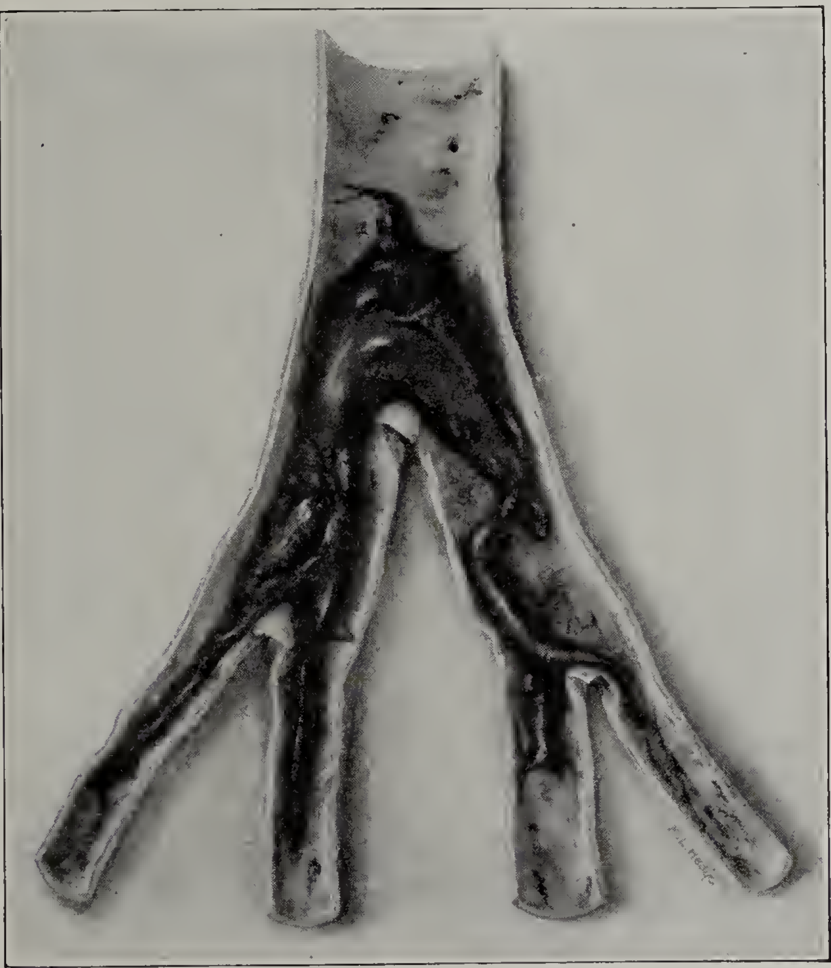

Fig. 2 (Case 24).—Drawing of the abdominal aorta dividing into its iliac branches, showing the occluding thrombus.

In one case, consciousness returned in twenty minutes, but the patient remained in a peculiar state of mental excitement, having hallucinations and grimacing. There was great motor irritability as well. During this period, she understood all that was said to her. Three quarters of an hour after the beginning of the attack, the patient was mentally clear and felt quite well.

In the second case, unconsciousness lasted for several hours, and on three occasions became dangerously deeper, as evidenced by cessation of breathing and enfeeblement of the heart's action. Beads of perspiration stood on the forehead, and the extremities felt cold. Then followed motor unrest, with shaking movements of the upper part of the body, such as are seen in quinin poisoning, according to Lewin.[15] Four and a half hours after the beginning of the attack the patient became quieter, fell into a deep sleep, and awoke the following morning without the slightest knowledge of what had transpired. During the entire next day the patient appeared to be psychically disturbed in that he was forgetful, and only on the day following was his condition the same as before the attack.

In Haass' patient, a woman, aged 53, with mitral stenosis and heart failure, collapse followed 2.8 gm. of quinidin given in three and one-half days. She was revived with difficulty. However, her pulse subsequently became regular, and the signs of venous stasis disappeared. The happenings in the case of Frey and Hagemann were quite similar. A man, aged 37, received four doses of 0.2 gm. each. He complained of dizziness after the first dose. Shortly after the full amount was taken, unconsciousness ensued, to return after the lapse of one and one-half hours. He knew nothing of the onset of the attack or of the events which transpired during it.

There is nothing in the history or examination of these five patients which could serve to characterize them as peculiarly susceptible to the action of quinidin. It would be difficult to prognosticate and thereby avoid the possibility of an occasional occurrence of this nature.

4. *Occurrence of Rhythms Indicating Intoxication of the Heart Muscle.*—If the effects of quinidin administration are followed electrocardiographically, it is found [10] that in a number of patients, particularly those in whom it is not possible to establish normal rhythm, ventricular premature beats appear. At times, though infrequently, these may occur coupled with normal complexes,[10] as is seen in the early stage of digitalis poisoning. Occasionally such ectopic beats are transitory, disappearing within an hour or two. But often they persist and their frequency increases. Under the latter circumstances, they afford a sign indicating cessation of further therapy; for, if more quinidin is given, a succession of rapid, fairly regular ventricular ectopic beats may ensue, giving rise to the rhythm termed ventricular tachycardia. The possible serious significance of this disordered mechanism has already been indicated.[16] Ventricular tachycardia may be the immediate precursor of ventricular fibrillation and death. This rhythm has been observed five times in our experience, but has ceased with prompt discontinuation of further drug treatment.

5. *Embolism.*—In Table 2 are collected the reported cases of embolism. Of these 9 patients, four died and one was left with a residual hemiplegia. The embolism occurred in seven instances within twenty-four hours after establishment of normal rhythm; in our own case, within forty minutes. Bits of clot lodged twice in the lung, three times in the brain, once in the kidneys, once in the spleen, once in both lung and kidney, and later, in this patient, *while the auricles were fibrillating,* in the popliteal artery. In only one of these cases was a necropsy performed: in Carter's case (Case 7, Table 2). This patient died with the symptoms of

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12. Frey, W.: Weitere Erfahrungen mit Chinidin bei absoluter Herzunregelmässigkeit, Berl. klin. Wchnschr. **55**: 849, 1918.

13. Haass, H.: Ueber die Chinidintherapie der unregelmässigen Herztätigkeit, Berl. klin. Wchnschr. **58**: 540 (May 23) 1921.

14. Frey, W., and Hagemann, E.: Klinische und experimentelle Daten über Chinidinwirkung, Ztschr. f. d. ges. exper. Med. **25**: 290, 1921.

15. Lewin, L.: Die Nebenwirkungen der Arzneimittel, Berlin, 1899.

16. Levy, R. L. (Footnote 1, second and third references).

uremia, and necropsy revealed a mural thrombus in the auricle and extensive infarction of both kidneys.

The patient whose history was detailed by me in an earlier communication[9] subsequently died with the signs of closure of the abdominal aorta. A postmortem examination was made. It will therefore be of interest briefly to recapitulate the sequence of events and to complete the record.

K. C., a woman, aged 44, was admitted to the hospital complaining of shortness of breath and weakness. She had frequent attacks of tonsillitis and three attacks of chorea between the ages of 6 and 14. Eight years before entrance, the tonsils were removed. She had had symptoms referable to the heart for two years, and it is probable that she was suffering from fibrillation of the auricles during this period.

Examination revealed no dyspnea at rest, and no edema or cyanosis. The cardiac dulness extended 12.5 cm. to the left in the fifth space, 4.5 cm. to the right in the fourth space. The auscultatory findings were those of mitral stenosis. She had been taking digitalis before coming to the hospital; the ventricular rate was 80. The blood pressure was 112 mm. of mercury systolic, and 82 diastolic. There was slight, irregular fever at times, up to 101 F.

She was kept in bed and given, in all, 0.5 gm. of digitalis in the form of digitan. On the tenth day of hospitalization, quinidin treatment was begun. During a six day period, 6.8 gm. was administered. The patient complained at various times of headache, tinnitus aurium and slight epigastric discomfort. There was slight acceleration of ventricular rate on each day. At 8 p. m. on the sixth day, normal rhythm was observed by the nurse to be present. At 8:40, quite suddenly the patient fell unconscious to the floor. After being put back to bed, she had a generalized convulsion, involving both arms and legs. She became very noisy, restless and difficult to manage. When examined at 9:30 she was still unconscious and quiet. There was no obvious sign of a local cerebral lesion. At 10:15 there was another convulsive seizure. By 1:30 the following morning, consciousness had returned. She vomited twice, and then slept during most of the remainder of the day.

Normal rhythm, with a rate of about 90, persisted for thirty-six hours. Then fibrillation recurred, with a ventricular rate of 126, 117 beats coming through to the wrist. Digitalis served promptly to control the heart rate.

During the next twelve days, the clinical course was uneventful, save for an elevation of temperature to 102 F. on two occasions. Blood cultures were sterile. On the morning of the thirteenth day after the cerebral accident, the patient was awakened at 4:30 by severe pain in the left side of the abdomen. At this time she also complained that her feet, legs and hips were quite numb. She presented the appearance of a person in shock. The heart rate rose rapidly to 144; the temperature was subnormal. There was some tenderness in the abdomen in the median line over the abdominal aorta, and also in the left lower quadrant. No pulsation could be made out in either femoral vessel, or in the popliteal or anterior tibial arteries. There was a little purplish mottling of the feet and lower legs. A diagnosis of thrombotic closure of the abdominal aorta was made.

The following morning, the mottled cyanosis extended to the umbilicus. The patient was restless, pale and perspiring freely. A distinct pulsation could now be felt in the right femoral artery, and a less distinct wave in the left femoral vessel. The mottled cyanosis of the feet, legs and thighs was more pronounced. That afternoon, she died.

Necropsy was performed four hours after death. The heart weighed 430 gm. The mitral valve was deformed and thickened in such a fashion as to produce an orifice of the buttonhole variety. The chordae tendineae was contracted and thickened. There were no fresh vegetations along the free border of the valve cusps. On the auricular aspect of the valve, however, adherent to the wall of the auricle, at a point between the valve cusps, was a small, pear-shaped vegetation about 3 by 2 mm., its surface covered by a thin layer of adherent clot. The wall of the auricle was smooth, and there were no antemortem thrombi (Fig. 1). The aortic valve cusps were smooth. On the tricuspid valve were two tiny nodular vegetations, of the variety commonly associated with acute vegetative endocarditis; these were about 1 mm. in diameter. The heart muscle was not remarkable.

The lungs showed no areas of consolidation or infarction. The pulmonary vessels were dissected out to their finer branches, but no thrombi or emboli were disclosed.

When the aorta and iliac vessels were opened, an adherent, fresh, occluding thrombus was seen which had apparently begun at the bifurcation of the aorta into the iliac branches and extended upward, though not filling the entire lumen of the vessel, as far as the renal arteries. The thrombus also extended downward for a distance of 3 or 4 cm. into both external and internal iliac arteries (Fig. 2). No thrombi were found in the vena cava or its branches, nor was there any evidence of occlusion of any of the mesenteric vessels.

Permission to examine the brain was not granted. In view of this fact and in the light of the necropsy findings it is perhaps not justifiable to place too categorical an interpretation on the cerebral accident. It is conceivable that the attack of unconsciousness with convulsions may have been a manifestation of quinidin poisoning analogous to the cases described by Frey. On the other hand, the association of the attack with the establishment of normal rhythm is significant. It seems more likely that a small bit of the vegetation on the auricular aspect of the mitral valve was whipped off into the circulation and lodged in the brain. This conception is supported by later events; for it is reasonable to believe that the terminal thrombosis in the aorta was initiated by a small embolus from the same source, which became caught at the bifurcation of the aorta into its iliac branches and served as a nucleus for the formation of the larger clot.

It is a matter of common belief that clots tend to form in the auricular appendixes more commonly when the auricles are fibrillating than when the mechanism is normal. The findings of Lewis[17] lend support to this concept. Thus, in seventy-six postmortems in cases of chronic heart disease, in which clots were especially sought, he found them in eight cases out of twenty-three in which fibrillation was present in the last illness, and in only four cases out of fifty-three in which the mechanism had been normal. It was his impression, however, that embolism due to detachment of these clots did not appear to be more common when fibrillation existed than when the mechanism was normal. This statement is borne out in our own experience. Of the last fifty patients with auricular fibrillation admitted to the Rockefeller Hospital, twenty-five received the usual therapy, with digitalis if indicated; twenty-five received similar treatment, plus quinidin. In the group not treated with quinidin, embolism or thrombosis has occurred five times; in the group receiving quinidin, there has been one instance of probable embolism. It is, of course, significant that in the patients receiving quinidin, embolism has occurred shortly after the alteration in mechanism. Mackenzie[18] has called attention to a similar coincidence when the rhythm spontaneously changes from fibrillation to normal. It appears, however, that the danger of embolic accident after quinidin has been given undue emphasis. It is in patients with advanced heart failure that clots are likely to form in the auricles. If such cases do not respond promptly and well to efforts at treatment aimed to build up a cardiac reserve, especially if they are refractory to digitalis, it is probably wiser not to attempt to restore the normal mechanism. Signs of peripheral venous thrombosis should also be looked for, and, if present, serve as an index of a tendency for intravascular clots to form. In such individuals also, it is well not to attempt quinidin therapy.

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[17] Lewis, T.: The Value of Quinidin in Cases of Auricular Fibrillation, and Methods of Studying the Clinical Reaction, Am. J. M. Sc. **163**: 781, 1922.

[18] Mackenzie, J.: Quinidin in Auricular Fibrillation (a letter), Brit. M. J. **2**: 576 (Oct. 8) 1921.

6. *Sudden Death.*—There are three cases reported in which death followed shortly after the resumption of normal rhythm. Instances in which, at necropsy, bronchopneumonia was found (Benjamin and von Kapff) or in which death occurred several days after quinidin was taken (Hewlett and Sweeney), are not included. Nor is it fair to place in this group Groedel's patient, a man of 70, with heart block and Stokes-Adams' syndrome, whose heart at necropsy showed closure of the septal branch of the right coronary artery, with myomalacia and complete destruction of the conduction system in the crus commune.[19] In the case of Benjamin and von Kapff,[20] 0.2 gm. of the drug was given on the first day, and 0.6 gm. on the following day. Forty-five minutes after the establishment of normal rhythm, the heart suddenly ceased. Hewlett and Sweeney's case is described in a footnote: "A patient in fairly good compensation was treated with quinidin and died suddenly shortly after his heart had become regular."[21] No necropsy was performed in either of these cases. One instance of sudden death has occurred in this hospital and has been described in detail.[9] The heart ceased one hour and forty minutes after inception of the sinus rhythm. Necropsy failed to reveal the cause of death. In the absence of facts, speculation as to the reason for the cessation of the heart's action under these circumstances is futile.

COMMENT AND CONCLUSIONS

From this summary of the untoward effects of quinidin administration, several points of significance for clinical therapeutics are apparent. It is clear that not every patient suffering from fibrillation of the auricles should receive this drug. It has already been pointed out,[9] and it is evident from Table 1, that persons with conspicuous cardiac enlargement, that is, with apex impulse outside the nipple line, and particularly if there are multiple valve lesions, are least likely to respond with normal rhythm. Such enlargement may be taken to indicate serious derangement of cardiac mechanics by valvular disease or of extensive myocardial involvement, or both. It is in these cases also that ventricular tachycardia occasionally occurs. Patients with but little cardiac enlargement and without signs of valvular defect have, in our limited experience, done well. The duration of fibrillation and the etiology of the disease appear to be of lesser importance as factors determining the issue.[22]

A careful study of the patient's symptoms while the drug is being given may also be of value. When unpleasant sensations are complained of early in the course of treatment, and persist or recur with further administration, it is probable that normal rhythm will not be restored, or, if established, will be present for only a short time. It is in these cases also that ventricular tachycardia is likely to ensue. The occurrence of unpleasant symptoms may likewise serve as a guide by means of which cases of sudden collapse, as described by Frey, may be avoided. At all events, little is to be gained and possibly harm may be done, by persisting with therapy in the face of complaint of serious discomfort by the patient.

Occasionally one encounters a patient in whom, in spite of rest, restricted fluid intake, digitalis, etc., it is not possible to restore adequate compensation. The heart muscle is exhausted. It is in such cases that mural thrombi are likely to form in the auricles, and it is in them that the danger of embolism after alteration of the cardiac mechanism is greatest. Signs of peripheral venous thrombosis should also be looked for, and, if found, serve to indicate the tendency for the formation of intravascular clots. Such patients should not be given quinidin.

Careful clinical study of patients with auricular fibrillation will serve to set apart a certain number unsuitable for quinidin treatment. It is hoped that further experience will serve to furnish more definite criteria for eliminating unfavorable and selecting favorable cases. The carrying out of therapy in bed, in a hospital, preferably under graphic control, will further safeguard against accident. It is well to emphasize again that, "carefully administered, this drug is a therapeutic agent of great value; indiscriminately given, it may, on occasion, be expected to cause disastrous results."

CAVERNOUS ANGIOMA OF THE TONGUE

REPORT OF CASE

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Personal experience and a review of the literature would indicate that angioma of the tongue of the type exemplified by the present case report is rare.

REPORT OF CASE

D. C., a man, aged 42, was admitted to the White Haven Sanatorium in 1919 with the diagnosis of pulmonary tuberculosis. The symptoms and signs on admission pointed to an old moderately advanced pulmonary lesion of low activity. The sputum examination revealed tubercle bacilli. After five months' stay at the sanatorium, he was discharged on demand. The pulmonary lesion had become quiescent, and his general condition greatly improved. At the physical examination on admission, the patient's lips had a cyanotic appearance. This was in striking contrast to the absence of respiratory disturbance. On close inspection the lips were found to be involved in a capillary nevus extending from the mucocutaneous margin to just within the inner fold of the lips. The lower lip presented the bluish appearance to a more marked degree than the upper lip. When the mouth was opened, the protruded tongue revealed a swelling on the left side. The patient protruded the tongue with reluctance, having guarded against the recognition of the abnormality since early life. He stated that his mother had noticed that there was a small birthmark on the tongue shortly after birth. This grew rapidly at first, and later remained stationary. As far back as the patient can remember it has maintained its present size in relation to the size of the oral cavity. It has never given rise to bleeding, and has not interfered with mastication or swallowing. He stated that at times "the saliva flowed freely between meals," and occasionally his "speech was a little thick." These symptoms, however, had been so slight as to cause only passing notice. The accompanying illustrations show the appearance of the tongue. The oral cavity was otherwise normal.

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[19] Groedel, F. M.: Ungünstige Chinidinwirkung bie vollkommenem Herzblock? Therap. d. Gegenw. **62**: 172, 1921.

[20] Benjamin and von Kapff: Ueber die Behandlung der Arhythmia perpetua mit Chinidin, Deutsch. med. Wchnschr. **47**: 10 (Jan. 6) 1921.

[21] Hewlett, A. W., and Sweeney, J. P.: The Quinidin Treatment of Auricular Fibrillation, J. A. M. A. **77**: 1793 (Dec. 3) 1921.

[22] Experience with auricular fibrillation in patients with hyperthyroidism is as yet too limited to permit of defining helpful criteria in this group.

COMMENT

The pathology of angioma of the tongue does not differ from that of angioma elsewhere in the body. These tumors belong to the benign growths of congenital origin or development early in life. The term cavernous angioma, which describes this case, refers to that form in which the tumor is composed of widely dilated anastomosing vascular channels separated by thin, fibrous septums. These tumors may be encapsulated and stationary, or encapsulated with gradual enlargement and invasion of neighboring tissues. The enlargement is slow in development, and results from the distention of the original vascular spaces and the formation of new ones. These tumors are not infrequently a development from capillary nevi, and may be multiple. Ewing[1] refers to reported cases in which from forty to 100 tumors were observed in one subject. There is the very rare type of histologically nonmalignant angioma with numerous metastases. Shennan[2] refers to two cases in the literature, and reports an instance in which angioma, displaying no sarcomatous changes or other histologic indication of malignancy, gave rise to numerous secondary growths throughout the body. Locally, angiomas undergo changes as the result of inflammation, thrombosis and ulceration. Hemorrhage may occur and phleboliths may form. Spontaneous regression may occur as the result of the local changes mentioned above or from treatment. Symptoms referable to pressure on adjacent structures may develop with the growth and extension of the tumor. The tumor may recur after apparently complete removal.

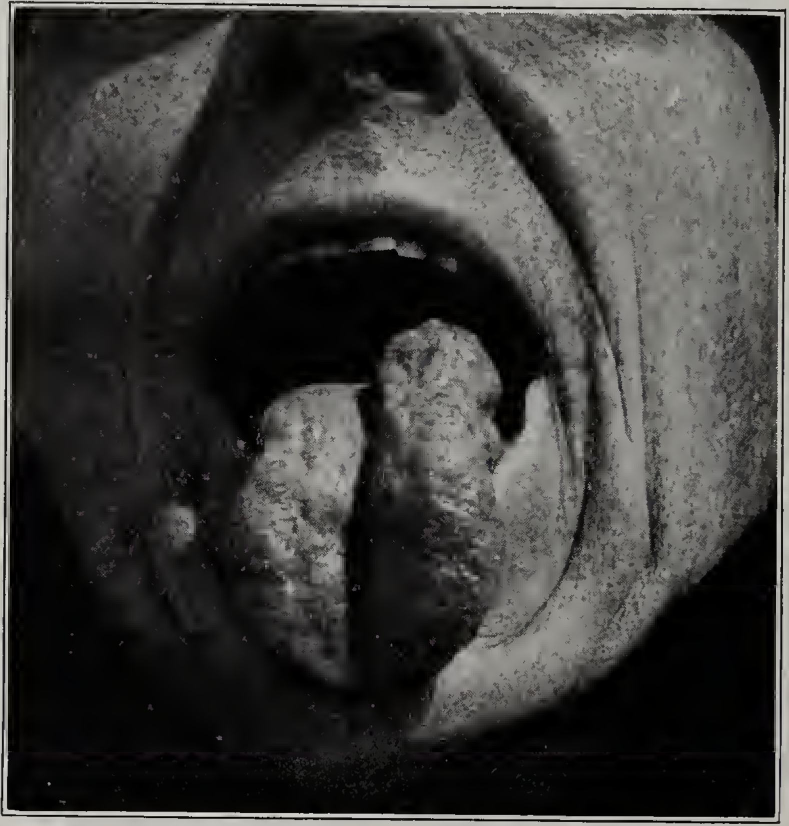

Fig. 1.—Dorsal aspect of tongue. Angioma involved left half of tongue. The sharp limitation of the tumor in the median line is distinctly visible. The bluish color, the appearance of vessels and vascular points on the surface, and the soft consistency are rather typical of angioma. The irregular surface was smooth and moist, and sensitive to ordinary stimuli. On pressure the growth could be reduced in size, but immediately filled up again when pressure was removed. Pressure on the venous return in the neck produced no appreciable change in the size of the swelling. No enlargement of the cervical glands was detected.

Cavernous angioma of the tongue, according to Ewing, arises usually in the tip of the organ, and may extend until it produces an erectile tumor of large dimensions. In the case reported by Hughes[3] and in our patient, a small swelling on the dorsum of the tongue was noticed shortly after birth and diagnosed as a birthmark. In Hughes' patient the tumor had become the size of a large marble when adult life was reached. No pain, ulceration or hemorrhage occurred. For ten years, however, a chronic indigestion had been present which was attributed to difficulty in mastication. In our patient, aged 42, the tumor had remained the same in size and was without discomforting symptoms as long as he could remember. The occasional excessive flow of saliva between meals and thickness of speech caused only slight inconvenience. Bland Sutton[4] states that in some instances lingual nevi cause very little inconvenience unless they bleed, and this accident may arise at any time, either by abrasion from hard food or from accidental bites, or in consequence of rubbing against jagged teeth. Under such conditions the hemorrhage is sometimes very alarming, and so oft repeated that surgical measures are imperative.. Arrowsmith[5] reports the instance of a girl, aged 12 years, who had from birth a tumor on the left side of the tongue. On several occasions she had bitten the tongue and started more or less severe hemorrhages which were at times difficult to control. It is interesting to note that the clinical diagnosis in this case was aneurysmal varix of the tongue. The tumor was removed completely, and after operation was pronounced a cavernous angioma

Large cavernous angiomas in children may interfere with breathing, especially if adenoids produce postnasal obstruction. Heaton[6] observed an angioma of the tongue in an infant, aged 4 months. The tongue was involved at birth and rapidly enlarged to the point at which the cheeks bulged and the organ protruded beyond the lips. Suffocative attacks occurred, especially at night. The angioma involved chiefly the left half of the tongue from the tip to the epiglottis. Following ligation of both lingual arteries, the tongue and the tumor became greatly reduced in size. In a short time, however, enlargement returned and caused attacks of dyspnea which finally resulted in asphyxia and death. Lett[7] likewise observed a cavernous angioma in the tongue of an infant. The tumor was bilateral, and when the child cried the bluish color and swelling became intense.

The progress of angiomas of the tongue varies in different cases. In our patient the growth remained stationary over many years. In the case reported by Gibson,[8] a woman, aged 28, first noticed a black spot on her tongue when 16 years old. This increased in size slowly for eight years, and then grew rapidly during the next four years, extending during this time to the floor of the mouth, one tonsil and the hard and soft palates. When the patient was seen by Dr. Gibson, he felt that any operation would be very bloody, if not impossible, on account of the extent and character of the lesion. Hulen's[9] patient, a woman, aged 43, had a typical cavernous angioma involving the left half of the tongue and measuring 3.4 by 3.2 by 3.5 cm. The tumor had been present for twenty years without change in size and without causing symptoms except for a slight impediment of the speech.

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[1] Ewing: Neoplastic Diseases, Ed. 2, 1922, p. 2.

[2] Shennan: Histologically Non-Malignant Angioma with Numerous Metastases, J. Path. & Bacteriol. **19**: 139, 1914.

[3] Hughes, F. M.: A Case of Congenital Angioma of the Tongue, Lancet **2**: 749 (Nov. 17) 1917.

[4] Sutton, J. B.: Tumors, Innocent and Malignant, Ed. 4, London, Cassell & Co., 1906, p. 168.

[5] Arrowsmith: Cavernous Angioma of the Tongue, Laryngoscope **25**: 94, 1915.

[6] Heaton: Clinical Notes from the Children's Hospital: Large Venous Naevus of the Tongue Causing Sudden Death from Asphyxia, Birmingham M. Rev. **37**: 228, 1895.

[7] Lett: Naevus of the Tongue, Clin. J. **40**: 30, 1912.

[8] Gibson: Cavernous Angioma of the Tongue and Mouth, Ann. Surg. **32**: 129, 1900.

The removal of angiomas may be followed by a recurrence, as in the patient reported by Rigby.[10] Two years after the tumor had been dissected out and the right lingual artery and veins ligated, the patient was found to have a recurrent cavernous angioma of the right border and dorsum of the tongue.

The importance of recognizing the smaller and less evident angiomas is exemplified by Miller's[11] experience, in which a supposed enlarged papilla at the base of the tongue was removed. Considerable hemorrhage followed, and much difficulty was encountered in the effort to control it. The angiomatous character of the lesion was recognized after operation.

The diagnosis of cavernous angioma of the tongue as a rule offers no difficulty. At times the enlargement of the tongue, due to lymphangioma (lymphangiomatous macroglossia), calls for differentiation from hemangioma. In lymphangioma the bluish appearance is seldom evident, the surface contains groups of small vesicles containing clear fluid, owing to dilatation of the superficial lymph spaces, and recurring inflammation, with pain and swelling of the tongue, is common. This liability to recurring attacks of inflammation causing progressive enlargement of the tongue is a striking characteristic of lymphangioma. The occurrence of nevi elsewhere in the oral cavity suggests the character of the tongue tumor, but is not conclusive evidence of the angiomatous character of the lingual lesion. For example, Howell[12] reports the case of a child, aged 6 years, who had a congenital nevus of the lower lip involving the mucous membrane of the gum, and a lymphangioma of the tongue. The nevus would bleed at times, and the lymphangioma of the tongue presented the characteristic vesicles, which would break down and ulcerate; the tongue becoming exceedingly painful at times and progressively enlarged.

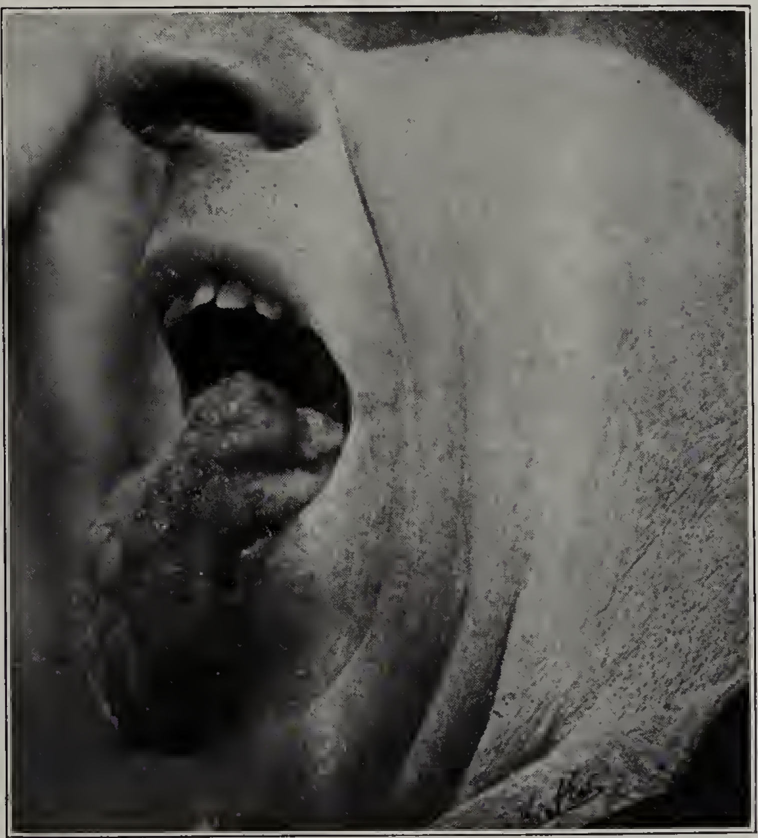

Fig. 2.—Lateral view, showing posterior limit of tumor near base of tongue. The irregular surface and tortuous vascular channels are distinctly evident. No pulsation was visible. No superficial vesicles, as are frequently seen in lymphangioma, were present.

Our patient, because of the stationary character of the lesion, and the freedom from symptoms, refused to consult the surgeon and radium therapist for an opinion as to the advisability of local treatment.

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[9] Hulen: Report of a Case of Cavernous Angioma of the Tongue, New York M. J. **62**: 531, 1895.

[10] Rigby: Cavernous Naevus of the Tongue, Clinical Society's Transactions **39**: 230, 1906.

[11] Miller: Angioma of the Base of the Tongue with Specimen and Slide, Brooklyn M. J. **12**: 41, 1898.

[12] Howell: Lymphangioma of the Tongue, Brit. J. Child. Dis. **16**: 213, 1919.

TRAUMATIC EROSION OF AN ANOMALOUS RIGHT SUBCLAVIAN ARTERY

THROUGH THE POSTERIOR WALL OF THE ESOPHAGUS *

HELEN M. SCOVILLE, M.D.
NEW HAVEN, CONN.

Anomalies of the great vessels, while thoroughly described in textbooks, are not often found at the necropsy table, and when discovered they are generally considered of little clinical importance. The present case, therefore, is of unusual interest since an accidental injury to an anomalous artery was the immediate cause of death.

The patient was a sturdy white boy, 9 years of age.[1] The physical and mental development were normal and general health good. There is one point of interest in the patient's early history. As a small child he apparently experienced some difficulty in swallowing, since he refused to take solid food until after he was 3 years old.

The onset of the fatal illness is somewhat obscure, but probably antedates death by about seventeen days, when the boy awoke with a severe frontal headache, which persisted and which was the next day accompanied by fever and vomiting. The temperature was 104 F., and the illness was attributed by the family physician to a smallpox vaccination which had been performed four days previously. The child's condition remained the same for several days, and then improved. This apparent improvement was only temporary, and the child became more seriously ill a few hours later. He was restless and stuporous, and responded only momentarily to stimuli. Because of the seriousness of his condition, the child was sent to the hospital by his physician.

On admission, the patient was unconscious. The temperature was 103 F., and the respiration was regular and somewhat increased in rate. There was a generalized muscular rigidity of the body, with hyperactivity of the tendon reflexes. A diagnosis of epidemic (lethargic) encephalitis was made. The problem with which the clinician was confronted was that of a very sick boy who was unconscious and who could not be given food because of spasticity of the muscles of the lower jaw. A nasal tube was therefore inserted and left in place, and through this water and food were administered at regular intervals.

For a week the patient's condition remained essentially unchanged. He was kept well nourished by the use of gavage, and the prognosis seemed hopeful; but, without warning on the morning of February 15, he began to expectorate bright red blood, and rapidly went into shock, showing a pale, clammy skin and weak pulse. The nasopharynx was packed with gauze, and the usual methods used to combat shock. A transfusion was started, but death occurred before it could be completed.

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* From the Brady Laboratory of Pathology and Bacteriology, Yale University School of Medicine.

[1] I am indebted to Prof. Edwards A. Park for the use of the clinical history of the case.

The necropsy findings were definite. The gastro-intestinal tract as far as the transverse colon was filled with freshly clotted blood. The stomach was so greatly distended that the clot which was removed virtually paralleled the liver in size. No bleeding points could be found in the mucosa of the stomach or intestine. The esophagus was therefore removed and opened with unusual care in the search for the source of the hemorrhage. There were several superficial longitudinal ulcers along the posterior wall in the folds of the mucosa (Fig. 1). One of the ulcers, situated about 7 cm. from the superior edge of the larynx, showed a raw base with a small mass of fibrin adherent at about its center point. Beneath this fibrin plug was a small perforation of the esophageal wall. The perforation extended into a large arterial trunk, which was adherent to the esophagus. This artery, on being traced, was seen to arise from the aorta on the left side, and to run across the esophagus at practically a right angle.

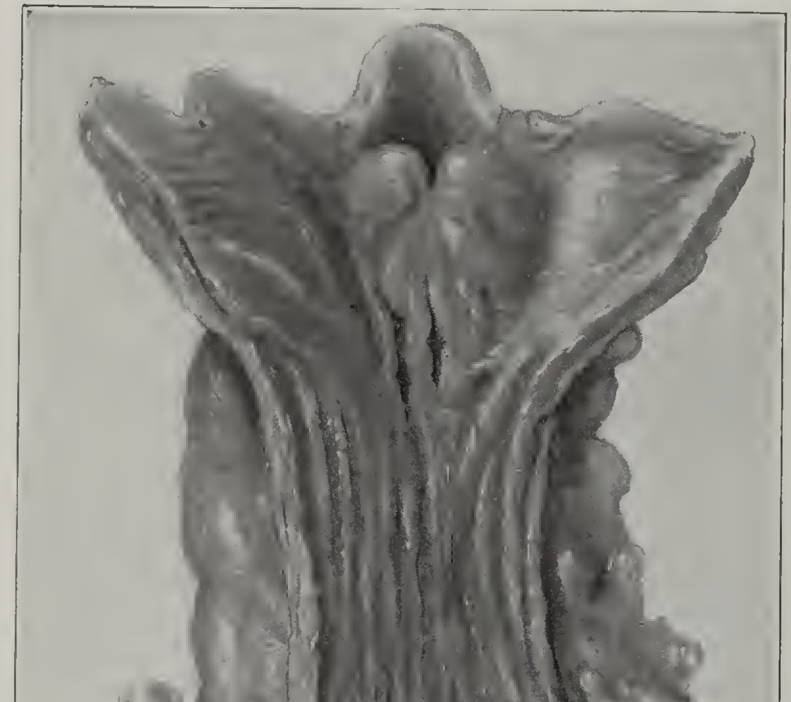

Fig. 1.—Traumatic erosion of an anomalous right subclavian artery through posterior wall of esophagus.

The thoracic aorta was carefully studied and was seen to have four large branches given off in this order: right common carotid, left common carotid, left subclavian and right subclavian, the last mentioned being the vessel which passed from left to right behind the trachea and esophagus as described above. Figure 2 shows clearly the origin and relations of the branches.

The brain was removed, and the diagnosis of epidemic encephalitis confirmed by microscopic examination.

COMMENT

The case presents several unusual features. The presence of an anomaly of the great vessels is in itself of some interest. The arrangement of the arteries in this case exemplifies a well recognized deviation from the normal which is apparently found in a definite number of individuals. Goldbloom [2] gives the percentage of occurrences in anatomic dissections as from 0.4 to 1.6 per cent. Such an anomaly is rarely discovered at necropsy, since the routine procedure in removing the neck organs is not such as to lead to its detection. The structures are generally removed by "blind" dissection and the vessels cut near their origin, and in this way the variation may pass unnoticed.

The method of origin of such an anomaly is developmental, and is considered to be due to a persistence of the lower right arch. Under normal circumstances, this primitive right branch of the aorta undergoes partial atrophy, leaving one arch. Development may be abnormal and both arches may persist, in which case rotation of the heart brings the right arch behind the trachea and esophagus. In the type of anomaly under discussion, it is assumed that the lower half of the right arch remains in the form of the subclavian vessel, and this accounts for the peculiar relationship between the vessels and the neck organs noted above. As Goldbloom suggests, the cause of such an anomaly probably rests in the failure of development of the fourth arterial arch, which normally forms the innominate, and the subsequent persistence of the lower right arch, which continues to function as the right subclavian artery.

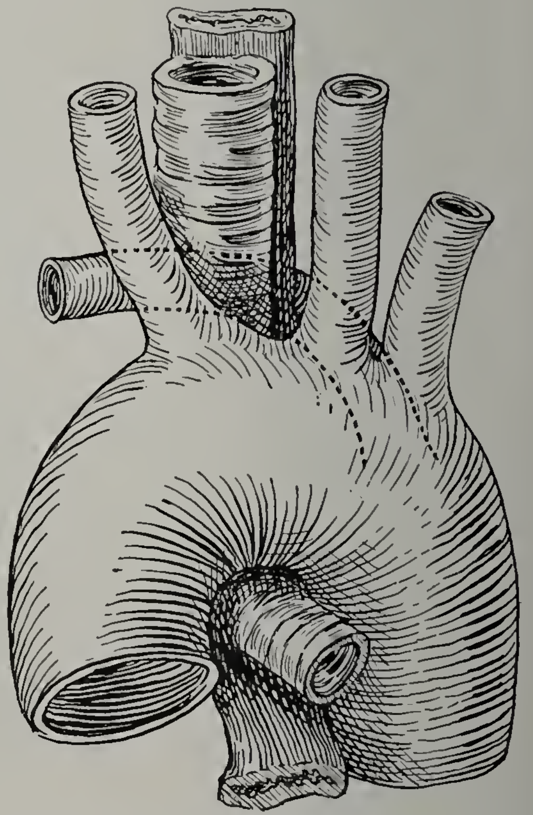

Fig. 2.—Point of origin and course of an anomalous right subclavian artery.

The chief point of interest in the case is the clinical application. It is a relatively common practice to insert a nasal tube for feeding comatose patients, and not infrequently the tubes are left in place to minimize the trauma incident to repeated introduction. In persons with normal vessels, this process is practically without danger; but in a small group (from 0.4 to 1.6 per cent.) in whom there is an anomalous artery lying against the posterior wall of the esophagus, the continued use of a feeding tube is obviously fraught with danger.

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[2] Goldbloom, A. A.: The Anomalous Right Subclavian Artery and Its Possible Clinical Significance, Surg., Gynec. & Obst. **34**: 378 (March) 1922.

It seems logical that such an anomalous artery will compress the lumen of the esophagus and cause difficulty in swallowing. Goldbloom quotes several instances among his series of similar anomalies in which dysphagia was described clinically. In this case the boy had had difficulty in swallowing as a small child, but had entirely overcome his handicap so that if he had died in adult life this possible clue would have been lost. The fact unfortunately remains that this type of arterial anomaly cannot be determined clinically. The long continued use of a feeding tube must, therefore, always be considered dangerous in an undeterminable group of persons. Because of this, the clinician should be warned of the possible occurrence of fatal accidents similar to the one which caused the death of this child.

ZONULE PROTECTION IN CATARACT EXTRACTION *

A. E. EWING, M.D.
ST. LOUIS

The several discussions on cataract and the causes of failure in extraction, at the St. Louis session of the association in 1910, suggested that injury to the suspensary ligament or zonule of the lens was a factor in the failures. With the hope of eliminating a portion of this injury, I began a series of experiments in the removal of the anterior capsule of the lens, trying to do it in such a way that there would be the least possible traction on the zonule in the manipulation of the extraction. Although the number of these operations has not been great, the results are instructive, not only in regard to the immediate subject—i. e., the removal of the capsule—but also in subjects near akin to it, such as posterior capsule interference with vision, residual cortex, loss of vitreous, prolapse of the iris, the corneal incision, and the value of cultures.

TECHNIC

The patients operated on number 105. They were not specially selected, but were the run of patients as they presented themselves. With each of them, cultures from the eye that was to be operated on were taken on agar-agar, and negative results were required over a period of three days before the operation was attempted. As *Bacillus pyocyaneus* was found in one of the cultures, and *Staphylococcus albus* and *aureus* in many of them, there is no question about the protection of this procedure to both patient and operator. Another evidence of this protection lies in the fact that seven of these patients had lost the fellow eye under the care of other operators, when, according to the statements of the patients, such cultures had not been taken. Possibly all might have been saved had this precaution been exercised.

The anesthesia employed was phenacain (holocain), 1 or 2 per cent. and cocain, 5 per cent., the phenacain being used every ten minutes for thirty minutes or longer preceding the operation, and the cocain for not longer than ten or twelve minutes. In addition to this, during the last three years, I have injected, subconjunctivally, above the cornea to either side of the intended conjunctival flap, a minim (0.06 c.c.) of a solution of cocain, 5 per cent., in epinephrin, 1 : 4,000, three minutes previous to making the incision. It is placed on either side of the flap because several times the margin of the pupil has dilated beyond the clear cornea when the injection was placed directly above the incision. The day previous to operating, atropin, 1 per cent., was used, except in suspected glaucoma, and again the morning previous to the operation and with the anesthetic at the time of the operation. All of these solutions were freshly prepared in a 1 : 20,000 solution of mercuric chlorid, with as much sterilizing as is possible with the cocain.

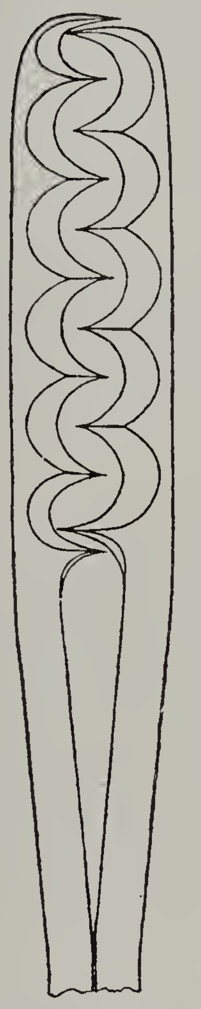

Fig. 1.—A greatly enlarged drawing, which shows the serrated knife edge of the last mentioned capsule abscission forceps. Actual length of cutting blade, 5.5 mm.; width of each blade, 0.75 mm.

For fixation, the double fixation forceps were employed, and for the incision, the rectangular keratome was used in forty-seven of the cases, and the Graefe knife in fifty-six; in two, the record does not mention the instrument.

The method of making the corneal incision has been to keep as near as possible within the clear cornea, just at the sclerocorneal junction, with the Graefe knife, beginning from 2 to 2.5 mm. above the horizontal meridian and finishing with a conjunctival flap of from 3 to 5 mm., and with the rectangular keratome, beginning in the conjunctiva 2 mm. or more above the cornea and slipping the knife forward so as to keep at the clear corneal margin. If the incision proved to be too small, it was enlarged with the iris scissors. With sharp scissors, this is a harmless, safe procedure, provided the scissors blade that enters the anterior chamber is kept in front of the iris. Blunt ended blades, however, are to be preferred, as with them the danger of injuring the iris is lessened.

In every case with one exception, there was a small or a medium sized iridectomy upward or a previous iridectomy. In the exception, the pupillary margin became lost behind the clear cornea, owing to the subconjunctival injection of cocain-epinephrin above the corneal wound, and a simple extraction was performed. In each case, the iris was replaced from the angles of the corneal wound before the use of the capsule forceps and again after the delivery of the lens.

In the first few cases, the capsule was cut through by means of de Wecker scissors. Frequently, only a small slit was obtained, and it was necessary to enlarge this with a sickle needle. Then a notch and a tooth were tried on the end of scissors of the McClure type; then forceps with a knife blade of the sheep shearing type; then forceps with an undulating blade of the bread knife type. At times, any of these would slip over the surface of the lens. This led to the present type of forceps, in which the teeth are sharp and the sulci in between have a sharp knife edge. It was with this instrument that most of the operations were performed (Fig. 1).

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* Read before the Section on Ophthalmology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

The method of using these forceps has been to enter them closed and pass the ends of the blades down to, or back of, the lower pupillary margin, then to let the blades open as wide as may be desired, 4 or 5 mm. or more, then close them, and repeat this action two or three times, with the object of certainly cutting through the capsule and also of breaking up the lens cortex. The forceps are then removed closed. Usually, they bring the capsule.

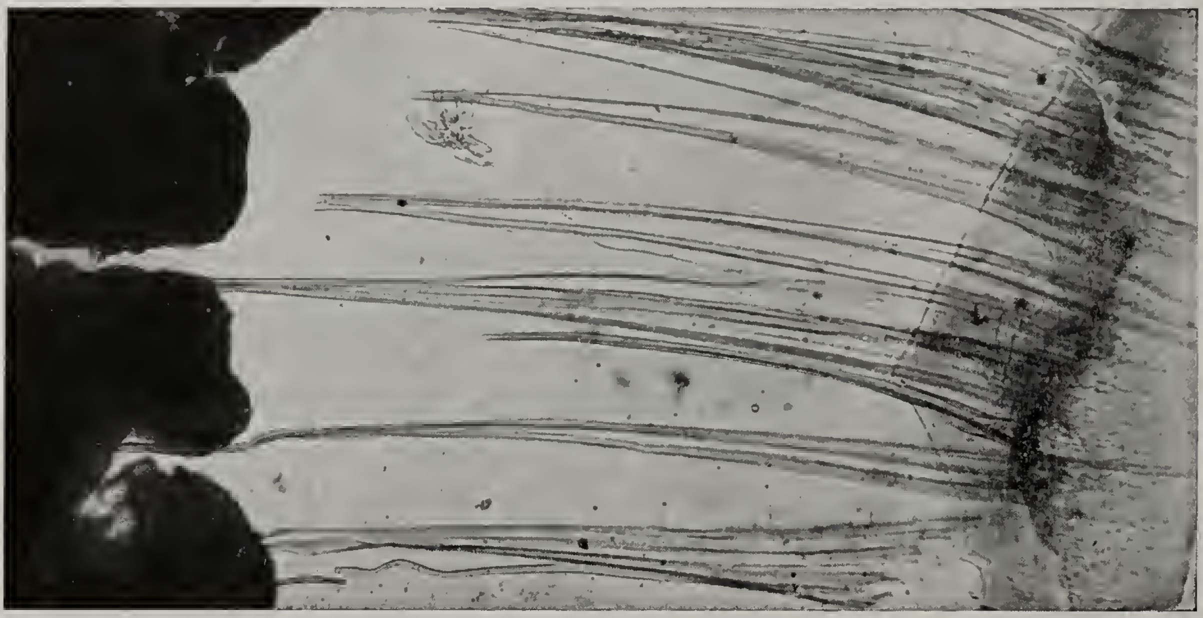

Fig. 2.—Fibers of the zonule of Zinn, showing their attachment to the ciliary processes and their insertion into the anterior capsule of the lens.

The delivery of the lens has been effected by supporting the posterior lip of the corneal wound by the edge of the wire loop and making direct backward pressure on the cornea at its lower margin with the convex back of a lens spoon. As the lens came away, the spoon was made to follow it, maintaining the pressure on the cornea. This usually brings away the cortex. Anterior chamber irrigation was not resorted to in any of the cases, but physiologic solution of sodium chlorid was syringed sideways across the lips of the wound after the lens delivery. By suction, this will frequently assist in removing blood and cortex from the lips of the wound and from the anterior chamber.

RESULTS OF OPERATION

There was no prolapse of the iris in any of the cases at the time of operation, and none at the first dressing, usually four days later. In four, there was slight loss of vitreous, in two moderate loss, and in two, great loss. The last patient had suffered with severe diseases of the cornea and the iris in previous years. Each, however, recovered as good vision as could be expected with a badly scarred cornea.

Two of the patients had moderately updrawn pupils, not above the corneal center, one above the center, and in a fourth, an extraction after a bombé iris and a closed pupil, the new pupil was in the limbus. By means of an iridotomy, however, vision of 20/150 was obtained. In a fifth, the capsule forceps became tangled in the iris, because of blood in the pupil, the result being a large iridodialysis which extended over the pupillary center, and the pupil proper floated to and was fixed near the corneal wound. Vision of 20/38 was obtained through the iridodialysis without subsequent needling. In another case, the forceps hung the iris for the same reason, and caused an iridodialysis from below, but there was a good pupil and good vision. By these two cases, I was taught not to use the forceps when the pupillary margin was obscured by blood.

In three of the cases, all of them unripe lenses, a great deal of cortex remained, which required several months for complete absorption. There was no irritation from the cortex in any of them. One of these patients was 76 years old, another 73, and the third 70. The last was highly myopic, 14 diopters, and suffered with central retinochoroidal degeneration. A thin posterior capsule remained, and vision was 20/192. With the first, the resulting vision without discission was 20/24, and with the second, the vision was 20/15 without discission. These cases demonstrate how slight the irritation from the cortex is if it remains within the capsule.

In none of these cases was there any infection of the wound, or, so far as could be determined, any deep infection, although in the one with light perception the eye was very sore after the extraction and a closed pupil was the result. It was a case of posterior synechia complete, and bombé iris. The inflammation seemed to be due to the trauma in removing the lens from its adhesions. A subsequent iridotomy, months later, was followed by extensive hemorrhage into the anterior chamber. All the patients with very low vision after the operation had previously suffered with old corneal scars or with scars from former fundus diseases or glaucoma.

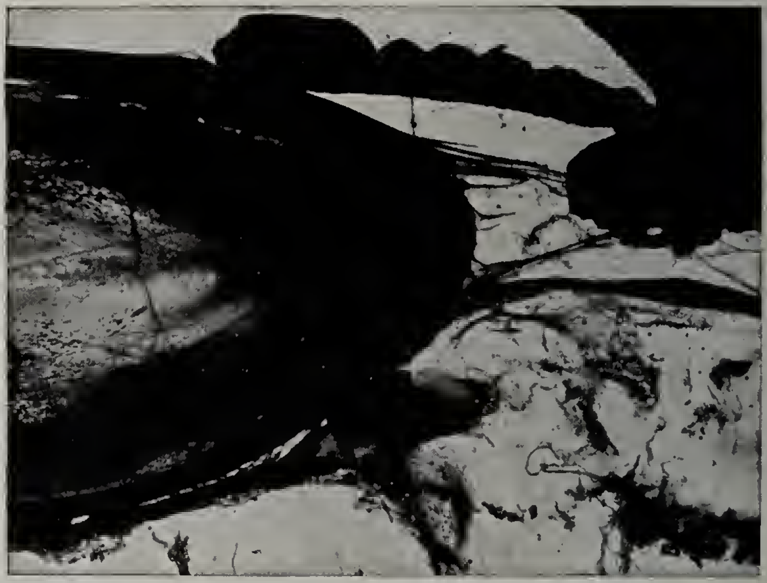

Fig. 3.—Zonule: distribution of fibers to anterior and posterior surfaces of the lens at its periphery.

The visual results for the 105 cases were:

For 21, 20/15; 18, 20/19; 9, 20/24; 16, 20/30; 17, 20/38; 2, 20/48; 5, 20/60; 3, 20/75; 2, 20/96; 1, 20/120; 3, 20/150; 1, 20/192; 2, 10/150; 1, 10/192; 1, 10/240; 1, 5/192; 1, hand movement; and for 1, light perception.

SUMMARY

In this compilation of cases is shown the slight obstruction to vision that is caused by the posterior capsule. In eighteen of them, the history was such that nothing in the way of perfect vision could be expected. Of the remaining eighty-seven, vision sufficient for all practical purposes was obtained, in sixty-four of them excellent reading vision and in seventeen very good reading vision, as shown. Thus far a discission of the secondary membrane has been required in thirteen cases. These discissions were not attended by any inflammation. Many patients with vision of from 20/24 to 20/15 were operated on from five to eight years ago and still retain this vision. This continued excellent vision may unquestionably be attributed to lack of zonule disturbance, as no foundation was laid in the operation for a future low grade hyalitis.

THE ZONULE

In closing this article it is of importance in connection with the subject to refresh our memories with anatomic specimens of the zonule, several of which have been carefully prepared. The specimens are practically normal lenses and zonules taken from eyes that were removed because of orbital or intra-ocular neoplasms. From three of the specimens, the photographs reproduced in the accompanying illustrations were taken.

The first specimen (Fig. 2) shows the implantation of a number of the fibers of the zonule, or ligament of the lens, on the anterior capsule, and the extension and attachment of several of the fibers to the ciliary processes.

The second specimen, a thick meridional cross-section, indicates the manner in which the fibers of the zonule are distributed to the anterior and the posterior surfaces of the lens near its periphery (Fig. 3).

The third specimen (Fig. 4) shows the quantity of fibers that constitute the zonule in one half of the lens, their attachment to the ciliary processes and their insertion into the lens capsule. The specimen is a very careful dissection made by my assistant, Dr. Weymann, and is mounted in a 5 per cent. solution of liquor formaldehydi after a method devised by him.

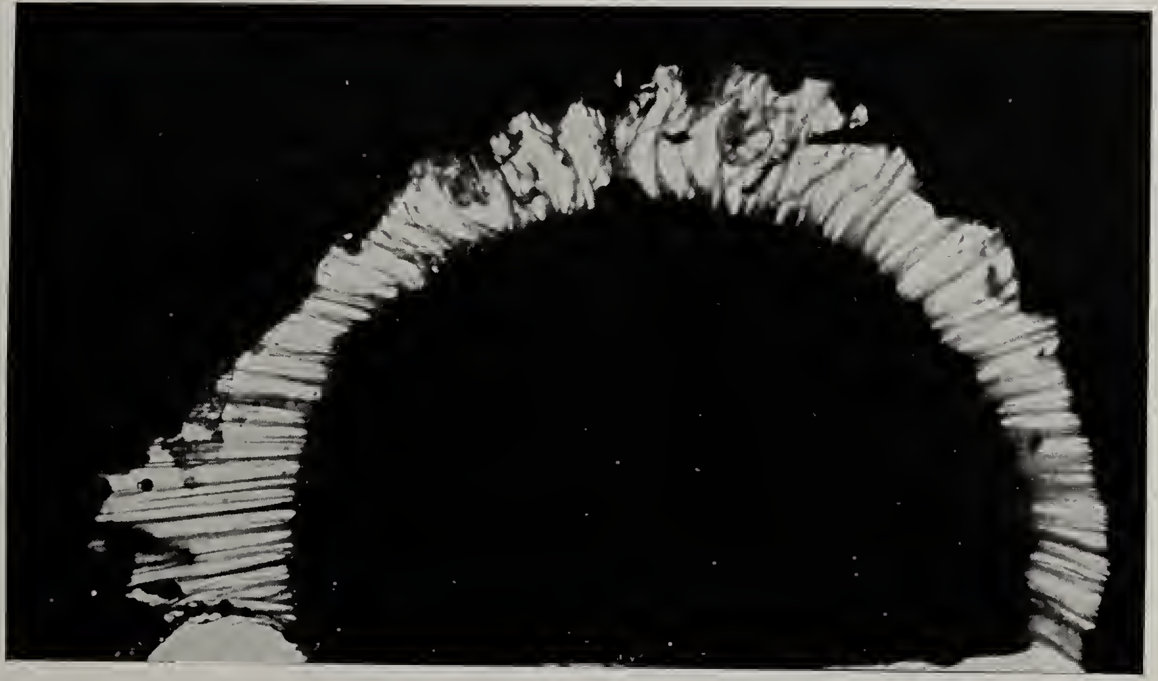

Fig. 4.—Zonule throughout half its circumference, showing the number of fibers and their connection with the lens and the ciliary processes.

Each of these specimens clearly demonstrates the strength of the zonule and points to the mischief that may be caused by its injury in an operation for the removal of the lens.

Metropolitan Building.

ABSTRACT OF DISCUSSION

Dr. Allen Greenwood, Boston: During recent years a great deal has been brought out regarding treatment of cataract. Colonel Smith, and those modifying his method, and Hulen and Barraquer, have been the chief exponents of the intracapsular operation. Thirty-two years ago, on leaving the hospital to enter private practice, I was warned by Dr. H. W. Williams and Dr. Oliver Wadsworth not to operate as long as the patient could count fingers at three feet, or until the edge of the iris failed to cast a shadow on the opaque lens when using oblique illumination. For the beginner, this rule is still most excellent, and if followed until he acquires good operative ability will save him much trouble and many anxious moments. This rule is the safest one to follow where the cataract in one eye starts toward maturity far in advance of that in the other eye. In such a case, if, when the cataract becomes fully matured in the most advanced eye, the other eye is sufficiently involved so that the patient can read only with great difficulty, then the mature cataract should be removed by the classic method. If the better eye still has good useful vision, it is wiser, as a rule, not to remove the mature cataract unless it begins to show signs of hypermaturity. Opinions differ on this point, and it must be decided by each operator according to the conditions present. Many patients have slowly advancing lenticular opacities, especially of the nuclear type, with both eyes nearly equally affected. By our former rule, these patients will be doomed to years of incapacity and dependence, and yet if operated on by the unmodified classic method, the dangers resulting from the inevitable retention of stick cortex makes the outcome uncertain. It was this class of cases which led operators to modify our methods in an effort to prevent the retention of cortex, or to insure the removal of all cortex by delivering the lens in its capsule.

It seems inconceivable, however, in the light of all our experiences, that any intracapsular operation will ever take the place of classic methods, especially for fully mature cataracts.

No form of intracapsular extraction should be tried on patients by the beginner in ophthalmic surgery. He should perfect himself in operative technic by operating on the eyes of animals, and then be allowed to operate in the clinic only on fully mature cataracts by the combined extracapsular method, never first on immature cataracts, or on an only eye, or in complicated cases.

After many such operations, he may, if he wishes, diverge from the beaten path and, in selected cases, substitute for his toothed capsule forceps a pair of smooth bladed ones and attempt an intracapsular operation. I do not attempt intracapsular extraction in cases of fully mature senile cataract, nor in cases with completely sclerosed lenses. Neither is the operation applicable to cases with high myopia or known fluid vitreous. There is always the question whether the loss of the zonule is a serious defect or not. In selected cases, such as lend themselves to this operation, the dangers of vitreous loss are no greater than with the older methods, and the immediate good results are most gratifying to patient and to physician. I am convinced, however, that no one method of operating for cataract is applicable to all types of cases.

Dr. G. C. Savage, Nashville, Tenn.: I want to refer to the intracapsular operations that have been done in the order of their introduction and in the order of their danger, which is precisely the same. First, Smith; second, Savage; third, the forceps operation; fourth, Hulen. The Smith operation is too dangerous—for Smith or anybody else. There is some danger attending my operation. The forceps operation is safer than either of the other two, but the shifting of the lens from side to side is dangerous and all wrong. When you grasp the capsule with the forceps you should rotate it on its antero-posterior axis and then lift the lens out without any trouble. The Hulen operation, if an apparatus could be devised that was not clumsy, would be ideal. In this suction operation, you must get a firm grip on the anterior capsule of the lens and then rotate it on its anteroposterior axis. If somebody will devise a means by which the clumsy apparatus can be discontinued and still allow suction to keep up, then I feel that the Hulen operation will be the perfect one.

Dr. L. D. Green, San Francisco: In the February number of the *American Journal of Ophthalmology,* our apparatus and technic which modify the suction operation for cataract are described. Should we operate immediately or should we advise the patient to wait until the cataract matures —a period that may vary from six months to the remainder of the patient's lifetime? The patient does not care what procedure you follow—he wants to regain his sight. Cataract operations may generally be classified in two groups, (1) expression operations and (2) extraction operations. The classic capsulotomy and the Smith-Indian operation are expression operations, while the Knapp and Stanculeanu forceps operation, as well as the Hulen and the Barraquer suction methods, are extraction operations. In the one case, the cataract is removed by pressure from without; in the other, by extraction with some instrument. In studying the various steps of the two principal procedures, we have gradually evolved a technic which is a combination of expression and extraction. It consists of making a full half corneal section with a conjunctival flap. The flap is grasped with a special delivery forceps and the cornea is raised. The cannula, held in the right hand, is introduced into the eye and gently placed on the anterior surface of the cataract. The motor pump is turned on, and, by pressure on the foot valve, the vacuum is opened. A few seconds are allowed for the capsule and anterior part of the lens to mold into the cup, and then with slight rotation of the canula the cataract is lifted out of the eye. The moment when rotation of the cataract takes place, the delivery forceps which holds the conjunctiva releases it and is shifted to the lower part of the eye, near the limbus, and with gentle pressure assists in lifting the cataract out of the eye. In this way we obtain an expression-extraction, and with less trauma to the eye than would occur were either procedure used alone.

Dr. A. E. Prince, Springfield, Ill.: Eighty-eight per cent of men operate on the unripe cataract. Fourteen fix the degree of blindness at 20/200, or 10 per cent. A good result at this period will secure the gratitude of the patient, which is a criterion of a successful operation. As to the advisability of performing an intracapsular extraction, I make an incision as though I intended to extract the lens in its capsule. The incision should include almost the entire upper half of the cornea and a narrow conjunctival flap, which insures a quick sealing of the wound by coagulated aqueous humor. The incision is made with a special knife, the back of which, commencing 10 mm. from the point, is made to widen out to prevent the premature escape of the aqueous at the heel. After the counter-puncture, the point is made to cut upward with the advance of the thrust while the heel of the blade is held downward. With the thrust, the blade is carried to the apex of the anterior chamber before the escape of the aqueous has a chance to permit the iris to be pushed forward over the edge. A special spatula which is a part of the lid elevator is then made to depress the scleral edge of the wound at the same time that moderate pressure is applied with a spoon to the lower third of the cornea. Failure of the upper edge of the lens to break out the zonula and enter the aperture is taken as an indication that the zonula is sufficiently strong to justify the abandonment of the idea of an intracapsular extraction. In that case, a capsulectomy is undertaken, as follows: The lid elevator is turned over to the assistant; the cornea is elevated by grasping the conjunctival flap; a vertical incision is made in the capsule while withdrawing the cystotome along the operator's right hand side of the lens; the free margin of the capsule is then grasped with capsule forceps and withdrawn by a motion toward the left, by which almost the entire anterior capsule will be removed. A spoon dipped in sterilized oil is made to depress the lower fourth of the cornea and follow the escaping lens with a zigzag motion to free the anterior chamber of cortex. The same method of delivering the lens in its capsule is followed, provided the zonula has ruptured when pressed against the depressed scleral margin of the incision. The delivery of the lens in its capsule is often facilitated with advantage by applying the terminal of a suction instrument, after the manner of Hulen and Barraquer.

Dr. George S. Derby, Boston: A majority of ophthalmologists are not doing the Smith operation but are following other methods, especially a modification of the Knapp method, which is the one I prefer. It would be a great thing to be able to tell in what cases we should do this intracapsular extraction. Verhoeff experimented on rabbits, determining the type of case in which there were retained fragments of lens within the eye which will produce inflammation. Then human beings were vaccinated with dried lens material, and according to whether or not a reaction occurs he can determine on the type of operation. In regard to the bacteriologic examination of the eye, I wish to call attention to Avery's medium which will grow pneumococci and streptococci very quickly and uniformly in from six to ten hours; a great advantage. You can send your patient into the hospital the afternoon before, and by the time of operation next morning you have the report on the culture. One other point is the blocking of the facial nerve described by Van Lint. I have practiced this for several years in a large series of cases and I am more impressed every day with the great advantage to be obtained by injecting from 0.5 to 2 c.c. of 1 per cent. procain solution. The lids are relaxed and when you take out the speculum the lids stay open. I feel very much more confident when operating on such an eye than I did before I adopted this procedure.

Dr. Frank S. Auten, Belleville, Ill.: There seems to be a little lack of sympathy for a procedure that may mean more for vision than any other ever used. When it is possible for the lens to be removed in the capsule, that is the thing to do. The Drs. Green follow an ideal technic for the removal of the lens. They remove the lens with less traumatism and less effort than I have ever seen used in the removal of a lense. I realize that the so-called Smith technic can not be used in all cases, but if you will take hold of this subject with a little more sympathy, I believe that many men who today criticize the intracapsular method will be in favor of it. The only competition for the Smith technic that was suggested was the Hulen method, and that is an ideal method of getting the lens out of the eye. The less traumatism the better; it does not make any difference what method you use.

Dr. John H. Burleson, San Antonio, Texas: I have been doing this operation for four years and it is the one I have decided to adopt in my practice in selected cases. The criticism that the operation is more dangerous and requires more skill to perform is, I believe, erroneous. Colonel Smith, in my opinion, has developed a method of cataract extraction that is a distinct advance. I would like to stress a few points. First, the corneal incision must be large and at its upper margin it must be well below the limbus. On the corneal incision depends the success of the operation. A conjunctival flap in this operation is a mistake. The delivery of the lens is more difficult and vitreous loss more likely. When possible, it is well to do a preliminary iridectomy, as it simplifies the operation and one usually has a better acting patient at the time of extraction. I believe that most accidents occurring during cataract extraction are caused from the use of the speculum. I do not think the hooks devised by Colonel Smith and others are any safer than the speculum. It has been my practice for some years to have the lids held by the fingers of a trained assistant. The possible loss of some vitreous in the Smith operation is more than made up for by the brilliant results obtained. The most serious criticism to be advanced against this operation is the high degree of astigmatism due to the corneal incision. I am firmly convinced that it will be the operation of the future. I have observed that ciliary involvement following this method of operating is far less likely, and that after-treatment is seldom necessary. The hostile criticism that the Smith operation has received, I do not think is well founded or entirely fair, as many competent men whose judgment cannot be questioned are doing this operation and getting results. After all, the object of cataract extraction is to give the patient vision, and if an operator gets results from this operation, I do not think he should be criticized as being radical, or taking undue risk with his patient.

Dr. Joseph S. Lichtenberg, Kansas City, Mo.: In protecting the zonule one of the most important things is to get complete anesthesia. In my experience, the cocain we have been getting in recent years has not the anesthetic qualities that it had previous to the war. My druggist informed me that there are several qualities of cocain, and that the one with the large crystals is the most anesthetic. I have found this true. In addition to the blocking of Von Lint, I believe a subconjunctival injection is necessary to get complete anesthesia. The point Dr. Ewing makes that injection immediately over the attachment of the superior rectus interferes with the movement of the eye is well taken, and the injection to one side is still better. Another point is the method of enlarging the incision with scissors. This is rather a crude method, as the tissues do not heal so well. A few years ago, I presented what I call my secondary knife. It is simply a sharp pointed keratome, to be slipped through the wound and over the iris or the capsule, using the sides for cutting. This is used only in enlarging the primary incision. As to determining what type of operation to use, I have tried a number of Smith extractions, some with brilliant results and some not so brilliant. My plan is to make a large incision, a small conjunctival flap, and a small iridectomy. Then I apply the Smith hook, as described by Smith himself. With it, pressure not to exceed the amount necessary to remove the lens after capsulotomy is made. If this fails to deliver the lens, I open the capsule and extract the lens extracapsularly.

Dr. M. Hayward Post, St. Louis: Dr. Ewing's method leaves no ragged edges nor shreds of cortex to be entangled in the lips of the incision. His forceps differ from all others in the peculiar construction and size of the blades. As a result of the large, sharply cut opening in the anterior capsule, the nucleus is expressed with great facility, very little force being required, from which it follows that the percentage of vitreous loss is considerably reduced, lens cortex, even in comparatively immature lenses, is very seldom retained, and traction on the ciliary body is reduced to a minimum. Eyes operated on in this manner have retained vision undiminished for many years. In one of my cases of high myopia in which the cataract had been mature for eighteen years, the forceps failed to take hold of the capsule, but neither would the cystotome tear through this very tough specimen, so eventually the point of the Graefe knife had to be used. In two cases in which there was considerable hemorrhage into the anterior chamber, use of the forceps was persisted in, contrary to Dr. Ewing's advice, as the lens was still quite immature and a large opening of the capsule was desirable in order that all cortex might be expressed. To my gratification, I found that a large part of the hemorrhage was discharged on introducing the forceps. The iris was easily seen and the capsulotomy made without difficulty. In one case with a slight iris bombé and almost complete posterior synechia, by means of the forceps, the entire pupillary portion of the lens capsule was removed and a fine, clear, well situated pupil was obtained. The eye recovered without complications in the usual time. In only one case, with myopia of 20 diopters, did vitreous appear in the incision and here not more than one drop was lost, an amount insufficient to prevent proper dressing of the wound. Healing took place without disturbance. In only one case was any swelling lens cortex left in the pupil. In no instance has it been necessary to needle an anterior capsule; in two cases the posterior capsule has been needled. Four of these cases are so recent, however, that it is impossible to state whether needling will be necessary or not, though at the present time the pupils are all clear, with the exception of one in which an infection occurred. Loss of vitreous occurred in less than 6 per cent. The anatomic specimens prepared by Dr. Ewing show beautifully the construction of the suspensory ligaments of the lens. They give a clear idea of the forces to be overcome in the intracapsular removal of cataract, and are very suggestive for further laboratory study along these lines. This method of removing the anterior capsule is of great value and is quite adaptable to immature cataract but not to the morgagnian type. It reduces the danger of vitreous loss, nicely cleans away the anterior capsule, and traumatizes the eye to a less extent than any procedure I have observed.

SOME NOTES ON THE EFFECTIVENESS OF THE VENEREAL DISEASE PROGRAM *

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MINNEAPOLIS

Four years ago it was my privilege to present a paper[1] before the Surgeon General's Conference in Washington outlining a state program against venereal diseases. This program was based very largely on work done in California, the first state to organize and finance a bureau of venereal diseases, and in Minnesota, where the work was organized some months later. This program included medical work, such as epidemiologic investigation of cases, organization of clinics, distribution of arsphenamin and the reporting of cases; laboratory work, such as Wassermann tests, examination of smears for gonococci, and dark field examinations for spirochetes; social service work, such as investigation of sources of infection, the rounding up of delinquent patients and in some cases stimulation of law enforcement against prostitution, and rehabilitation of delinquents; and educational work with both the laity and the medical profession in a variety of ways.

Within a comparatively short period nearly every state organized some work more or less along this line. Three years ago I[2] attempted to evaluate the various items in this program, which until then had been very largely a war measure. Since that time the work has been devoted largely to the civilian population, and much has been written to cover the steps in the progress made. Most of this is familiar, and there seems no occasion to repeat it here; but most of us have now had sufficient experience, and enough time has elapsed to make it worth our while to take account of stock and discuss the effectiveness of that work. Taking account of stock is an excellent way to discover whether we have records of any value, and we must know something of the effectiveness of our methods if we are to continue spending public funds now, when economy is so necessary and yet seems so rare. It is hoped that this study may stimulate similar ones in other states, and provoke discussion which will lead to more effective measures.

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* From the Division of Venereal Diseases, Minnesota State Board of Health.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

[1] Irvine, H. G.: An Efficient State Program Against Venereal Diseases, Soc. Hyg. **4**: 453 (Oct.) 1918.

[2] Irvine, H. G.: The Venereal Disease Campaign in Retrospect, J. Cutan. Dis. **37**: 748 (Nov.) 1919.

One of the prime objects of our work has been the gathering of statistics which would give some indication of the morbidity of syphilis and gonorrhea. Practically every state has put in force a system of notification. In order that I might have recent data, a questionnaire was sent to every state; twenty-five replies[3] were received. In these states and Minnesota, there were reported, in 1920, 71,106 cases of syphilis and 97,823 cases of gonorrhea; in 1921, 65,644 cases of syphilis and 75,542 cases of gonorrhea. Including Minnesota, ten states showed increased reports of syphilis and seven showed increased reports of gonorrhea, while sixteen showed decrease of syphilis and nineteen decrease of gonorrhea. Of the total number of cases, six showed an increase and twenty a decrease. There is approximately an 8 per cent. decrease of syphilis and a 13 per cent. decrease of gonorrhea in all totals of each disease. While it is true that with all the work that has been done we might very well expect a decrease in morbidity, it is also a fact, I think, that reporting has at no time represented the true morbidity; and if reporting has become more effective, as it ought to with proper effort, then I believe that reporting ought to remain on a level at least, even if there were some real decrease in morbidity.

Many successful clinics continue to increase in size, and physicians known to be conscientious in reporting show no decrease; consequently, I doubt whether fewer people are being treated. Also, many officials in replying have stated frankly that they believe reporting has fallen off. Several states known to be doing effective work with many good clinics, good social service and with a mass of educational work behind them are among those showing increased reports; surely, if reporting indicated morbidity, these states ought to show a decrease.

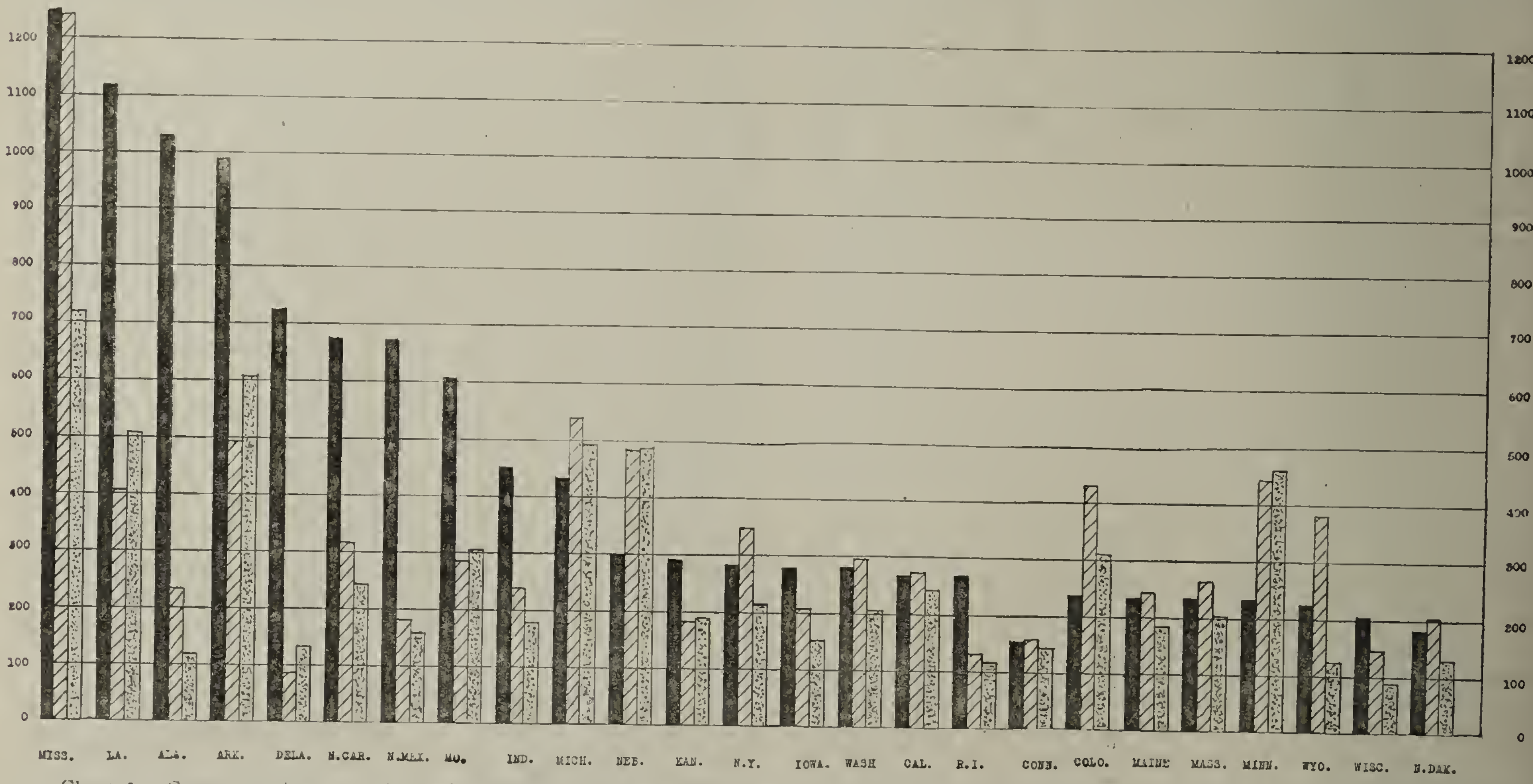

Chart 1.—Case reporting rates in various states, 1921 and 1922, compared with rate of venereal disease among men from these states as indicated by examinations of the second million called in the draft: solid columns, draft examination rate per 10,000; shaded columns, case reports per hundred thousand, population in 1920; stippled columns, case reports per hundred thousand population in 1921.

The figures for the second million draft examinations are conceded to represent the best survey that has been made of the civilian population. Chart 1 shows the rate per 10,000 based on the percentage of venereal disease in the draft. It also shows the estimated rate per hundred thousand of population based on case reports for 1920-1921. If the rate for the draft was true for the rest of the population, then the line representing case reports should be ten times as high. However, many things must be taken into consideration. First, according to our studies as indicated in another chart, nearly 50 per cent. of all venereal infections occur during this draft age period; so the rate for the total population would be much less than this. On the other hand, except in a few instances, the diagnosis of syphilis and gonorrhea in draft examinations was made only in cases in which the disease was evident. Routine Wassermann tests would have added greatly to the percentage of syphilis, and careful expert examinations for chronic gonorrhea would also have increased that percentage. My own opinion, not based on actual figures, is that these factors would have made the rates for venereal disease at least three or four times greater. It may be said that during the last three or four years the work has decreased the rate as compared with draft figures. This might affect gonorrhea, but not so many cases of syphilis are cured in four years, although they might be if they were treated all that time. Taking all these factors into consideration, I believe that our reporting rate, as shown on the chart, ought to be represented by a line at least five times as high as that representing the draft rate if reporting represented morbidity.

In Minnesota the line for reporting is about twice the height of the draft rate, which is as good as that for any state we have had opportunity to study.

Some one has suggested that cases be reported by laboratory report, figuring that it might be possible to get all physicians to submit all specimens to the state laboratory and then check the positive findings. We have made a study of our positive laboratory findings, as indicated in Charts 2 and 3. It appears that the percentage of positives is rather constant for both syphilis and gonorrhea, syphilis running from 10 to 15 per cent. and gonorrhea from 30 to 40 per cent. However, the sum total of these positives is only about 50 per cent. of our case reports, as indicated in Table 1.

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[3] The states replying were Alabama, Arkansas, California, Colorado, Connecticut, Delaware, Iowa, Kansas, Louisiana, Maine, Massachusetts, Michigan, Mississippi, Missouri, Nebraska, New Mexico, New York, New Jersey, North Carolina, North Dakota, Rhode Island, South Dakota, Washington, Wisconsin and Wyoming.

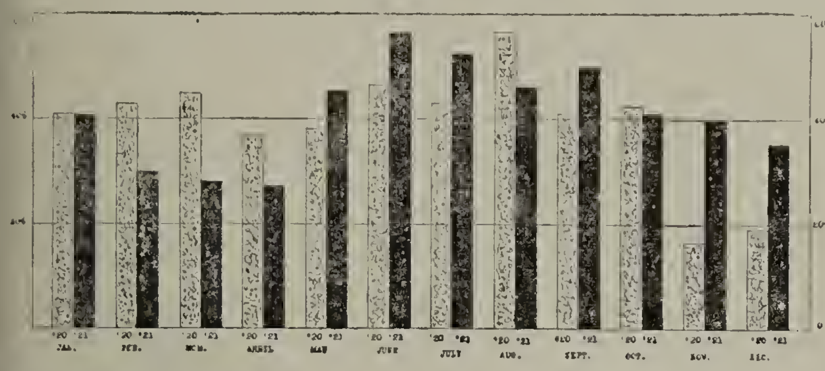

Chart 2.—Percentage of gonorrhea smears giving positive results. 1920, 1921.

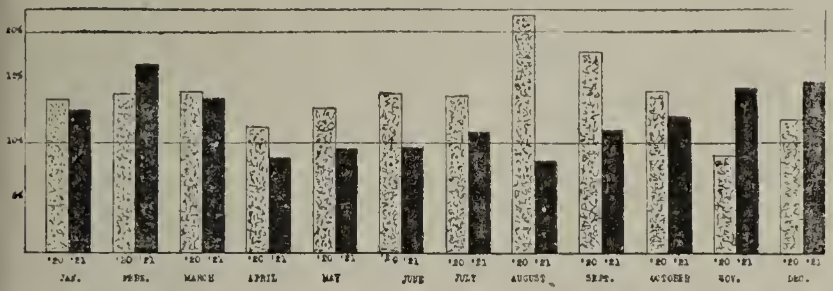

Chart 3.—Percentage of Wassermann tests giving positive results month by month, 1920 and 1921.

TABLE 1.—NUMBER OF CASES REPORTED MONTH BY MONTH COMPARED WITH NUMBER OF POSITIVE FINDINGS IN LABORATORY SPECIMENS

	Syphilis		Gonorrhea	
1920	Cases Reported	Positive Wassermann	Cases Reported	Positive Smear
January	308	105	397	57
February	264	83	424	52
March	509	160	492	75
April	397	121	482	63
May	392	129	503	79
June	317	149	535	94
July	411	185	760	99
August	379	271	509	122
September	452	284	514	130
October	359	257	516	141
November	321	130	478	99
December	342	195	410	89
Total	4,451	2,069	6,020	1,100
1921				
January	590	268	663	82
February	486	327	426	101
March	586	270	550	98
April	408	161	439	104
May	285	179	372	152
June	314	175	537	222
July	291	208	525	183
August	414	241	667	239
September	303	214	545	219
October	402	228	502	215
November	375	281	563	207
December	361	301	488	182
Total	4,815	2,853	6,277	2,004
1922				
January	343	358	487	174
February	317	272	445	171
March	418	310	454	152

The question has been raised as to whether there was not a constant seasonal variation in venereal disease incidence; this ought to show in Minnesota if anywhere, for we have fairly hot summers and cold winters. A study has been made of this and the tabulations charted (Chart 4) showing reports for three years for comparison. There is possibly a little higher incidence in the warm months. In two years, 1919-1920, there was a marked increase in July; in 1919 and 1921 there was an increase in October, most marked in 1919, and it is interesting to note that a study made at that time showed a considerable increase in reported sources of infection from commercial prostitutes. This was possibly occasioned by infections which took place in September incidental to our state fair, at which time many thousands come to the cities and there is usually an influx of prostitutes.

A study made of the reports on each disease as well as the totals (Chart 5) indicates that usually there is an increase in each disease when there is an increase in the total. It is rare for a total increase to be caused by any marked increase of one or the other disease. There are too many factors influencing reporting to permit the drawing of any definite conclusions.

TABLE 2.—AGE DISTRIBUTION BY FIVE YEAR GROUPS OF ALL CASES REPORTED FOR 1919, 1920, 1921

	No. of Cases Reported			Percentages		
	1919	1920	1921	1919	1920	1921
Under 16	300	350	706	3.1	3.5	6.8
From 16 to 20	1,280	1,509	1,297	13.2	15.4	12.5
21 to 25	2,531	2,646	2,835	26.2	27.0	27.5
26 to 30	1,823	1,938	2,110	19.0	19.7	20.5
31 to 35	1,170	1,267	1,185	12.1	12.9	11.5
36 to 40	858	818	863	8.9	8.4	8.4
41 to 45	435	497	529	4.5	5.0	5.3
46 to 50	328	327	290	3.4	3.4	2.8
Over 50	919	459	486	9.6	4.7	4.7
Toals	9,644	9,761	10,301			

Another question relative to reporting which has interested me very much has been that of reporting by name or by number. At the outset, many were opposed to reporting of any kind, and many are still opposed, with what I believe is good reason, to the reporting of all cases by name. Some states and a few cities require reports by name in every case. I have no data at hand to compare their reporting with localities not requiring the name. In Minnesota, reports of name and address are required only in delinquent or incorrigible patients, although the report may be by name. A study of our figures indicates a constant increase in reporting by name, and this is with no solicitation or request on our part. A study of Chart 6 shows a definite increase in reports from private practice in the two largest cities, and 85 per cent. of all reports from physicians outside these cities is by name. Sixty-nine per cent. of all cases are reported by name. We feel that this is due to two reasons: (1) reporting direct to the state board instead of to the local board, and (2) the fact that our profession has confidence in the department.

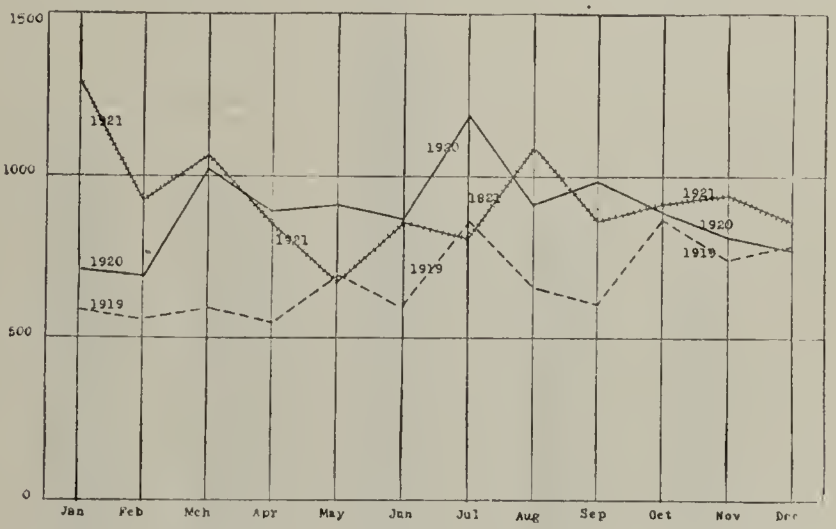

Chart 4.—Total cases reported month by month for 1919, 1920 and 1921.

I do not believe that our reporting would be as good if required by name, and, furthermore, so long as we have names in those cases in which investigation is necessary, why require it in all and possibly antagonize those on whom the success of the work largely depends?

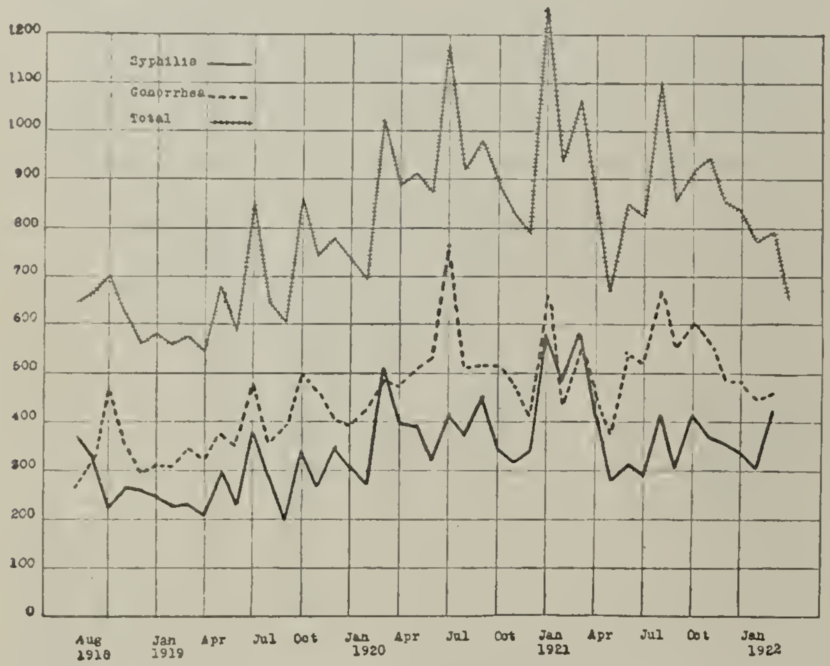

Chart 5.—Reports on each disease, as well as the totals: solid line, syphilis; broken line, gonorrhea; crossed line, totals.

A study of age groups develops some interesting data and also some food for thought. Three years' records show that the five year period 21-25 is consistently the highest, and that the group age 21-30 consistently includes nearly 50 per cent. of all cases (Table 2). The group from 16 to 20 shows some decrease during the past year, and the group under 16 has doubled during the past year. Thinking that the last might be indicative of an increase in juvenile delinquency, we made a careful study of all these cases and found the increase almost entirely due to congenital syphilis. This means that more cases of congenital syphilis are being diagnosed either by the assistance of the laboratory or on account of the social service work in infected families. We have been repeatedly urged to emphasize sex hygiene and venereal disease education to girls and boys of school age, some even being in favor of work in the grade schools. If our greatest incidence is from 21 to 30, would it not seem to indicate that we ought to concentrate a little more in that period? Chart 7 shows graphically the age distribution, both male and female, for a typical month, and Chart 8 shows the age distribution for male, female and total for each year from 14 to 33, in which period 75 per cent. of all the cases occur.

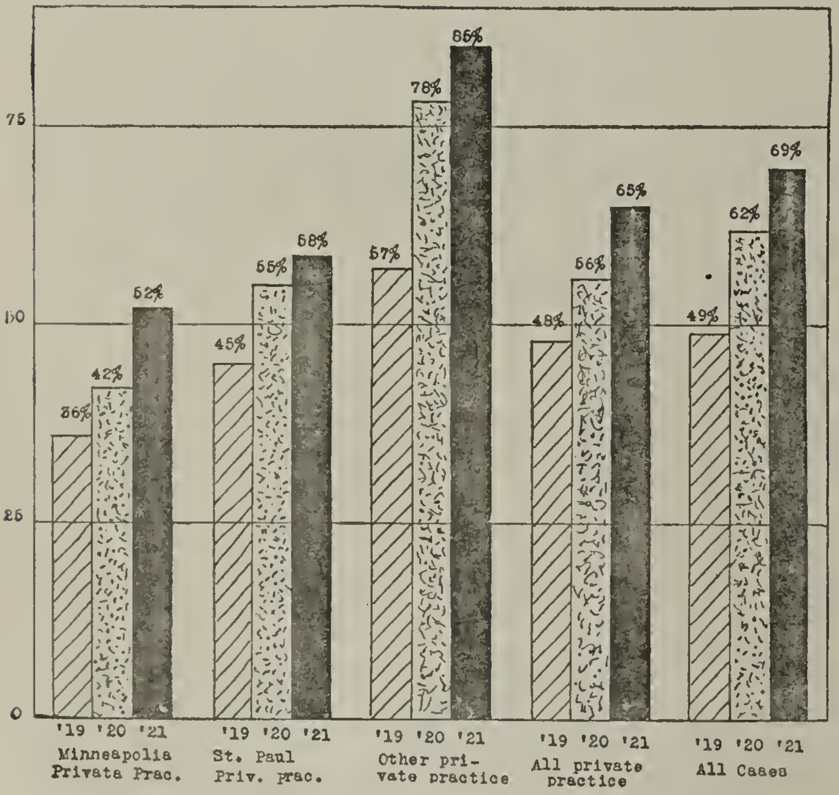

Chart 6.—Percentage of venereal disease cases reported by name, 1919, 1920 and 1921.

In an effort to study further juvenile delinquency we made some studies from our social service records to see whether we were having occasion to investigate and handle an increasing number of younger persons. It must of course be borne in mind that other organizations are more likely to be called on to handle these cases than is ours—this accounts to a degree for the small number below the 20 year mark. However, in comparing the work of March, 1921, with March, 1922, we find (Chart 9) that from 16 to 26 at almost every age we have had fewer cases, while from 26 on we have had an increased number. Chart 10 offers an opportunity to study both male and female cases for March, 1921, and March, 1922, at the various ages. Another study of a total of 2,553 social service cases for 1920, and 2,569 cases for 1921, was made to study their origin. It was found (Chart 11) that there was a decrease in the cases coming from physicians. This may mean, in view of the fact that he is reporting more cases of the diseases, that he has fewer delinquents. On the other hand, there has been a marked increase in the cases coming from hospitals and dispensaries; perhaps they are appreciating more and more the value of the state board of health because of its being an official agency with police power. Social agencies have reported only a little over half; this probably means that patients whom they formerly handled and would have to turn over to us are now already going to hospitals or dispensaries, and if they get to us at all they come from the latter agencies.

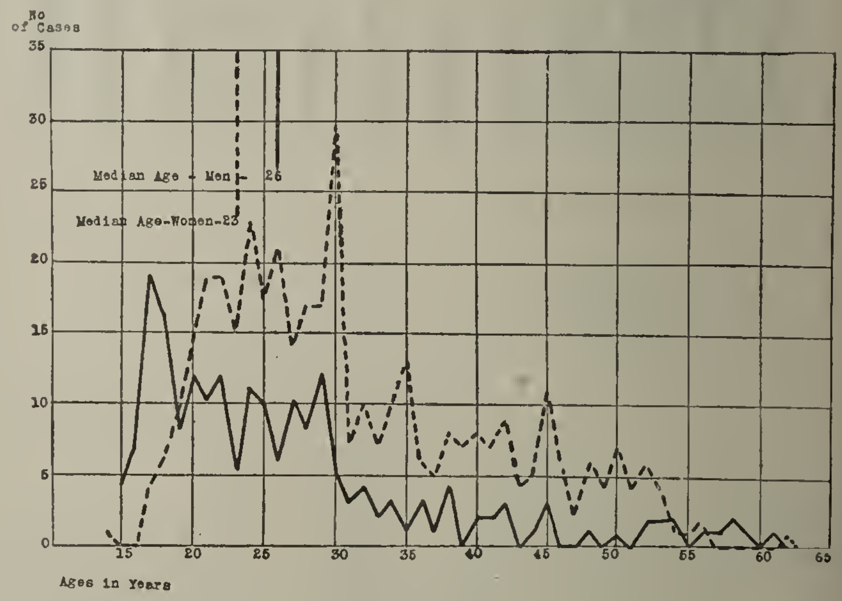

Chart 7.—Age distribution of cases of venereal disease for a typical month—March, 1922: solid line, male; broken line, female.

The laboratory work in the venereal disease program is a most important one, and it is hoped that every state is making use of this opportunity to secure the cooperation of the medical profession, as well as to render valuable service to the people. The work in our laboratory has grown during three years from nothing to more than 2,000 specimens a month. Some impression must be being made on physicians when in the month of March this year they report about 1,000 cases but investigate more than 3,000, as indicated by laboratory specimens (Chart 12). Much harm may come from this laboratory work too; false positives may lead to false diagnoses; the reports of partial and incomplete positives make it possible for the unscrupulous physician to urge his patient to take treatment. Laboratory findings should be checked by physicians' clinical findings. Only complete positive or complete negative reports should be given out; all others should be reported as "doubtful" or "unsatisfactory," with a request for further specimens. We must recognize the difficulties of the Wassermann test and guard people against wrong interpretations.

TABLE 3.—WORK OF DIVISION OF VENEREAL DISEASES, MINNESOTA STATE BOARD OF HEALTH

Cases Reported:	1919	1920	1921
Syphilis	3,326	4,451	4,815
Gonorrhea	4,622	6,020	6,277
Chancroid	197	228	202
Total	8,055	10,699	11,294
Laboratory:			
Wassermann tests	5,010	14,964	23,271
Smears	698	3,234	4,975
All examinations, including dark field	5,757	18,251	28,455
Subsidized Clinics:			
Patients admitted	2,087	1,639*	704
Treatments given	20,602	32,588	23,982
Arsphenamin:			
Doses distributed	5,082	8,177	5,094
Social Service:			
Cases handled	2,760	3,866	4,051
Number of towns in which cases were investigated	82	175	181
Educational:			
Number of pamphlets distributed	198,525	167,081	52,528
Number of exhibit days	62	439	232
Attendance at exhibits	65,038	73,493	36,710
Film shows	128	132	104
Attendance at film shows	47,040	41,412	20,120
Lectures	180	108	62
Attendance at lectures	38,500	3,200	3,330
Number of towns reached	....	178	167

* Does not include persons carried over into this year, but admitted last year. In all, 2,261 persons were treated this year.

Some studies should be made to get at the effectiveness of treatment in clinics; groups should be studied to see how long they attend and how much treatment they receive. Too many states have been satisfied merely to have clinics and have patients attend—the real test is the question of cure.

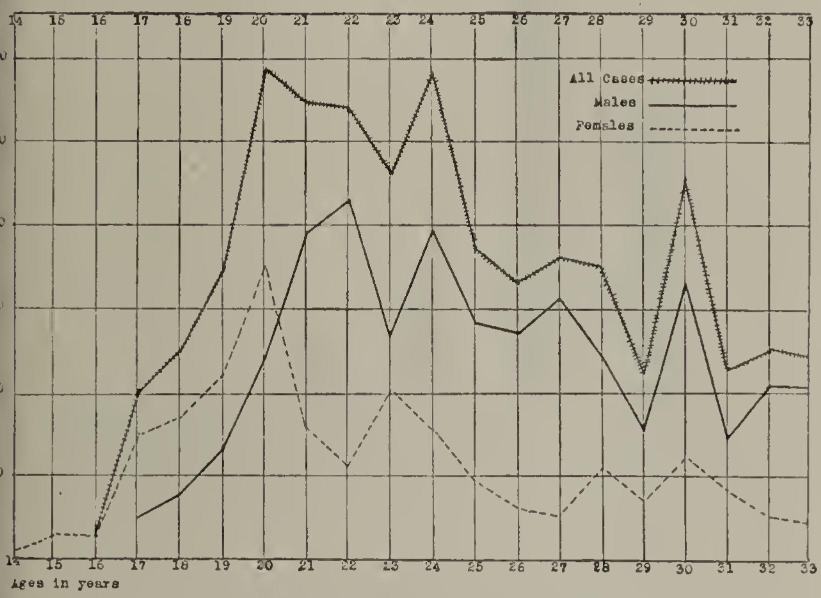

Chart 8.—Age incidence, cases reported in March, 1921.

A careful study should be made as to where money is being spent, from the standpoint of being able to show practical results to the people. Chart 13 shows the percentage of our budget expended for various items in the program during 1919, 1920, 1921 and 1922 (estimated). In spite of a large increase in many lines, our administration cost has increased very little. We have gradually decreased our educational expenditure because we felt that our state was pretty well covered the first year or two, and now it remains simply to keep the work going. In spite of increased numbers of treatments and of people being treated, our cost of this item has increased very little, and during the last year has been reduced by decentralizing clinics or putting them on a pay basis. Our social service has been an increasingly important factor, and we have accordingly increased our expenditures in this direction. Our laboratory work has tripled, and yet the cost has only doubled. I believe that money should be spent in increasing amounts on laboratory, social service and treatment facilities. I see little justification for elaborate expensive educational campaigns, results of which are questionable and cannot be evaluated. I have little patience with state boards of health that have spent immense sums of money for quarantine and attempted rehabilitation of prostitutes. This work, as done from a medical standpoint, has little effect on venereal disease, and should be incidental to constructive work carried on by the courts and charged against other funds. No prostitute can be quarantined long enough to make her anything but a prostitute, and no social service work without indeterminate or permanent detention can control her. Consequently, our work with prostitutes should be for educational purposes, to show the high percentage of disease; then let the courts handle this entire problem as a legal one, and the proper state body look to the reformation and control with incidental medical treatment. Under present conditions the courts sentence diseased prostitutes and find it convenient to turn others loose.

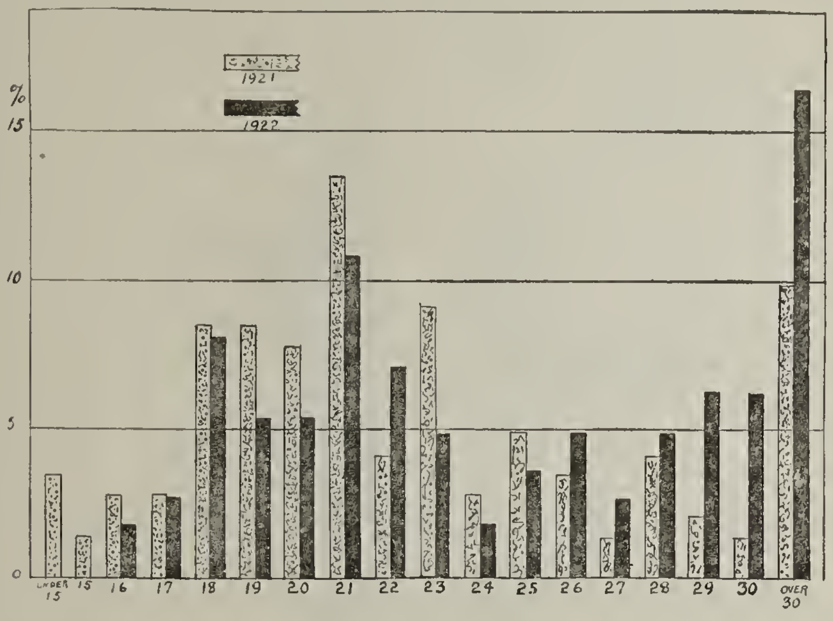

Chart 9.—Age grouping of social service cases, March, 1921, and March, 1922.

Every state with a properly organized and operated venereal disease department should be able to place before its legislature a tabulation such as that reproduced in Table 3, and show a dollars and cents return in practical service to the people which would leave no question as to the value of the investment. Treatments, laboratory tests and arsphenamin distributed and injected can be directly translated into money.

For the future, we need to solicit more and more the cooperation of the medical profession; we must have the reports of physicians, and they must be given in a spirit of cooperation. The people must get their treatments from physicians and we want them to get them right. We must not antagonize physicians by admitting private patients to clinics. We must improve our clinics by careful study of our records. Social service should be increased, but it should be sane and sensible, and it should go with the physician and not a mile ahead of him. Educational work should be continued but possibly emphasized on older age groups than we have been trained to believe. Many states have been crippled somewhat by lack of federal appropriation. With its resumption, the best advantage should be taken of it.

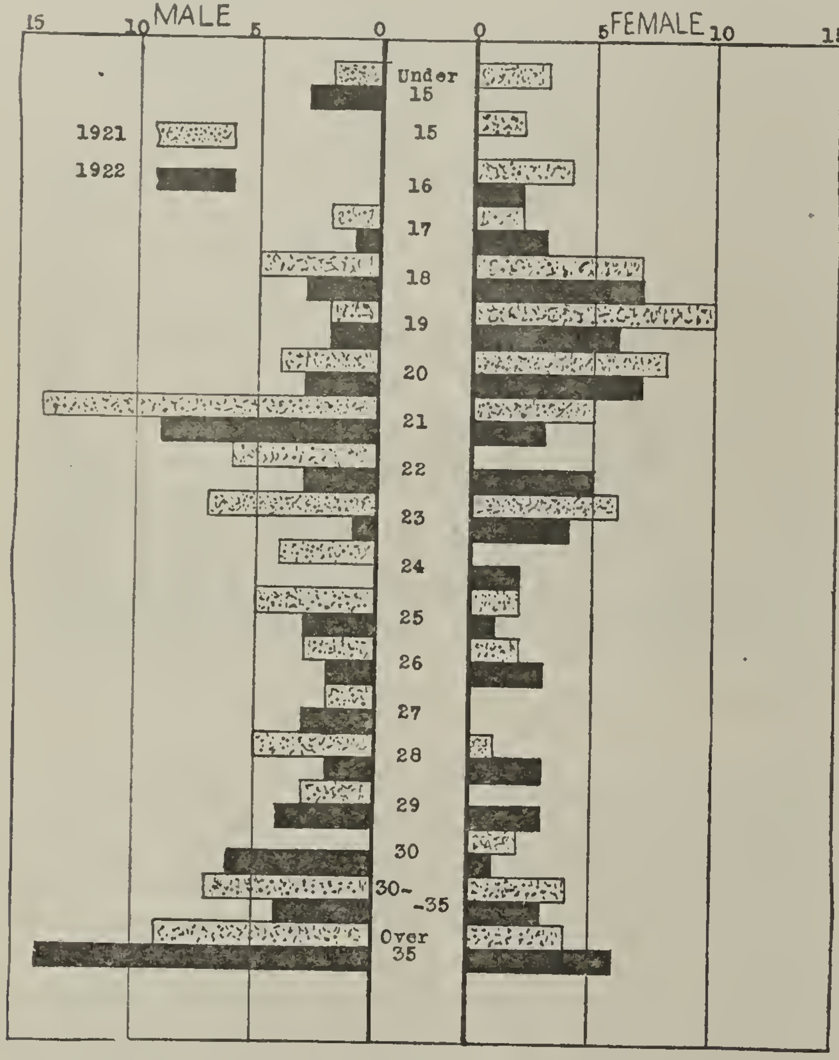

Chart 10.—Distribution of social service cases by age and by sex, comparing March, 1921, with March, 1922.

Research work which has gone on with federal aid has justified itself, and it is hoped that it may be continued. Public health institutes have served a purpose, and can from experience be made more useful. One important thing in connection with them is the amount of time a number of recognized specialists have given; the assistance of these men has been invaluable, and it is to be hoped that every state will make use of any opportunity it has to secure aid from such men.

ABSTRACT OF DISCUSSION

Dr. Valeria Parker, Washington, D. C.: Dr. Irvine brought out quite clearly the importance of the source of infection with relation to venereal disease. Our department has developed a very definite method of procedure in dealing with the areas of infection. We found that in spite of a very careful physical examination and of education, in spite of good living conditions, in spite of prophylaxis, there were certain areas in which the existence of venereal disease is far beyond the average rate. Wherever this condition exists there are areas of open houses of prostitution easily accessible. We have, therefore, developed a system of sending to the houses confidential inspectors to find out where these sources are. During the war it was necessary to intern prostitutes and to institute isolation. Isolation was not a very successful method of dealing with the prostitute who was reinfected many times over. We then developed the system of dealing with the individual girl or woman from another point of view in an effort so to change her environment and possibly her inclination for promiscuous conduct as to prevent a reinfection. During this year, because of the cost of carrying on our program, instead of supplying workers capable of dealing with the individual prostitute, we have simply retained three expert workers who stimulate the communities to take part in this program, and provide their own workers with delinquent girls. The relationship between the measures instituted for closing open houses of prostitution and dealing with the inmates after the closure is perhaps most clearly shown in Columbus, Ga., where early last summer the venereal rate was about 1.43 per thousand. Following closure of certain houses we secured a drop of 25 per cent. We have also interesting figures concerning the morbidity rate of venereal disease. Prior to the war the morbidity rate was about 90 per thousand. We have succeeded in reducing it to 62. In the U. S. Army the days lost from venereal disease were more numerous than from any other cause. The cash value of lost days through venereal disease exceeded $1,400,000 in 1920.

Dr. William F. Whyte, Madison, Wis.: There is one agency in Wisconsin which has done more to prevent venereal disease than any other, and that is prophylaxis. The natural point of prophylaxis is the Wisconsin eugenic law. Every man in Wisconsin who is going to be married has to get a statement that he is free from venereal disease. The second point is that education on that subject has done a great deal to do away with venereal disease. Every man and woman who is to be married knows perfectly well what will happen to a girl if she marries a man with gonorrhea or syphilis, and every man knows what is going to happen to his wife. Our health officers and medical men report a falling off in the cases of gonorrhea and syphilis they are treating all over the state of Wisconsin. There is a great increase in the number of persons with chronic cases reporting for treatment. They speak about breaking up houses of prostitution. One street in Milwaukee, River Street, on which there were a number of houses of prostitution, is now a street of hotels. A man in Milwaukee who rented his building for a house of ill fame got into trouble because the board of health had the district attorney get after him. There is a great falling off in venereal disease in Milwaukee. Two years ago one of our investigators studied the hygienic conditions in the militia camp at Camp Douglas. He examined 1,600 young men, all of draft age, and found four cases of gonorrhea. I do not believe one can find those results anywhere but in Wisconsin.

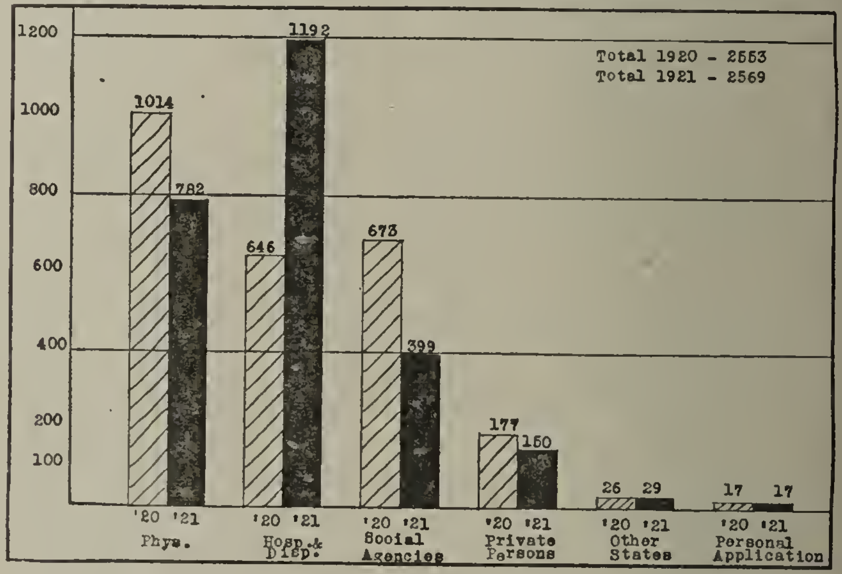

Chart 11.—Sources from which social service cases were referred.

Dr. Carl Voegtlin, Washington, D. C.: I want to say a word on the relation of the method of administration of arsphenamin to control of syphilis. Arsphenamin was first given intramuscularly. The intravenous method was adopted because of the local reactions and pain which followed the intramuscular administration. I believe that a great step forward would be taken if the administration of the drug were simplified, and for that reason we have done some work during the last year at the Hygienic Laboratory in Washington to simplify the administration of arsphenamin. We have prepared a derivative of arsphenamin which can be given subcutaneously. It has proved very effective under experimental conditions, and is now being tested clinically. I believe that this compound will make it possible to put a greater number of syphilitics under the controlling influence of arsenic. A good many physicians hesitate to give arsphenamin intravenously. I have no doubt that the subcutaneous administration of this compound is perfectly safe, and therefore could be used by any physician.

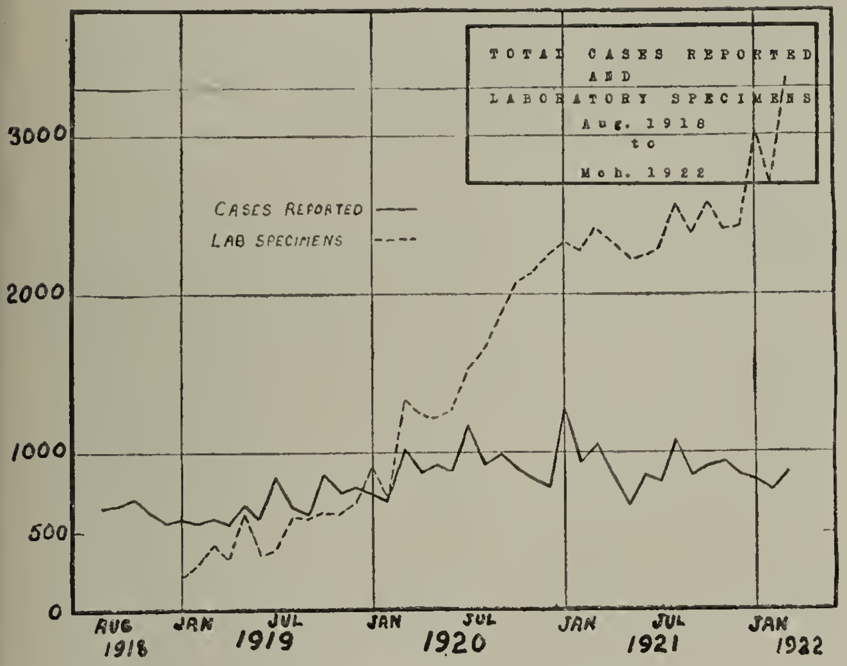

Chart 12.—Total cases reported and laboratory specimens, August, 1918, to March, 1922.

Dr. J. P. Bowdoin, Atlanta, Ga.: In Georgia, a state that had the second highest incidence of syphilis during the draft, there was a 4.5 per cent. reduction in brain syphilis in our asylums last year. Statistics show that physicians out in the country have been educated sufficiently to use arsphenamin in time to prevent brain syphilis. The question of education is perhaps the biggest question in the whole problem of the control of venereal disease. We have attempted to educate the physicians in Georgia as well as the laity. Each year we hold in our large cities an institute clinic for physicians. The institute clinic last year represented seventy-one counties of our state. The men spend a week studying nothing but venereal disease. Our physicians last year administered from our office 25,000 doses of arsphenamin. I have very little confidence in reports from physicians. They vary too much. The question of educating the physician to report cases has been one of the biggest problems we have had. The education of the people is beginning to show itself in ways we did not dream of when we began. A few years ago we would not have thought of mentioning this subject in the presence of women. Now we give lectures before women's clubs. The question in the South, of course, is a very serious problem because of the negro population. There is more infection in the negro race than in the white. They will not return for treatment. It is a still more serious problem as far as accidental infection is concerned, because we have a large percentage of accidental infections from nurses who are syphilitics.

Dr. J. F. Hogan, Baltimore: I do not think we have done anything in the control of gonorrhea, and it is difficult to do anything because at present it is difficult to say how long it is infectious. In the past year I think we have done something toward the control of syphilis. Beginning this year we started to have syphilis reported according to its stages, most of our reports of syphilis coming from the laboratories in the way of positive Wassermann reactions. The physician states the stage of the disease with which the patient is suffering or with which he suspects the patient is suffering. It was then decided that every three months we were to send out a questionnaire to physicians on these primary and secondary cases requesting them to inform us whether the patients were still cooperating with them in their treatment; that is, if the patient had taken enough arsphenamin and mercury to render him noninfectious. If the physician says that the patient is cooperating, we do nothing further for three months and, if the physician says that the patient is not cooperating, we send a woman social investigator, working under the direction of the bureau of communicable diseases, to that individual to have him return to the physician or to the clinic for treatment. First she tells him he must return to the physician and, if he does not return to the physician or the clinic, the health officer is detailed to see him. A venereal disease clinic is absolutely of no value unless there is a proper follow-up system. Clinics should be rated primarily as to their follow-up system. I do not know that we can compel tertiary patients to continue treatment, but we can compel primary and secondary cases. The reporting by the so-called quack has been very good, while the reporting by prominent urologists and syphilolographers has been very poor.

Dr. Harry G. Irvine, Minneapolis: I have no great sympathy with state boards of health spending a lot of money for the control of the prostitute. Law enforcement per se is what has an effect on venereal disease. The closing of all houses is what should be done. Merely taking one or two girls and putting them away for two or three months' quarantine does not amount to anything. One cannot turn a prostitute into anything but a prostitute by quarantine. It takes a much longer time. From the standpoint of simplified treatment I want to sound a warning. I hope the United States Public Health Service will not be too anxious to put out simplified methods. There are a number of physicians just waiting for such a thing. There are very few men who cannot give arsphenamin. I dislike this shortcut medical treatment. We are just now beginning to have some idea of the value of arsphenamin. I have had fifteen or twenty years' experience in syphilis and particularly in the late stages; it takes a long time to learn the effects of treatment on syphilis. Expert methods are necessary for the diagnosis of gonorrhea; the laboratory is almost useless in gonorrhea in the male in the chronic stage.

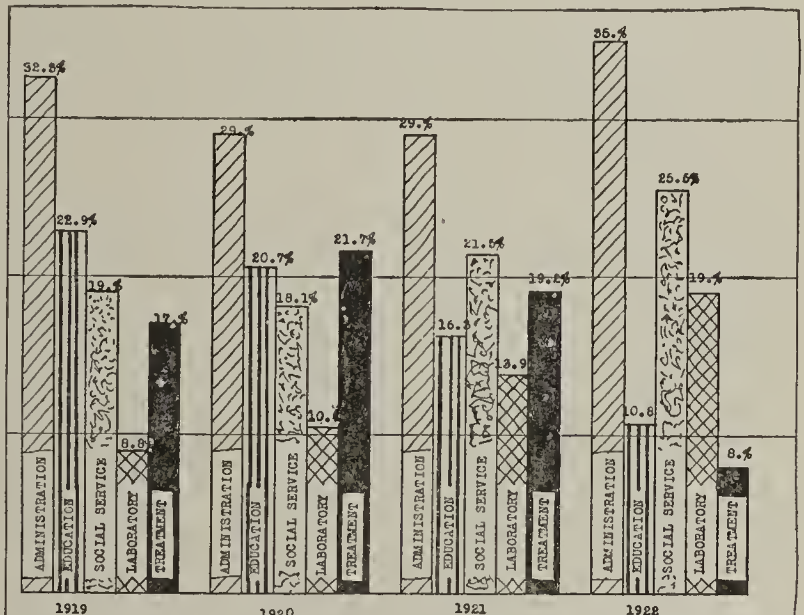

Chart 13.—Percentage of appropriation expended for various activities, fiscal years ending June 30, 1919, 1920, 1921 and 1922.

Mammary Hypertrophy.—Williams points out that the normal increase of the female breast at puberty is due "even more to the overgrowth of its fibro-fatty envelope than to the glandular estasia," whereas during pregnancy, the increase in size is almost entirely due to the physiological overgrowth of the glandular parenchyma, and puberal hypertrophy conforms with the latter more than with the former changes.—Greig, *Edinburgh M. J.*, April, 1922.

A REPORT ON PNEUMOCOCCUS INOCULATION IN NEW YORK STATE INSTITUTIONS

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The purpose of this paper is to record the results of a study of the practical value of prophylactic inoculation against pneumonia among the inmates of certain New York State institutions, a study which was conducted jointly by the Hygienic Laboratory of the United States Public Health Service and the Division of Laboratories and Research of the New York State Department of Health.

PNEUMOCOCCUS INFECTION AND PNEUMOCOCCUS IMMUNITY

In order to interpret the significance of the results of any practical study of the prophylactic value of pneumococcus vaccine, it is necessary to have clearly in mind the more recent advances in our knowledge of the fundamental conditions underlying the development of the disease—that is, pneumococcus infection and pneumococcus immunity. The experimental study of pneumonia in animals[1] has demonstrated the fact that the very susceptible laboratory animals develop characteristic processes only when partially immunized. The extent of the pneumonic lesion is an indication of the capacity of the tissues to react to the presence of the inciting agent. The pneumococcus is found distributed in the secretions of the upper respiratory tract quite generally, especially in patients from congested districts. It gives rise to many minor infections which undoubtedly incite some reaction of immunity.

The experimental study of pneumococcus immunity and the action of homologous immune serums[2] has distinguished two fundamental factors in pneumococcus infection, the action of the pneumococcus poison on the one hand, and, on the other, its parasitic adaptation. Recovery follows the neutralization of the poison by the immune serum or the development of the pneumococcus immune reaction in the tissues. The pneumococcus cells are usually destroyed promptly either by lysis or by phagocytosis, but they may survive after recovery and even in the immune animal. The study of pneumococcus infection in a highly immunized horse[3] demonstrated that these pneumococcus cells may not only survive, but may give rise to extensive processes despite the fact that the blood serum of such an animal exercises a high degree of protective action on pneumococcus infection when tested by standard methods.

In the light of this knowledge of pneumococcus infection and of pneumococcus immunity, the value of pneumococcus vaccine in the prevention of pneumonia ought to be very clearly demonstrated before favorable claims are accepted. Following the favorable reports of Lister[4] in South Africa and of Cecil and Vaughan[5] in this country, a careful study was made[6] of the degree of protection against virulent pneumococcus infection afforded by different doses of vaccine in susceptible animals, in which the degree of protection could be more accurately measured than in the partially immunized or less susceptible animals. With the dosage of vaccine ordinarily used, and even with larger doses, the degree of protection was slight or even indeterminate. It was only with much larger doses that definite protection was obtained. Apparently the extremely virulent pneumococci which were used in the experiment grew in immune animals just as they grow in immune serum in the test tube.

In the recent study of inoculation by von Sholly and Park,[7] favorable results are claimed, but the number of cases of pneumonia is frankly acknowledged to be too small to be of significance.

It thus appears that pneumonia, as it develops in man, occurs under conditions in which the susceptibility of the host and the virulence of the invading parasite are fairly evenly balanced, and that, in the majority of cases, the reaction of the tissues brings about a spontaneous recovery which is complete—in fact, a crisis in more than one-half the cases. The mortality varies greatly, ranging from less than 10 to more than 40 per cent. It is quite conceivable that preventive inoculation with pneumococcus vaccine might give rise to sufficient immunity to protect some, if not all, persons for a short time and under special conditions of exposure, but the fact that inoculation does afford material protection should be clearly demonstrated before it is advocated generally. It was for this purpose that the present study in New York State institutions was made.

RESULTS OF OBSERVATIONS

The period of observation for purposes of comparison not only extended through the winter months of 1919 and 1920, but included also the winter months of 1920 and 1921 into April. There are, therefore, two seasons of prevalence of pneumonia recorded, the first one immediately following the inoculation, and the other more than a year later.

The vaccine used was the lipovaccine prepared at the Army Medical School in Washington, D. C., containing approximately ten billion each of Types I, II and III pneumococci in each dose. A single dose of 1 c.c. was administered subcutaneously.

The institutions represented a population of 38,958 inmates. During the period of observation, three groups were maintained: Group 1, inoculated; Group 2, control, in the hospital at the time of inoculation but not inoculated; Group 3, new admissions to the hospital after the date of inoculation and not inoculated. The first half of the alphabetical list of patients in each ward was arbitrarily selected as Group 1 and inoculated. The only patients omitted were a comparatively small number who had fever, and a few others for special reasons.

The only wards omitted were two admission wards in diphtheria quarantine and one admission ward undergoing typhoid inoculation. Wards of chronic bed patients, the tuberculosis and acute wards, and the working wards and farm cottage groups were included. Patients admitted to the hospital after the date of inoculation were put in a third group, because of the high pneumonia and total death rate among them.

As the patients were inoculated, their names were checked accurately, and immediately after the inoculation a card index for each group was made at each hospital from the original list. When patients were transferred from one hospital to another, their cards were also transferred. Every case in which a clinical or necropsy diagnosis was made was recorded, but no distinction was made in the tabulations between the forms of pneumonia, because pneumococci have been so frequently found in both the bronchial and lobar pneumonias and because many were of the terminal type in debilitated patients. Comparatively few cases of typical lobar pneumonia came under observation. All pneumonia and other deaths and all discharges were tabulated and reported by months for each group. Practically an equal number of patients was discharged from the hospitals from each group.

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[1] Wadsworth, Augustus: Experimental Studies on the Etiology of Acute Pneumonitis, Am. J. M. Sc., May, 1904.

[2] Wadsworth, Augustus: Studies on Pneumococcus Infection in Animals: Action of Immune Sera on Pneumococcus Infection, J. Exper. Med. **16**: 78, 1912.

[3] Wadsworth, Augustus: A Study of the Endocardial Lesions Developing During Pneumococcus Infection in Horses, J. M. Res. **39**: 279 (Jan.) 1919.

[4] Lister, F. S.: An Experimental Study of Prophylactic Inoculation Against Pneumococcal Infection in Rabbits and in Man, South African Institute for Medical Research Papers **8**, 1916.

[5] Cecil, R. L., and Vaughan, H. F.: Prophylactic Vaccination Against Pneumonia at Camp Wheeler, J. Exper. Med. **29**: 457 (May) 1919.

[6] Wadsworth, Augustus: The Protective Value of Pneumococcus Vaccination in Mice and Rabbits, J. Immunol. **5**: 429 (Sept.) 1920.

[7] Von Sholly, A. I., and Park, W. H.: Report on the Prophylactic Vaccination of 1,536 Persons Against Acute Respiratory Diseases, 1919-1920, J. Immunol. **6**: 103 (Jan.) 1921.

INCIDENCE OF PNEUMONIA AND RESULTS OF EXAMINATION OF SPECIMENS FOR TYPE DIAGNOSIS IN NEW YORK STATE INSTITUTIONS, FEBRUARY, 1919, TO MAY 1, 1920

Group	I Inoculated	II Control Uninoculated	III New Admissions Uninoculated
Total number in group	17,752	18,595	7,922
Total number of cases of pneumonia*	253	340	320
Number of cases of pneumonia from which specimens were secured	122	186	103
Specimens secured:			
Sputum	55	92	46
Lung tissue	71	81	40
Blood culture	23	25	12
Spleen	16	14	5
Throat swab	15	25	20
Pus	3	0	0
Urine	0	1	1
Total	183	238	124
Distribution of organisms isolated:			
Pneumococcus Type I	1	3	6
Pneumococcus Type II	2	5	1
Pneumococcus Type II A	3	3	0
Pneumococcus Type III	16	33	16
Pneumococcus Group IV	33	54	32
Total of all types	55	98	55
Hemolytic streptococcus	17	27	13
Nonhemolytic streptococcus	58	66	28
Friedländer's bacillus	14	9	6
B. tuberculosis	2	1	0
B. coli	4	9	3
B. influenzae	1	4	1
B. pyocyaneus	1	0	0
M. tetragenus	2	3	0
Staphylococcus	25	25	26
Contaminated and negative	26	34	17

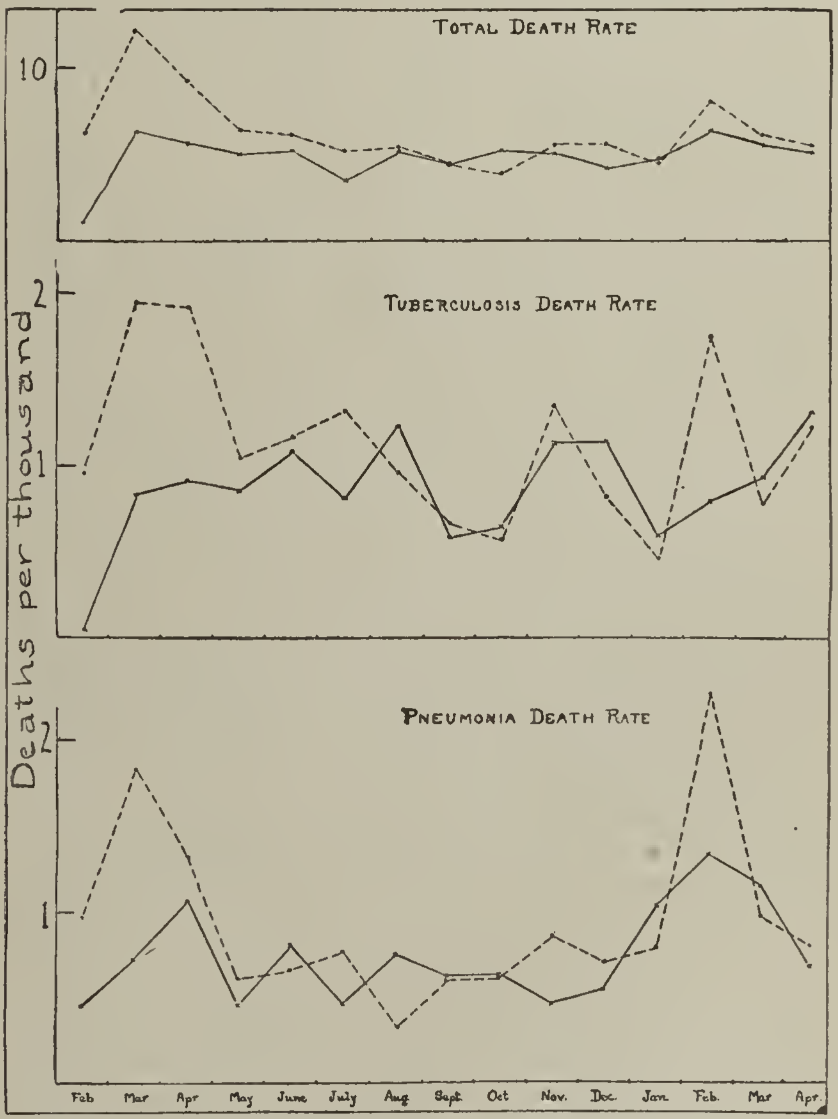
* To April 1, 1920.

In order to determine the type of pneumococcus infection, specimens from cases of pneumonia were sent to the laboratory in Albany or to that in New York, where careful analyses were made. At one of the larger institutions, the Willard State Hospital, a member of the staff of the laboratory in Albany was assigned to this work in October, 1919, so that examination of specimens might be carried out without delay. In the examination of all these specimens the most reliable method, that of inoculating a mouse, was used. In addition, the cultural method of Avery and the precipitin test of Krumwiede were used with some of the specimens.

The total death rate, and the death rates from tuberculosis and from pneumonia in both the inoculated and the control uninoculated groups are given in the accompanying chart by months.

An extremely small number of Type I pneumonias was observed; in fact, the usual percentages of Types I, II and III pneumonias in these groups of inmates were completely reversed from what is ordinarily observed in the hospital pneumonias, probably owing to the large number of so-called terminal pneumonias. The incidence of pneumonia and the results of the laboratory examination of the specimens are shown in the table.

As indicated in the chart, the death rate from pneumonia in the inoculated appears to be much below that in the control group, but the same is true of the total death rate. This lower death rate from pneumonia in the inoculated group might account to some extent for the discrepancy in the total death rate were it not for the fact that the tuberculosis death rate in the two groups shows an even greater discrepancy than the pneumonia death rate. These figures indicate that there was some selective action in the division of the population into two groups. Although those who had fever at the time of inoculation and were therefore omitted were comparatively few, they probably account to a considerable extent for the higher total and tuberculosis death rates in the control group. If the proportion of the total death rate due to death from pneumonia in the inoculated and uninoculated groups is figured, the percentage of deaths due to pneumonia in these two groups is practically the same, 14.5 per cent. in the inoculated and 14.8 per cent. in the uninoculated.



Total death rate and tuberculosis and pneumonia death rates: solid line, inoculated; broken line, uninoculated control.

The results are far from satisfactory and do not permit us to draw from them any definite conclusions. Nevertheless, they do show that a relatively large number, if not proportionately an equal number, of cases of pneumonia developed after inoculation. Furthermore, they show the development, in the inoculated group, of pneumonias incited by the three fixed types of pneumococcus used in the vaccine.

THE ROENTGEN RAY IN TONSILLAR DISEASE *

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CHICAGO

In response to numerous inquiries as to the efficiency of roentgen-ray therapy in tonsillar disease which have come to this clinic within the last year, we submit a preliminary report as to facts.

The cases which we undertook to treat were those representing every type of tonsillar disease and in patients of varying ages. Each case was treated by the accepted methods of roentgen-ray dosage and technic, controlled by the laryngologist in collaboration with the roentgenologist, and also by bacteriologic, blood and other laboratory methods. It must be remembered that the time element is an important factor, and therefore no case can be reported as a cure or failure unless a certain time has been allowed to elapse. Furthermore, there must be some understanding as to what can be considered a cure, either the loss of the tonsillar struma, or the alleviation of clinical symptoms both subjectively and objectively, or both.

In no case in our series have we observed any very marked changes, and only in children with the typical hypertrophied tonsils have we been able, by the very closest observation, to note even a slight change in size. Patients with infected tonsils with the usual recurrent attacks of tonsillitis were seemingly benefited for a period, only to have a recurrence of the attack. These cryptic tonsils, with the usual infectious material which they harbor, were controlled bacteriologically and found, as is well known, not to have been affected by the roentgen ray. The type of tonsil which has through disease and age undergone a fibrosis is but little affected by this therapy. Those cases which presented any urgent clinical manifestations producing marked systemic reaction were not subjected to the roentgen ray because such conditions as rheumatism, endocarditis and nephritis would gain too firm a foothold in the course of the treatment, and we did not wish to jeopardize the life of the patient. Encouraging results have been obtained not so much objectively as from the alleviation of subjective symptoms, in that type of child whose pharynx is filled with lymphoid hyperplasia.

The roentenologic work was done entirely by experts, Dr. Benjamin Orndoff and his associates, who have followed the technic well known to men in this line of work, and therefore we omit any technical details. Suffice it to say, however, that every laryngologist should be well versed in the technic so as to give the patient the necessary information as to length of time and possible cost of the treatment. With the cooperation of the roentgenologist, we have made arrangements so that, in the event that the roentgen ray proved finally to be of no benefit, the patient might not be the loser when operation is resorted to; this applies only during the period of our investigation. In other words, the expense of the treatment is about equivalent to the charge for operation in the poorer middle class. This method of procedure has enabled us to obtain material for the proper study of the question. It is our intention to make an exhaustive report when sufficient material is secured and a long enough time has elapsed to warrant a fair statement. This preliminary report is made, as was said before, because we are besieged by inquiries, and because we hope that all laryngologists will give this method of treatment a fair trial. Thereby the procedure may be given its place according to its efficiency as a type or therapy, and not appear with extravagant claims from some roentgenologist or belittled by a biased laryngologist who condemns the treatment without sufficient proof of its failure. The greatest danger lies in the pretension of treating a serious condition of tonsil or adenoid disease by imperfect roentgen-ray or inefficient clinical control: almost any patient might be immediately subjected to the indiscriminate use of the roentgen ray. We have seen some patients that have been treated by this method in other clinics with resultant extreme dryness of the throat, which has persisted. The procedure, therefore, is not without some danger. Furthermore, there is the negative side, that is, negative results as they compare with the results of a carefully carried out operation when real indications are found for the removal of tonsils.

2551 North Clark Street.

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* From the Clinic of Drs. Joseph C. Beck and Harry L. Pollock, North Chicago Hospital.

CULTIVATION OF TRICHOMONAS

AND THE QUESTION OF DIFFERENTIATION OF THE FLAGELLATES *

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DALLAS, TEXAS

Barring a limited number of special workers, the conception of the whole of the medical profession is probably confused no more by any question than that of the intestinal protozoa. That when a physician receives a report of the presence of any of these organisms, all sorts of symptoms and conditions are attached to this fact, and it is made the basis of diagnosis and treatment of the sick, is a point of wide application. The particular importance of this fact lies in the likelihood of such a finding confusing the issue and leading away from some other existing condition.

The recent war is responsible for exciting interest in, and spreading misinterpreted information about, intestinal protozoa. It stimulated the examination of feces to a much wider practice than existed before, and so intestinal protozoa are much more commonly encountered. One cannot even estimate the number of laboratory technicians who are responsible for all sorts of examinations employed by practicing physicians, very few of whom can differentiate between *Endameba histolytica* and *E. coli,* or between the several flagellates; and yet one has only to visit the offices of practicing physicians to obtain an idea that there are hundreds, if not thousands, of such people, who actually have the whole responsibility of such examinations. It is probably not far wide of the mark to say that the average laboratory worker knows only two terms applied to intestinal protozoa: ameba and trichomonas; and the mere presence of either is considered sufficient evidence of its parasitism.

Of course, there is only one reason for this state of affairs—ignorance and confused information in the medical profession, and among laboratory people in particular. That this exists widely is perfectly evident from the attention given discussions of the subject, particularly before local or regional medical societies. Intestinal protozoa have been and are being blamed for every sort of human ailment. Physicians are energetically treating "amebiasis," when only harmless *Endameba coli* is present, and "flagellate infection," when "*Trichomonas*" is found; and one instance comes to mind in which a considerable number of cases of *Balantidium* infection—the "*Balantidium*" probably being some flagellate—have been reported from his private practice by a physician in a small town.

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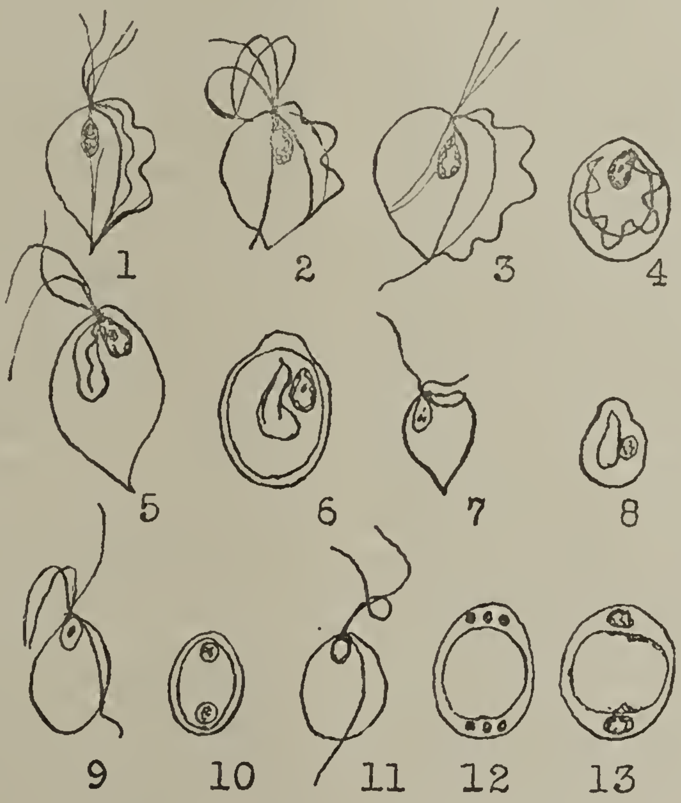
* From the Medical and Surgical Clinic, Dallas.

* Read before the Section on Pathology and Physiology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

There is little excuse at the present time for confusing harmless *Endameba coli* with *Endameba histolytica*, or *Balantidium* with any intestinal organism; but, from the reading matter available to the general profession, there is little wonder that the status of the flagellates is confusing.

In order that judgment of the flagellates may be put on a rational basis, we may as well discard the bulk of medical literature of this country on the subject, especially when inaccurate identification of the organism is involved, since one cannot be certain which protozoon was dealt with. Even now, there is no general distinction made between *Trichomonas* and *Chilomastix*, and undoubtedly a large part of our literature concerns the latter instead of *Trichomonas*. It cannot be clear to the average person who is interested in the question whether there are one or more trichomonads in the intestine, or whether the *Trichomonas* of the vagina, mouth and intestine is one or different organisms; and that most common intestinal cell, *Blastocystis*, is not a *Trichomonas* or some other cyst. If we are to settle satisfactorily the clinical significance of *Trichomonas*, we must first be able to know it. Those who would determine the importance of the flagellates as a whole forget the history of the amebas and would not profit by its lessons. The terms "flagellosis" and "flagellate infection" have no meaning at the present time beyond the presence of flagellates.



1. Trichomonas hominis; 2, Trichomonas vaginalis; 3, Trichomonas caviae; 4, Trichomonas caviae cyst; 5, Chilomastix mesnili; 6, Chilomastix cyst; 7, Embadomonas intestinalis, according to Dobell; 8, Embadomonas cyst, according to Dobell; 9, Tricercomonas intestinalis; 10, Tricercomonas cyst with two nuclei, according to Dobell; 11, Enteromonas caviae n. sp.; 12 and 13, Blastocystis.

Trichomonas is a common inhabitant of the large intestine, vagina and mouth. It is encountered very often in feces from normal persons. Whenever it is present where there is diarrhea and a liquid stool, it may be prolific and show in enormous numbers in the feces. Particularly is this the case when intestinal exudation occurs, probably because it grows very well in such a medium even under artificial conditions. Consequently, it is but natural that its presence is coupled with intestinal inflammation. That it is concerned with the production of inflammation, there exists only circumstantial evidence. It has been seen within the tissues of the intestine without evidence of exciting a reaction there; and whether it entered before or after death of the host cannot be said. It has been reported from parts of the body which it may have reached through the blood stream. It has been reported to contain red blood cells, and this has been taken as evidence of its pathogenicity. Clinical reports appear commonly in which "flagellate dysentery" has disappeared under treatment, with the apparent disappearance of the flagellate. On the other hand, although one does not see it often reported, numerous instances are at hand in which *Trichomonas* was present in diarrhea and remained after the diarrhea subsided, with or without treatment. Other instances are at hand in which the intestinal condition ascribed to it remained after *Trichomonas* could no longer be found. Then, again, a number of cases of "cure" of *Trichomonas* infection have been encountered in which the person still harbored *Trichomonas*. I have under observation several hosts of *Trichomonas* as well as *Chilomastix* who have shown the organism on repeated examination for several years, one for as long as nine years, and who have never experienced any disturbance from it; and in routine laboratory work it is very common to find *Trichomonas* in the feces of people who can give no reference to any ill effects from it. When such a large proportion of people harbor any organism, it is inevitable that it may be associated with some disease condition in a considerable proportion.

From time to time, experimenters have reported transmission of *Trichomonas*, with apparent infection. None of these experiments can be called conclusive. I realized this after reporting such experiments. It is virtually impossible to select animals not already harboring trichomonads; and, even if it were possible, no reliance can be placed on results obtained from material or cultures containing bacteria.

Trichomonas in the vagina is commonly associated with the occurrence of leukorrhea, and in the mouth it grows in the material and exudates around the teeth and gums, in inflammation. In my observation, it has disappeared with the clearing up of these excellent mediums for its growth, and it may have no further significance.

CULTIVATION

Trichomonas was first cultivated in beef broth (Lynch[1]). Since that time, Ohira and Noguchi[2] have reported obtaining cultures of *Trichomonas* from the mouth in equal parts of ascitic fluid and Ringer's solution. Boyd[3] obtained a growth of *Trichomonas hominis* in a mixture of feces and physiologic sodium chlorid solution. Pringault[4] cultured *Trichomonas hominis*

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1. Lynch, K. M.: Trichomoniasis of the Vagina and Mouth, Am. J. Trop. Dis. **2**: 627, 1915; Clinical and Experimental Trichomoniasis of the Intestine, New York M. J., May 1, 1915.
2. Ohira, T., and Noguchi, H.: The Cultivation of Trichomonas of the Human Mouth (Tetratrichomonas hominis), J. Exper. Med. **25**: 341 (Feb.) 1917.
3. Boyd, M. F.: A Note on the Cultivation of Trichomonas Intestinalis, J. Parasitology **4**: 168 (June) 1918.
4. Pringault, E.: Etude biologique die Trichomonas intestinalis, Bull. de la Soc. Path. Exot. **13**, 1920.

in Ohira and Noguchi's medium; Reufing[5] *Trichomonas vaginalis* in the same solution, and Hogue[6] *Trichomonas hominis* in a medium of egg albumin and Locke's solution. I have cultivated *Trichomonas* from the feces, vagina, mouth and urine (*Trichomonas* of vaginal origin) in a number of solutions,[7] including liquid blood serum, ascitic fluid, pleural fluid and ovarian cyst fluid, diluted from 1:4 to 1:10 with from 0.5 to 0.9 per cent. sodium chlorid solution, or with Ringer's or Locke's solution. Blood serum diluted with ten volumes of 0.5 per cent. sodium chlorid solution has been found fairly uniformly good. *Trichomonas* grows well at 37 C., at the bottom of a fairly long column of medium, and is best removed with a capillary pipet. Growth is usually progressive, and division of the organism may be followed for about four days, during which time swarms of organisms may be produced. After this period, the number decreases, and the flagellates usually disappear in a few days.

DIFFERENTIATION OF SPECIES AND OTHER ORGANISMS

At present, *Trichomonas hominis* (from the intestine), *Trichomonas vaginalis* (from the vagina) and *Trichomonas buccalis* (from the mouth) are generally considered to be distinct species. At least, they have not been certainly identified as the same. They present in common four anterior flagella arising from the blepharoplast on the anterior end, from which also come the basal rod and free margin of the undulating membrane, which runs diagonally backward, and the axostyle or stiff skeletal support. The nucleus, lying near the anterior end, is ovoid, composed of a compact chromatin mass in the nondividing forms, of loose chromatin network preliminary to mitosis and showing mitosis in division. There is some debate about the constancy of four anterior flagella for the genus, some describing three and some five. In my exeperience, four is the correct number, although not all may be seen, and more are often encountered in division. Occasionally, one with five is seen, but this fact may not be used as a feature for separating the genus in any thus far encountered in this study. There have been a number of accounts of a five-flagellated trichomonad (*Pentatrichomonas*), which consumes red blood corpuscles. Possibly, this is a distinct organism, and it should be watched for closely on account of its suggested pathogenic significance. I have not encountered a form of *Trichomonas* from man which did not show fairly constantly four flagella, when properly studied.

In direct preparations, there often seems to be differences betwen the trichomonas of the vagina, mouth and intestine. That of the vagina frequently averages larger in size and is often less active in swimming about. Frequently, the undulating membrane is shorter and more delicate. Yet these features also occur among the organisms from one source. It has been impossible thus far to differentiate with certainty the trichomonads from the intestine, vagina and mouth, in culture in the same material. It appears, therefore, that, under the same conditions, they are identical. At any rate, if they are distinct, the differentiating feature has yet to be developed and will have to apply to organisms cultivated under the same environment.

As to the relation of human trichomonads to those of other animals, at least some of the latter appear to be distinctly different. *Trichomonas* of the mouse, guinea-pig, and frog all have three flagella. *Trichomonas caviae,* which, following Kofoid[8] is now properly called *Tritrichomonas caviae,* has a distinct encystment, the cyst showing nucleus, blepharoplast, undulating membrane, basal rod and chromatinic margin and axostyle, but no flagella. Its undulating membrane is much heavier; the nucleus is different, and it has not grown with the facility of *Trichomonas* of man in the same culture mediums. Dobell has described a cyst for *Trichomonas* (*Tritrichomonas*) *batrachorum,* and Wenyon a cyst for *Trichomonas* (*Tritrichomonas*) *muris,* while no reported cyst of *Trichomonas* of man has stood the test of critical investigation. There is as yet no proof of a carrier of *Trichomonas* of man among other animals.

A cell frequently called *Trichomonas* cyst is *Blastocystis,* probably related to *Ascomycetes,* a very common cell in the intestine, which has been differentiated for some time by careful observers and recently cultivated by Barret[9] and Lynch.[7]

The organism most commonly confused with active *Trichomonas* is *Chilomastix mesnili, Chilomastix davainei* according to Kofoid,[8] and yet it is so distinct that one wonders that the confusion existed even with the best students for so long. *Chilomastix* has three flagella anteriorly directed, a distinct and heavily outlined cytostome or mouth and no undulating membrane save a very delicate flagellar organ within the cytostome. It is frequently spirally twisted, and swims in a distinct spiral without the flexibility of *Trichomonas.* In addition, it has a characteristic lemon-shaped cyst, containing the organism with its distinctive cytostome, first described by Lynch[10] who mistook it for *Trichomonas.*

In addition, there are two or more comparatively rare flagellates of the human intestine which may be confused with *Trichomonas* by those uninformed about them. These are *Tricercomonas intestinalis, Enteromonas hominis* and *Embadomonas intestinalis.* They are about half the size of *Trichomonas* and have no undulating membrane. *Enteromonas hominis,* according to da Fonesca,[11] possesses three anterior flagella, two directed forward and one back over the body but not adherent. No cyst has been reported for it. *Tricercomonas intestinalis* is described by Wenyon and O'Connor[12] with four anterior flagella, three directed forward, the fourth recurrent and adherent to the surface of the body for a part of its length. Dobell[13] thinks these two flagellates are the same. In my experience, *Tricercomonas* of Wenyon and O'Connor is present in this country, and, although *Enteromonas* of da Fonseca has not been seen, a flagellate conforming to his description found in the guinea-pig confirms the existence of the genus and its possible occurrence in man. *Embadomonas intestinalis* has two unequal anterior flagella, a comparatively large anterior cytostome and a cyst resembling that of *Chilomastix,* except that it is much smaller. Possibly *Embadomonas* may be confused with *Chilomastix,* although it is less than half the size, its jerky movements differ from the spiral of *Chilomastix* and its flagella differ in number and action.

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[5] Reufing, F.: Zur morphologie von Trichomonas vaginalis Donne, Arch. f. Protistenk. **17**: 347, 1921.

[6] Hogue, M. J.: The Cultivation of Trichomonas Hominis, Am. J. Trop. Med. **1**: 211 (July) 1921.

[7] Lynch, K. M.: Blastocystis in Culture, Am. J. Trop. Med., to be published; Cultivation of Trichomonas from the Human Mouth, Vagina, and from Urine, Am. J. Trop. Med., to be published.

[8] Kofoid, C. A.: A Critical Review of the Nomenclature of Human Intestinal Flagellates, Cercomonas, Chilomastix, Tetratrichomonas and Giardia, Univ. of California Pub. in Zool. **20**: 145, 1920.

[9] Barret, H. P.: A Method for the Cultivation of Blastocystis, Ann. Trop. M. & Parasitol. **15**: 113 (July) 1921.

[10] Lynch, K. M.: Dauercystformation of Trichomonas Intestinalis, J. Parasitology **3**: 28 (Sept.) 1916.

[11] Da Fonseca, O. O. R.: Sobre os flagellados dos mamiferos do Brazil: um novo parasito do homem, Brazil-Med. **29**: 281, 1915.

[12] Wenyon, C. M., and O'Connor, F. W.: Human Intestinal Protozoa in the Near East, London, 1919.

[13] Dobell, Clifford: The Intestinal Protozoa of Man, Dobell and O'Connor, New York, 1921.

STUDY OF SPECIMENS

A careful study of unstained material will serve to differentiate *Trichomonas* from any other organism. When fresh and active, the flagellar movements and undulating membrane are characteristic. After exposure and cooling, it loses the action of these parts and assumes a peculiar ameboid undulating form in which protoplasmic waves of broad and blunt or long and finger-like proportions progress, with diminishing size from anterior to posterior end. This is also characteristic. When it becomes a question of determining the number of flagella, for the possible dividing of the genus, the most careful staining is necessary. These fine structures may not be counted with certainty on the active cell, and the staining must be sufficient to allow correct observation of a large number of organisms and to differentiate those undergoing division. The usual process depended on for this differentiation is the iron-hematoxylon method. When properly applied, this staining is usually satisfactory, but it has not served so well with spreads from cultures, probably on account of the albumin to be coagulated in the mediums. Excellent results have been obtained in differentiating the flagella and undulating membrane by careful staining of thin films from cultures by Wright's blood stain.

SUMMARY

1. *Trichomonas* is a widely and highly prevalent inhabitant of the body of man and is being extensively treated as a pathogenic organism.

2. There exists only circumstantial evidence of any harmful effects from it or even of its true parasitism. The ease with which it may be grown artificially, its feeding habits, its high prevalence in the healthy and its long continuance without resulting disturbance in the human body indicate it as a harmless commensal.

3. For a proper judgment of the clinical significance of *Trichomonas,* the organism must first be accurately differentiated from others now confused with it, and, if there are different organisms now included in the genus, they must be separated.

4. *Trichomonas* must be studied under the same conditions before they may be differentiated. This would appear to be best done in culture in the same mediums.

5. In culture in the same material, trichomonads from the human mouth, vagina and intestine have not been certainly differentiated in this study.

6. There exists no proof that trichomonads of other animals are identical with those of man, and at least some of them are certainly distinct.

ABSTRACT OF DISCUSSION

Dr. John A. Kolmer, Philadelphia: Did the parasites undergo any morphologic changes differing from the appearance as found in the mouth?

Dr. Kenneth M. Lynch, Dallas, Texas: There are no changes in cultures from the characteristic morphology in the direct preparation. Of course, the multiplying forms are much more easily studied.

CHINA AS A FIELD FOR THE STUDY OF THE NUTRITION OF HUMAN TEETH *

J. F. McCLENDON, Ph.D.
MINNEAPOLIS

According to Pickerill,[1] bad teeth are the curse of civilization. He gives figures to show that dental caries increased in the Britons from the stone age to the bronze age, and from the bronze age to the Roman occupation, and in the Angles and Saxons after they came to England and among the English, so that in modern times about 95 per cent. of them have carious teeth. He also states that the same process took place but far more rapidly among the Maori of New Zealand, and that 95 per cent. of the Maori schoolchildren in the English schools have carious teeth. He places the Chinese among those races with little dental caries. We should remember, however, that while our ancestors led a barbaric life in the forests and swamps of northern Europe and had no agriculture, the Chinese had developed a thickly populated and comparatively civilized community. The central plateau of Asia is considered the "cradle of the human race," and the beginnings of Chinese civilization are lost in antiquity.

We cannot take up the various factors of civilization and their effect on the teeth, but animal experimentation has shown that the chief factor in the well-being of the bones and teeth is diet. I will consider the Chinese civilization from a dietetic standpoint. The origin of domesticated plants is somewhat doubtful, but the emperor Chin-nung, 2800 B. C., ordered a ceremonial in which certain seeds were sown; and by this time and in a few succeeding centuries, but long before our ancestors took up agriculture, the Chinese had domesticated, or obtained from their neighbors chiefly to the south, quite a number of plants. Among these are the radish, Chinese yam, Chinese cabbage, tea, sugar-cane, orange, mandarin orange, jujube, Chinese plums, apricot, peach, kaki (persimmon), date plum (persimmon), Chinese pear, banana, litchi (nut), buckwheat, soy bean, wheat, Italian millet and rice. The Chinese diet is classed by McCollum as a complete vegetarian diet, supplying in sufficient quantity everything needed in nutrition.

As to the special nutrition of the teeth, it has been found that the teeth require all those food elements needed by the body as a whole and in addition the elements giving it its hardness, chiefly calcium, fluorin and the phosphate ion. In other words, as Gautier has shown, the enamel of the teeth has nearly the same composition as crystalline phosphate rock or apatite, $CaFCa_4(PO_4)_3$. Magnesium is present to a small extent, and it may be considered to replace calcium as an impurity, or as in the case of the formation of dolomite from limestone. The same elements, with the addition of calcium carbonate and white fibrous connective tissue (collagen), constitute the dentin. When we consider all the articles of diet of a people, the complexity is so great as to prevent any headway with the problem. I[2] have shown that the North American Indians used at least 660 species of plants for food, drink and medicine.

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* From the Laboratory of Physiological Chemistry, University of Minnesota Medical School.

[1] Pickerill: The Prevention of Dental Caries and Oral Sepsis, Philadelphia, 1914.

[2] McClendon, J. F.: Some American Plants Considered as Sources of Vitamines and as Parts of a Diet Favorable to the Preservation of the Teeth, J. Dental Res. **3**: 279, 1921.

But animal experiments have cleared the way for the study of effective diet on human teeth. It seemed necessary first to know the calcium and phosphate content of the mixed diet.

CHANGES IN BONES FROM DEFICIENT DIET

The metabolism of bones and teeth is similar, and the changes in the bones due to deficient diet are of two main types: first, rickets due to deficiency of phosphate. The growing areas of bone fail to calcify, but there is an overgrowth of soft bone matrix or osteoid tissue. The teeth are late in developing, and the enamel is thin and soft. I have shown that any substances that increase growth increase the severity of rickets. In fact, the growth multiplied by a constant equals the phosphorus retention in a normal animal; and if the growth multiplied by a constant minus the phosphorus retention is a positive quantity, rickets is present. In this case I refer chiefly to growth of the skeleton, and some errors may arise, owing to the fact that the skeleton may grow while the body as a whole fails to grow. But even with this inaccuracy I am able by means of this formula to classify the experimental rats into rachitic and nonrachitic as accurately as by any other known method. When young rats fail to grow, 0.13 per cent. of phosphorus in the diet is sufficient to prevent rickets; but when they grow at the normal rate, 0.45 per cent. is required. In fact, 0.6 per cent. is the usual amount in the normal diet. Thyroxin, exercise, burning with ultraviolet light and perhaps exposure to cold and some other agencies increase the metabolism and phosphorus intake at a given growth rate and in this way tend to prevent rickets. Cod liver oil in some way increases the phosphorus retention.

In contradistinction to phosphate starvation, calcium starvation produces osteoporosis or light weight bones without any gross rachitic lesions at the epiphysis. Osteoporosis can hardly be considered a specific result of calcium starvation, however, as it occurs in scurvy and beriberi in cases in which there was no intention, at any rate, of producing calcium starvation. The teeth tend to follow the bones in their development, but osteoporosis in the older animals does not necessarily mean just lighter weight teeth. In scurvy, for instance, we have an osteoporosis of the bones, but in the teeth an increase in the activity of odontoblast cells occurs with the formation of irregular osteodentin.[3]

With the diets of human beings it is difficult to say whether calcium or phosphate is most often deficient. A diet of meat and graham bread contains sufficient phosphate, but is deficient in calcium. Phosphate occurs in the leaves of plants which also contain much calcium. Both the calcium and phosphate occur in cow's milk in sufficient amount for nutrition, but milled cereals are deficient both in calcium and in phosphate. In fact, the excessive use of milled cereals, including polished rice, patent flour, corn meal, cream of wheat, and to a less degree, rolled oats, is perhaps responsible for the greatest shortage of calcium phosphate in our diet. I have shown that rats fed graham flour are normal, whereas control rats fed the same diet with the substitution of patent for graham flour are rachitic. Modern milling of cereals has been developed during centuries with the white man, but has been partially introduced into China only during the last ten years, although patent flour has been imported for a longer period. In fact, the process of introduction is still in progress. It would seem, therefore, that this one question in nutrition of the teeth as to the effect of the milling of cereals could be studied in China during the succeeding years very effectively.

To sum up, calcium phosphate and the vitamins A, B and C (including the antirachitic vitamin) seem all concerned with the well-being of the bones and the teeth, and it would be desirable to study the concentration of these substances in the primitive Chinese diet and in diets as changed by the introduction of modern milling machinery and other causes. The estimation of calcium in the diet is an easy matter, but the estimation of vitamins is more difficult in quantitative work; and although we may suppose that there are enough vitamins in ordinary foodstuffs to prevent there ever being a shortage, some vitamins are of a perishable nature and they may be destroyed before they reach the consumer. It is rather notable that we get from the Chinese two fruits which contain the most perishable vitamin C in large amount and in which it will withstand high temperatures and drying. These are the orange and the peach; and though there may be some dispute as to their origin, de Candolle[4] has brought strong evidence that they originated in China. The Chinese dry peaches by ordinary methods, and oranges with the addition of sugar. Perhaps dried peaches are found in all countries where the peach is grown.

INFLUENCE OF FOOD ON HISTORY

The history of mankind is largely influenced by food. That is to say, lack of food has been about the most serious catastrophe. If we compare the activities toward colonization as carried out by two peoples and try to correlate this with their food, we may arrive at some interesting speculations. The Vikings were among the boldest sailors of history. Norse sailors visited Iceland and Greenland. Lief Erickson discovered America about 1000 A. D. Some years later Thorfin Karlsefini brought three ships with 160 persons to America. Norse visits to America were occasionally repeated until 1746, and yet these bold seamen were unable to establish sufficient communication with the mother country to keep a colony alive in America. An illuminating commentary on this state of affairs is contained in the fact that it was not until 1910 that Holst and Frölich discovered that the chief sickness among Norwegian seamen was due to the lack of vitamin C in their diet. We do not know of any food in possession of these Norwegian seamen that could be kept for long periods except in fresh or frozen condition without losing its vitamin C.

On the contrary, people of southern Europe had obtained the orange and the peach, and were in possession of two foods in which vitamin C could be stored for long periods. Compare the dismal failure of Norwegian colonization of America with the brilliant success of the Spaniards. Norwegian mariners, by stopping at Iceland and Greenland, divided the voyage into three relatively short trips. Columbus had to strike out across the Atlantic, and yet he was more successful. It is true that Magellan's ships in sailing around the world did not carry enough of this vitamin C. In fact, only one of them was able to make the voyage; but the success of Magellan was certainly far greater than that of the Norwegians. These Spaniards brought the peach and the orange to America, and these fruits have probably had a good deal to do with the rapidity of extension of colonies where the storage of food was made necessary by long ocean or desert trips.

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[3] Robb, Medes, McClendon, Graham and Murphy: Study of Scurvy and Its Bearing on the Preservation of Teeth, J. Dental Res. **3**: 39, 1921.

[4] De Candolle, Alphonse: Origin of Cultivated Plants, London, 1884.

VALUE OF INORGANIC ELEMENTS IN THE DIET

Animal experiments tend to show that the effect of diet on bones and teeth can be worked out with comparative ease, and there is no reason why the same cannot be applied to human bones and teeth. Liebig overaccentuated the value of protein in the diet, and dietary studies have been mainly confined to protein, fat and carbohydrate. We do not absolutely need fat or carbohydrate in the diet at all times, because we can synthesize them from protein; but we cannot synthesize calcium, phosphorus, iodin or any of the inorganic elements—at least, not in our bodies during life. If we take the relative abundance in the body as an index of importance of elements, we find, of course, that oxygen, hydrogen and nitrogen are common to both organic and inorganic compounds; excluding these, we find that the ratio of carbon to the inorganic elements is 4:1. In other words, even on this basis we should not devote more than four times the amount of time to the organic compounds that we should spend on the inorganic in nutrition; and we include among the organic the vitamins.

Clinical Notes, Suggestions, and New Instruments

A NEW TYPE SIGMOIDOSCOPE

B. B. Vincent Lyon, M.D., and Henry J. Bartle, M.D.,
Philadelphia

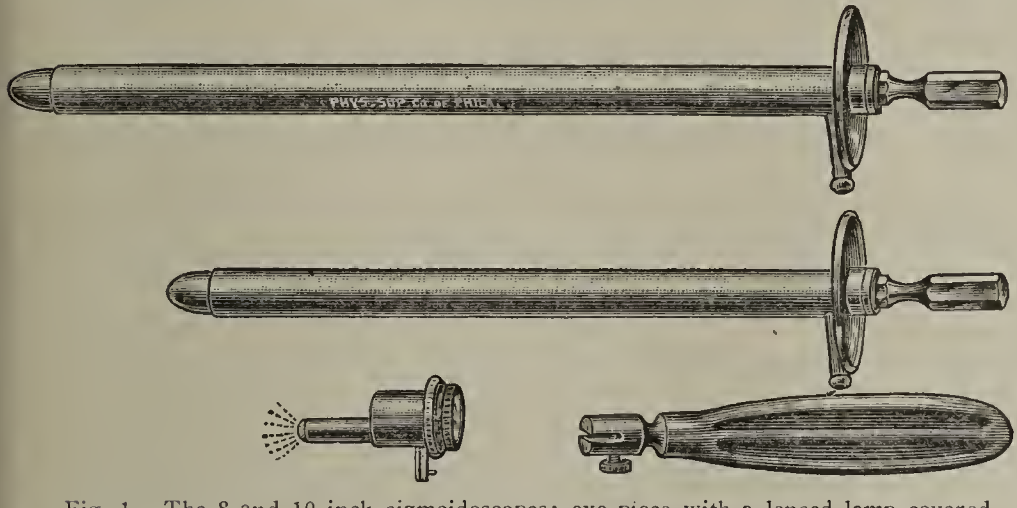

Fig. 1.—The 8 and 10 inch sigmoidoscopes; eye piece with a lensed lamp covered with its shield; glass window in place. When instrumentation is desired, the glass window is removed by unscrewing, while the lamp remains in place. The handle which is illustrated is superfluous and is not used in our work, and is provided only for those who may care to use it. The regulation type of pure rubber double bulb inflator is not illustrated here, and when used is applied to the spout of the sigmoidoscope.

This is simply a new type and not a new instrument. It embraces the better points of many of the old instruments, so that we have at last a practical sigmoidoscope for use in examination and treatment. The first important feature of the instrument is the diameter of the lumen. The Tuttle and the Lynch sigmoidoscopes are seven-eighths inch in diameter. Those we found too large for routine use, as the patient is often distressed by the passage of an instrument of so great a diameter, and consequently this important examination in the routine study of our patient was often not attempted at all, or abandoned after a first unsuccessful or painful examination, especially in nervous women. Dr. Horace Soper of St. Louis told us that he was using a sigmoidoscope of smaller lumen, and on endeavoring to purchase such an instrument we found that the short Axtell was the only one that had a smaller diameter in barrel. We then designed one of our own with a five-eighths inch diameter of barrel, and lighted at the distal end from the operator, thus requiring a light carrier and one of the smallest types of lamp, similar in construction to the Tuttle sigmoidoscope. This had many disadvantages in that the lamps frequently burned out or made poor contact, so that many times the light carrier would have to be withdrawn to permit readjustment of the lamp, as the light would suddenly fail us, and this alone caused us much loss of time. Furthermore, when air dilation was attempted, the fitting on the eye piece, which is usually more complicated in the light carrier type of sigmoidoscope than in the older types, allowed the escape of much of the air directly into the operator's face.

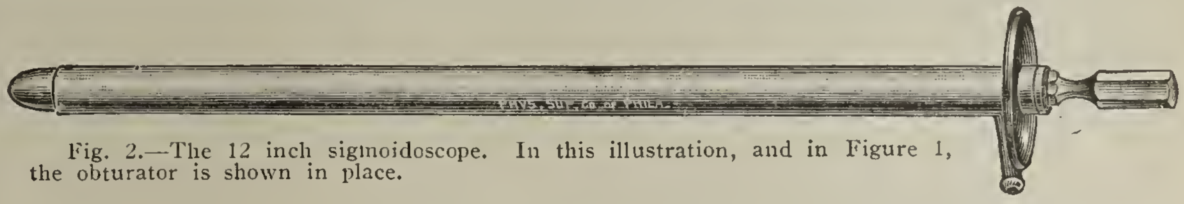

Fig. 2.—The 12 inch sigmoidoscope. In this illustration, and in Figure 1, the obturator is shown in place.

Fig. 3.—The applicator, 14 inches in length exclusive of the handle. The fenestrated spoon, the same length as the applicator, but not illustrated, can also be used for the purpose of pushing small masses of fecal material to one side as the tip of the sigmoidoscope is advanced within the sigmoid.

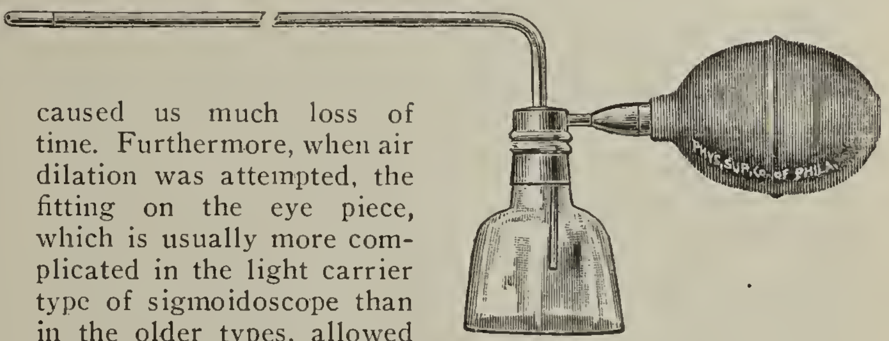

Fig. 4.—This powder blower has a 14 inch long delivery tube. It, too, is used in conjunction with the sigmoidoscope in making treatments to the sigmoid by insufflation.

With these difficulties to be overcome, we conferred with Mr. James Brown of the Physicians' Supply Company of Philadelphia and, with his cooperation, evolved the present instrument, by taking the lumen diameter measurements of the Axtell (five-eighths inch) and having sigmoidoscopes made running to 8, 10 and 12 inches in length. The Lynch type of illumination had been so satisfactory from the operator's standpoint that we adopted it by modifying it to this smaller barreled instrument. The result has been all that was hoped for. The illumination is perfect and always of equal distribution throughout the whole field. It is dependable, as lamps do not become easily unscrewed, thereby making imperfect contact. The lamp itself is large enough to stand fairly rough handling, compared with the smaller lamp. It does not burn out so readily, since it takes a greater voltage and does not require so fine an adjustment of the rheostat, which feature affords a great saving of time in operation. The lens, fashioned in the end of the lamp bulb, combined with the shield lens, throws a straight beam of light through the tube, which gives almost as satisfactory illumination when sent through the 12 inch as in the 10 or 8 inch sigmoidoscopes. Then, too, the lamp socket is eccentrically (peripherally) placed in the eyepiece, so that it is out of the way, and does not obstruct vision or prevent instrumentation. The whole eyepiece fits into the tube by a tapered socket or cone connection, and a glass diaphragm or window closes the eyepiece by a threaded joint. Thus no leaks can occur if one desires to use air dilation, which is rarely required during the insertion of this sigmoidoscope

The accompanying illustrations present these features. There are shown, too, the 14 inch powder blower and applicator used in treating the sigmoid. The spoon is not illustrated, but is very much like a dull uterine curet of small size mounted as is the applicator.

Current for the lamp can be supplied from a storage or wet cell battery, or from the adjustable rheostat that can be screwed into a universal socket of the direct or alternating street current of 110 volts. We find the latter most satisfactory.

328 South Twenty-First Street—2018 Chestnut Street.

CALCULUS ANURIA

Ernst C. Baynard, M.D., and James J. Ravenel, M.D.
Professor of Urology and Lecturer in Urology, Respectively, Medical College of the State of South Carolina
Charleston, S. C.

This case is reported because of its rarity and unusual interest. One does not realize how rare the phenomenon is until there is an occasion to look up the subject, on which little has been written. So far as we have been able to review the literature, textbook and journal articles do little more than describe the condition, mentioning its occurrence and giving no detailed study of the cause of this interesting but puzzling renorenal reflex set up by the presence of a calculus in the opposite kidney.

REPORT OF CASE

Mrs. S., aged 37, was admitted to Roper Hospital, Feb. 6, 1921, with a diagnosis of pyelitis complicating a pregnancy of about four months. Cystoscopic examination revealed much mucopurulent material floating freely in a very congested bladder. A No. 6 ureteral catheter was obstructed in the right ureter about 5 cm. from the bladder. This obstruction was passed with a smaller catheter, and a large quantity of pus escaped into the bladder on removal of the catheter. Roentgen-ray examination revealed a large calculus filling the right renal pelvis, and a dilated pelvis and ureter on this side. Chemical examination of the blood revealed, for each hundred cubic centimeters: nonprotein nitrogen, 30 mg.; urea nitrogen, 24.4 mg.; uric acid, 1.6 mg.; creatinin, 1.2 mg., and sugar, 75.2 mg. The urine was cloudy and acid; examination revealed four plus albumin, four plus acetone, two plus diacetic acid, no casts, four plus pus and one plus blood. The blood count revealed: leukocytes, 6,280; small lymphocytes, 6 per cent.; large lymphocytes, 3 per cent.; large mononuclears, 1 per cent.; transitionals, 0; polymorphonuclears, 89.5 per cent. The blood pressure was 105 systolic and 65 diastolic.

The patient was relieved of her symptoms by cystoscopic treatment, and left the hospital against advice. She went home and was delivered normally at full term by her private physician. Nov. 27, 1921, about three months after delivery, she was readmitted to the hospital suffering with a sharp pain in the right lumbar area posteriorly. The pain was constant and radiated down the right leg. She suffered from nausea and vomiting up to three days before admission. About five days before admission she passed a large quantity of yellowish gravel, but no blood was observed. She had passed no urine since 9 a. m., November 25, and her attending physician had been unable to obtain any on repeated catheterizations. For the last four years she had had repeated similar attacks, but had had no anuria following them. Physical examination was negative except for a palpable mass over the gallbladder area. Because of the acute pain over each kidney area, we were unable to palpate the kidneys. The patient stated that on the morning of the 28th she voided about an ounce of urine, but neither the nurse nor the intern could verify this. At 9:45 on the evening of the 28th, after an anuria of eighty-four hours with no response to drugs or local measures, and with a pulse from 112 to 124, respirations 24, and temperature ranging from normal to 101.8, and severe toxic symptoms supervening, we took her to the operating room. The blood examination at this time gave a total white count of 10,800 with polymorphonuclears 79⅔ per cent.

The left kidney was cut down on and found to be blue-black, and very tense within its capsule. When the capsule was incised, the kidney popped out like a pea from its pod. A nephrotomy and decapsulation was done on this side. The right kidney was exposed, a nephrotomy and decapsulation done, and a large stone, which had destroyed the greater portion of the organ, was removed from its pelvis.

After a stormy convalescence and stay in the hospital for seventy days, the patient was able to go home. She still returns periodically for treatment. Because of an infection of the left kidney and decreased function on this side, 7.5 per cent., we have been unable to remove the right kidney.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

FERRO-SAJODIN.—Ferioben.—Ferro-sajodin is a basic, ferric iodobehenate, approximate formula $\dot{Fe}(OH)(C_{21}H_{42}\text{-}ICOO)_2$, which contains at least 5 per cent. of iron and at least 24 per cent. of iodine.

Action and Uses.—Ferro-sajodin has the actions of iodides and iron. It is claimed to be more stable and palatable than ferrous iodide, not to injure the teeth or to disturb the gastro-intestinal tract, and that it is free from a constipating tendency. It is claimed that ferro-sajodin is easily absorbed, but that it is slowly eliminated, thus assuring a more prolonged effect than that obtained from inorganic iodides and iron compounds.

Ferro-sajodin is indicated in the conditions in which iron and iodides are employed, such as anemia, rickets, syphilis, chronic bronchitis and arteriosclerosis with anemia.

Dosage.—From 0.5 to 1 Gm. (8 to 15 grains), three times daily. For children from 0.25 to 0.5 Gm. (4 to 8 grains) three times daily. Ferro-sajodin is sold in the form of tablets only. These should be masticated before swallowing or crushed when administered to children.

Manufactured by the Bayer Co., Inc., Rensselaer, N. Y. (Winthrop Chemical Co., Inc., New York, distributor). No U. S. patent. U. S. trademark 61,730.

Ferro-Sajodin Tablets, 8 grains.

Ferro-sajodin is a reddish brown, odorless and tasteless powder; unctuous to the touch; insoluble in water or alcohol; slightly soluble in chloroform, ether and warm fatty oils.

Ferro-sajodin melts to a brownish-black liquid from which iodine vapors are emitted abundantly. Shake about 0.1 Gm. of ferro-sajodin with 5 Cc. of chloroform and 5 Cc. of diluted hydrochloric acid; allow the acid liquid to separate; decant a portion of it and treat it with an excess of ammonia water. A red precipitate of ferric hydroxide is produced.

Heat about 0.5 Gm. of ferro-sajodin in a reflux apparatus for thirty minutes with 15 Cc. of a 15 per cent. solution of potassium hydroxide in methyl alcohol; cool and filter, taking care to reserve the filtrate. Treat the residue on the filter with diluted hydrochloric acid and filter. Dilute 1 Cc. of the filtrate with 10 Cc. of water and add a few drops of potassium ferrocyanide solution. A blue color results. Acidify the reserved alkaline filtrate with dilute sulphuric acid and filter. To a portion of the filtrate, add a few drops of sodium nitrite solution and shake with chloroform. The chloroform layer is colored violet.

Mix about 6 Gm. of ferro-sajodin, accurately weighed, with 10 Gm. of anhydrous sodium carbonate; place in a platinum crucible; cover with more of the anhydrous sodium carbonate, and heat slowly until the mixture is melted. Cool, dissolve in water so far as possible, filter and wash the insoluble portion with water. Dissolve the insoluble portion in warm, diluted hydrochloric acid; add 0.5 Gm. of tartaric acid; make alkaline with ammonia water, and add an excess of yellow ammonium sulphide. Allow to stand over night; collect the precipitate; wash it with dilute ammonium sulphide; dissolve it with warm, diluted hydrochloric acid; add an excess of bromine water, followed by an excess of ammonia water; collect the ferric hydroxide, dry it; heat to ferric oxide and weigh in the usual way. The weight of ferric oxide corresponds to not less than 5 per cent. of iron.

Boil for one and one-half hours in a reflux apparatus about 3 Gm. of ferro-sajodin, accurately weighed, with 120 Cc. of 15 per cent. methyl alcohol solution of potassium hydroxide, cool, add 1 Gm. of powdered animal charcoal, and wash into a 500 Cc. volumetric flask with water. Filter through a dry filter, rejecting the first portions of the filtrate; treat 250 Cc. of the filtrate with sodium acid sulphite solution; acidify with nitric acid; add 40 Cc. of tenth-normal silver nitrate, and titrate the excess of silver with tenth-normal potassium sulphocyanate. The silver nitrate consumed corresponds to at least 24 per cent. of iodine.

Special Article

THE TREATMENT OF CARBON MONOXID ASPHYXIA BY MEANS OF OXYGEN + CO_2 INHALATION

A METHOD FOR THE RAPID ELIMINATION OF CARBON MONOXID FROM THE BLOOD *

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At a meeting of the Commission on Resuscitation from Carbon Monoxid Asphyxia on Nov. 15, 1921, the writers were appointed a subcommittee to conduct investigations both in the field and in the laboratory on the treatment of carbon monoxid asphyxia by the inhalational method, to be here described.

There is already available a considerable mass of theoretical knowledge and experimental material on which to base further advance along the line indicated. Recent investigations in this laboratory[1] have confirmed the correctness of the view that carbon monoxid has no direct toxic action on the brain, or other organs or tissues of the body, except only the blood. It acts wholly through its combination with the hemoglobin or red coloring matter of the blood. When so combined, the hemoglobin is for the time deprived of the power to transport oxygen from the lungs to the tissues of the body. A condition of asphyxia, or oxygen deprivation, therefore develops.

These investigations have also confirmed the findings of previous investigators, particularly Haldane,[2] that the combination of carbon monoxid with hemoglobin is reversible; that is, that by the mass action of oxygen the carbon monoxid which has been absorbed may be again completely displaced. The oxygen-transporting power of the blood may be thus completely restored.

The principal treatments heretofore proposed for carbon monoxid poisoning are bleeding, transfusion, artificial respiration, and oxygen inhalation. There is no adequate theoretical reason for bleeding in this condition, but rather the contrary; for it is probably injurious by further depleting the oxygen-transporting power of the blood. Transfusion of normal blood is probably quite ineffective; for in order to be beneficial, it would need to be performed within one hour, or at most two hours, after termination of the gassing; and this is in most cases quite impracticable.

Artificial respiration, preferably by the manual prone pressure or Schäfer method, sometimes plays a crucial part in resuscitation from carbon monoxid asphyxia, but on the whole is less important in this condition than in resuscitation from drowning or from electric shock. In carbon monoxid asphyxia, as in the other two conditions, artificial respiration may indeed at times be essential to start spontaneous breathing. The victim of drowning or electric shock has virtually been saved when restoration of respiration has been accomplished. The resuscitation of a man or animal asphyxiated by carbon monoxid is not so simple. Natural breathing may be restored; indeed, the victim may not have stopped breathing at all while in the gassing chamber; and yet he may die hours or days later from the effects of the asphyxia.

SLIGHT EFFECTIVENESS OF OXYGEN ALONE

Oxygen inhalation offers, therefore, the one promising line of attack on this problem. Theoretically it is the obvious method for displacing carbon monoxid from the blood and thus restoring to hemoglobin its normal capacity to carry oxygen to the brain and other organs so as to overcome asphyxia. In practice, however, oxygen inhalation has not fulfilled its theoretical promise. It needs some auxiliary agent.

This ineffectiveness of oxygen alone seems to have been due to several contributing causes, of which three may be mentioned:

1. There has been no efficient apparatus generally available for administering oxygen inhalation. When oxygen is given through a glass funnel suspended a few inches above the patient's face, very little—or none, if there is a draft in the room—reaches the patient. A well fitting mask is essential for unconscious subjects. The flow of gas should also be adjusted to the respiratory needs of the patient. Only in the so-called "self contained oxygen apparatus,"[3] used for mine rescue work and employed to some extent also by city firemen and the emergency crews of gas companies, is there an apparatus at all suitable to this purpose; but such apparatus needs to be changed from a closed to an open circuit so as to avoid rebreathing, in order to suit it to the treatment of carbon monoxid asphyxiation.

2. The application of treatment by oxygen inhalation, or indeed, of any treatment in cases of gas asphyxiation, is generally too long delayed to be at all effective. Asphyxia is not immediately terminated when the victim is removed from the gassing chamber, or when the gas is turned off and the windows are opened. The carbon monoxid comes off from his blood so slowly during the first two or three hours that, although his body may be surrounded and his lungs filled with fresh air, his brain continues to be asphyxiated. On the other hand, the greater part of the carbon monoxid comes off in the course of four or five hours, and it then does very little good to administer oxygen; for when the brain has been too long asphyxiated it probably becomes edematous, and degenerative processes set in. It is this condition of post-asphyxial coma, after the primary stage of asphyxia is past and much of the carbon monoxid has come off, that is usually seen in the hospitals. It does no good to transfuse blood from a healthy person into such a patient six or eight hours after the gassing, for by that time his own blood has to a large extent spontaneously thrown off the carbon monoxid and regained oxygen. The continued coma is probably due, not to asphyxia

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* From the Laboratory of Applied Physiology, Yale University.

* Report I of the Commission on Resuscitation from Carbon Monoxid Asphyxia. The Commission on Resuscitation from Carbon Monoxid Asphyxia was organized at the request of the American Gas Association, which appropriated a fund to cover the expenses of this and the related investigations to be published in later reports. The commission consists of: Cecil K. Drinker, M.D., Chairman; Walter B. Cannon, M.D.; David L. Edsall, M.D.; Howard W. Haggard, M.D.; Lawrence J. Henderson, M.D.; Yandell Henderson, Ph.D.; Warren K. Lewis, Ph.D.; Francis W. Peabody, M.D.; Royd R. Sayers, M.D., for the U. S. Bureau of Mines, and Charles B. Scott, for the American Gas Association.

[1] Haggard, H. W.: Am. J. Physiol. **60**: 244 (April) 1922.

[2] Haldane, J. S.: Respiration, Yale University Press, May, 1922.

[3] Henderson, Yandell, and Paul, J. W.: U. S. Bureau of Mines Tech. Paper 82, Washington, 1917.

at that time, but to the brain edema and the degenerative processes just referred to.

The point cannot be too strongly emphasized that for treatment to be effective it must be applied at the earliest possible moment after the victim is discovered, and must remove the carbon monoxid from his blood as soon as possible.

3. The third reason why oxygen inhalation is not very effective, even when an efficient inhaler is used, depends on a more fundamental physiologic consideration. It is true that in partial asphyxiations, both as they occur accidentally and as performed experimentally by investigators on themselves, oxygen inhalation effects a considerable alleviation of the headache and other immediate sequelae. It induces also a somewhat, but initially a not very greatly, accelerated elimination of carbon monoxid from the blood. This is essentially the finding of Haldane [2] and his collaborators, in England, of Nicloux [4] in France, and of the authors in experiments on themselves to be here reported.[5]

It is probable, however, that such observations have led to a much too favorable expectation of the benefits of simple oxygen inhalation in persons who have been asphyxiated into coma. In experiments on themselves, investigators have, indeed, induced percentage saturations of the blood with carbon monoxid approximating dangerous concentration. They have not, however, continued the asphyxiation until coma resulted. The ability of their circulation and respiration to effect the subsequent elimination of the asphyxiant unaided has not therefore been greatly depressed; and under such conditions oxygen assists considerably. But when the depression of vitality has gone to the extent that occurs in the victim of an accidental asphyxiation with many hours of coma, oxygen alone is comparatively ineffective. The distinction as regards the rate of elimination of carbon monoxid after brief gassing and after profound asphyxia is much like that occurring in the rate at which patients eliminate ether after short, in contrast to long, anesthesias. With carbon monoxid, as with ether, there is a difference between the extent to which respiration is depressed after slight, in contrast to profound, anesthesia or asphyxia. In both of the latter conditions, respiration is sometimes so feeble that it fails and death occurs even after oxygen inhalation has been applied, for oxygen is not a respiratory stimulant.

The depression of respiration occurring during and after asphyxia, and impelling toward a fatal issue, is probably the resultant of several different, although related, factors and processes: initial overbreathing, disturbance of the alkali and C_H (concentration of hydrogen ions) of the blood, fatigue of the respiratory center, the direct action of oxygen deficiency, and circulatory and edematous conditions. It is not possible—or necessary for the present purpose—to evaluate their relative importance. Probably all play parts in all cases, but of varying relative intensity. The following paragraphs are intended merely to indicate their nature, and to suggest their modes of interaction.

The breathing of a normal man or animal, as is now well known, is largely regulated by the carbonic acid or carbon dioxid produced in the muscles and organs and carried by the blood to the respiratory center in the brain. Carbonic acid is the normal stimulus to this center and thus regulates normal breathing. During asphyxia, however, the oxygen deficiency in the blood exerts an abnormal and excessive action on this center, and induces excessive breathing by which the body's store of carbon dioxid is greatly reduced. In previous work from this laboratory [6] it has been shown that during asphyxia, as the saturation of the blood with carbon monoxid increases, the oxygen deficiency induces a progressively increasing volume of breathing. In a dog in an atmosphere of 0.17 per cent. of carbon monoxid the volume of air breathed per minute was found to increase from the normal expressed as 100, up to 164 per cent. in two hours, and 266 per cent. in three hours. From this high level it decreased progressively in the course of a little more than an hour until death from respiratory failure occurred. In another experiment the increase of pulmonary ventilation was up to 200 in three hours and 350 per cent. in six hours; in another, to 200 per cent. in four hours. During recovery in fresh air, the volume of breathing is often correspondingly depressed. In some cases it is scarcely measurable and only gradually returns. In one case, twenty minutes after removal from the gassing chamber the animal attained a volume of breathing only 66 per cent. of the normal. In another case, respiration was too feeble to move the valves of the mask connected with the measuring apparatus.

This excessively large volume of breathing, maintained sometimes for many hours, predisposes to subsequent subnormal breathing or even to respiratory failure of the apnea vera type. It has also other profound physiologic effects. Thus, in the experiments cited, the carbon dioxid content of the blood, which is now accepted as a measure of the blood alkali in use, fell to 26 per cent. by volume, or 63 per cent. of the initial value; in another experiment the blood alkali was reduced to 76 per cent. of the normal; and in the fatal case mentioned above, it was found shortly before death to be only 37 per cent. of the initial normal value. This condition of extreme acapnia was for a time erroneously regarded as an acidosis, whereas it is rather an alkalosis and involves corresponding disturbances in the equilibrium of the blood and tissues.[7]

Among these disturbances of various equilibriums, one which may perhaps play an important part has to do with the avidity with which hemoglobin retains both carbon monoxid and such oxygen as it still holds, thus further starving the tissues. The work of Bohr,[8] Haldane [2] and Barcroft [9] has shown that variations in the carbon dioxid content of the blood acting through its C_H exert a marked influence on the dissociation of oxygen from hemoglobin. Acapnia and alkalosis induce the condition termed by Barcroft pleionexy, in which the avidity of hemoglobin for oxygen, and according to Haldane for carbon monoxid also, is greatly intensified.

Along with these conditions there is probably also a fatigue of the respiratory center both from the excessive stimulation to which it has been subjected during the period of respiratory excitement and from the anoxemia, the latter acting much like a profound anesthesia. As recent investigations of Haldane [10] have emphasized, "even a slight deficiency in the oxygenization of the arterial blood greatly favors the development of fatigue symptoms in the respiratory center."

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[4] Nicloux, M.: Presse méd. **25**: 153 (March 15) 1917.

[5] The authors have been privileged to see also, in manuscript, the results of experiments, closely similar to those here reported, obtained by Dr. R. R. Sayers and Mr. W. P. Yant at the Bureau of Mines Experiment Station, Pittsburgh.

[6] Haggard, H. W., and Henderson, Yandell: J. Biol. Chem. **47**: 421 (July) 1921.

[7] Henderson, Yandell; Haggard, H. W., and Coburn, R. C.: The Acapnia Theory, Now, J. A. M. A. **77**: 424 (Aug. 6) 1921.

[8] Bohr, C., in Nagel's Handbuch der Physiologie des Menschen, Braunschweig **1**: 104, 1909.

[9] Barcroft, J.: Respiratory Function of the Blood, Cambridge, 1914.

In consequence of these, and perhaps of other as yet incompletely analyzed effects, when a victim of profound asphyxia is given an oxygen inhalation he breathes so poorly, draws so little of the oxygen into his lungs, and in consequence displaces so little of the carbon monoxid from his blood that the benefits of the treatment are often for a time scarcely perceptible. Indeed, in experiments carried out for the special purpose of testing this point, some of the animals stopped breathing and died after oxygen inhalation was begun. This occurrence may perhaps be in part a form of the "oxygen apnea" which was first noted by Mosso,[11] and is easily obtained with oxygen after exertion at great altitudes.[12]

After prolonged and profound asphyxia, some accessory factor is needed to stimulate the patient to vigorous breathing so that he may draw the oxygen in and thus wash the carbon monoxid out. The most natural means of obtaining this end is to supply enough carbon dioxid mixed with the oxygen to serve as the immediate stimulus to breathing. Much the same idea has been utilized by the writers to induce vigorous breathing, rapid elimination of ether, and a rapid restoration of consciousness in patients after prolonged anesthesia.[13] The addition of the carbon dioxid to the inhaled air proved highly effective both in stimulating pulmonary ventilation, and in washing out ether from the blood.

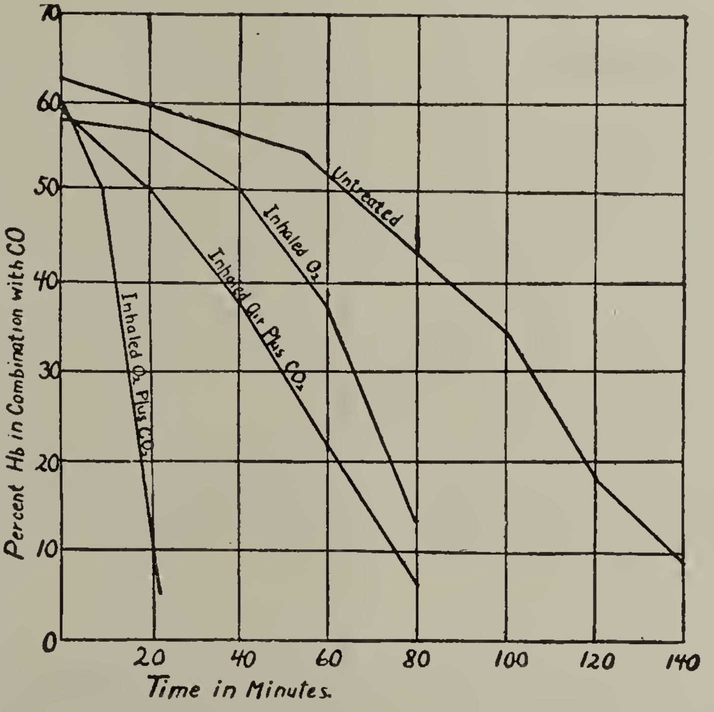

Fig. 1.—Elimination of carbon monoxid from gassed dogs.

EXPERIMENTS ON ANIMALS

Following this line of thought, experiments were performed on dogs, and the results obtained are shown in the four curves of Figure 1. By means of illuminating gas diluted with air, the animals were all asphyxiated to as nearly as possible the same degree, namely, almost to the point of death. Samples of blood were drawn at intervals thereafter and analyzed for carbon monoxid so as to show the rate of elimination. Each curve is the composite of two or more such experiments detailed in the initial publication.[14]

After removal from the gassing chamber, animals of the first group were left to recover spontaneously. As shown in the upper curve, the rate of elimination during the first hour was very slow indeed, depending on the fact that the animals were scarcely breathing.

In a second curve is shown the rate of elimination in animals under oxygen inhalation. The volume of breathing was no greater, indeed, perhaps rather less, than in the previous group, and the rate of elimination was initially only slightly more rapid. With oxygen, as with air, the rate of elimination of carbon monoxid becomes considerable only as the depression of respiration wears off, and efficient pulmonary ventilation returns.

In a third curve is shown the effect of adding a small amount of carbon dioxid to the air which the animals breathed. The breathing was thereby so much increased in volume that a markedly more rapid elimination of carbon monoxid was obtained.

Finally, in the steepest curve is shown the extremely rapid elimination occurring when the animals were made to inhale oxygen containing 10 per cent. of carbon dioxid. Under these conditions, even when the subject was initially so deeply asphyxiated that manual artificial respiration was necessary in order to keep it alive until the oxygen + CO_2 reached the lungs, the respiratory center was within a minute or two stimulated to renewed and increased activity. The breathing returned to normal, and then to nearly or quite the maximum pulmonary ventilation of which the animal was capable. The lungs were thus ventilated with a corresponding volume of oxygen, and under the mass action of this constantly renewed oxygen, an approximately complete elimination of carbon monoxid from the blood was obtained in the course of from twenty to twenty-five minutes. From a state of complete unconsciousness the animals returned to full vital activity, although frequently in a dangerously bad temper.

The only risk which it was found necessary to avoid was an action on the heart due to the use in some of the earlier experiments of excessively high percentages of carbon dioxid; but this risk was obviated by administering a moderate dose of atropin or reducing to some extent the amount of carbon dioxid employed.

EXPERIMENTS ON MEN

In order to determine how far similar results are obtainable on men, the following experiments were performed by the writers on themselves and some of their associates in this investigation. The gassing and treatment were varied from the animal experiments merely by using carbon monoxid prepared from formic acid instead of illuminating gas. Higher concentrations of carbon monoxid were used in these experiments on men than in those on animals, but the periods of exposure were shorter. In the therapeutic inhalation after the gassing, the amount of carbon dioxid

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10. Haldane, J. S.: Respiration, p. 5.
11. Mosso, A.: Arch. Ital. Biol. **41**: 138, 1904. Henderson, Yandell: Am. J. Physiol. **25**: 329, 1910.
12. Douglas, C. G.; Haldane, J. S.; Henderson, Yandell, and Schneider, E. C.: Physiological Observations Made on Pike's Peak, Colorado, with Special Reference to Low Barometric Pressures, Phil. Tr. B. **203**: 310, 1913.
13. Henderson, Yandell; Haggard, H. W., and Coburn, R. C.: The Therapeutic Use of Carbon Dioxid After Anesthetia and Operation, J. A. M. A. **74**: 783 (March 20) 1920.
14. Henderson, Yandell, and Haggard, H. W.: J. Pharmacol. & Exper. Therap. **16**: 11 (Aug.) 1920.

added to the oxygen was reduced to 5 per cent., for this amount proved quite adequate to stimulate respiration and is free from the discomfort of higher percentages. Furthermore, observations on men carried out under the direction of Dr. R. R. Sayers at the Bureau of Mines Experiment Station, and mentioned here by his permission, had showed that 10, or even 8, per cent. carbon dioxid is much too high a concentration for the best results on men, involving headache, labored breathing, and other disadvantages. In the following experiments, a mixture of oxygen and 5 per cent. carbon dioxid was therefore used, and no discomfort of this sort was experienced.

The method employed was for the subject to spend from thirty to forty minutes in a gassing chamber of 6 cubic meters capacity, the air of which contained about 0.2 per cent. of carbon monoxid. At the end of this time the blood analyses revealed from 35 to 50 per cent. of saturation. This is enough gas, as previous work here shows, to render an untreated subject severely ill within an hour or two with headache, nausea, vomiting and vertigo. A few hours in such an atmosphere would kill.

Immediately after the subject came out of the gassing chamber, he lay down and the therapeutic inhalation was administered to him for from twenty-five to thirty minutes. Two experiments were done on each of four subjects. With two of these subjects after the first gassing, oxygen and 5 per cent. carbon dioxid were inhaled, while after the second gassing, the next day, an inhalation of oxygen alone was given; on the other two subjects the reverse order was used, without affecting the relative effects of oxygen + CO_2 as compared with oxygen alone. In two of the subjects the rate of elimination with no treatment had been determined in previous work.[15] In a fifth subject only the first experiment, i. e., gassing and treatment with oxygen + CO_2, was performed. In all the experiments, samples of blood were taken and analyzed by the tannic acid method (described below) as follows: (1) before gassing; (2) immediately after gassing; (3) after fifteen minutes' inhalation of oxygen + CO_2 or of oxygen alone; (4) at the end of the inhalation, and (5) half an hour later. The protocols of these experiments follow, together with graphs plotted from the results on two of these subjects.

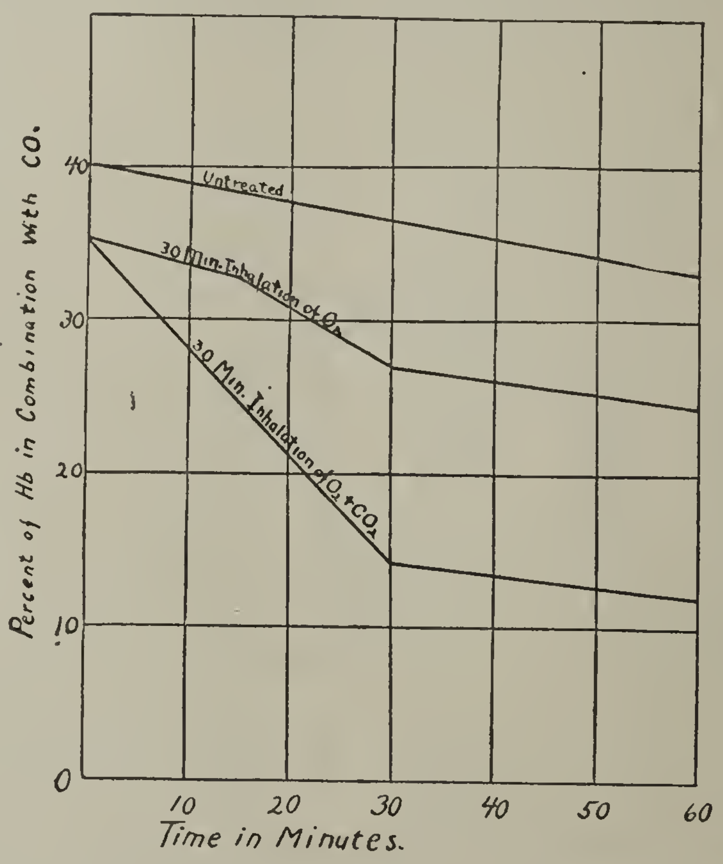

Fig. 2.—Elimination of carbon monoxid in Experiment 1.

In these protocols and diagrams it is to be seen that when breathing oxygen the rate of elimination of carbon monoxid is somewhat more rapid than when the subject breathes merely air, but that the elimination is enormously accelerated when the inhalation consists of oxygen + CO_2. In the latter case the breathing is augmented from 300 to 500 per cent., and the removal of carbon monoxid is accelerated proportionally. Thus, a blood concentration of carbon monoxid of from 40 to 50 per cent. saturation, a dangerous amount, was reduced to only 10 or 12 per cent., a quite harmless amount, in half an hour.

PROTOCOLS

Experiment 1.—Y. H., man, aged 49, weight, 170 pounds (77 kg.):

(*a*) Gassed in 0.2 per cent. carbon monoxid for thirty minutes, standing and moving during the gassing. Then he came out of the chamber, lay down, and inhaled oxygen + CO_2 for twenty-five minutes. The volume of breathing increased from 9 liters in the first minute to 15 liters in the second minute, 20 liters in the third, 30 liters in the fourth, and continued at about this volume through the inhalation. No discomfort was felt during the inhalation, but there was a slight headache afterward; otherwise the subject was well.

(*b*) Same subject, next day, similar experiment; but after gassing, inhaled oxygen alone. The volume of breathing was only 5 liters a minute, i. e., subnormal, during inhalation; respiration was distinctly irregular, almost of the Cheyne-Stokes type. The pulse also for a time was distinctly irregular. During the rest of the day the subject was irritable and tired, but not distinctly unwell.

(*c*) Same subject (two years ago) after similar experiment, but not followed by inhalation of oxygen, was distinctly unwell with throbbing frontal headache for twelve hours.

The rates of elimination of carbon monoxid in these three experiments are shown by the accompanying analyses of the blood for percentage of saturation.

Experiment 2.—H. W. H., man, aged 30, weight, 200 pounds (91 kg.):

(*a*) Gassed and treated as the subject was in Experiment 1 *a*, and with similar results. The volume of breathing under inhalation of oxygen + CO_2 increased from 9 up to 30 liters or more. He felt no after-effects whatever.

(*b*) Gassed and treated as the subject was in Experiment 1 *b*. Under oxygen alone respiration was at first subnormal, then about normal, 10 liters a minute. Headache developed with increasing intensity all day, with dyspnea on exertion; the subject was rather miserable.

CARBON MONOXID IN BLOOD IN EXPERIMENT 1

Experiment	Percentage Saturation of Blood with Carbon Monoxid: Before Gassing	After Gassing: 2 Min.	15 Min.	30 Min.	60 Min.	Treatment
(*a*)	0	35	25	15	12	Inhaled oxygen + CO_2
(*b*)	0	35	32	27	25	Inhaled oxygen alone
(*c*)	0	38	..	..	33	Breathed air

(*c*) After similar but less intense gassing, two years ago, not followed by inhalation of oxygen, this subject developed a frontal headache and malaise lasting all day and followed by insomnia.

Experiment 3.—S. S., man, aged 28, weight, 130 pounds (59 kg.):

(*a*) Gassed and treated as the subjects were in Experiments 1 *a* and 2 *a*. Under oxygen + CO_2 inhalation, the volume of breathing increased to 30 liters a minute. He felt no after-effects, remaining entirely normal.

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[15] Henderson, Yandell; Haggard, H. W.; Teague, M. C.; Prince, A. L., and Wunderlich, R. M.: J. Indust. Hyg. 3: 79-92, 137-146, 1921.

CARBON MONOXID IN BLOOD IN EXPERIMENT 2

	Percentage Saturation of Blood with Carbon Monoxid					
		After Gassing				
Experiment	Before Gassing	2 Min.	15 Min.	30 Min.	60 Min.	Treatment
(*a*)	0	50	30	15	12	Inhaled oxygen + CO_2
(*b*)	0	45	42	40	35	Inhaled oxygen alone
(*c*)	0	34	..	..	29	Breathed air

(*b*) Gassed and treated as the subjects were in Experiments 1 *b* and 2 *b*. The volume of breathing under oxygen inhalation was only a little more than 5 liters a minute. He felt miserable during the remainder of the day.

CARBON MONOXID IN BLOOD IN EXPERIMENT 3

	Percentage Saturation of Blood with Carbon Monoxid					
		After Gassing				
Experiment	Before Gassing	2 Min	15 Min.	30 Min.	60 Min.	Treatment
(*a*)	0	45	25	15	12	Inhaled oxygen + CO_2
(*b*)	0	45	40	35	30	Inhaled oxygen alone

Experiment 4.—M. M. J., woman, aged 30, weight, 160 pounds (73 kg.):

Conditions and results were practically identical with those of Experiments 3 *a* and 3 *b*.

CARBON MONOXID IN BLOOD IN EXPERIMENT 4

	Percentage Saturation of Blood with Carbon Monoxid					
		After Gassing				
Experiment	Before Gassing	2 Min	15 Min.	30 Min.	60 Min.	Treatment
(*a*)	0	45	25	15	10	Inhaled oxygen + CO_2
(*b*)	0	40	35	30	28	Inhaled oxygen alone

Experiment 5.—R. R. S., man:

Gassed and treated as were the previous subjects. Respiration responded less vigorously than is usual in most persons to the stimulation of carbon dioxid in the inhalation. He felt slightly unwell afterward.

CARBON MONOXID IN BLOOD IN EXPERIMENT 5

Percentage Saturation of Blood with Carbon Monoxid					
		Under Inhalation			
Before Gassing	After Gassing	15 Min.	30 Min.	60 Min.	Treatment
0	35	20	10 (?)	8	Oxygen + CO_2

INVESTIGATION IN NEW YORK CITY

With the foregoing facts as a background, a carefully planned and supervised test of this method of oxygen + CO_2 inhalation for human victims of carbon monoxid asphyxia seemed justifiable.

For some years past, work had been under way in this laboratory on an improved inhaler. During the war one of the authors had developed certain features of such an apparatus for administering oxygen (without carbon dioxid) to soldiers suffering from the irritant war gases. A number of these apparatus had been made and shipped to France, but arrived only as fighting ceased. In the laboratory, meanwhile, a device had been developed for the control and measurement of the flow of gas. Meanwhile also, the sylphon bellows reducing valve, the most perfect device of its kind, had been developed by Mr. W. E. Gibbs for the U. S. Bureau of Mines, and patented by the government for general use. Using these three features, the apparatus shown in Figure 4 was developed under the direction of the writers by the Mine Safety Appliances Company. The writers are indebted to this company for assuming all the risks and expense of development and for freely supplying the six inhalers used in the investigations to be described below.

The apparatus consists of a steel tank or bottle charged to about 120 atmospheres of oxygen and 6 atmospheres of carbon dioxid, that is, 5 per cent. with an allowable variation of ± 0.5 per cent. carbon dioxid. The bottle is connected with the reducing valve, which automatically delivers any quantity of gas that may be drawn at a uniform pressure of about 1.5 pounds per square inch. The gas than passes through the graduated needle valve, which serves both as a control and as a meter for estimating the volume of breathing, so that the supply to the patient can be adjusted to any volume from 0 up to 30 liters a minute. From this needle valve the gas flows into a bag of rubber and cloth of 4 or 5 liters capacity. Beyond this bag is a pair of disk valves arranged on a T so that the upper one, which has a very light disk, allows the patient to inhale the contents of the bag at the beginning of a respiration, while the lower valve with a heavier disk only opens to admit outside air after the bag has been sucked empty. From the upper disk valve a hose of 0.8 inch bore leads to a snout mask. On the mask is an expiratory valve. This apparatus has been given the name of the H.-H. inhalator.

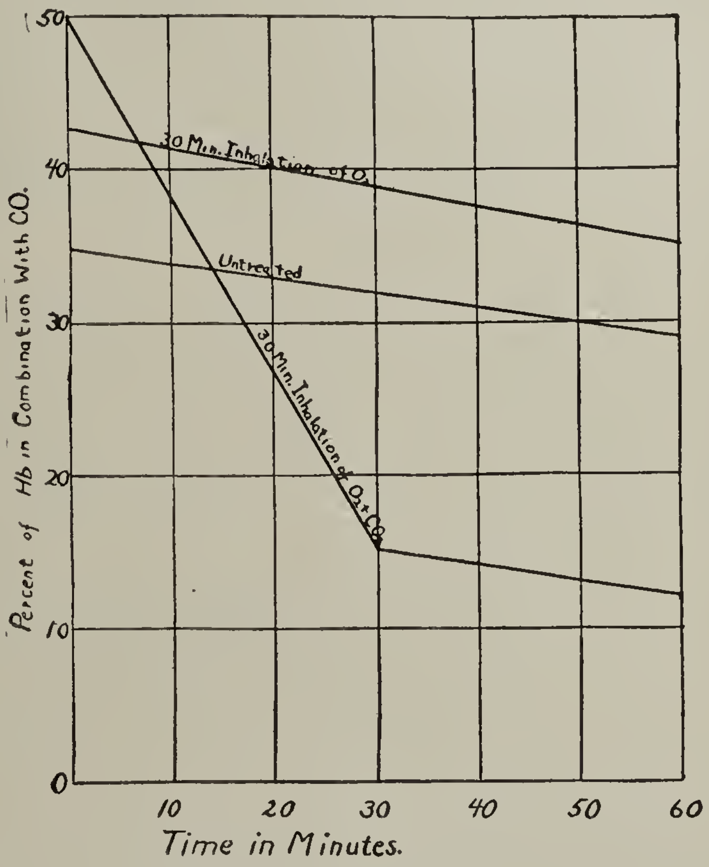

Fig. 3.—Elimination of carbon monoxid in Experiment 2.

The following sheet of instructions was put into each of the inhalator boxes:

DIRECTIONS IN BRIEF

I. Open valve at top of tank.
II. Put mask on victim.
III. Turn pointer on dial to 10.
IV. Keep advancing pointer as victim breathes more.
V. Use for from twenty to thirty minutes.

DETAILED DIRECTIONS

1. This apparatus is charged with oxygen and another gas (CO_2) which makes the victim breathe many times the amount he otherwise would. It makes him pump the illuminating gas out of himself.

2. If the victim has stopped breathing before you arrive, apply both manual artificial respiration and the H.-H. inhalator. If anything will start him breathing, this inhalation will.
3. In using the inhalator, open the valve at the top of the black gas bottle. See that the pointer on the nickel plated dial is turned as nearly as possible to O.
4. Put the mask over the victim's face. The lower part goes well below the chin. Press down firmly over the nose. Prevent leaks.
5. When the pointer on the nickel plated dial is at 0 the victim breathes air which he draws in through the inlet valve below the T at the end of the long rubber hose.
6. As soon as the mask is on the victim's face, turn the pointer to 10. This lets gas run from the tank into the rubber bag. The victim breathes this. If he breathes more than runs in, the bag collapses and he draws in additional fresh air through the inlet valve.
7. As the victim's breathing increases, turn the pointer on the dial so as to just keep the bag from collapsing each time he breathes in.
8. If the victim goes well, the breathing will increase to 25 or 30 liters a minute—as shown on the dial—during the first five minutes.
9. Keep the pointer at about 25.
10. Usually twenty minutes of use of the inhalator is all that is necessary, but it may be given in severe cases for forty minutes. More than this merely wastes the oxygen + CO_2.

Among the most serious practical difficulties to be anticipated was that of obtaining a supply of oxygen containing 5 per cent. carbon dioxid. No such gas mixture is at present on the market. This investigation is therefore deeply indebted to the Union Carbide and Carbon Company and the Linde Air Products Company for most generously making and freely supplying all of the oxygen + CO_2 used in these researches.

It was next essential to have a field in which not only a considerable number of asphyxiations were certain to occur in the period of intensive investigation of two months which was planned, but in which there must also exist facilities for reaching the patients at the earliest possible moment, that is, within an hour, or, better, within thirty minutes, after discovery. Previous experience had proved that in most cities even during the winter months when asphyxiations are most frequent, no considerable number of patients are reached soon enough to give the treatment a fair trial. Owing to delays in notification and the lack of the necessary arrangements, gas cases in most cities are not usually reached for from two to three hours or more after discovery.

The city of New York, Borough of Manhattan, however, affords ideal conditions for applying the treatment here under investigation. The Consolidated Gas Company maintains in each of five districts of the city, which owing to the congestion of population are comparatively small in area, an emergency auto truck. Each truck has three crews, each on duty for eight hours.

Furthermore, whenever these trucks are away from their stations, and during the day they are almost continually on the move, they keep constantly in touch by telephone with the central office. Twenty-four hours a day every day in the year, a dispatcher in the office of the gas company is ready at the telephone to receive from the police, from hospitals and from others, calls for the emergency trucks, and the records show that it is only a matter of a few minutes before the nearest truck is at the scene of any gassing accident or similar occurrence. Usually one of these emergency trucks arrives some minutes before the hospital ambulance. The crews of these trucks are trained not only to make repairs to gas leaks, but also to apply artificial respiration both by means of apparatus and by the manual method, an art in which hospital interns and ambulance surgeons should be much more thoroughly trained than at present. The truck crews are intelligent men, interested in their work, and with a large experience in cases of gas asphyxiation. Indeed, it would be difficult to find a more efficient accident service than that which the Consolidated Gas Company maintains for the benefit of the population of New York City. Furthermore, the company placed this organization fully at the service of this investigation. One of the inhalers was carried on each of the five auto trucks, and their crews gave efficient and cordial cooperation.

Through the courtesy of the U. S. Bureau of Mines, which is interested in carbon monoxid asphyxia as a cause of fatalities among miners, one of its medical staff was assigned to assist in the investigation. He lived in a room in the Consolidated Building with special telephone connection and automobile service for all hours of the day and night. One or the other, or both of the writers also spent a considerable amount of time with him each week.

The health department of New York City also furnished invaluable cooperation by which not only the police but every hospital in the city through its ambulance service and in other respects supplied all the facilities asked for. The authorities of Bellevue Hospital and its pathologic department gave particularly valuable assistance.

METHODS OF INVESTIGATION

Even with all this cooperation, the difficulties of the investigation inherent in the conditions under which asphyxiations occur in a great city proved to be very considerable. It is a trying task to wait for days, idle, knowing that a call may come at any minute of the day or night, and then to be called at top speed to one end of the city, only to find that the patient was dead when discovered; to rush back to the other end of the city to find a patient spontaneously recovered, and then to arrive late at a case which would have been ideal, if fully observed. But even in regard to such cases as that last mentioned, much of value was obtained. Each of the rescue crews was instructed to administer the oxygen + CO_2 inhalation as soon as the hospital ambulance arrived and permission was given by the physician. The amount of evidence regarding the effect of the inhalation so obtained from these physicians and the crews was considerable, in addition to that from cases which were directly observed.

Data were obtained regarding a total of eighty cases of asphyxiation; of these, half were under such conditions (usually owing to delay in discovery) that no treatment was given. They afford, however, valuable control observations. A considerable number of persons also were found dead. Of the remainder, some were treated by the methods heretofore in use, and serve as controls on the results obtained with the oxygen + CO_2 inhalation. This inhalation was tried out in twelve severe cases—a number somewhat less than had been hoped for; but in view of the results obtained, they are amply sufficient to justify the investigation and to afford a solid basis for the conclusions to be drawn below.

An elaborate questionnaire was drawn up and mimeographed; and all the information obtainable was inserted in regard to each case. In most cases the information reduced itself to more or less definite estimations of the following points: (1) previous medical history of the victim; (2) physical characteristics, age, weight, etc.; (3) suicide or accident; (4) size of the room, amount of gas and duration of asphyxia; (5) time elapsed before discovery of victim and application of measures for resuscitation (very important); (6) condition of patient at initiation of measures for resuscitation: respiration, pulse rate and force, and particularly a blood sample for analysis of degree of saturation with carbon monoxid; (7) behavior of patient under treatment; (8) condition, physical and mental, and the blood content of carbon monoxid at the end of the treatment—usually from fifteen to twenty minutes; (9) condition of patient in all respects an hour or two later; (10) next day, and (11) subsequently.

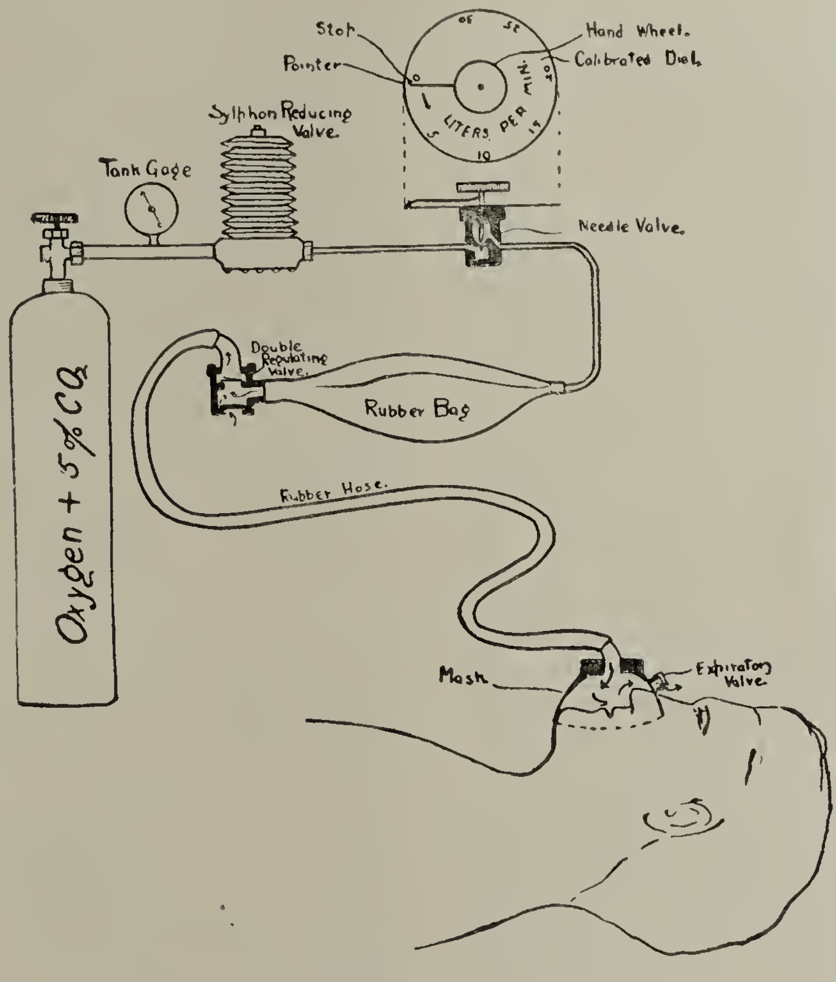

Fig. 4.—Diagrammatic view of H.-H. inhalator.

Blood Analysis.—The method for analyzing the blood for carbon monoxid was the so-called tannic acid method, slightly modified from the procedure which Sayers, O'Brien and Yant[16] have been using at the Bureau of Mines Experiment Station. A finger is wrapped with a rubber band, a deep prick is made with a stiletto, and 0.1 c.c. of blood is drawn into a pipet. This blood is immediately delivered into a test tube in 0.4 c.c. dilute ammonia (1 c.c. of strong ammonia in a liter of water). It is essential that the blood and ammonia be immediately mixed so as to lake the sample completely, but the mixture must not be shaken or caused to foam. One and five-tenths cubic centimeters of tannic acid (1 per cent. freshly prepared) is then added and mixed. It takes several hours for the color to develop, or rather for all color not due to carbon monoxid to be converted into the dull brown of the tannated blood proteins. Such samples are read against a scale which must be prepared at practically the same time. For this scale dog's blood is generally used: Five cubic centimeters of the undiluted blood was thoroughly exposed to illuminating gas in a flask by bubbling the gas through the blood until it was completely in foam. One cubic centimeter of this blood was then laked in dilute ammonia. An equal amount of the original blood without carbon monoxid was similarly mixed with ammonia. By taking proportional amounts of these two solutions, mixing them and adding tannic acid solution, a scale was then prepared in a series of test tubes to show 10, 20, 30, 40, 50, 60 and 100 per cent. saturation with carbon monoxid.

The blood from the patient was compared with such a scale the day following. The comparison was always made independently by at least two observers, generally with close agreement in their estimations of the degree of saturation.

It would serve no adequate purpose to report here in detail the forty cases of which we obtained records, but in which no treatment was given. This group includes nearly all those who were dead when found, as well as those so slightly gassed that nothing needed to be done for them. But two or three general statements are in order.

The observations made by the authors during this investigation indicate that a considerable number of the cases of fatal asphyxia recorded as accidental in New York City are really suicides. The published figures[17] for 1920 report 124 suicides by gas out of a total of 360 suicides; they report also 189 accidental fatal gassings out of a total of 2,215 violent deaths, this total including 461 highway fatalities and 367 falls from windows, elevators, etc. In the 313 deaths thus assigned to gas the suicides certainly contributed in reality a much larger proportion, and the accidental gassings were correspondingly fewer than these figures show. The average citizen of New York runs a much greater risk of losing his life in a street accident or by a fall from a window or elevator than from asphyxia; and he may reduce the latter risk practically to zero by the exercise of a little care. In fact, a large proportion of accidental fatalities are due to obviously defective fixtures, chiefly cheap, badly made, old, worn, cracked, loose tubing between the gas jet and stoves or burners of various sorts. This is not a matter over which gas companies can exert any control. The state should regulate the manufacture and sale of the types and qualities of such apparatus, as the medical examiner of New York City, Dr. Charles Norris,[17] has well recommended, and as the gas companies of many cities have also frequently urged.

OBSERVATIONS ON CASES OF ILLUMINATING GAS POISONING

The outstanding facts established regarding the cases of illuminating gas poisoning to which the oxygen + CO_2 inhalation was applied may be thus summarized: Not a single case of observable ill effect occurred. Although it did not prove feasible in most cases to administer a preliminary dose of 0.01 grain of atropin, the heart was in no case adversely affected by the concentration of carbon dioxid (5 per cent.) used.

In every case the respiratory response to the inhaled carbon dioxid consisted in a rapid increase in the volume of breathing up to full and deep pulmonary ventilation. Some of the patients were barely breathing and with weak pulse before inhalation was begun. Breathing in some had even to be started by means of manual artificial respiration. All, however, in whom there was still life responded effectively, and none failed or sank under the inhalation. Frequently the volume of breathing increased within five minutes to the full 30 liters of oxygen + CO_2 which is the maximum that the inhaler will supply, and beyond which a supplemental volume of atmospheric air is automatically drawn in. In most cases the other vital conditions improved correspondingly.

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[16] Sayers, R. R., and Yant, W. P.: Pub. 2356, U. S. Bureau of Mines.

[17] Report of Chief Medical Examiner of City of New York, 1918-1921. These statistics are based on the reports of the police, ambulance physicians and others, who are responsible for the misreporting referred to here.

Most significant was the extremely rapid reduction of carbon monoxid in the blood; the concentration falling from asphyxial amounts to practically negligible percentage saturations (10 or 15) in fifteen or twenty minutes. In several cases the blood was virtually free from carbon monoxid at the end of the inhalation—a result which is distinctly better even than had been attained in the preliminary experiments on men and animals in the laboratory.

As regards the question of artificial respiration, the observations indicate that in patients whose breathing has stopped or is very feeble, the mask of the oxygen + CO_2 inhaler should be held over the face while manual artificial respiration by the prone pressure method is applied. If any procedure can induce the return of spontaneous breathing after asphyxiation by carbon monoxid, this seems most likely to be effective.

In several of the cases of profound asphyxiation, the patients had recovered full consciousness before the end of the thirty or forty minutes of inhalation. Only one patient failed to return to consciousness within an hour or two thereafter. Even more striking is the fact that with this single exception, the patient dying the next day in coma, all of the others made uncomplicated and complete recoveries within a few days.

This is so good a showing that it must be regarded as in part assignable to good luck. There is certainly no reason to expect that every patient asphyxiated for many hours will recover consciousness thereafter merely because all of the carbon monoxid is removed from the blood; the damage to the brain during the asphyxiation may be too profound to allow recovery. But the fact that none of the patients developed pneumonia or any of the common sequelae of asphyxia demonstrates conclusively that the inhalational treatment has no harmful accessory features.

Indeed, as regards the pneumonia which is so common subsequent to gassing, these results suggest that the inhalational treatment may have a distinct prophylactic value; for in one group of forty-three cases (other than those observed in this investigation) in which the victims survived gassing and recovered consciousness without inhalational treatment, the hospital records (Bellevue) show that fourteen (or 33 per cent.) developed a subsequent pneumonia, and ten (or 23 per cent. of the total and 70 per cent. of the pneumonia patients) died. In striking contrast is the fact that not a single patient treated by the inhalational method developed this common postasphyxial pulmonary complication.

The following cases are typical of the reactions observed during the inhalational treatment:

Case 1.—H. H., a woman, aged 23, weighing 120 pounds (54 kg.) attempted suicide. Gas was escaping from an open jet, and the patient had a short but rather intense asphyxiation, probably less than 2 hours in a fairly high concentration of gas. She had been treated with artificial respiration and an oxygen apparatus for twenty minutes; the blood then contained 45 per cent. carbon monoxid. Oxygen + CO_2 inhalation was given for ten minutes; the blood then contained 20 per cent. carbon monoxid; an hour later, 10 per cent.; four hours later, the blood was virtually free from carbon monoxid. During inhalation, respiration increased from 7 liters to 30 liters; the pulse became strong; the color improved; at the end of the inhalation, the patient was conscious, struggling and very angry at being resuscitated; in the afternoon she had a severe headache. She was sent to a hospital, from which she was discharged next day.

Case 2.—M. C., a woman, aged 47, weighing 140 pounds (64 kg.), was in coma when first seen at 4:40 p. m. The hose to the gas jet had been disconnected and the gas turned on; the time of exposure was unknown. Respiration was 22, full and deep; pulse, 98, of good volume and regular. No preliminary blood sample was obtained, but from the condition of the patient the degree of saturation of the blood with carbon monoxid may be estimated at about 60 per cent. Oxygen + CO_2 inhalation was given for forty minutes, at the end of which time she was semiconscious, with good pulse, rate 90, respiration 18, regular and fairly deep. At the end of the inhalation the blood showed no perceptible amount of carbon monoxid. The patient was sent to a hospital and made an uneventful recovery.

Case 3.—M. C. C., a woman, aged 70, weighing 210 pounds (95 kg.), was in a very bad condition when first seen, necessitating manual artificial respiration for a few minutes. A gas jet was partly open, accidentally. The time of exposure was unknown. This was one of the worst cases in the experience of the observers with favorable outcome. The treatment given consisted of atropin sulphate, $\frac{1}{100}$ grain, and oxygen + CO_2 given thirty minutes. No blood sample was obtained initially, but blood saturation was probably well over 60 per cent.; a blood sample taken after the termination of inhalation showed no perceptible carbon monoxid. The patient was taken to a hospital, and three hours later the pulse was strong, 94; respiration regular, 20 a minute. When seen on the second day the patient was normal mentally and in good physical condition; pulse and respiration were regular.

Case 4.—M. P., a woman, aged about 40, weighing 130 pounds (59 kg.), attempted suicide by means of an open gas jet. Oxygen + CO_2 inhalation was administered for twenty minutes; the ambulance surgeon reported great improvement; it was unnecessary to send the patient to a hospital.

Case 5.—F. M., a woman, aged 76, had been found in a room with the gas jet turned on. There was a delay of some hours in the call for treatment, so that part of the carbon monoxid had come off; but the patient was still comatose. Oxygen + CO_2 inhalation was administered for twenty minutes. The blood before inhalation showed 30 per cent. saturation with carbon monoxid; after inhalation, 10 per cent.

As an experimental control on these cases it may be mentioned that observations were also obtained on several patients treated with the artificial respiration apparatus heretofore carried by the emergency trucks of the gas company. This apparatus supplies oxygen diluted with air. In one case comparable to the foregoing, the apparatus was applied for forty minutes. An hour later a blood sample showed that the blood was still 35 per cent. saturated with carbon monoxid, and coma continued for twelve hours. Other similar cases were observed. The rate of elimination of carbon monoxid from the blood and of return to consciousness in these cases appeared to be about that which would probably occur if the patients had not been treated at all. Many of the postasphyxial pneumonia cases mentioned above were those that had been treated with artificial respiration apparatus.

SOME PRACTICAL CONSIDERATIONS

In the light of the foregoing observations, three topics present themselves for consideration here, namely, artificial respiration, the inhalation treatment, and the subsequent treatment in illuminating gas cases.

1. *Artificial Respiration.*[18]—Laboratory experience on asphyxiated animals teaches that the immediate application of the manual method of artificial respiration is nearly always effective in restoring spontaneous breathing. But even slight delay is fatal. The experience of the emergency crews of the Consolidated Gas Company in a very large number of cases tallies exactly with this laboratory finding. Thus it is their practice, when they reach a patient who is not breathing, for one of the men to apply immediate manual artificial respiration, usually by the prone pressure or Schäfer method, while another is preparing the artificial respiration apparatus which they carry. It seems highly probable that more lives are saved by this prompt initial manual treatment than by the apparatus some minutes later. (The general question of the value or lack of value and disadvantages of artificial respiration apparatus will be dealt with in a later report of this commission.)

Among the various methods of manual artificial respiration, the prone pressure method is the most easily applied, affords effective pulmonary ventilation and has no tendency to increase the chance of subsequent pneumonia, and therefore on all of these grounds is best. While one person is applying this treatment, a second may advantageously give the patient an inhalation of oxygen + CO_2. The asphyxial condition is thus counteracted by the oxygen, while the CO_2 stimulates the patient's own respiration to spontaneous effort. The method of administering the prone pressure method of artificial respiration should be that shown in the wall chart published by the U. S. Bureau of Mines.

2. *The Elimination of Carbon Monoxid.*—Once spontaneous breathing has been restored, although the patient may still be deeply comatose, there is no longer need for artificial respiration; it may then be even injurious. This fact might be thought to be obvious were it not so often overlooked in the cases treated with artificial respiration apparatus.

On the whole, the inhalation of oxygen + CO_2, used as described above, has proved a highly efficient method for inducing rapid elimination of carbon monoxid from the blood. The inhaler employed enables the operator to administer a flow of the oxygen + CO_2 mixture exactly adjusted to the demands of the patient's breathing. Thus, these gases may be used most effectively and most economically. The point of economy is important, for an oxygen cylinder of the ordinary portable size when used at the rate of 25 or 30 liters a minute barely holds out for half an hour. It is therefore essential that all of the gas should reach the patient, and that the rate of flow should be accurately adjusted. In the light of the observations here reported, it appears to us unnecessary to prolong the inhalation beyond thirty or forty minutes.

3. *Subsequent Treatment.*—This is a topic on which there is great need for additional knowledge. It appears probable that in untreated cases the continuance of coma for hours after the carbon monoxid content in the blood has been reduced to a comparatively unimportant amount has its basis in a condition of edema of the brain. The thought naturally presents itself, in view of the work of Weed,[19] Cushing[20] and others, that this condition might be overcome by hypertonic salt solution given intravenously or by rectum.

On the other hand, a large proportion of all patients who die a few days subsequently to gassing succumb, not to cerebral injury, but to pneumonia. Measures directed against this risk are more important, that is, they are needed by a larger proportion of patients reaching a hospital, than are measures to counteract the conditions in the brain. Experimental work in these fields is being carried on here with some suggestive results regarding the common pulmonary sequelae; but, owing to the extremely difficult problems involved, no estimate can be formed as to the probable measure of success. Mention should, however, be made here of valuable work demonstrating brain edema after asphyxiation now being carried on by Dr. Stanley Cobb and Dr. H. S. Forbes[21] at the Harvard Medical School.

Until more is definitely known regarding conditions subsequent to gassing, the more completely the medical staff of a hospital leaves a gassed patient alone, and refrains from injections, bleedings, transfusions or other procedures, as yet only vaguely foreshadowed, the greater will be the chance that the patient will not be harmed instead of assisted in recovery. Empiricism seldom helps, and in this field has often killed.

CONCLUSIONS

1. Manual artificial respiration by the prone pressure method should be employed, when respiration has stopped, to start spontaneous breathing. This object may be assisted by administering oxygen + CO_2 simultaneously.

2. Inhalation of oxygen and 5 per cent. carbon dioxid, by causing a very full ventilation of the lungs, rapidly eliminates carbon monoxid from the blood and thus terminates the condition of asphyxia. This treatment is highly effective, inducing rapid and complete recovery, if applied early enough. It requires merely general medical supervision, and may be safely and efficiently carried out by intelligent men of the type composing the emergency crews of a city gas company.

3. Until more definite knowledge has been obtained regarding the conditions in the lungs, brain and elsewhere, subsequent to gassing, and until treatment can be based on such knowledge and has been tested experimentally, it is inadvisable to apply any specific treatment in postasphyxial gassing cases. The evidence here reported indicates that oxygen + CO_2 inhalation and rapid elimination of carbon monoxid greatly decreases the liability to nervous and pulmonary asphyxial sequelae.

Note.—It has come to our attention that an attempt has been made to substitute, in place of the special inhaler which we have developed, one of the common artificial respiration devices, namely, the pulmotor. The pulmotor, like all other such devices, is, however, entirely unsuited to this purpose, and such use of it can do no good and may even do a patient serious harm. The inhaler which we have used was invented by us for the special and peculiar condition of the oxygen + CO_2 inhalation. No other apparatus now available is capable of functioning as it does, and for the present at least no other should be used on our responsibility.

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[18] Henderson, Yandell: Science **49**: 431, 1919.

[19] Weed, L. H.: Physiol. Rev. **2**: 171, 1922.

[20] Cushing, H.: Proc. Soc. Exper. Biol. & Med. **17**: 217, 1920.

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SATURDAY, SEPTEMBER 30, 1922

THE COUÉ "CURE"

The physician who has learned the phenomena of disease at the bedside, and the structural alterations caused by them in the laboratory, will read with his tongue in his cheek a series of small books which have recently reached this country dealing with M. Emile Coué of Nancy, and his method of "curing" disease. If he reads otherwise, the physician may be compelled to make free use of his handkerchief, for tears of laughter and of pity are bound to flow.

M. Coué, who is not a physician, but, so far as we are informed, a former apothecary, has in later years devoted himself to hypnotism and suggestion. For the last ten years, as our Paris correspondent has said in several letters, Coué has been publishing his "discovery" and preaching his doctrine in his native land, and during the past winter in England, where he had much notoriety. He calls his little book, a pamphlet of less than a hundred small pages, "Self Mastery by Conscious Autosuggestion." According to him, autosuggestion is, like sin, an original endowment. We possess it at birth, and in it resides a marvelous and incalculable power. If we know how to practice it consciously, it is possible to avoid provoking in others bad autosuggestions; to provoke good ones instead, thus bringing physical health to the sick and moral health to the neurotic and erring, and to guide into the right path those whose tendency is to take the wrong one.

He and his admirers and protagonists have published testimonials of cures of organic heart disease, tuberculosis, asthma, prolapse of the uterus, Pott's disease, frontal sinus disease that resisted eleven operations, paralysis of various members, club foot, bunions, varicose ulcer, and virtually all the ills to which the flesh is erroneously alleged to be heir, but which it unfortunately and frequently displays. He does it in a very simple way; that is, he doesn't do it at all: the patient does it. The patient tranquilizes himself, makes his mind as nearly blank as possible, and says articulately, preferably in a semidetached and dreamy sort of way, "Every day in *every* way I grow better and better." The second "every" must be emphasized, and that the verbigerating articulator does not get mixed in "his love," he is recommended to make use of an improvised rosary, that is, a string with twenty knots tied in it, and in this he must "autosuggest" every morning before rising, and every night on getting into bed. If the poor devil has a transverse myelitis, a septic endocarditis, or a carcinoma ventriculi and cannot rise, or if he should be unable to get back into bed, there can be no harm in lying to himself the moment he hears the sparrows chirping in the morning, and when the night nurse comes on duty. Nor can there be any objection, as a pious follower of M. Coué, the vice provost of Eton College, has recently written, to adding to the childish phrase the childlike words, "Thank God." But M. Coué has not subscribed to this, and up to the present writing it is wholly unorthodox. He is very insistent that there is no supernatural element in the cure. The imagination does it all. He is at great pains to impress patients that he does not cure them, nor does he, like his immortal fellow countryman Ambroise Paré, who said "I dress your wounds but God cures them," invoke or admit Divine intervention.

When M. Coué functions personally in the cure, the program is somewhat more elaborate. He tells his patients, in groups, that their organs are functioning properly, that the heart beats in a normal way, that the lungs, stomach, intestines, liver, bile duct, kidneys and bladder are doing their duty, that they will sleep soundly, that their dreams will be pleasant, that troubles and worries will melt away, that they will awake to sing, not sigh, that there will be no more fears, no more thoughts of unkindness, and that shyness and self-consciousness will vanish. Above all, he assures them that their bowels will move regularly and copiously. The vice provost of Eton relates that at one of the séances "hardly had M. Coué finished speaking of the certain cure of constipation when the sufferer he had been addressing hurried from the room, announcing with mingled surprise and triumph that the event was going to justify the prediction." The vice provost of Eton naively adds that these things are said more easily in French than in English, and that there was only a little ripple of sympathetic laughter, while M. Coué smiled at the startlingly sudden fulfilment of his promise. He might legitimately, however, have been very stern and said: "Oh, ye of little faith," etc.

For M. Coué, the unconscious self is the grand director of all our functions, and when the grand director nods, our functions go wrong. The will is its sinister motivator. The imagination turns the face of the unconscious self toward the East. Hence, train the imagination; never seek to reeducate the will. "If you can persuade yourself that you can do a certain thing, provided it is possible, you will do it however difficult it may be." Sink a 20 foot putt, for instance, every time the match depends upon it.

These are M. Coué's laws: When the will and the imagination are antagonistic, the imagination always wins. In the conflict between the will and the imagination, the force of the imagination is in direct ratio to the square of the will. When the will and the imagination are in agreement, one is multiplied by the other. The imagination can be directed.

M. Coué says that, such being facts, it would seem that nobody should be ill. One doesn't see why he should not be ill if he encounters pathogenic organisms under conditions favorable to their propagation, or if he habitually breaks the rules of hygiene, or if his ancestors have been niggardly or sinister in giving him a good and resistant constitution. "Every illness, whatever it may be, can yield to autosuggestion." Despite such assurance, the prudent physician will go on feeding arsenic and mercury to the pale spirochete and its depredations, quinin to the ubiquitous plasmodium, and antitoxins to the terrifying bacillus of Loeffler.

Meanwhile, purveyors of cloudy stuff, like M. Coué, cure many persons who are ill or who comport themselves as if they were ill, and for this we are, and shall continue to be, grateful. But to accept any of his "laws" as established, or as consistent with the established principles of psychology, is quite impossible; such acceptance would conflict with common sense and with the facts of pathology, which are as firmly established as facts can be.

THE POTENTIAL REACTIONS OF FOODS

The impression that foods which have an unmistakable acidity behave as real acids in the organism is still widespread among the laity, and also finds occasional expression on the part of physicians. Modern biochemical investigation has clearly demonstrated, however, that the natural reaction of a food material is no criterion of the part it may play as acid or base in the metabolism. The processes by which energy is liberated are essentially oxidative in character. The ingesta are normally subjected to oxidation in the body, so far as they can be transformed in this way. Consequently, it may readily happen that a food which is acid in reaction may, from the standpoint of metabolism, be potentially basic. The potential reaction depends on the nature of the residual inorganic components when the product is oxidized. The proteins, with their content of sulphur and sometimes phosphorus, yield sulphuric and phosphoric acids, respectively, in this way; they are acid-yielding foodstuffs. Animal products, as a rule, tend to yield an excess of acid radicals; but many acid fruits and vegetables which owe their characteristic reaction to the presence of organic acids and their salts yield an excess of base in the body. The organic complexes are burned up in the metabolism, leaving carbonates which are potentially basic. The rule is not a universal one; for there are organic acids, as benzoic and tartaric acids, present in natural foods, which escape oxidation for the most part. These function, therefore, like real acids, whereas other members of the organic series, such as citric and malic acids, likewise present in edible products, are better destroyed in the body so that their identity as acids is entirely lost.

The practical application of these chemical features of metabolism was clearly indicated by Blatherwick[1] in actual feeding trials on man. These showed that foods which have a preponderance of base-forming elements lead to the formation of a urine which is less acid, as regards both hydrogen-ion concentration and titration acidity, and which has an increased capacity for dissolving uric acid, while the ammonia content of the urine is diminished and the carbon dioxid tension of the alveolar air, indicative of reserve alkalinity, is increased. Conversely, foods with a predominance of acid-forming elements increase the urinary acidity and urinary ammonia, decrease the uric acid solvent power, and show, through lowered carbon dioxid tension of the alveolar air, a tendency toward depletion of the reserve alkalinity of the blood. Some writers have gone so far as to suggest that the benefits to health ascribed to the free use of milk, vegetables and fruits in the diet may be attributable in part to the fact that these foods yield alkaline residues when oxidized in the body.

The large capacity of the organism to oxidize the organic acids of fruits in the body so that the net result is a gain of base is well shown by recent experiments of Blatherwick and Long.[2] The subjects drank on one occasion 2,400 c.c. of orange juice, or the equivalent of about twenty-four large oranges, containing approximately 48 gm. of citric acid. This always resulted in the production of alkaline urines, an increased organic acid excretion, and a decreased ammonia content of the urines. It was impossible to overreach the organism's ability to oxidize the contained citric acid. One may therefore feel secure, as the California investigators remind us, in eating unlimited amounts of oranges without fear of acidotic effects.

How unwarranted it may be to dogmatize about the behavior of foods containing organic acids, even when the latter are of a sort known to be burned readily in the organism, is shown by further experiments of Blatherwick and Long with sour milks. The drinking of large amounts of lactic acid milks caused the formation of strongly acid urine, although the lactic acid appeared to have been completely oxidized or retained, as there was no change in the organic acid excretion. The increased acidity was shown to be due to the excretion of increased amounts of acid phosphate, as indicated by simultaneous increases in titratable acidity and in phosphorus. This is a somewhat unexpected outcome when one recalls that fresh milk should theoretically yield an almost neutral urine. Apparently the entrance of lactic acid into the blood stream by absorption from sour milk evokes a compensatory elimination of acid phosphate by the kidney. The increased acidity of the urines resulting from the eating of fruits containing benzoic acid, and the strongly acid urines of diabetic patients may perhaps be produced in a somewhat analogous manner, as Blatherwick and Long suggest. In view of the extensive use of sour milks of various types at the present time—in many instances for admittedly therapeutic purposes—their unexpected behavior in promoting urinary excretion of acid is worthy of more than passing notice.

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[1] Blatherwick, N. R.: The Specific Rôle of Foods in Relation to the Composition of the Urine, Arch. Int. Med. **14**: 409 (Sept.) 1914.

[2] Blatherwick, N. R., and Long, M. Louisa: Studies of Urinary Acidity, I, Some Effects of Drinking Large Amounts of Orange Juice and Sour Milk, J. Biol. Chem. **53**: 103 (July) 1922.

THE PROPORTION OF CARBOHYDRATE IN THE MODERN DIET

This time it is the carbohydrates in the diet which come in for a respectable restriction. The advocates of "low protein" have been much in the limelight in recent years in nutrition controversies. "High fat" has never been a popular dietetic slogan; in fact, since the beginning of the World War it has sometimes been difficult to realize even the possibilities of a little fat in the ration, owing to the comparative scarcity and high cost of this foodstuff. Thus, carbohydrates have remained to fill our energy needs most suitably. No other foodstuff is so economically secured. Ten cents will purchase 3,000 food-fuel units in the form of sugar, and more than 1,000 calories of the carbohydrate-rich bread. No other foodstuffs can compete with these bargains in food values. Yet Holt and Fales[1] now tell us that the economic advantage of carbohydrate foods over fats and proteins has brought about a tendency to allow carbohydrate to form an excessive proportion of the modern diet.

In a statistical dietary study of more than 100 healthy children from 1 to 18 years of age, Holt and Fales found the carbohydrate intake to average 10 gm. per kilogram of body weight. Of this, 51 per cent. was sugar, including lactose, saccharose and fructose, and 49 per cent. was starch. What are the objections to the larger intake of a food physiologically and commercially so economical? The crux of the argument is that if the proper caloric intake is maintained, a very high proportion of carbohydrate necessitates a low proportion of either fat or protein. Hence, there is a possible danger of reducing the amount of fat or protein below that which is necessary for normal nutrition. When a diet high in carbohydrate and low in fat and protein is taken, there may result an excessive retention of water in the tissues of the body. High carbohydrate feeding, we are further told, leads also to an excessive deposition of fat in the body.

The New York pediatricians are doubtless on safe ground when they contend that definite digestive disturbances, chiefly intestinal, may be produced when the carbohydrate in the diet is excessive. There may result increased fermentation with loose acid stools, or constipation with flatulence and abdominal distention. When long continued, these disturbances are very difficult to control. It seems somewhat unwarranted, however, to correlate the high proportion of carbohydrate in the modern diet with the prevalence of dental caries. The causation of tooth decay is far from settled, despite the galaxy of hypotheses to account for it.

What, then, shall be a tolerable apportionment of carbohydrate furnished to the adolescent child? The total calories needed at any age can now be computed with a reasonable degree of accuracy. Holt and Fales determine the amount of carbohydrate needed by subtracting from the total caloric need the calories supplied by the needed amounts of fat and protein. On this basis there should be allowed for the healthy child of average activity about 12 gm. of carbohydrate per kilogram at 1 year, decreasing to between 9 and 10 gm., or about 1 per cent. of the body weight, at 6 years, and maintaining this value throughout the remainder of the growth period. If the total caloric need is raised above the average by increased muscular activity, they add, carbohydrate may be used to provide the entire amount of extra energy, since an increase in muscular activity does not increase the needs in protein or fat above the normal.

Current Comment

PARATHYROID TETANY AND CONVULSIVE CONDITIONS

If parathyroid tetany is an intoxication caused by poisons that are water soluble and excreted by the kidneys, it might be prevented or controlled by maintaining a vigorous diuresis with intravenous injections of isotonic salt solutions. On this hypothesis, Luckhardt and Rosenbloom[1] injected ordinary Ringer's solution intravenously into parathyroidectomized dogs. The animals received from 33 to 50 c.c. per kilogram of body weight at each injection, and were injected two or three times daily. They were fed a mixed diet consisting chiefly of meat. Under this treatment, the dogs remained alive indefinitely. After about forty days, further injections were unnecessary, and the animals remained in good health on a normal diet. However, if large quantities of meat were fed or if the dogs became constipated, symptoms of tetany reappeared. In some animals, symptoms of marked parathyroid tetany could be induced at will simply by stopping the injections and feeding the animals meat. In one animal the severest tetany was induced on the one hundred and twenty-first day by feeding meat mixed with barium sulphate as a constipating agent. Pregnant animals were kept alive, under such conditions, with much more difficulty than normal nonpregnant animals. One such dog went into labor on the day of the parathyroidectomy, and although her attacks of tetany were unusually severe, she was kept alive by injections of Ringer's solution, and cared for four of her puppies until they were weaned. This animal at the time of reporting (eighty-seven days after operation) was alive and in excellent physical condition. Another interesting occurrence was noted in two parathyroidectomized dogs which had been cured, or at least had reached the stage at which further injections were unnecessary, as long as they ate normally and were kept from becoming constipated. When these dogs went into "heat," symptoms of severe tetany reappeared. Enemas and the intravenous injection of Ringer's solution during the estrual period controlled the symptoms. These experiments on dogs seem to indicate that the cause of the tetany was an exogenous poison or poisons derived chiefly from the food proteins. An explanation is difficult for the recurrence of severe attacks of tetany during the estrual period, months after the animals were entirely free from symptoms. However, the method of control and prevention of the attacks was identical in the two instances, and it was simple as well as efficient. Certainly the results conclusively prove that the parathyroid glands are not essential for life, as has been generally supposed, and, as indicated by the authors, they seem to offer important considerations for our study and therapy of convulsive conditions.

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[1] Holt, L. E., and Fales, Helen L.: The Food Requirements of Children, Am. J. Dis. Child. **24**: 44 (July) 1922.

[1] Luckhardt, A. B., and Rosenbloom, P. J.: The Prevention and Control of Parathyroid Tetany, Proc. Soc. Exper. Biol. & Med. **19**: 129, 1921; The Control and Cure of Parathyroid Tetany in Normal and Pregnant Animals, Science **56**: 48 (July 14) 1922. Luckhardt, A. B., and Blumenstock, J.: The Recurrence of Acute Parathyroid Tetany in Completely Parathyroidectomized Animals During the Oestrus Cycle, Science **56**: 258 (Sept. 1) 1922.

"PROPRIETARY MEDICINES AND THE DOCTOR"—AND BOTTLE MAKER

The physicians of the country have been flooded during the past few weeks with a leaflet reprint sent out by a trade publication, *The Glass Container* of New York City, but mailed from Chicago, where are located headquarters of the "patent medicine" organization. The title of the leaflet is "Proprietary Medicines and the Doctor," and it is supposed to give "Vital Reasons Why the Medical Profession and the Medicine Man Should Pool Their Ideals and Work Together to Benefit Humanity." The author of the leaflet, which is a reprint from *The Glass Container* for May, 1922, is Irwin G. Jennings. The reprint is prefaced with a biographical sketch of "Judge Jennings," a lawyer who it is claimed holds an "A. M." from Marietta College and "Ph.D." from Columbia University. The sketch fails to mention that Mr. Jennings is business manager of the "Glass Container Association" which, of course, is essentially interested in the development and extension of the glass bottle business; nor is it mentioned that Mr. Jennings is the editor of the official organ of this association, *The Glass Container*, in which the article originally appeared. The thesis that Mr. Jennings develops in his paper is briefly this: (1) "The bread and butter and economical success" of physicians "depends on establishing and maintaining a conviction in the minds of the American public that there are curative properties in properly selected drugs"; (2) the "patent medicine" interests "*unassailed*, can easily keep the American public sold to the curative properties of drugs"; *ergo*, (3) the physician, as a business proposition, should not assail the "patent medicine" maker! The work is rather crude; in fact its very crudity makes one wonder how a Ph.D. (Columbia) could imagine that he could get away with it. In the development of his thesis Mr. Jennings runs in the usual stock arguments of the "patent medicine" people in favor of their business, arguments that are as feeble as they are fallacious. It is not necessary to refute or even to discuss this phase of his paper. We imagine Mr. Jennings is in no way to blame; he probably accepted the data furnished him by the nostrum people. That the business manager of the Glass Container Association and the editor of its official journal should favor the "patent medicine" business is understandable and natural. Nostrum makers are, doubtless, his best customers. As the shoemaker says, "There's nothing like leather." The astounding feature of the whole thing is that a man of intelligence should, in 1922, attempt to convince physicians that the only therapy of modern medicine is drug therapy. In his effort to do this, Mr. Jennings has undertaken a large and hopeless job.

INTRODUCING A NEW DRUG

To what extent are the claims for the virtues of a new drug tinctured by commercial considerations? Even though put out as the result of investigations carried out by the scientific staff of a firm of standing, the question arises: To what extent is the scientific staff of a commercial concern influenced by the commercial atmosphere of competition and dividends in which they do their work? And even when a drug is the result of studies carried out by investigators who have no commercial connections there is the thought: To what degree has the investigator's enthusiasm tinctured his judgment? An increasing number of physicians adopt the plan of giving no consideration to new drugs until these have received the stamp of approval from the Council on Pharmacy and Chemistry and are listed among New and Nonofficial Remedies. While, as the Council cautions, acceptance of a drug for New and Nonofficial Remedies is not proof that the worth of the drug has been definitely determined, the recognition does mean that it is of definite composition and that there is sufficient evidence of its therapeutic worth to warrant its trial by physicians. What seems to be an almost ideal method of introducing a new drug has been followed in the case of "flumerin," the name given to the disodium salt of hydroxy-mercuri-fluorescein. At the 1922 session of the American Medical Association, a paper[1] on flumerin was presented to the Section on Dermatology by White, Hill, Moore and Young of Johns Hopkins. The chemical identity of the new mercurial was defined in this paper; animal experiments were reported which demonstrated its efficiency in experimental syphilis, as were also clinical trials which had been made after the animal experiments had warranted such trials. The clinical work gives promise that the new mercury salt may prove of considerable value. The investigators announce, however, that flumerin is not to be made available commercially unless independent clinical study confirms their findings. In order that syphilologists may feel warranted in including flumerin in their studies, Dr. White and his collaborators requested the Council on Pharmacy and Chemistry to examine the evidence for the preparation. The Council has published a preliminary report[2] announcing that while the drug is in the experimental stage, and although the evidence to prove that it is a worth-while addition to the long list of mercury salts used in the treatment of syphilis is still incomplete, the product is suitable for clinical trial in selected cases. Should this product become an addition to our materia medica, it will be as the result of the orderly procedure: (1) demonstration of its chemical identity and uniformity; (2) animal experiments giving promise of therapeutic value; (3) clinical trials under the auspices of the discoverers, and (4), confirmation of its therapeutic worth by independent clinical investigations.

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[1] White, E. C.; Hill, J. H.; Moore, J. E., and Young, H. H.: Flumerin—A New Mercurial for the Intravenous Treatment of Syphilis: First Report of Chemical, Animal and Clinical Experiments and Results, J. A. M. A. **79**: 877 (Sept. 9) 1922.

VICTORY FOR FOREIGN DRUGS

In the haste of last hour legislation, and particularly through the compromise on drugs and dyes made by the congressional conferees on the tariff bill, American organic chemical industry is faced with a discouraging situation. The earnest work of the last six years to make the United States self-sufficient in the matter of synthetic drugs and necessarily the interdependent dyes, the concomitant enthusiasm for the chemical profession stimulated in our universities, and a large amount of capital invested in plants, are about to be sacrificed. The prewar condition of foreign domination of our materia medica is imminent, a period when it seemed that any product which could not be used as a dye was quickly added to the increasing list of synthetic drugs. Thanks to American control, physicians no longer are being flooded with advertisements of new unessential synthetics, while the really valuable drugs are being made in this country in adequate quantities; the drugs are pure and the prices are fair. Under the legislation just passed, the drugs and dyes derived directly from coal tar received some protection—though inadequate—based on *American valuation.* On the other hand, the synthetic chemicals of non-coal tar genesis (about 30 per cent. of all organic chemicals), including many valuable drugs, received no practical protection; they may be imported on a 25 per cent. duty based on *foreign valuation.* Furthermore, it is stated that large stocks of dyes and medicinals taken in lieu of reparations, costing relatively little, are held in England, France, Belgium and Italy. Yet these countries are protecting their own industries by embargo or measures similar to the recently terminated license import system of this country. It is asserted that this enormous surplus material will be shipped immediately to the American market. Development of the next few weeks will be watched with anxiety by those interested in organic chemistry in the United States; and if the predicted dumping of these products from Europe on the American market actually does occur, a renewed effort should be made at the December session of Congress to protect the basic key industry so necessary for the conservation of health as well as national security.

THE COW—MAN'S BEST FRIEND

This note is written to sing the praises of a new use for the genus *Bos,* the producer of milk, most noble of fluids; the yielder of beef, most important of meats; the source of leather; whose ultimate destination is glue and gelatin. Consider, too, the bovine genus as a contributor of vaccine, as a donor of endocrine products, as a component of fertilizers. Now Major W. S. Patton, in the *Indian Journal of Medical Research,* announces[1] the "value of a tame cow for collecting the blood-sucking *Diptera* of a locality." The technic is simple. A tame white cow is taken near water in thick brushwood at dusk. The cow stands. The blood suckers collect. At the psychologic moment they are brushed into a net, evidently to the intense enjoyment of the cow—for she does not stir during the procedure, and is soon ready for a new venture. In comparison with this maneuver, the Trojan horse of Ulysses was child's play in strategy. Henceforth no parasitologic investigator's equipment will be complete without a tame white cow.

THE APOTHEOSIS OF SALACIOUSNESS

What thinks the rational man—particularly the rational physician—of the noisome scandal now being aired in South Bend, Indiana? What of the remarkable revelations of human abasement reported in certain of our enterprising (?) newspapers as the testimony in the case? What of the editorial responsibility of these newspapers? What of their estimate of "what the public wants?" And if the public is really interested in this and similar salaciousness—which is doubtful—are the editors rendering the public a service in satisfying such craving? What a pitiful spectacle the whole mess is!

> In Köln, a town of monks and bones
> And pavement fanged with murderous stones,
> And rags, and hags, and hideous wenches,
> I counted two and seventy stenches,
> All well defined, and several stinks!
> —Coleridge.

ALCOHOL PRESCRIPTION REGULATIONS

On another page of this issue is published a recent Treasury Decision covering the prescribing and medication of alcoholic liquors. Physicians who possess permits to prescribe alcoholics, or who are at all interested, should carefully read these new regulations of the Prohibition Commissioner. This continuous modification of requirements shows how unsatisfactory conditions are and how difficult it is to provide regulations that will actually regulate. It seems questionable whether the new regulations are not a backward rather than a forward step, in some particulars at least!

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[2] Flumerin: Preliminary Report of the Council on Pharmacy and Chemistry, J. A. M. A. **79**: 897 (Sept. 9) 1922.

[1] Patton, W. S.: Note on the Value of a Tame Cow for Collecting the Blood-Sucking Diptera of a Locality, Indian J. M. Res. **10**: 65 (July) 1922.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARIZONA

Malta Fever Appears in State.—Dr. Gleason C. Lake of the U. S. Army Medical Corps arrived recently in Phoenix to conduct a campaign against the Malta fever epidemic, which has appeared during the last three weeks in the Salt River Valley. With the outbreak of the epidemic, the state superintendent of health wired the federal authorities for an experienced officer to assist in handling the situation, and Dr. Lake was given the commission. The appearance of Malta fever in Arizona is regarded as curious. Fifteen cases appeared in a short time, with one fatality. Acting on the theory that milch goats act as carriers of the germ, a herd of 500 goats from which Phoenix obtains its supply has been placed under quarantine, and the sale of goat's milk stopped by the city authorities.

ARKANSAS

Health Instruction for Teachers.—A movement to instruct the rural teachers of the state in the work of the state health department, in order that they may, in turn, aid the children in keeping health rules, has resulted this year in the incorporation of health studies in the program of county teachers' institutes in Arkansas.

CALIFORNIA

Vote Aid to World War Veterans.—At the second annual meeting of the State Conference of Hospitals of California, resolutions endorsing the plan of the League for the Conservation of Public Health for better aid to disabled veterans of the World War, for more efficient handling of hospital promotion and organization and for active opposition to the so-called antivivisection, chiropractic and osteopathic board measures, were adopted. A resolution was passed praising Col. Simon J. Murphy for his donation and equipment of the Murphy Memorial Hospital for Whittier.

Personal.—Dr. Edwin William Schultz, who has been a student in pathology at the Mayo Foundation, Rochester, Minn., has returned to San Francisco to resume his duties as associate professor of bacteriology and experimental pathology at Stanford University.——Dr. William B. Palamountain, Oakland, lost the first finger of his left hand at the first joint recently in working with the engine on his car.——Dr. Northrop has been appointed assistant physician to San Quentin state prison to succeed Dr. Chester A. DeLancey, who resigned recently to go into private practice at San Anselmo.——Dr. William Day Moore has resigned as health officer of San Pedro in order to give his entire time to his private practice.

Bill to Create Chiropractic Board.—A mass meeting of all chiropractors in northern California was held in San Jose, Aug. 6, 1922, for the purpose of outlining the wind-up of the chiropractors' campaign for the enactment of a bill creating a state chiropractic examining board. Claiming that there was no representation of their profession on the state medical board, they disputed the qualification of the board to regulate their profession, and stated that such regulation amounted to virtual oppression of the profession. A total of 365 chiropractors have been arrested by the medical board in its "regulation" of chiropractic in the past two years, according to a recent announcement from the chiropractic committee. It is claimed by the chiropractors that the proposed bill will remove the alleged oppression of the medical board and create a self-sustaining board, appointed by the governor, composed of chiropractic authorities only, to regulate and license the chiropractic profession.

COLORADO

Personal.—Dr. William C. Finnoff, Denver, has gone to Vienna, Austria, for graduate study.——Dr. William B. Lutes, Merino, who spent two weeks recently in a Denver hospital, with an infection of the hand, is now able to return to his practice.——Dr. Grant S. Peck, Denver, returned recently from Vienna, Austria.

Nutrition Institute for Children.—The Colorado Tuberculosis Association has secured the services of Dr. William R. P. Emerson, Boston, for a two weeks' institute on the nutritional problems of children. The institute will be held in Denver, October 18-November 1. The course is not limited to residents of Colorado, but is available to students from neighboring states. The tuition fee for this course will be $25.

DELAWARE

Delaware State Medical Society.—The annual meeting of the association will be held in Dover, October 10, under the presidency of Dr. John W. James, Dover.

DISTRICT OF COLUMBIA

School of Public Health for Negroes.—With the opening of the fall term of Howard University, Washington, a school of public health and hygiene will be opened for the training of colored men and women in the field. A school of social service and a school of physical education, both leading to collegiate degrees, will be within the scope of the public health school, it is reported.

School of Neurology and Psychiatry.—A school for graduate teaching of diseases of the nervous system was organized in Washington recently under the name of the Post-Graduate School of Neurology and Psychiatry of the District of Columbia. The school will be formally opened in October. Dr. William A. White, superintendent of St. Elizabeth's Hospital, is president of the institution; Dr. Tom A. Williams, vice president; Dr. D. Percy Hickling, dean of the faculty, and Dr. Daniel D. V. Stuart, Jr., secretary-treasurer. Two courses of six weeks each, elementary and advanced, will be offered, together with an elective course in special subjects.

HAWAII

Medical Meeting.—The annual meeting of the Medical Society of Hawaii will be held in Honolulu, November 19-20. Dr. Grover A. Batten of Honolulu will preside.

ILLINOIS

New Hospital Addition Completed.—The new 100 bed addition to the West Suburban Hospital, Oak Park, will be ready for occupancy in October, it was recently announced by Superintendent Hockaday. This will bring the capacity of the institution to 250 beds.

Special Tax for Tuberculous Patients.—The Springfield Tuberculosis Association recently went on record as endorsing the proposition of levying a special tax for the purpose of caring for persons in Sangamon County suffering from tuberculosis. The proposition will be submitted to the voters in November and provides for care of the tuberculous under the Glackin law of 1917.

Personal. — Dr. Duncan F. Stewart, Galva, has been appointed coroner of Henry County, to succeed Dr. Axel F. Benson, who resigned recently, and will reside at Austin. ——Dr. Cecil M. Jack, Decatur, has been elected president of the Macon County Tuberculosis Association.——Dr. William E. Rice, Tuscola, who has been making a study of tuberculosis and its treatment at a special summer school in Colorado, has returned to Tuscola.

State Board of Registration and Education.—The new director of the board, A. M. Shelton, who succeeded W. H. H. Miller, has asked the resignation of members of fourteen boards under the jurisdiction of the department, which has headquarters at Springfield. About seventy-five resignations are in the hands of the new director, and in each case, he states, courteous letters have accompanied the requested resignations. It is expected that a number of the old members will be reappointed.

Physicians Lose Right to Prescribe Whisky.—It is reported that 1,500 physicians in Illinois will lose their right to prescribe whisky as they will not receive prescription books at the quarterly issuance. Approximately this number of permits have been revoked for various reasons. It is asserted that about 7,000 physicians in Illinois have permits to prescribe spirits, but that the prohibition office will make further cuts and that several hundred more may be eliminated if physicians do not show greater care in the use of their books.

Chicago

Higher Medical Standard.—At the quarterly meeting of the Illinois State Medical Society, proposals that higher medical standards be adopted for medical practice in Illinois to meet the requirements for licenses in all states were discussed.

Child Health Welfare in Chicago.—With the death rate of babies in Chicago a little more than 11 per cent., the deaths among the babies who have received the care of the Infant Welfare Society has been reduced to less than one fifth of 1 per cent.—an almost irreducible minimum, according to a report issued by the society. The society handled 5,456 cases during the month of July.

Heat Ordinance to Be Enforced.—The city health commissioner announced, September 17, that the new minimum heating ordinance will be rigidly enforced beginning, October 1. This ordinance provides for the maintenance of a minimum temperature in apartments of 60 degrees at 6:30 a. m., 65 at 7:30, and 68 by 8:30, which is to be maintained throughout the day until 10:30 p. m.

INDIANA

Farewell Banquet to Dr. Hurty. — Officials of the state board of health gave a banquet in honor of Dr. John N. Hurty, September 22, at the Hotel Lincoln, Indianapolis. Dr. Hurty has resigned as secretary of the state board of health, following twenty-six years of service.

IOWA

Iowa Wins Health Crusade.—The silver loving cup, the gift of an anonymous New Yorker who calls himself "the friend of the children," has again been awarded to the state of Iowa. This cup is awarded yearly to the state whose schools have the highest percentage of total population successfully completing the Modern Health Crusade. The National Tuberculosis Association stated that the Iowa schools had won five out of eleven first prize banners and sixty-eight out of 182 second prize pennants.

Health in Tourists' Camps.—A new department has been created by the state board of health to look after tourist parks and see that they comply with certain conditions in regard to sewage disposal, water supply, shelter houses and caretakers. Every camp in the state will come under the supervision of this department and inspectors will be sent out to investigate conditions and make a report. If the camps do not meet the requirements or if the authorities are not given assurance that they will be made to comply with all the regulations, the park will not be given official recognition.

LOUISIANA

Personal.—Dr. Charles Chassaignac, dean of the New Orleans Polyclinic, Post Graduate School of Medicine of the Tulane University of Louisiana, has been appointed medical superintendent of the Eye, Ear, Nose and Throat Hospital, New Orleans. For seventeen years Dr. Chassaignac was editor of the *New Orleans Medical and Surgical Journal.*

Hospital News.—New Orleans faces the loss of a gift for a hospital. Mrs. John Dibert made the gift six years ago, for the erection of a tuberculosis hospital in that city. The original gift of $303,000 has increased to $360,000. Since the money was placed at the disposal of the city for the badly needed hospital, site after site for the institution has been selected and as often residents in the section of the city where it was chosen have protested. Dr. Oscar Dowling, state health officer, classed community opponents of locating the hospital as "utterly selfish," and said that their action is based on imaginary fear of infection. Mrs. Dibert stated that, unless some definite action is taken, she will feel justified in asking the return of the money, so that it may be placed where it will be appreciated.

MAINE

Tuberculosis Clinics for Physicians.—The first of two tuberculosis clinics for physicians, planned by the Maine Public Health Association, took place, August 23-24. Speakers included Dr. Eugene R. Kelley, Boston; Dr. Langdon T. Snipe, Bath; Dr. Elmer D. Merrill, Foxcraft; Dr. Joseph H. Pratt, Boston; Dr. Donald B. Armstrong, New York, and Dr. Daniel Fiske Jones, Boston. A similar clinic will be held in the winter.

New England Tuberculosis Conference. — The seventh annual New England Tuberculosis Conference was held in Augusta, September 28-30. Physicians, nurses, public health officials, social workers and interested persons from all over New England were present at the conference. Dr. Elmer D. Merrill, president of the Maine Public Health Association; Dr. Clarence F. Kendall, state health commissioner, and Dr. Langdon T. Snipe, president of the Maine Medical Association, were among the speakers.

MARYLAND

Improvement in Medical Conditions at House of Correction.—At the first meeting of the medical committee appointed by the state board of prison control, a program was drafted which will not only make detailed provision for immediate correction of medical deficiencies at the Maryland House of Correction, but will also outline future needs of the institution. The committee is composed of Dr. Francis Lee Dunham, Dr. Samuel Wolman, Dr. Anton G. Rytina and Dr. Randolph Winslow.

Body of Dr. Halsted Cremated.—Following services which were held at his home, the body of Dr. William S. Halsted, who died, September 7, at Johns Hopkins Hospital, was cremated, September 9, at Loudon Park Cemetery, in pursuance of his wish. Drs. William H. Welch, Howard A. Kelly, William H. Howell, John J. Abel, William G. MacCallum, Harvey Cushing, Ira Remsen, Winford H. Smith, John Whitridge Williams and Judge Harlan were the honorary pallbearers, and Drs. John M. T. Finney, Joseph C. Bloodgood, Hugh H. Young, George J. Heuer, Samuel J. Crowe, Walter E. Dandy and Mont R. Reid were the active pallbearers.

Personal.—Dr. Everard Briscoe, who has been a public school physician, has been transferred to the corps of general health officers, to take the place of Dr. George H. Grove, who recently resigned.——Walter H. Feldman has been appointed laboratory assistant in the Baltimore City Health Department.——Dr. James H. Mason Knox, who has been abroad for the past year acting as general supervisor of child welfare work for the American Red Cross, has returned to Baltimore and will assume his duties as director of the child hygiene bureau of the state department of health.——Dr. Winford H. Smith, director of the Johns Hopkins Hospital, has resigned as a member of the municipal hospital commission appointed to select a site for the new hospital for communicable diseases and to assist in the preparation of plans for the institution. The ground for Dr. Smith's resignation is that, although the commission was expected to advise and aid in drawing up plans for the hospital, it was not permitted to do so, and only on completion of the plans was it allowed to inspect them.

MASSACHUSETTS

Employees May Select Physician.—At a meeting of the Franklin District Medical Society, recently, action was taken in the matter of industrial concerns which hand their employees printed cards telling them to employ certain physicians when they are injured. It was voted to send communications to the newspapers, advising industrial employees of their right to employ any physician they chose, regardless of any effort on the part of their employer to influence them otherwise, as stated under the general laws of the Workmen's Compensation Act.

MICHIGAN

Medical Men Protest Nursing School Plans.—The *Michigan State Medical Journal* has attacked the proposed new university training school for nurses, in its entire separation from the medical school. A divided authority in the medical school and the university hospital is not favored. As a wartime measure, hospital and medical schools were under separate authorities, but with the understanding that the hospital would be again placed under the jurisdiction of the medical school as soon as the war was over; but the medical school and university hospital have continued as separate units, with the dean of the medical school having no supervision over the hospital, and Director Parnall, supreme power in the hospital, answerable only to the board of regents. Last spring a recommendation was presented to the board signed by practically every member of the medical faculty, asking that the old order be returned. The regents did not grant this request.

MINNESOTA

Mental Research Bureau.—A central research bureau in mental deficiency has been established by the state board of control. The functions of this bureau will be to make all examinations in mental deficiency called for in the commitment of patients to the several institutions, and to conduct a free mental clinic in the St. Paul office, and such other clinics in the state as means may permit. The staff of the bureau consists of the former staff of the research department of the Minnesota School for the Feeble-Minded, the latter department having been discontinued.

Psychopathic Hospital Urged for University.—Establishment of a psychopathic hospital at the University of Minnesota, in order to give Minnesota medical students an opportunity to study and diagnose the treatment of mental disease, will be recommended to the next legislature. Dr. Arthur F. Kilbourne, medical superintendent of the Rochester State Hospital, states that medical students of the university have little opportunity to study diagnosis and treatment of mental cases, and points out that the hospital would relieve the congestion of the state hospital and also train nurses for mental cases. An appropriation for such a hospital came before the last legislature, but was defeated.

MISSOURI

Hospital News.—The Methodist Hospital, St. Joseph, will ask for bids about September 15, on a $1,000,000 building, plans for which are now being drawn.——Mr. and Mrs. J. W. Freeman have established a hospital at Joplin to be operated under the direction of the Protestant churches. A drive for $50,000 for new equipment is planned.——The Frisco Employees' Hospital, Springfield, will erect a hospital building at a cost of $800,000.

Free Surgical Treatment.—Surgical treatment was given free at all the hospitals in St. Joseph, September 19-20, in connection with the clinic which preceded the thirty-fifth annual meeting of the Missouri Valley Medical Society. All persons who needed surgical attention were requested by the society to apply for admission to the hospital of their choice. This was the first of a series of surgical clinics which the profession hopes to hold two or three times a year.

Faculty Changes at St. Louis University.—Dr. David H. Dolley, formerly pathologist at the University of Missouri, has arrived at the St. Louis University School of Medicine to assume his duties as head of the department of pathology. Dr. Hugh P. Muir of Harvard University will be instructor of pathology. Both the dental and the law school will occupy new buildings this year. Dr. Hanau W. Loeb, dean of the medical college, has announced that in response to the urging of the medical associations of the country, the restriction as to freshman classes of only 100 has been lifted. As a consequence more than 140 freshmen have already registrated for the fall term.

NEBRASKA

Reunion Clinic.—Forty physicians and surgeons attended a clinic at the University of Nebraska Hospital, September 12, in connection with the thirteenth annual reunion of the alumni association of the University of Nebraska College of Medicine. Dr. Gerald Webb, Colorado Springs, Colo., spoke on "Epidemiology of Tuberculosis" and Dr. John J. Keegan spoke on "Brain Surgery."

NEVADA

Maternity Act.—The Sheppard-Towner Maternity Act has been accepted for the state of Nevada by the governor, bringing the total number of state acceptances to forty-two. The Federal Board of Maternity and Infant Hygiene has approved the plans of thirty-three states for applying the initial funds allotted them under the act.

NEW HAMPSHIRE

New Hampshire Public Health Association.—A special meeting of the council of the New Hampshire Medical Society, held, June 29, sponsored a movement to organize a public health association in the state. This was followed by a meeting in Concord, September 13, when a committee of medical men was appointed to initiate a movement for the establishment of a statewide organization to promote public health activities. A campaign for the enrolment of the men and women in the state interested in all the many phases of the movement will be inaugurated. Dr. H. L. Smith, Nashua, president of the state medical society, has invited the committee to be his guests at the Nashua Country Club for the first meeting, at which organization plans will be discussed. This meeting will be held early in October.

NEW JERSEY

Banquet for Sanitary Inspection Officer.—His co-workers and friends will give a testimonial dinner in Newark, October 5, in honor of Andrew J. Brady, chief of sanitary inspection of the department of health. Mr. Brady has recently completed thirty years of service with the department.

NEW MEXICO

Relief Bill for Physician Passed.—A bill passed the Senate, September 2, authorizing the Secretary of the Treasury to pay the sum of $750 to Dr. Charles LeRoy Brock, government physician at the Northern Pueblo Agency, for the loss of his motor car in a flood while responding to an emergency call among the Indians.

NEW YORK

Rehabilitation for Tuberculosis Patients.—Under the provisions of the will of Miss Ida Potts, the purpose of Ida Potts Memorial Hospital to be erected in Columbia County shall be not only to arrest disease, "but to provide opportunities for training and employment in gainful occupations, thus leading to the economic as well as the physical rehabilitation of the patients." Miss Potts' will, besides the gift of $150,000 for purchasing a site and erecting the necessary buildings, makes available the income from $1,250,000 for the maintenance of the institution. The institution will have at the outset accommodations for forty patients. Under the provisions of the will, only ambulatory patients and patients whose cases have a favorable prognosis will be accepted.

Personal.—Major Adna G. Wilde, West Point, has resigned from the M. C., U. S. Army, and will open an office at Vicksburg, Miss., as a specialist in ophthalmology, otology, rhinology and laryngology.——Dr. Grace Kimball and Dr. Elizabeth B. Thelberg, Poughkeepsie, recently sailed on the *Majestic* for Cherbourg and Southampton.——Dr. Aaron J. Rosanoff, formerly clinical director of Kings Park State Hospital, Long Island, has located in Los Angeles, where he will specialize in neuropsychiatry.——Lillian Segal Kopeloff has been appointed in charge of the newly established research department of biologic chemistry at the Psychiatric Institute of the New York State Hospital, Ward's Island.——Dr. Richard B. Gray has resigned as city health officer of Rensselaer. He will remove to Bayside, L. I.

New York City

Mammoth Drug Raid.—On the night of September 22, Dr. Carleton Simon, special deputy police commissioner in charge of the narcotic division, raided what is believed to be the headquarters of an international drug ring, at 207 West Fortieth Street. About $500,000 worth of morphin, cocain and heroin were seized. There is evidence that this is the principal wholesale distributing center from which drugs are shipped to the South and West.

Personal.—Dr. Frederick H. Albee, New York, sailed on the *Mauretania,* September 26. He will return, October 12. Dr. Albee has been invited to open the discussion on "Bone Graft Surgery" at the Medical and Surgical Congress of France, to be held in Paris, October 2-7.——Dr. Means S. Gregory and Dr. Charles B. Meding returned from Europe, September 17.——Dr. Alexis Carrel, New York, recently returned from his annual vacation on his farm in France.——Dr. Andrew J. Gilmour, New York, has just returned from France, Italy and Switzerland, where he climbed the Matterhorn and Mont Blanc. Dr. Gilmour was the first to reach the summit of the mountain now known as Mount Edith Cavell, which he succeeded in doing, Aug. 5, 1915, the day on which Miss Cavell was arrested.

NORTH CAROLINA

Tuberculosis Association Meeting.—The North Carolina Tuberculosis Association will hold its annual meeting in Goldsboro in October under the direction of Dr. Lewis B. McBrayer of Sanatorium. Dr. Charles L. Minor, Asheville, has been appointed chairman of the medical section.

State Leads in Birth Statistics.—North Carolina has the highest birth rate, 29.2, for the first quarter of 1922 of all the thirty states named in the provisional mortality figures of the department of commerce, according to a report just issued. For the states compared, the total birth rate for the first quarter was 23.3 in 1922 as against 25.3 in 1921. The lowest rate is that of Washington, 16.5.

OKLAHOMA

New Dairy Ruling.—A new health regulation forcing all dairies with more than twelve cows to install steam sterilization plants will be enforced in Oklahoma City, it has been announced by the commissioner of public safety. This rule was made as the result of a recommendation by the city chemist of Oklahoma City.

OREGON

Hospital News.—Active building operations will soon be started on the Portland Shriners' Hospital for Crippled Children. This hospital, in which children of all races, creeds and colors will be treated free, will be erected on a large site facing Sandy Road and Eighty-Second Street.——A surgery for which funds were donated by Mrs. Amanda Clark as a memorial to her husband was formally opened, September 9. It is attached to the Good Samaritan Hospital, Portland, and contains seven operating rooms and a series of sterilizing rooms. It is equipped with modern surgical appliances.

RHODE ISLAND

New Buildings for State Infirmary.—It is announced by Dr. Henry Jones, superintendent of the state infirmary, Howard, that new buildings are under construction at that institution. This will enable the hospital to have roentgen-ray service with the present laboratory.

TENNESSEE

Weekly Health Letters to Be Issued.—The state board of health, in conjunction with the U. S. Public Health Service, will issue a series of weekly letters pertaining to malaria. These letters will be published in the county papers in the western division of the state where malaria is prevalent.

VIRGINIA

New Chair at Medical College.—The board of visitors of the Medical College of Virginia by unanimous vote have added a course in military tactics and science. Dr. Charles Wallace Sale, major, M. C., U. S. Army, has been appointed to the professorship of this chair.

Honor Memory of Physician.—More than $2,000 has been raised by friends of the late Dr. Godfrey L. Miller, Winchester, for the purpose of erecting a memorial. This will take the form of a granite fountain to be erected near the Frederick County court house. Dr. Miller was in charge of all the Confederate hospitals in Winchester during the Civil War.

New Unit for University Hospital.—Plans are nearly completed for a new unit to the University of Virginia Hospital. This addition will be located south of the present buildings and will conform in structure to the north wing building. It will house the obstetric and orthopedic departments. This addition was made possible by the $50,000 gift of Paul McIntire. It is hoped to complete the building by April, 1923.

WISCONSIN

Bequest to Medical School.—Under the will of Mrs. Harriet L. Cramer, widow of the late owner of the *Evening Wisconsin*, the arts and science department of Marquette University receives $100,000 and the Marquette University Medical School receives approximately $1,000,000.

CANADA

New Medical Society.—The Hamilton (Ont.) Mental Hygiene Society was recently organized in that city under the auspices of the Hamilton Medical Society. Major-Gen. S. C. Newburn, M. P., was elected president of the society. It is estimated that the first year's expenditures will amount to $4,000, as a salaried social worker and also a secretary will be employed by the society.

Hospital News.—The Montreal Shriners, in a report to the Rameses Temple, Toronto, say the city authorities there have finally enacted the necessary legislation to permit the erection of the hospital on the plot of ground heretofore selected by the committee, purchase of which has been held up because existing ordinances prohibited the building of a hospital in that area. The site for the hospital for crippled children has now been purchased, and the plans are being prepared.——The mayor of Toronto recently laid the corner stone of the new nurses' home at the Riverdale Isolation Hospital, Toronto, in the presence of a large gathering of nurses and physicians.

Personal.—Dr. H. Rundle Nelson, who for several years has been in charge of the quarantine station at William Head, B. C., was recently appointed radiologist at St. Joseph's Hospital, Victoria, B. C.——Dr. W. Edward Gallie of Toronto has been appointed to the advisory board of the Shriners' hospitals for crippled children.——Dr. A. Mackenzie Forbes of Montreal has been appointed surgeon-in-chief for the Shriners' Montreal hospital for crippled children.——Dr. John G. Fitzgerald, Toronto, is touring in Europe.——Prof. Irving H. Cameron, Toronto, recently attended the meeting of the British Medical Association in Scotland.——Dr. John H. McConnell, Toronto, has been elected a member of the Corporation of Trinity College to succeed the late Dr. George A. Bingham.——Dr. James Hanley has returned to Toronto from Germany.——Dr. D. E. S. Wishart has returned to Canada after having taken extended courses in Boston, Edinburgh and London during the last two years.——Dr. John W. S. McCullough, Toronto, has returned from England.

PHILIPPINE ISLANDS

Rockefeller Foundation Work in the Philippines.—In a report submitted to Governor Wood, Dr. Victor G. Heiser, far eastern representative of the Rockefeller Foundation, he outlined the progress of the work since his arrival in that country three months ago. The University of the Philippines has been improved by revision of the college curriculum. A central nursing school that will double the number of trained nurses graduated annually in the Philippines has also been established. Dr. Heiser recommended that the health activities be centralized under one department secretary. A bill to that effect failed of passage in the last legislature, but it is expected that it will be brought up again this year. The International Health Board has furnished the services of Dr. Charles N. Leach to the Philippine government for health work; Dr. W. S. Carter, as assistant dean of the college of medicine and surgery and professor of physiology, and Miss Alice Fitzgerald as consultant in nursing. A sanitary engineer was furnished to undertake field studies in malaria, which have already been instituted in the province of Laguna.

PORTO RICO

Medical Association of Porto Rico.—The annual meeting of the association will be held in Ponce, December 15-17, under the presidency of Dr. P. Gutierrez Ingaravidez of San Juan. Boats for Porto Rico leave New York every Saturday and average four to five days on the trip.

GENERAL

Association of Military Surgeons of the United States.—The thirty-first annual meeting of this association will be held in Washington, D. C., beginning October 12, under the presidency of Capt. F. L. Pleadwell, M. C., U. S. Navy. Delegates from the naval services of Great Britain, Canada and Spain will be guests of honor at the meeting.

Journal of Outdoor Life.—With the August issue, the National Tuberculosis Association legally assumed ownership of this journal, which was formerly published by the Journal of the Outdoor Life Publishing Company. It is the official organ of the National Tuberculosis Association, and Dr. James Alexander Miller is editor-in-chief. No immediate change will be made in the journal, it is announced.

New Health Crusade Manual.—The Modern Health Crusade literature of the National Tuberculosis Association has been extensively revised, and the 1922-1923 editions for the school year are now available. This edition of the manual gives a completely graded course in crusade work from the kindergarten through the junior high school grades. The course for junior high school grades will this year include organized community sanitation work.

Milbank Memorial Fund.—The technical board of the Milbank Memorial Fund held a conference at Paul Smith's, Adirondack Mountains, August 20, to discuss the best means of using Mrs. Elizabeth Milbank's bequest of $10,000,000 in a statewide fight against tuberculosis. Drs. Livingston Farrand, Hermann M. Biggs, Donald B. Armstrong and Otto R. Eichel attended the conference. Mrs. Milbank contributed much to aid the late Dr. Edward L. Trudeau in his campaign of education against tuberculosis.

Medicines Receive Priority Shipping Right.—For some time various railroads have included medicines among the products against which an embargo was placed. Consequently, it was stated, the supply of drugs was endangered in certain eastern and southeastern railroad districts. As a result of protest, the Interstate Commerce Commission has entered an order, effective September 21, that certain commodities, among them medicines, shall be given preference and priority by such common carriers as railroads.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons.—At the thirty-fifth annual meeting of the association, held in Albany, N. Y., September 19-21, the following officers were elected for the ensuing year: president, Dr. Gordon K. Dickinson, Jersey City, N. J.; vice presidents, Drs. George V. Brown, Detroit, and James A. Harrar, New York; treasurer, Dr. William G. Dice, Toledo, and secretary, Dr. James E. Davis, Detroit. The next annual meeting will be held in Philadelphia, Sept. 19-21, 1923.

An Act for Relief of Physician's Widow.—A bill passed the Senate, September 9, providing for the payment to the widow of Dr. Rudolph H. von Ezdorff, surgeon and a commissioned officer of the U. S. Public Health Service, the sum of $4,500, on account of the death of her husband, this sum being the amount of salary and allowances for one year. His death was caused by myocarditis, contracted as a sequel to an attack of yellow fever incurred in the line of duty while he was engaged in suppressing an epidemic of yellow fever in Mississippi in 1898.

American Public Health Association.—The fifty-first annual meeting of the American Public Health Association will be held at Cleveland, October 16-19, with headquarters at the Hotel Statler. The following sections will conduct programs: public health administration, laboratory, vital statistics, sanitary engineering, industrial hygiene, food and drugs and child hygiene. There will also be special programs on public health publicity and public health nursing. Reduced railroad fares will be available to members of the association. For further information, address the secretary of the association, 370 Seventh Avenue, New York.

To Eradicate Disease Among Herds.—At the annual meeting of the American Veterinary Medical Association, facts were placed before the convention showing that tuberculosis among cattle has been greatly reduced and is now comparatively light. In thirty-seven states, composing 46.2 per cent. of the area of this country and containing more than 40 per cent. of the cattle of the country, there is less than 1 per cent. of tuberculosis. J. A. Kiernan, chairman of the International Tuberculosis Committee, stated that complete eradication of the disease among cattle is a practical possibility. From July 1, 1917, to June 30 of this year, 175,000 tuberculous cattle were destroyed in this country.

Mississippi Valley Medical Association.—The annual meeting of the association will be held in Rochester, Minn., October 10-12, under the presidency of Dr. Charles E. Barnett of Fort Wayne, Ind. Dr. Frank Kidd of London, England, will open the genito-urinary symposium. A special rate of a fare and a half has been authorized for the meeting and the Chicago and Great Western Railroad will have a special train for those going through Chicago, leaving the Grand Central Station at 8 p. m., October 9, and reaching Rochester at 7:30 a. m., October 10. This meeting precedes the Minnesota State Medical Association meeting, which will be held in Minneapolis, October 12-14, thus affording an opportunity to attend both sessions.

American Child Hygiene Association. — The thirteenth annual conference of the association will be held in Indianapolis, October 12-14. Delegates from all parts of the United States will gather there to discuss the various phases of child hygiene work. Herbert Hoover, president of the association, and Sir Auckland Geddes, British ambassador to the United States, will give addresses at the meeting. Organized in 1909 as the American Association for the Prevention of Infant Mortality, which later became the American Child Hygiene Association, the organization has seen in the thirteen years of its existence a decrease of 42 per cent. in the infant mortality rate of the United States. Public interest is shown in the membership list of nearly 2,500, representing 350 affiliated societies in the principal cities of the United States.

New Regulations on Prohibition—Prescribing Intoxicating Liquor and Compounds Containing Liquor.—Following are such portions of Treasury Decision 3395 as are of interest to physicians in the prescribing of alcoholic beverages:

To Federal Prohibition Directors and Others Concerned:

2. Section 69 of Regulations 60, as amended, is further amended to read as follows:

PRESCRIPTIONS ON OFFICIAL BLANK

(c) Liquor may be sold as such on prescription only when and if the prescription is written on an official blank, Form 1403, and otherwise conforms to the requirements of Article XIII as amended, including the requirement that the name of the druggist shall be written on the prescription in the *physician's handwriting* (italics ours): Provided, however, that emergency prescriptions conforming to Section 77 (f) may be filled. A pharmacist employed by any person other than a retail druggist may not fill prescriptions for liquor. Every pharmacist must, at the time of filling a prescription for liquor, indorse on the prescription over his signature the word "Cancelled," together with the date the liquor is delivered. The druggist must preserve in a separate carefully guarded file each prescription so filled.

POSSIBLE VIOLATION—NO REFILLS

(d) No prescription may be filled which does not conform to the limitations set out in Section 77 (b) as amended. A prescription for liquor should not be filled if the druggist or pharmacist has a reason to believe that the patient would thereby (on prescriptions from the same or different physicians) secure a quantity of liquor in excess of the amount permissible under said Section 77 (b). A prescription written by a physician for his own use should not be filled. A prescription for liquor may not be refilled.

LABEL ON CONTAINER

(e) In every case where liquor is sold on a physician's prescription, there must be affixed to the immediate container thereof a label showing the following:

1. Serial number of prescription blank.
2. Name and address of the retail druggist.
3. Name of the patient.
4. Name of the physician.
5. Kind and quantity of intoxicating liquor.
6. Proof, if liquor is spirituous, if vinous, the percentage of alcohol.
7. Date prescription is filled.
8. Directions for use.

LIQUORS USED IN COMPOUNDING

(f) Distilled spirits, wines or alcoholic medicinal preparations fit for beverage use may be used by a retail pharmacist, or a retail druggist acting through a pharmacist employed by him, in compounding medicinal preparations on physicians' prescriptions or otherwise, subject to the quantity limitation of Section 64. If such medicinal preparation is compounded for stock, contains no more alcohol than is necessary for extraction, solution and preservation, and is unfit for beverage use, it may be sold for medicinal purposes only without the necessity of receiving a permit to purchase or a prescription on Form 1403; but if such preparation compounded for stock is fit for beverage use, or contains more alcohol than is necessary for extraction, solution and preservation, it may be sold only (1) pursuant to prescription on Form 1403, or (2) pursuant to and upon receipt of permit to purchase, Form 1410 A.

PRESCRIPTIONS NOT REQUIRING OFFICIAL BLANK

(g) The prescription for a medicinal preparation unfit for beverage use need not be written on the official blank, Form 1403, even though potable distilled spirits (whiskys, rum, gin, brandy, etc.) or wine is to be a component part of the prescribed compound, but the person or persons filling such a prescription (including both the pharmacist and druggist, when the pharmacist is employed by the druggist) will be held strictly accountable for the sufficiency of the medication to render the compound unfit for use for beverage purposes, and such a prescription may not be filled unless the pharmacist (or the pharmacist and druggist where the pharmacist is employed by the druggist) is entirely satisfied that the compound is unfit for such beverage use. Furthermore, on any such prescription the physician must have shown the name and address (including the state and city or other local designation, and the street and number, if any) of (1) the patient, (2) the physician, and (3) the pharmacist (or retail druggist acting through the pharmacist) filling the prescription.

(h) The prescription described in paragraph (g), containing potable distilled spirits as a component part thereof, may not be refilled; when filled it shall be cancelled, filed in a separate file, recorded, reported, etc., in the manner described in paragraph (c) and elsewhere in the regulations with respect to official prescriptions.

REDUCING PROOF OF LIQUOR

(i) The proof of liquor used either in filling prescriptions for liquor as such or as an ingredient of a compound shall not be reduced by the druggist either before or at the time of filling, except as indicated by the prescription, and except that spirits other than alcohol may be reduced to 100 degrees proof, and at the time the prescription is filled alcohol may be reduced to any appropriate proof.

SPECIAL TAX

(j) Retail druggists or pharmacists selling intoxicating liquors as such or compounds fit for beverage use, whether upon physicians' prescriptions or otherwise, are required to pay special tax as liquor dealers under the internal revenue laws, and to keep special tax stamps conspicuously posted.

3. Section 77 of Regulations 60, as amended, is further amended to read as follows:

WHO CAN PRESCRIBE?

Sec. 77 (a) A physician who has filed application, Form 1404, and obtained a permit to prescribe intoxicating liquor, as provided in Article III, may prescribe distilled spirits, wines or such alcoholic medicinal preparations which are fit for use for beverage purposes as are authorized to be manufactured by Article XI, for a person upon whom he is in attendance, if after careful physical examination of such person (or in a case in which such examination is impracticable, upon the best information obtainable) the physician in good faith believes that the internal or external use of such liquor as a medicine by such person is necessary and will afford relief to him from some known ailment. A physician who does not hold a permit to prescribe may not issue such a prescription.

LIMITATION ON PRESCRIPTIONS

(b) No prescription may be issued for a greater quantity of liquor than is necessary for use as a medicine by the person for whom it is prescribed in the treatment of an ailment from which such patient is known by the physician to be suffering. No prescription shall be issued for internal or external use by any person within any period of ten days for (1) more than a pint of spirituous liquor, (2) any vinous liquor which contains more than 24 per cent. of alcohol by volume, (3) more than 1 quart of vinous liquor, or (4) any such vinous or spirituous liquor, or both vinous and spirituous liquor containing more than one-half pint of alcohol.

(c) Physicians are not permitted to write prescriptions for intoxicating liquor for their own use, or to use any liquor procured upon prescriptions issued by them. Liquor procured upon prescription may only be used for medicinal purposes by the person for whom prescribed and may not be sold or otherwise disposed of by him.

OFFICIAL BLANKS

(d) Prescription blanks, Form 1403, are issued by the commissioner in serially numbered books of 100 blanks each, and may be procured free of cost from the director by any physician holding a permit to prescribe. The blanks are engraved on specially designed water-marked paper, the serial number of the book being shown on each form and also each form being serially numbered from 1 to 100 within the book. Not more than one prescription book shall in any case be issued or furnished by the director to the same physician at one time, nor shall more than one book be issued during any period of ninety days unless the physician shall show to the satisfaction of the Commissioner of Internal Revenue, in the manner hereinafter provided, that for some extraordinary reason additional prescription blanks are necessary.

NEW BLANKS

(e) If the physician has exhausted a book issued to him or it is apparent that the number of blanks remaining therein will not be sufficient to meet his legitimate needs during the period of ninety days from the date of receipt of the book, and in the opinion of the physician an extraordinary cause renders necessary the furnishing to him of more prescription blanks during such period, he may file with the director of his state an application addressed to the Commissioner of Internal Revenue, for additional blanks, supported by a verified statement of the extraordinary cause believed by him to exist, and any other evidence he may see fit to submit. The director will investigate the circumstances set forth by the physician as warranting the issuance of additional blanks, and will promptly forward the documents received from the physician to the Prohibition Commissioner with the director's recommendation of approval or disapproval of the application of the physician for additional blanks. If the Commissioner of Internal Revenue shall find upon such written application and recommendation that the physician is entitled to additional blanks, the Prohibition Commissioner will advise the director accordingly, and the director shall thereupon issue the additional blanks to the physician.

EMERGENCY PRESCRIPTIONS

(f) No physician shall issue any prescription for liquor not on the prescribed form, and no druggist or pharmacist shall fill such prescription, except that in the case of an epidemic or a sudden and unforeseen accident or calamity, a physician holding a permit to prescribe may issue a prescription for intoxicating liquor upon a form other than 1403 where failure to issue such prescription might result in loss of life or intense suffering, but such a prescription shall describe fully the accident, calamity or circumstances constituting the emergency because of which the unofficial blank is used. Such emergency prescription must be prepared in duplicate and reported each month to the director as provided in paragraph (g). All prescriptions for liquor, whether on the official blank or otherwise, must be written in duplicate, both copies signed by the physician, and must contain all the data called for on Form 1403.

STUB OF BLANKS

(g) The prescription blanks issued by the commissioner are printed with stubs attached, the stub of the blank being a duplicate thereof. The books containing the stubs or duplicate copies of prescriptions issued on Form 1403 must be returned to the director from whom secured immediately upon the last prescription blank contained therein being used, or earlier if so directed by the commissioner or director. Any unused, mutilated or defaced blanks remaining in the book (or in the possession of the physician) must be returned therewith. The duplicate copies of prescriptions written on other forms in emergency cases must be forwarded to the director at the end of the month in which issued. In all cases blanks, Form 1403, must be used in the order of the serial numbers printed thereon.

(h) Before issuing any book of physicians' prescription blanks, a director may, whenever it is deemed advisable, have stamped across each blank in the book with a rubber stamp, the name of the state in which the book is issued. When prescription books so stamped are lost or stolen, it will be necessary to issue warnings only throughout the state in which the books were issued.

(i) A prescription for a medicinal preparation unfit for beverage use need not be written on the official blank, Form 1403, but such a prescription must conform to the limitations of Section 69 (g) as amended. The physician need not write such prescription in duplicate, and is not required to keep a record thereof other than such record as he keeps for other prescriptions pursuant to local law or practice.

PERMANENT RECORDS

(j) Every physician who prescribes intoxicating liquor is required to keep in book, Form 1402, a record alphabetically arranged of every prescription for intoxicating liquor issued by him, showing the date of the prescription, the amount and kind of liquor prescribed, the name and address of the patient to whom issued, the purpose or ailment for which prescribed, and the directions for use thereof, including the amount and frequency of the dose.

(k) The director should check all copies of prescriptions returned to him, for the purpose of determining whether any physician is violating the terms of the permit issued to him, or whether any person is procuring through one or more physicians excessive quantities of liquor.

(l) All returned books, Form 1403, should be numerically filed by the director.

D. H. Blair,
Commissioner of Internal Revenue.

LATIN AMERICA

Quarantine in Tampico.—The United States Health authorities have declared a quarantine against Tampico because of yellow fever, it is reported from Mexico City. Yellow fever conditions at Tampico are not considered serious, but the U. S. Public Health Service is taking all necessary precautions to prevent the disease reaching this country.

FOREIGN

Italian Villa Restored to Kraepelin.—The *Policlinico* relates that the Italian government has decided to restore to the German psychiatrist, Prof. E. Kraepelin, his villa in Italy, which was confiscated during the war as enemy property. Our exchange adds, "This is in tribute to the internationalism of science."

German Society for Study of Heredity.—The German Society für Vererbungswissenschaft is holding its second annual meeting in Vienna this week. Baur of Berlin delivers an address on the aims and task of the scientific study of heredity from both the practical and the theoretical standpoints. The meeting was preceded by the two-day international celebration of the Mendel centennial at Brünn.

International Tuberculosis Union. — The International Union Against Tuberculosis, which recently held its session in Brussels, has announced that the 1926 meeting will be held in the United States in connection with the sesquicentennial of Philadelphia. The next meeting will be held at Berne, Switzerland, in 1924. Dr. Theobald Smith, director of the Rockefeller Foundation animal research laboratory at Princeton, N. J., is president-elect for the American conference.

Conference on Milk in France.—The state departments of agriculture and of hygiene organized what they called the *Journée du lait*, September 19, at Paris. The subjects appointed for discussion were: the expense and profits of dairying; means to reduce the price and improve the grade of milk; regulation of its sale, and hygiene of its transportation, each topic to be opened by an expert in that special line. Pinard was one of the vice presidents of the conference.

New Medical Association.—The Australian and New Zealand Medical Association in England has recently been organized in London, to assist with information or advice, medical visitors from those countries traveling in Europe. The association is open to all medical graduates or undergraduates, born in Australia or New Zealand and resident or visiting in England. Mr. E. T. C. Milligan, F.R.C.S., and Mr. Bedford Russell, F.R.C.S., are the honorary secretaries of the society.

Armenians Honor American Physicians.—Four American physicians have recently been made honorary members of the Medical Society of Armenia, in recognition of their work in connection with the Near East Relief in that country. Of the four physicians, two are women, sent by the American Women's Hospital Association. These are Dr. Elfie Graff of Vassar College, now serving in Karaklis, in charge of the child welfare clinics, and Dr. Mabel E. Elliott of Benton Harbor, Mich., stationed at Alexandropol, in charge of the largest medical unit in the Near East, which cares for more than 20,000 children and thousands of refugees. The other physicians honored are Dr. Rowland P. Blythe of Cranford, N. J., district physician of Kazachi Post, the boys' orphanage accommodating 7,000 at Alexandropol, and Dr. Russell T. Uhls of Kansas City, in charge of the medical work at Seversky Post, Alexandropol.

Next International Congress of the History of Medicine.—At the recent international congress at London, it was decided to accept the invitation of the Medical Society of Geneva, Switzerland, and hold the next meeting there in 1925. The first congress of the kind was held at Antwerp in 1920, the second at Paris in 1921. The long interval before the next meeting is to be bridged by a congress on the history of science in general, which is to convene at Brussels in 1923. Among the historical subjects treated were the interest of and the part taken by physicians in the early days of aeronautics. Another point brought out was that the great hospitals of the middle ages owed their inception to the plague. Dr. Krumbhaar of Philadelphia described the first teaching of anatomy in the United States, and Dr. Comrie the same in Scotland. A number of hitherto unknown medical works of historic interest were described, in particular a thirteenth century Latin translation of the "Sixth Book of Epidemics," described by Mrs. Singer. See also London Letter, August 19, p. 671.

Personal.—Dr. L. Cheinisse of Paris, a collaborator on the *Presse médicale,* author of innumerable collective reviews on the topics of the day for that journal and for its predecessor, the *Semaine médicale,* has been decorated as a chevalier of the Légion d'honneur. Our French exchanges are congratulating him, saying that he is one of the most *documentés* medical journalists of France, although of Russian birth.——The *Medicina Ibera* relates that Dr. Faustino Frean of Macegoso, Spain, has had to have his right arm amputated on account of poisoning from a scratch received while operating in a case of purulent pleurisy.——Dr. Knud Faber, professor of clinical medicine at Copenhagen, received many tributes on his sixtieth birthday, August 29.——Dr. Hans Virchow, professor of comparative anatomy at Berlin, reached his seventieth year, September 10, not many months after his father's centennial had been celebrated throughout the world. His special field of research has been joints and ligaments. He is president of the Berlin Anthropologic Society.——Dr. Neuschloss of the Pharmacology Institute at Frankfort has been called to take charge of the Institute for Experimental Research at Buenos Aires.

The German Council on Pharmacy and Chemistry.—Our German exchanges report that the Arzneimittelkommission is at work and doing good service. The *Klinische Wochenschrift,* for instance, gives some queries presented to the commission by the board of health of a large city, the officials of a health insurance society and a physician. They inquired in regard to various "patent medicines." The commission's replies point out specifically the danger of giving medicines the formula for which is not given, and the expense of giving an iodid, for instance, in a proprietary when the officinal drug is so much cheaper, and there is no proof that the former is more effectual. The report states further that a certain proprietary recommended as treatment for tuberculosis of the bowel contains mercury, and that to give this in unknown dosage is dangerous, and it is directly dangerous to give mercury with tuberculosis of the large intestine. One proprietary alleged to be a mixture of mercury, and an extract of bee glands is said to be dangerous because it might prevent diphtheria antitoxin treatment. One of the proprietaries inquired about is a contraceptive, and the commission advised against its sale under any circumstances. Another is a mixture of gonad extract and yohimbin. The advertising was said to make exaggerated claims while silent on the amounts of the active substance. The commission advised decidedly against allowing this to be marketed.

Meeting of the Medical Women's International Association.—The third meeting of the Medical Women's International Association, of which Dr. Esther P. Lovejoy of New York is president, was held at Geneva, Switzerland, as previously announced, September 4-7, and nineteen countries were represented. Many of the eighty medical women present were official delegates from various medical organizations. The main discussions were on problems which can be best solved by international cooperation, namely, treatment and prevention of venereal disease in its relation to the state, the white slave traffic, and cocain and other drug traffic. A resolution was passed strongly urging the League of Nations to insist on government control of both the manufacture and the sale of cocain. The British and the French contingents entertained all the delegates, and at a banquet representatives of each of the nineteen countries made brief addresses. Among the speakers were Dr. Mary Scharlieb, as representative of Great Britain; Lady Barrett, as president of the federation of British Medical Women; Dr. Grace Kimball of Poughkeepsie, N. Y., president of the National Association of Women Physicians of the United States, and Dr. Eliza Maria Mosher of Brooklyn, who was graduated in 1875. At the first meeting of the association in 1919, at New York, only fifteen nations were represented. The constitution accepted is to be ratified at a conference of the association to be held in London next year. Dr. Kate C. Mead of Middletown, Conn., was the European secretary for the meeting. All the medical women mentioned above from the United States are Fellows of the American Medical Association.

Deaths in Other Countries

Dr. **William Thomas,** Birmingham, England; emeritus professor of anatomy, Queen's College, Birmingham; surgeon to the Children's Hospital, and the Orthopedic and Spinal Hospital; pathologist to Queen's Hospital; died recently, aged 82. In 1888, he was appointed Ingleby lecturer, and he was formerly president of the Midland Medical Society.——Dr. James Donelan, laryngologist, Italian Hospital, London, aged 66.

Government Services

Public Health Service to Investigate Cyanid Deaths

Preliminary reports have reached the U. S. Public Health Service headquarters at Washington from San Francisco relating the death of five employees of the U. S. Public Health Service from cyanid fumes, while they were engaged in the work of fumigating the Japanese steamship *Shinyo Maru* in San Francisco harbor. The real cause of the disaster will be determined by official investigation, but it is assumed that the deadly cyanid was released by one of the workers before all were prepared to leave the hold of the ship. This is the second disaster of the kind occurring this year at San Francisco, and will no doubt be the occasion for added impetus to the investigations and experiments now being conducted by the Public Health Service in the new methods of ship fumigation. A recent discovery is cyanogen chlorid gas, which is possessed of the qualities of high toxicity for rodents and vermin of all kinds, warning properties, noncorrosive and noninjurious to fabrics and foods.

Appropriation for Walter Reed Hospital

An appropriation bill was passed by the House of Representatives before adjournment, carrying $44,109 for the purchase of additional property for the medical museum and library of the Walter Reed General Army Hospital in Washington, D. C. Congress originally appropriated $350,000 for acquiring 150 lots needed for extensions at the hospital, but this sum was exhausted and an additional amount was necessary to buy the property needed.

Surgeon-General Cumming to Go Abroad

Dr. Hugh S. Cumming, Surgeon-General of the U. S. Public Health Service, leaves, October 5, for Europe to spend two weeks inspecting the government's sanitary stations abroad. While in France, General Cumming will also attend the convention at Paris which is to revise the international sanitary treaty of Rome, where he will present several amendments concerning international measures against typhus, the plague and cholera. He will attend, in addition, the meeting in Paris of the hygiene unit of the League of Nations, in order to give that body the benefit of his experience in matters of safeguarding public health through inspection and quarantine of persons entering this country.

Health Posters for the Navy

During August the bureau of medicine and surgery of the U. S. Navy has forwarded to all ships and stations a set of posters dealing with general, personal and social hygiene. If such posters are found to be of educational value, new posters dealing with the prevention of disease and accidents will be forwarded to ships and stations from time to time. In addition to posters, the bureau of medicine and surgery has prepared lantern slides on health which will be used at the regular motion picture shows. A twelve-reel film, entitled, "The Science of Life," will be forwarded to the commander-in-chief of the Atlantic fleet and later another to the commander-in-chief of the Asiatic fleet.

Army Medical Officers Assigned to Medical Schools

Officers of the Medical Corps of the Army have been assigned to special courses of instruction at various universities in the United States as follows:

Lieut.-Col. Will L. Pyles and Major Paul R. Hawley, public health and hygiene, Johns Hopkins University, Baltimore.

Major Henry C. Dooling, internal diagnosis, Mayo clinics, Rochester, Minn.

Major John B. Anderson, neurology and psychiatry, University of Pennsylvania, Philadelphia.

Major John E. Walker, bacteriology, pathology and preventive medicine, Johns Hopkins University, Baltimore.

In addition to the foregoing, the following officers of the Medical Corps already are pursuing special courses of instruction:

Major Henry C. Michie, internal medicine, University of Vienna.

Major Edgar F. Haines, urology, Massachusetts General Hospital, Boston.

Capt. William C. Munley, internal medicine, London, England.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Sept. 8, 1922.

Deficiencies in the Instruction in Pathologic Anatomy in France

Dr. G. Poujol, professor of pathologic anatomy at the Faculté de médecine et de pharmacie of Algiers, recently published in the *Gazette des hôpitaux* an important article on instruction in pathologic anatomy in French medical schools. The evils from which this instruction is suffering have their origin chiefly in difficulties that arise in connection with necropsies performed in the hospitals. Ordinarily, relatives of the deceased are opposed to a necropsy. The regulations in force at the present time offer every facility for such opposition to arise. In the hospitals of Paris, not only ascendants and descendants in direct line, the surviving spouse, the brothers and sisters of the deceased, have the legal right to refuse to permit a necropsy but also the uncles and aunts, nephews and nieces. Sometimes opposition develops from other sources. For example, it is the rule at Algiers that no necropsies shall be performed on paying patients, those who were members of the hospital personnel or wards of the public charities. In the case of Jews who have no surviving relatives, certain religious organizations intervene to prevent the necropsy, paying, if need be, all hospital charges.

It would be of great advantage for the reorganization of instruction in pathologic anatomy if it should prove possible to overcome, to a large extent, this opposition to postmortem examinations. Without violating public sentiment, we can endeavor to influence this sentiment and to promote the view that necropsy is something that goes without saying. For this purpose it would be necessary to secure the cooperation of the administrative boards. In their work on the Technique des autopsies, Drs. G. Roussy and P. Ameuille refer to the fact that around 1840 it was held that postmortem examinations in hospitals should be regarded as a matter of course, in the interest of patients and science. At that time, administrative boards favored the performance of necropsies. Why is that not the case today? The right of refusing to permit a necropsy might be restricted to the father, mother, sons, daughters, brothers and sisters of the deceased, excluding all more distant relatives.

But the most important of the reforms that Poujol would like to see realized would be for the hospital services to abandon the performance of necropsies, with the understanding that all postmortem examinations should be entrusted to the anatomicopathologic service. That is the system in vogue in all countries except France. The advantages of the system are: All, not merely part, of the necropsies are performed and that by a specially trained personnel; they are methodical and complete; all the observations gathered in the hospital services are supplemented by an indispensable anatomic record; as regards instruction, the students have every day an opportunity to witness necropsies and to perform them themselves, thus familiarizing themselves at first hand with all types of lesions, and, last but not least, the records of the findings from day to day are placed on file in the anatomicopathologic institutes, and constitute an almost inexhaustible fund of information for the elaboration of scientific treatises. It is the system adopted not only in Germany, but also in England, the United States, Italy, Switzerland, Belgium, Russia and elsewhere.

Poujol proposes another innovation. He would like to see an obligatory two months' course in necropsy work introduced, which might take the place, during this period, of clinical instruction. Such a course would be open to students of the fourth year, and would constitute a part of the instruction in pathologic anatomy.

In one medical school the instruction in pathologic anatomy is such that these reforms are unnecessary; namely, the University of Strasbourg. Nowhere else in France are there available such opportunities for progress in pathologic anatomy as are found at Strasbourg.

Poujol recommends that no further buildings for the use of the medical faculty be erected detached form the hospitals.

Writing for the Blind in Ordinary Characters

Since, in 1826, Louis Braille introduced the method of writing for the blind that bears his name, this system has become known in every country of the globe. It has, however, two defects: (1) It is written from right to left and is read from left to right, and (2) the characters are of a peculiar, special type, which constitutes a much greater drawback, since only those who have made a particular study of them can read them. To remedy these disadvantages, a system of writing in ordinary characters that could be read by all, at the first glance, without special preparation, was needed. It goes without saying that such a system would have to be based on raised points or dots, since the fingers of the blind find difficulty in deciphering cursive writing. The system of writing proposed by Dr. A. Cantonnet and simplified by the French canon Nouet has the great merit of so generalizing the method that it is applicable not only to the Roman characters but also to the Greek, the Slavic and the Hebrew, the raised points being made in the shape of the letters.

The national congress to promote the welfare of the blind, at its regular session, July 21, 1922, adopted a resolution demanding that the system of Cantonnet and Nouet be taught in the schools for the blind, in addition to the classic braille. In writing this system, the same instruments are used as for the braille.

LONDON

(From Our Regular Correspondent)

Sept. 4, 1922.

Annual Meeting of the British Association

The annual meeting of the British Association took place at Hull. Distinguished representatives of science from foreign countries—Belgium, Denmark, France and Sweden—were present. Dr. E. B. Mathews represented the American Association for the Advancement of Science. As has been the rule since the war in scientific gatherings, no German or Austrian representative was present. The retiring president, Sir Edward Thorpe, called attention to the hardship inflicted on students by the greatly increased cost of textbooks. The president, Sir Charles Sherrington, F. R. S., professor of physiology in the University of Oxford, in an address entitled "Some Aspects of Animal Mechanism," referred to the exquisite mechanism by which the blood is kept relatively constant in chemical reaction despite the variety of the food replenishing it, and the fluctuating draft from it. Similarly, various postures were maintained by reflex action in the absence of the higher nerve centers.

MIND AND MATTER

Turning to the old enigma of the relation of mind and matter, he said that mind becomes more recognizable, the more developed the nervous system. Hence the difficulty of the twilight emergence of mind from no mind, which is repeated even in the individual life history. Mentality was not distributed broadcast through the nervous system, but in the higher vertebrates was restricted to the newer parts of the forebrain. The mental part of the nervous system was so placed that its commerce with the body and the external world occurred only through the archaic nonmental part of the nervous system. Simple nerve impulses, their summations and interferences, seemed the one uniform office of the nervous system in its nonmental aspect. To pass from a nerve impulse to a psychic event was, as it were, to step from one world to another and incommensurable one. We might expect that the brain would exhibit striking changes of structure at the place of transition from its nonmental to its mental regions. But no; there were the same old structural elements set end to end, suggesting the one function of the transmission and collision of nerve impulses. The interconnections were richer, but that was merely a quantitative change. Can we attach any meaning to the fact that mind is localized in the nervous system? The nervous system has had the office from its earliest appearance onward throughout evolutionary history more and more to weld together the body's component parts into one mechanism reacting as a unity to the changeful world about it. In that system mind, as we know it, had its origin. From small beginnings its seat, the cortex of the forebrain, had become steadily a larger and larger feature of the nervous system until in man it dwarfed all the rest. The mental attributes of the nervous system were the coping stone of the construction of the individual. But they did not stop at the individual; they integrated individuals into communities. Reviewing the distribution of mind within the range of animal forms, we met with two peaks of development—in insects and in the vertebrate (with its acme in man). In the insect the type of mind was not rational but instinctive; in man there was reason as well as instinct. Yet in both one outcome was the welding of individuals into societies. In many of its aspects, animal life presented a mechanism the how of which, despite many gaps, was fairly explicable. It was as explicable as was the working of a gas engine or an electromotor. But other aspects, such as the shaping of the animal body, the conspiring of its structural units to compass later functional ends, the predetermination of specific growth from egg to adult, the predetermined natural term of existence, we are still at a loss to understand, despite many brilliant inquiries and inquirers. The steps of the results are known, but the springs of action still lie hidden. Then, again, the how of the mind's connection with its bodily place seemed an utter enigma.

The Deaths from Botulism

The deaths from botulism of eight persons—six guests at a hotel in the highlands and two gillies who accompanied them on a fishing expedition from a highland hotel—were reported a fortnight ago. These are the first cases of botulism observed in this country, and their uniform fatality to eight persons, most of whom were in excellent health and in the prime of life, has produced a profound sensation throughout the country. The health authorities are holding an exhaustive investigation. It has been shown that the potted meat responsible was confined to one or two pots of wild-duck paste, which were supplied by one of the leading firms in the country. The same brand had been used at the hotel for twelve years without any incident. The medical officer of the food department of the Scottish board of health stated in his evidence that food factories generally were well conducted. He would prefer to see the date of manufacture stamped on tins and jars, as it would enable a particular consignment to be traced. Asked how long hermetically sealed food kept, he stated that he had eaten a can of Maconachie rations issued in the Boer War without ill effects. Dr. McFadden, chief medical officer of the food department, ministry of health, said that he had visited the factory where the potted meat was made in London, and saw the whole process. The meat passed through a heat equivalent to a pressure of 10 pounds of steam before potting, and through a temperature of 210 F. after potting, besides the heat of cooking. Everything was satisfactory, and the cleanliness and intelligence of the workers were remarkable. Asked to suggest any step by which the poison might be killed, he said that complete sterilization would do this, but that this ideal had never been attained. He would suggest raising the thermal point in the final process and leaving the meat longer under the heat. A bacteriologist gave evidence that rabbits and mice, fed on fragments of the potted-meat sandwich found in a dead gillie's box and on the wild-duck paste, evinced symptoms of botulism. It was announced that an antitoxin for botulism will be available in the principal cities. On behalf of the manufacturers of the potted meat, the bacteriologist was asked: What is the thermic point at which *Bacillus botulinus* is killed? The reply was from 140 to 160 F., but that the spores required a temperature of 248. The bacteriologist considered that the one weak point in the process was the interval between the second and third heatings. That was the danger interval. The manager of the firm who produced the potted meat said that the output was a million jars yearly, and that this was the first complaint ever received about the product. The presumption was that only one pot was affected, as 700 others of the batch in question were sold. Game was specially sterilized, both on arrival and as paste. The coroner's jury found that there had been no negligence, but recommended that all preserved foods should have a distinctive mark by which details in manufacture could be traced. One result of the fatalities is that underwriters at Lloyd's are issuing policies to hotel and boarding house proprietors covering them against legal liability for the death or injury of guests due to food supplied to them.

Fewer Medical Students

In 1920, 2,531 medical students were registered, and in 1919 the number was no less than 3,420. These figures are the expression of an upward tendency since 1913, which was exaggerated by a wave following the war. But in the last completed medical year the number fell to 1808, little more than half that of 1919. This fall has taken place in anticipation of the overcrowding of the profession, which is calculated to begin in 1925.

Industry's Death Roll

The annual report of the chief inspector of factories and workshops shows that during 1921 there were 92,565 accidents (951 fatal), as compared with 138,773 (1,404 fatal) in the previous year. This remarkable drop is almost entirely due to the phenomenal inactivity in industry throughout the year and the prolonged coal strike, which resulted in many iron mills and blast furnaces being closed down. These industries are heavy producers of accidents. The number of accidents due to electricity was 322 (thirty-two fatal), a reduction of 20 per cent. The welfare movement in factories and workshops has held its own in face of adverse circumstances. Before 1914, welfare schemes were in operation in comparatively few factories. The war produced an unprecedented interest in the welfare of the workers, when it was realized that on them, as much as on the soldiers, our existence depended. Now reports from inspectors all over the country show that in addition to canteens, cloak rooms, surgeries and rest rooms—matters dealt with in welfare orders—a large number of social activities—saving clubs, benevolent clubs, concerts and dance meetings, summer camps in charge of athletic trainers, bowling greens, dental clinics, libraries, schools and lectures—have been organized. During the year there were 230 cases of lead poisoning, of which twenty-three were fatal. There were no cases of phosphorus or mercury poisoning, but one case of arsenic poisoning. The lower figures for anthrax poisoning (twenty-five, of which six were fatal) are partly due to the inauguration of the government station at Liverpool for disinfecting wool. On the question of the forty-eight-hour week, it is stated that since this has been established and the reduction of hours has been continued over a considerable period, output tends, in the majority of cases, to attain the old level, and the beneficial effect of the increased leisure on the workers is becoming apparent. The plan of "no work on Saturday" appears to be increasing in favor.

MADRID

(From Our Regular Correspondent)

Aug. 12, 1922.

Senator Blocks Passage of New Public Health Law

The hopes of all those interested in hygiene and sanitary improvement were based on the new public health law, prepared by the best Spanish sanitarians. At the closing session of congress, the president of the senate called up the bill for passage. The pending law organizes and regulates the services of country physicians, granting them more responsibility. This, however, clashes with the platform advocated by others. An organization composed ostensibly of rural physicians succeeded in getting the ear of a senator, Sr. Sánchez y Sánchez, and when all the physicians who are members of the senate were rejoicing at the prospective passage of the bill, Sánchez arose and, taking advantage of the legal provision granting to any senator the right to ask for an absolute majority of affirmative votes before any law is approved, delivered a speech on the subject. He began by admitting that as he was entirely ignorant of the matter he would not even touch upon it, but as he had engaged himself to block the passage of the law, he would exhaust all his resources in combating it. Lacking better arguments, he expressed his intention of taking up the remaining hours of the session reading Don Quixote, which he did, for four hours. Could Cervantes ever suspect that his glorious creation would serve to block the sanitary progress of his country? The same evening that a senator prevented this advance in public health, members of congress approved, by a few votes, an increase in their salaries from 500 pesetas ($75) to 1,000 pesetas ($150) a month. Much disappointment is felt at these parliamentary happenings.

French Physicians Pay Official Visit to Spanish Universities

French physicians, representing the medical schools of Bordeaux, Lyons, Montpellier, Paris, Strasbourg and other cities, headed by the dean of the Paris Medical School, Dr. Roger, and the dean of Montpellier, Dr. Forgue, have come to Spain to visit the medical schools of Barcelona, Valencia, Valladolid and Madrid. Everywhere, members of teaching staffs and physicians in general have welcomed them cordially. In Madrid, they received many testimonials of regard, which they accepted with evident pleasure. The National Academy of Medicine held a special session in their honor and appointed Professors Roger and Forgue as corresponding members. At the Madrid Medical School, the lecture by Professor Roger on the influence of organic extracts on the circulatory system was received with much applause. Professor Forgue spoke before the National Academy of Medicine, setting forth the achievements in French surgery during and after the war. The Madrid Medical Society gave the French physicians a banquet at the Ritz Hotel, and two days afterward met again to listen to a lecture by Professor Mauriac on leukotherapy, in which he discussed the modern conceptions of leukocytes and their activities and therapeutic uses. It was interesting to note the opinions formed by the French physicians as to Spain and Spanish medical science, as a result of their visit to this country. All of them bore testimony to the efforts made by Spanish physicians to raise the cultural status of the profession. What surprised Spanish physicians most was the admiration shown by their foreign confrères for the spirit of cooperation prevailing among Spanish physicians, which they deemed most worthy of imitation. The *entente cordiale* exhibited in all places visited by them, among professors and practicing physicians, and the organization of the Colegios de Médicos (medical societies), to which all practicing physicians must perforce belong, and having in all provincial capitals their own offices or homes, attracted much attention. French physicians found an analogy between this institution and their own barristers' guilds. At all the capitals as well as the universities visited, the French travelers were heartily welcomed. The prominent place filled by physicians in Spain, both in society and in politics, greatly impressed the foreigners, who noted the fact that, in Spain, all universities are represented in the senate, their representatives often being medical professors. The French physicians were also much pleased at the many statues erected to physicians in Spain, considering them as a sort of testimonial to the virtues which must raise the physician above the common level in order to lead the people on the road to health and to watch over the life of his fellow citizens.

BERLIN

(From Our Regular Correspondent)

Aug. 26, 1922.

New Provisions for the Combating of Tuberculosis in Prussia

The legislature of Prussia has under consideration a bill pertaining to the campaign against tuberculosis, one of the main provisions of which will extend the application of compulsory notification of tuberculous patients. Every case of pulmonary and laryngeal tuberculosis must be reported to the proper authorities, either orally or in writing, within a week—deaths within twenty-four hours. Obligation to make the report rests on the attending physician, or, if no physician is consulted, on the head of the household. If the patient changes his (or her) residence, the change must be reported at once, either orally or in writing, by the head of the household, to the public health officer for the district, the report to contain both the old and the new address. If, with the change of residence, also the head of the household changes, the obligation to make the report rests on the former head. If, for any reason, the head of the household is prevented from making the report, the communication must be made by the patient. With reference to cases and deaths occurring in hospitals, sanatoriums, maternity homes, prisons and similar institutions, the superintendent of the institution or some person designated by the public health officer must make the report. The authorities must on request furnish, gratis, blanks for written reports. A public health officer must convey to the welfare center of a district information in regard to a patient's leaving his district, and, in certain cases, to the public health officer in charge of the district to which the patient is moving. The bacteriologic laboratory must report every positive finding, with regard to tubercle bacilli in sputum, not only to the physician who sent in the specimen but also to the public health officer and the welfare center having jurisdiction. On request of the attending physician or of the public health officer of the district, it becomes incumbent on the local police department to cause a fumigation of a patient's apartments to be made, which must be carried out according to the specifications of the ordinance pertaining to disinfection. If the cost of disinfection of any articles would be incommensurate with their intrinsic value, the local police authorities have the power to order them destroyed. All expenditures that the local public health officer has to make in carrying out the provisions of this bill, if it becomes a law, must be borne by the state. The cost of fumigation and disinfection will be paid from public funds only in case the patient is financially unable to assume the expense. A fine, not to exceed 1,500 marks, will be imposed on those (1) who culpably neglect the provisions in regard to notification, as contained in Sections 1 to 3 of the bill, and (2) who use or allow others to use, before they have been disinfected, any rooms or movable property which, according to Section 8 of the bill, have been declared by the police authorities to be subject to disinfection.

Adjustable Air Pressure Chamber for Operations on the Lungs

An adjustable air pressure chamber for lung operations has been established in the operating room of the Munich surgical clinic. The atmospheric pressure in the chamber is reduced by 100 mm. of mercury by means of an exhauster, it being possible to graduate the rarefaction according to need. The head of the patient lies outside of the chamber. The patient's body is within the chamber, where the operator also takes up his position. Air sluices are employed to allow persons to enter the chamber or to take in utensils. Bell signals and a telephone are used for communication between the operator and the anesthetist.

MEXICO CITY

(From Our Regular Correspondent)

Sept. 17, 1922.

Yellow Fever

From July 28 to Sept. 15, 1922, eleven new cases of yellow fever with six deaths have been reported. Seven of the cases were at Pánuco and the others at Tampico, the latter town being infected from the former. This new outbreak of yellow fever—the last case had been in March, in the southern part of the state of Vera Cruz—may be explained through the existence of endemic centers at some small towns. As there are usually no physicians in such communities, the infection is kept alive by children and nonimmune adults from other places. A real diagnosis is made only when an outsider gets sick and is attended in some medical center, and thus the infective focus is located. On other occasions, the first cases are overlooked, as the usual diagnosis is "hemorrhagic malaria," a disease which is generally neglected, and thus the existence of cases of yellow fever is unknown until the patient is finally seen by some painstaking clinician. Besides enforcing prophylactic measures most rigidly, it has been decided to make malaria a notifiable disease whenever hemorrhages occur during the course of the disease. Thus, an end will be made of an anomalous situation, as suspicious cases will be carefully investigated and laboratory tests made, and epidemic outbreaks will be discovered and controlled in time.

Seventh Mexican Medical Congress

Because of several obstacles, the organizing committee of the medical congress to be held at Saltillo was forced to postpone the inauguration date to September 23. The congress will close on the 29th. So far, about 300 physicians have announced their intention of attending, and a number of them will submit papers. It is expected that this meeting will be a complete success both because of the large attendance and the prevailing enthusiasm among physicians, and because of the moral and material assistance rendered by the national government and the state of Coahuila.

Marriages

Eugene Morrison Carr, Detroit, to Miss Catherine Creighton of Blue Ridge Summit, Pa., recently.

Rob Roy Doss, Richmond, Va., to Miss Olivette Rosalie Field of Washington, D. C., recently.

Harry Goldstein, Spokane, Wash., to Miss Elizabeth Bruers of Portland, Ore., recently.

Charles Anthony Heiken, Philadelphia, to Miss Gladys Howell of Bellefonte, Pa., recently.

Van Noyes Verplanck, New York, to Miss Charlotte Vincent of Baltimore, September 2.

John W. Huston, Salem, Ore., to Miss Elizabeth B McFarland of Portland, recently.

Paul John Lewis, Yakima, Wash., to Miss Ruth Jones of Iron Mountain, Mich., recently.

Frank J. Milloy, Phoenix, Ariz., to Miss Ola Sue McCabe of Columbus, Neb., September 9.

James A. Butin, Fredonia, Kan., to Miss Bernice Walker of Kansas City, Mo., July 26.

James Fell Carrell to Miss Anna Elise Hartman, both of Philadelphia, September 9.

Arthur M. Dannenberg to Mrs. Marion L. Stein, both of Philadelphia, August 21.

Henri S. Beland to Miss Van Laethem, both of Ottawa, Ont., Canada, July 20.

Samuel Jacob Alden to Miss Helene Smith, both of Chicago, September 9.

John J. Carroll, Jordan, Mont., to Miss Mary G. McHale of Butte, August 9.

Howard A. Weis to Miss May Disert, both of Iowa City, August 31.

Deaths

Horatio Robinson Storer, Newport, R. I.; Medical School of Harvard University, Boston, 1853; died, September 18, aged 92, from senility. Dr. Storer was the son of Dr. David Humphreys Storer, a former president of the American Medical Association. He was graduated by Harvard University in 1850. Following his graduation from Harvard Medical School in 1853 he went to Europe for further study, serving as assistant to Sir James Simpson of Edinburgh. On his return to America Dr. Storer studied law and received the degree of LL.B. from Harvard. During 1865-1869 he was professor of obstetrics and medical jurisprudence at Berkshire Medical College, and later lectured on gynecology. In 1865 Dr. Storer received the Gold Medal and a prize of $100 from the American Medical Association for his essay on "Physical Evils of Forced Abortions." In the same year he served as assistant secretary of the American Medical Association and in 1868 was elected vice president. In 1869 he served in a like capacity for the Gynecological Section at the Ninth International Medical Congress. Dr. Storer was founder and for many years editor of the *Boston Journal of Gynecology* and president of the Boston Gynecological Society. He had also served as life president of the Newport Medical and Natural History societies, which he founded. He was a member of the Massachusetts and Rhode Island Medical societies, of the American Academy of Arts and Sciences, Boston Society of Medical Observation, Massachusetts Benevolent Society, American Public Health Association, American Numismatic Association, the Medico-Chirurgical Society of Edinburgh, and corresponding member of the Geographical Institute of Pernambuco, the obstetrical societies of Berlin, Edinburgh and London, of the New York and Rhode Island medicolegal societies; an honorary member of the California State Medical Society, the Canadian Medical Association, the Medical Society of New Brunswick, the medical societies of Finland and Sorrento, Italy, and several Canadian and foreign medical, obstetric and numismatic societies. He was also founder of the Newport Sanitary Protection Association and the Harvard Club of Rhode Island. Dr. Storer was Harvard's oldest living graduate. Among other contributions to the literature he published "Criminal Abortion in America," 1859; "Why Not?—A Book for Every Woman," 1865; "Is It I?—A Book for Every Man," 1869; and, with Sir William O. Priestley of London, "Memoirs and Contributions of Sir James Y. Simpson," of Edinburgh, 1855. Dr. Storer devised a number of surgical and gynecological instruments and methods. He was prominent as a numismatist and had written many papers on medical medals and tokens. On his ninety-first birthday the people of Newport presented him with a gold loving cup in recognition of his half century of public health work.

Manly Hale Simons, captain, M. C., U. S. Navy ⊕ St. Helena, Calif.; University of Michigan Medical School, Ann Arbor, 1871; died, August 29, aged 73, from heart disease. Dr. Simons was born in Genoa, N. Y., July 11, 1849. He entered the navy, May 28, 1872, and was retired, July 11, 1911. During the Spanish-American War, Dr. Simons served on the U. S. S. *Iowa* and *Philadelphia* as fleet surgeon. He was on shore duty at various navy yards and hospitals at the U. S. Naval Academy and in command of hospitals at Philadelphia and Mare Island, Calif., being medical director on recruiting duty from April 7, 1917, to Feb. 14, 1919.

Walter Fremont Church ⊕ Greeley, Colo.; College of Physicians and Surgeons, Baltimore, 1893; Rush Medical College, Chicago, 1899; at one time coroner and county physician of Weld County; served in the M. C., U. S. Army, during the World War with the rank of captain; honorably discharged, December 7, 1918; died, September 11, aged 57, from heart disease.

Frederick Solon Crossfield ⊕ Hartford, Conn.; Bellevue Hospital Medical College, New York, 1879; formerly president of the Hartford County Medical Society; member of the American Academy of Ophthalmology and Oto-Laryngology and the New England Otological and Laryngological Society; died, September 18, aged 68.

William A. Weldon, San Pedro, Calif.; Medical School of Maine, Portland, 1884; member of the Medical Society of the State of California; formerly county coroner and police surgeon; at one time health officer; died, September 7, aged 58, following a long illness.

Jay Livingstone Greene, Eagle, Colo.; Denver College of Medicine, 1886; member of the Colorado State Medical Society; formerly county physician and health officer; died, August 6, at Salida, aged 83, from pneumonia, following an operation.

George Victor Litchfield, Jr. ⊕ Abingdon, Va.; Johns Hopkins University, Medical Department, Baltimore, 1902; served in the M. C., U. S. Army, with the rank of captain, during the World War; died suddenly, August 29, aged 45, from heart disease.

John Brien Adkerson, Union City, Tenn.; Vanderbilt University Medical Department, Nashville, Tenn., 1901; member of the Tennessee State Medical Association; died, August 27, at Dawson Springs, Ky., aged 50, from uremia.

McDugald Keener McLean, Asheville, N. C.; Johns Hopkins University, Medical Department, Baltimore, 1915; author of "Tuberculosis—A Primer and Philosophy for Patient and Public"; died, September 8, aged 36.

Adelaide C. Duncan ⊕ Chicago; Woman's Medical School of Northwestern University, Chicago, 1895; member of the American Academy of Ophthalmology and Oto-Laryngology; died, June 24, aged 56, from bronchial asthma.

Joseph Edward Rhoads, Jr., Harrisburg, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1900; member of the Medical Society of the State of Pennsylvania; also an optician; died, September 9, aged 44.

Alice H. B. Milligan, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1912; member of the Medical Society of the State of Pennsylvania; died, September 4, aged 48, at the Woman's Hospital.

Arthur Franklin Bradshaw, Bieber, Calif.; Jefferson Medical College, Philadelphia, 1893; served in the M. C., U. S. Army, during the World War; died suddenly, September 3, aged 52, from cerebral hemorrhage.

Curtis Abram Overholt, Ada, Ohio; Cleveland Homeopathic Medical College, Cleveland, 1898; aged 50; died suddenly, from cerebral hemorrhage, August 26, while driving his automobile in Toledo, Ohio.

George W. Gloyd, Branson, Mo. (licensed, years of practice); member of the Missouri State Medical Association; Civil War veteran; formerly city health officer; died, July 10, aged 78, from appendicitis.

John Wesley Trueworthy, Los Angeles; Rush Medical College, Chicago, 1865; member of the Medical Society of the State of California; formerly coroner of Lyons County, Kan.; died, September 10, aged 79.

John Richard Slattery ⊕ Boston; Medical School of Harvard University, Boston, 1891; superintendent of St. Elizabeth's Hospital; aged 55; died suddenly, September 11, from heart disease.

Herbert John Keenan ⊕ Boston; Medical School of Harvard University, Boston, 1894; formerly member on the school board; died suddenly, September 7, aged 51, from heart disease.

John Morgan Lowery, Poplar Bluff, Mo.; Barnes Medical College, St. Louis, 1903; member of the Missouri State Medical Association; aged 50; died in a hospital at St. Louis, September 5.

Julian J. Stone, Hawkinsville, Ga.; University of Georgia Medical Department, Augusta, 1898; member of the Medical Association of Georgia; died, September 1, aged 49, from tuberculosis.

Robert Lawner Barrow, San Antonio, Texas; University of Tennessee College of Medicine, Memphis, 1914; member of the State Medical Association of Texas; died, September 8, aged 34.

Albert Garland Hayes ⊕ Coldwater, Tenn.; Medical Department University of Tennessee, Memphis, 1901; served in the M. C., U. S. Army, during the World War; died, September 3, aged 42.

Jesse H. Logan, San Antonio, Texas; Beaumont Hospital Medical College, St. Louis, 1892; member of the State Medical Association of Texas; died, June 20, aged 71, from pneumonia.

Benjamin Henton Brown ⊕ Muskogee, Okla.; Rush Medical College, Chicago, 1907; served in the M. C., U. S. Army, during the World War; died, September 9, aged 46, from pneumonia.

Jesse Romulus Ballance, Bolivia, N. C.; North Carolina Medical College, Charlotte, 1912; aged 45; was found dead on the street in Kenansville, recently, from acute indigestion.

John A. Letherman, Coal Center, Pa.; Long Island College Hospital, Brooklyn, 1873; Bellevue Hospital Medical College, 1874; died, September 7, aged 74, at East Pike Run.

James P. Caldwell, St. Paul; Bennett College of Eclectic Medicine and Surgery, Chicago, 1874; Civil War veteran; died, September 7, aged 74, from pneumonia.

John Alphonsus Moore, New York; Bellevue Hospital Medical College, New York, 1887; died, August 31, aged 54, from rheumatic gout and complications.

William Franklin Starley, Sr., Odessa, Texas; Long Island College Hospital, Brooklyn, 1871; died, July 18, aged 78, at Pecos, from gastro-intestinal infection.

Hugh Grant Roberts, Guelph, Ont., Canada; Trinity Medical College, Toronto, Ont., Canada, 1885; formerly city health officer; died, July 11, aged 69.

Isaac Israel Plotz, New York; Columbia University College of Physicians and Surgeons, New York, 1900; died, June 29, aged 48, from thrombosis.

Isaiah Eugene Mullon, New Orleans; Meharry Medical College, Nashville, 1883; died, August 29, aged 86, from uremia and arteriosclerosis.

George F. Rootes ⊕ Tebbetts, Mo.; Missouri Medical College, St. Louis, 1881; died, September 7, aged 65, at Tuscumbia, from heart disease.

Will Augustine Alexander, Schenectady, N. Y.; Albany Medical College, Albany, N. Y., 1890; died, September 10, from cerebral hemorrhage.

Thomas J. Balhatchett, Chicago; Rush Medical College, Chicago, 1891; died, September 16, aged 56, at his summer home in Macatawa, Mich.

James H. Lawhead ⊕ West Newton, Pa.; Jefferson Medical College, Philadelphia, 1886; died, August 13, at the McKeesport Hospital, aged 60.

Elwood C. Heilman, Idagrove, Iowa; Medical College of Ohio, Cincinnati, 1877; died, September 4, aged 66, from angina pectoris.

David R. Carter, Epsom, Ind.; Atlanta Medical College, Atlanta, Ga., 1883; died, September 3, aged 73, from cerebral hemorrhage.

James Simpson, Tucson, Ariz.; Washington University Medical School, St. Louis, 1903; died, September 6, aged 50.

The Propaganda for Reform

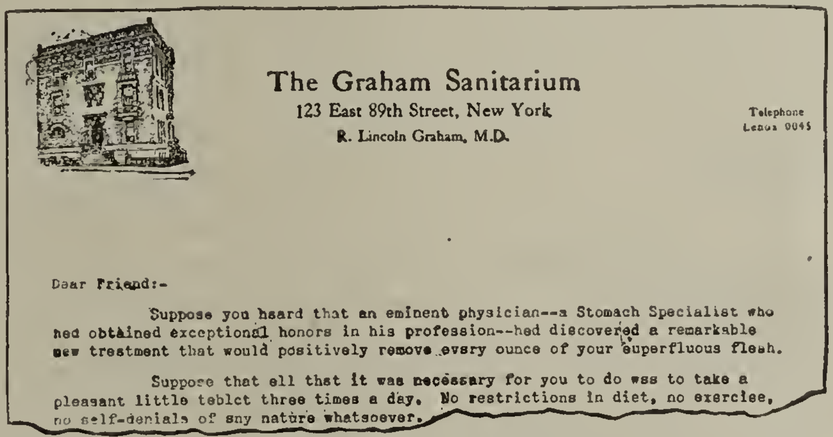
In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

GRAHAM'S NEUTROIDS

The Latest Thing in the Obesity Cure Line

During the past month or two The Journal has received scores of inquiries from physicians and laymen regarding an alleged cure for obesity put out by one R. Lincoln Graham, M.D., of 123 E. 89th St., New York City. According to the advertising sent out, Graham is "an eminent physician—a stomach specialist who has obtained exceptional honors in his profession." Graham is so "eminent" that most careful search fails to give any information regarding him except that of the briefest biographical nature. He was born in Brooklyn in 1872, was graduated by the Long Island College Hospital in 1893 and is not, and apparently never has been, a member of his local medical society.

The advertising states further that Graham "has written many authoritative medical articles and has lectured before many medical societies." Painstaking search of medical literature for some years past fails to show that Graham has ever contributed a single medical article to any medical journal. The only record in the Association's files relative to Graham's "lectures" before medical societies is some clippings from New York newspapers of December, 1911, recording the fact that Graham had read a paper before the Yorkville Physicians' Society urging that physicians should advertise!


The Graham Sanitarium
123 East 89th Street, New York
R. Lincoln Graham, M.D.

Telephone
Lenox 0045

Dear Friend:-

Suppose you heard that an eminent physician--a Stomach Specialist who had obtained exceptional honors in his profession--had discovered a remarkable new treatment that would positively remove every ounce of your superfluous flesh.

Suppose that all that it was necessary for you to do was to take a pleasant little tablet three times a day. No restrictions in diet, no exercise, no self-denials of any nature whatsoever.

Reduced reproduction of the opening paragraphs of the form letter sent out to the obese by the "Graham Sanitarium."

One learns further from the present advertising booklet that among the "original articles" alleged to have been written by Graham those on "Yeast Bacteria in the Stomach" are said to have "astonished the medical world by the new light it threw on the cause, remedy and prevention of obesity"—a statement at once preposterous and fantastic.

STUFF AND GROW THIN

Graham claims to be head of "the famous Graham Sanitarium" of New York City, where it is said experiments have disclosed "secrets which scientists have sought for years." These "secrets," it seems, comprise a method by which the obese, though gluttonous and lazy, may reduce without abandoning either gluttony or laziness! To quote:

> "Are you fond of sweets? Do you enjoy the foods which have always been thought fattening in the past, such as fat meats, rich gravies, desserts, etc.? Are you a hearty eater?
>
> "Then you will be glad to learn that you may now indulge your appetite to the fullest extent. You may eat all the fats, starches and sweets you wish. You may eat as heartily as you please and as often as you desire. There is absolutely no need to restrict yourself.
>
> "If you have been taking any strenuous exercises in order to reduce, you may abandon them. They are not needed and if carried to excess they might even be harmful."

Graham, we are told, has discovered the "real cause of fat":

> "Dr. Graham's discoveries show that obesity is brought about by an over-development of alcohol in the digestive tract."

After Graham had "discovered the real cause of this life-sapping, disfiguring obesity" his next effort, naturally was to devise a remedy that "would neutralize this alcoholic formation." Thus we read:

> "Dr. Graham is known both in America and Germany as an authority on Materia Medica. His lectures and writings on medical subjects are studied by Medical Colleges, Medical Societies and physicians in both hemispheres. Therefore, his special knowledge along such lines enabled him, after some lengthy experiments, to devise a remedy made of harmless ingredients which would neutralize and finally prevent the formation of alcohol without interfering in the slightest degree with the digestive system, and without affecting the rest of the body."

THE TESTIMONIAL GAME

And, of course, the public has no means of estimating the truthfulness of these claims. Graham's marvelous remedy is known as "Neutroid Tablets." Like most "patent medicine" exploiters he makes a pretense of telling the public something about the composition of his nostrum. He publishes what purport to be the "opinions of leading physicians and chemists who have analyzed Dr. Graham's 'Neutroid Tablets.'" The first of these "opinions" is credited to one "Dr. Edwin F. Bowers . . . well known author and lecturer on medical subjects." To those familiar with the history of nostrum exploitation, any testimonial by Bowers should arouse suspicion. Bowers calls himself an M. D., but the American Medical Association's records of graduate and licensed physicians, the most complete extant and based on official data, fail to show that Edwin F. Bowers has ever been graduated by a reputable medical school or is entitled to write M.D. after his name; neither do we find any record of Bowers being licensed to practice medicine anywhere in the United States. Bowers is the gentleman who published an article in *Physical Culture* telling how locomotor ataxia could be cured with a milk diet. Some laymen who wrote to Bowers regarding this "treatment" were told that the data were secured at Macfadden's sanitarium; they were told, too, that the Bioxal Chemical Company of New York City "put out a treatment for ataxia and kindred troubles" called "Bioplasm." Booklet enclosed. The booklet is many years old; readers of The Journal may remember the exposé of the Bioplasm humbug published many years ago. At that time the president of the Bioplasm Company was one Edwin F. Bowers.

Another testimonial is from Mr. E. H. Gane, Chief of the Scientific Department of McKesson and Robbins. Mr. Gane should know better! Possibly his testimony is due to the exigencies of commercialized pharmacy. A third testimonial is by a "Dr. Henry J. Swoboda, Bacteriologist and Analytical Chemist." We are unable to find any record of Dr. Swoboda either as a physician or as a member of the American Chemical Society.

Bowers, in his testimonial, claims to have found three ingredients in Neutroid Tablets, one of which, according to him, "could be taken by the pound without harm." Another "could be taken in any amount," while the third "one could take at one time a quantity thirty-seven times as large as is contained in one of these tablets." Graham himself declares that his nostrum contains "no thyroid extract, no free iodids . . . or harmful drugs of any kind." Here is what was found in the A. M. A. Chemical Laboratory:

CHEMIST'S REPORT

The weight of Dr. Graham's Neutroids tablets averaged 0.295 Gm. or about 4.6 grains. The odor of the tablets was disagreeable, somewhat like iodin or pyrrol. In the booklet describing the preparation there is no information concerning the ingredients of Neutroids, but much space is devoted to an explanation of what the nostrum does not contain. For example, it is stated on the authority of one Swoboda, who is said to be a bacteriologist and analytical chemist, that "Neutroid Tablets are free from thyroid extract, opium, or its alkaloids morphin and codein, cocain, belladonna and chloral hydrate."

The tablets were nearly insoluble in water but partially soluble in alcohol, ether and chloroform. Alkaloids, ammonium salts, boric acid, emodin-bearing drugs, milk sugar, nitrates, sulphates, zinc salts and phenolphthalein were absent. Starch and an insoluble substance, probably talc, were present in small amounts and a trace of iron was detected. The bulk of the tablets consisted of magnesium carbonate and an organic iodin compound which responded to tests for iodol, although the product was not pure.

Quantitative analysis indicated that the composition of Neutroids is essentially as follows:

Iodol (impure)	50 per cent.
Magnesium carbonate	43 per cent.
Starch	4 per cent.
Talc	3 per cent.
Iron	Trace

Iodol is a combination of iodin with pyrrol, containing nearly 89 per cent. of iodin. It was described in the U. S. Pharmacopeia VIII, but was dropped in the last edition. It is official in some foreign pharmacopeias. It has been used chiefly as a substitute for iodoform. Iodol is distinctly poisonous, even when applied externally and a number of cases of poisoning are recorded. According to the United States Dispensatory, iodol, if given in sufficient doses to animals "causes emaciation, albuminous urine, fall of temperature, general loss of muscular power and finally death from fatty degeneration of the liver and kidneys." To state that a nostrum containing Iodol is "non-toxic" is false.

The exploitation of R. Lincoln Graham's "Neutroids" follows the classical course of nostrums of this type: First, the buncombe regarding the alleged qualifications of the "discoverer"; then the falsehood that the patient can indulge his appetite to the fullest extent and need not exercise; next the testimonial hocus and, finally, the claim that the "cure" is harmless. Altogether, the product and its exploitation seem to conform strictly to the tenets of the "obesity cure" business.

Correspondence

APPROVAL OF EXPERIMENTAL RESEARCH BY WOMEN'S CLUBS AND BY THE BLUE CROSS

To the Editor:—It is most encouraging that the cause of experimental research is enlisting the sympathy and the aid of the intelligent women of the country. Thus, the women of California have testified to their belief that medical research is not carried on with cruelty; the women of New York City have reechoed this sentiment; and recently the Massachusetts State Federation of Women's Clubs passed the following resolution:

> Whereas, It is impossible to estimate the number of persons alive today who owe their existence to the application of methods, preventive or remedial, made possible through scientific experimentation on animals; therefore, be it
>
> *Resolved*, That the Massachusetts State Federation of Women's Clubs, assembled in Boston, on December 15, 1921, in gratitude to medical science for past discoveries beneficial, both to humanity and to animals, go on record as favoring the continuance of medical research through animal experimentation.

It is also encouraging that the American Blue Cross Society, an organization which does for horses, mules and dogs what the Red Cross does for human beings, has given proof that the doors of every one of the eighty-six laboratories for medical research in the United States are open. It has published official statements from the directors of these laboratories that officers of humane societies may at any time enter and see the work in progress.

For more than fifteen years the Committee for the Protection of Medical Research of the American Medical Association Council on Health and Public Instruction, under the able leadership of Dr. Walter B. Cannon of Harvard, have encouraged the "open door" policy. That it has now been universally adopted in the United States is highly gratifying. Not only are the doors of the laboratories open, but the "Rules" safeguarding the rights of animals have likewise been universally adopted, and have been in force for years.

The only specific denial that the laboratories are open, of which I have knowledge, was that by the late Dr. Blackwood of Philadelphia, who declared that, though he was an alumnus of the Medical Department of the University of Pennsylvania, he had been refused admission to the laboratories of that institution four times in five years. Dr. William Pepper, who has been dean of the Pennsylvania Medical School during the past ten years and whose attention was called to this declaration, replied by this telegram:

> Philadelphia, June 5, 1922.
>
> Statement that Blackwood was refused admission to University of Pennsylvania laboratories by any one in any position of authority absolutely false. During ten years of my deanship I have never refused any one.
>
> William Pepper.

W. W. Keen, M.D., Philadelphia.

THE DECLINE IN TUBERCULOSIS

To the Editor:—Referring to the editorial in The Journal, July 22, allow me to suggest one more extremely important factor: the very general popular phthisiophobia.

Phthisiophobes, lay and professional, undoubtedly exaggerate the danger of the patient, and especially of the "cleanly and conscientious" patient. But their attitude is that of the careful driver who does not try to estimate just what his chance of getting struck by a train at a particular crossing is. They are also, in the essential, qualitative facts, on an absolutely correct scientific basis for: 1. The great majority and the most fatal cases of tuberculosis are of human type and, ultimately, origin. 2. In the great majority of recognizable cases, the patients discharge bacilli in some way and at some times, while many discharge them in enormous numbers, practically constantly. 3. The bacillus has never been shown to require any period of development on its own part or any particular set of circumstances on the part of the environment and the potential victim, for developing a fresh case. It has never been established that any true immunity against infection exists, and the conditions usually accepted as increasing the susceptibility are frequent and commonplace. 4. The hypothetic "cleanly and conscientious" patient is obviously unable to guard perfectly against creating fomites while asleep, in the stage of prostration, or during such common occurrences as sneezing and coughing.

Quite a number of years ago, when the initial diminution of tuberculosis was regarded skeptically, I called attention to a "mathematic" consideration applicable to any infection, notably to tuberculosis and typhoid, whose control was just beginning, but even in retrospect to smallpox. So long as the average individual encounters several or many fomites in a period of increased susceptibility or even in a period used for statistical purposes, there may be a very considerable sanitary improvement in the quantitative sense of diminishing the number of fomites, but the incidence will remain very nearly as great. That is to say, a person run down and with a bad cold for a period of two weeks will be just about as likely to develop tuberculosis if one consumptive sneezes in his vicinity and one gust of wind blows desiccated sputum in his face as if he had encountered a dozen similar opportunities for infection. But, when the reduction of fomites is reduced to unity for an average individual and given period, the law of chance will operate so that many will escape opportunities for infection altogether, while the chances of actual infection are not proportionately increased for those who encounter two, three or half a dozen fomites instead of one. From this point onward, the reduction will be still more rapid—whether literally in a decreasing geometric series or not, I am not prepared to argue; but the reduction will almost certainly be at an increasing rate.

Incidentally, I may say that a consideration of infections serially, in the light of experience, throws considerable doubt on the generally accepted increase of risk of infection on account of general depression, minor illness, etc. This factor, indeed, seems to be excluded except for tuberculosis and diseases of exotic nature or extreme rarity, for which latter the question of predisposition cannot be answered merely on account of lack of information. I am personally even disposed to be skeptical as to the depressive predisposition for tuberculosis and to ask whether the frequently described "run-down" period before the infection was not really the first reaction of the extant disease.

The element of time, expressed by the rather vague use of the word "period," may require elucidation, or rather, we may not appreciate its importance until we stop to think. A fomes may be in the area of a susceptible individual—admitting for the sake of argument that there are really notable differences in susceptibility—but if not encountered with certain time limits, it becomes innocuous if other circumstances coincide to a favorable result. By this is meant the hour or so stated as the lethal period of direct sunlight; the few days of more or less diffused daylight; the bodily removal of many fomites by street cleaning, vacuum or moist cleaning indoors at intervals; the more or less efficient disinfection by boiling, even washing in hot soap suds, of dishes, table utensils, clothing, etc.; the renovation or destruction of bedding, which is practiced by phthisiophobe hosts to a surprising degree when one considers the expense; and various other natural or artificial processes operating in the direction of disinfection, and efficient if the potential victim is merely delayed in his arrival at the locus of infection.

A. L. Benedict, M.D., Buffalo.

"SOME COMPARATIVE RESULTS IN CITIES AND IN COUNTIES AS HEALTH UNITS"

To the Editor:—The article of Dr. A. J. Warren on "Some Comparative Results in Cities and in Counties as Health Units" (The Journal, July 29, 1922, p. 362) should be of general interest because of the importance of careful consideration of the economic principles involved in public health work. It is of especial interest to me because the author twists into the theme of his paper a quotation from one of my official reports in such a way as to furnish a basis for radical misunderstanding of my attitude toward rural health work.

If it were discovered that, in general, rural health work can be conducted at relatively *less* cost than urban health work of equivalent degree, I should be glad to accept the discovery and use it for whatever it might be worth in the advocacy of county health work. Therefore, my statement that "rural health work, on account of distances to be covered and other obvious factors, is relatively more expensive than urban health work," which Dr. Warren quotes and presents in a very different context from the original, is an expression of my opinion but not of my desire.

Before reading Dr. Warren's paper, it had not occurred to me as likely—or even as possible—that any one with any degree of reason could accept any opinion or opinions I have expressed or helped to spread as "justification for indifference" toward the establishment and maintenance of whole-time rural health service. I have never heard of a single instance in which the opinion expressed by me or others to the effect that rural health work is relatively more expensive and difficult than urban health work has operated as a factor in preventing the establishment or support of county health service. If any such instances are known, I shall be glad to be enlightened with a full account of the circumstances.

My reference to the relative cost of rural health work in the report from which Dr. Warren quotes (p. 18, Reprint 699 from *Public Health Reports*, Oct. 7, 1921) was for the purpose of indicating the importance of cooperation from state and federal governmental health agencies in the rural health field. Thus, it was used in an argument for, not against, the development of local rural health service.

In Dr. Warren's paper, he appears to have confused health work with the results of health work. The statement quoted from my report applies strictly to health activities. The geographical factor alone appears to me to make inescapable the conclusion that most salient health department activities, carried out to the same degree under comparable business management, will necessarily cost more in our average rural community than in our average large city. A discussion of the relative costs of rural and urban health department work, however, impresses me as being largely academic. The big outstanding fact, which I think is "established," is that investment for reasonably adequate local health service in either the rural or the urban community is essential to the public welfare, and is good business.

Throughout the course of my work in the rural health field, I have endeavored persistently and, I think, consistently to convey the idea that the results of reasonably adequate rural health work exceed in value many fold the cost of the work and, therefore, that investments for the support of properly directed rural health work (with the county, or a district comparable to a county, as a unit) are among the very best which can be made from our public or private funds. I think all of my expressions of opinions, if considered by paragraphs instead of by separate words or sentences, indicate my conviction in this respect. Among the first reports I wrote on the subject of rural sanitation or rural health work was one published in Public Health Bulletin No. 94. The conclusions in that report (p. 45) were as follows:

> 1. Rural sanitation is needed.
> 2. Rural sanitation is feasible.
> 3. The cost of work necessary to secure marked advancement in rural sanitation is many times less than the cost of the illness and of the physical inefficiency which will be prevented by such advancement; and, therefore, prolonged, intensive, reasonably directed work for the advancement of sanitation in the rural districts generally of the United States would prove economic.

Those conclusions express the opinion on the subject I now hold and which I expect I would continue to hold if it were established by interesting studies, such as Dr. Warren has begun and which I hope he will continue, that rural health work is relatively either more or less expensive than urban health work.

L. L. Lumsden, M.D., Washington, D. C.
Surgeon, U. S. Public Health Service.

DIAGNOSIS OF SYPHILIS FROM PRIMARY LESION

To the Editor:—Referring to the method described by Dr. William D. Gill in The Journal, September 16, in which serum from the primary lesion is obtained by slight suction obtained from an improvised suction syringe: Serum for dark field spirochetal search may be obtained in a still simpler manner by placing over the lesion any of the ordinary suction tubes, such as those of Hays, Hurd, McQuaid or Waring, connected to a suction pump with mild suction; or if these tubes are unavailable, an efficient suction tube for this purpose may be improvised from the barrel of an ordinary diphtheria antitoxin syringe, inverted and connected to a suction pump by rubber tubing. No new instrument is necessary in this way, and appropriate sized suction tubes are adaptable to nearly all types of lesions, and in situations in which the apparatus suggested by Dr. Gill is difficult or impossible of use, as in the oral cavity or the throat.

J. B. H. Waring, M.D., Blanchester, Ohio.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ACID FRUITS AND ARTHRITIS—BOOKS ON DIETETICS—VITAMINS

To the Editor:—1. Please tell me what relation acid fruits and vegetables bear to the arthritides. 2. What is a good book on disease and dietetics? 3. I should like a list of foods of high vitamin content.

Eva Goddin Cutright, M.D., Wooster, Ohio.

Answer.—1. So far as we know, there is no positive evidence that the eating of acid fruits and vegetables has a definite effect on the production of arthritis.

2.—

McCollum, E. V.: The Newer Knowledge of Nutrition, New York, the Macmillan Company, 1922.

Friedenwald and Ruhräh: Diet in Health and Disease, Philadelphia, W. B. Saunders Company, 1919.

Eddy, W. H.: The Vitamine Manual, Baltimore, Williams and Wilkins Company, 1921.

Sherman, H. C.: Chemistry of Food and Nutrition, New York, the Macmillan Company, 1918.

Sherman and Smith: The Vitamines, New York, the Chemical Catalogue Company, 1922.

Vitamins and diet are discussed in the following recent issues of The Journal:

Aug. 13, 1921 (Queries and Minor Notes); Sept. 3, 1921 (Queries and Minor Notes); Feb. 4, 1922 (editorial); March 11, 1922 (Current Comment); March 18, 1922 (editorial); Aug. 19, 1922 (editorial); July 29, 1922 (editorial); May 6, 1922 (Propaganda for Reform, Chart of "Vitamins in Foods"); May 13, 1922 (Hess, Moore and Calvin: Experimental Studies with Proprietary Vitamin Products); April 15, 1922 (Osborne and Mendel, Distribution of Vitamin B in Some Vegetable Foods).

3. A list of foods of high vitamin content will be found in educational poster No. 39, price 40 cents, published by the American Medical Association. The vitamin content of many foods may also be learned by reference to "Vitamins and Their Distribution" (The Journal, Aug. 13, 1921).

INACTIVATING TEMPERATURES OF ANTITOXINS—LOSS OF POTENCY FOR WASSERMANN TEST OF BLOOD SERUM

To the Editor:—1. What are the maximum and minimum degrees of temperature to which vaccines and antitoxins (diphtheria) can be subjected before losing or impairing their antitoxic qualities? In my practice I am obliged to carry such therapeutic agents for a week or more, often subjecting them to 50 and even 70 F. below zero. 2. What diagnostic value can be placed on the Wassermann reaction of blood serum six weeks after withdrawal? Isolation makes it impossible to get our specimens to a laboratory any sooner.

Rex F. Swartz, M.D., Noorvik, Alaska.

Answer.—1. Vaccines and serums should be kept in a cool, dark place. Usually a constant temperature a few degrees Fahrenheit above the freezing point is recommended as the most desirable. There is no likelihood that freezing vaccines and serum changes or destroys their qualities; it tends rather to preserve their potency; but repeated freezing and thawing would be harmful.

2. Wassermann tests of serum six weeks after withdrawal of the blood have no value unless controlled with tests of serum known to be negative and kept for the same length of time under exactly the same conditions. There is good reason to expect that serum kept frozen solid for six weeks or longer would give reliable results.

TURBAN CLASSIFICATION IN TUBERCULOSIS

To the Editor:—Please describe the Turban method of classification in tuberculosis.

Edward W. Blakely, M.D., Orange, N. J.

Answer.—Turban classifies tuberculosis patients wholly with respect to the physical findings. His is an anatomic classification. Stage I includes those patients whose slight lesions do not involve more than one lobe, or two half-lobes. Stage II includes those whose slight lesion extends farther than Stage I, but does not exceed two lobes. A severe lesion involving at the most one entire lobe is also placed in Stage II. Stage III includes those patients not in Stages I and II. "Slight lesion" is synonymous with infiltration, and "severe lesion" with consolidation and cavity formation.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arizona: Phoenix, Oct. 3. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

Arkansas: Little Rock, Nov. 14-15. Sec., Reg. Bd., Dr. G. W. Walker, Fayetteville; Sec., Eclec Bd., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith; Sec., Homeo. Bd., Dr. George M. Love, Rogers.

California: Sacramento, Oct. 16-19. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

Connecticut: Hartford, Nov. 14-15. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

Connecticut: New Haven, Nov. 14-15. Sec., Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

District of Columbia: Washington, Oct. 10. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

Florida: Tallahassee, Oct. 10-11. Sec., Dr. W. M. Rowlett, Tampa.

Georgia: Atlanta, Oct. 10-12. Sec., Dr. C. T. Nolan, Marietta.

Hawaii: Honolulu, Oct. 9-12. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

Idaho: Boise, Oct. 3. Director, Mr. Paul Davis, Boise.

Illinois: Chicago, Oct. 10-12. Supt. of Registration, Mr. V. C. Michels, Springfield.

Iowa: Des Moines, Nov. 1-3. Sec., Dr. Rodney P. Fagen, State House, Des Moines.

Kansas: Topeka, Oct. 10. Sec., Dr. A. S. Ross, Sabetha.

Michigan: Lansing, Oct. 10-12. Sec., Dr. Beverly D. Harison, 504 Washington Arcade, Detroit.

Minnesota: Minneapolis, Oct. 3-5. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

Montana: Helena, Oct. 3. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

Nevada: Carson City, Nov. 6. Sec., Dr. Simeon L. Lee, Carson City.

New Jersey: Trenton, Oct. 17-18. Sec., Dr. Alexander MacAlister, State House, Trenton.

New Mexico: Santa Fe, Oct. 9-10. Sec., Dr. R. E. McBride, Las Cruces.

Oklahoma: Oklahoma City, Oct. 10-11. Sec., Dr. J. M. Byrum, Shawnee.

Porto Rico: San Juan, Oct. 3. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.

West Virginia: Huntington, Oct. 10. State Health Commissioner, Dr. W. T. Henshaw, Charleston.

Wyoming: Cheyenne, Oct. 9-11. Sec., Dr. J. D. Shingle, Cheyenne.

Oregon Reciprocity Report

Dr. Urling C. Coe, secretary, Oregon State Board of Examiners, reports that during 1922 twenty-four candidates were licensed by reciprocity. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago	(1906)	California
	(1909)	Washington
Northwestern University	(1914)	Illinois
Rush Medical College	(1890)	Washington
	(1897)	Iowa
	(1902)	North Dakota
	(1916), (1921, 2)	Illinois
University of Illinois	(1912)	California
	(1913)	Idaho
Keokuk Medical College, College of Phys. and Surgs.	(1905)	Iowa
Maryland Medical College	(1911)	Washington
Harvard University	(1920)	Mass.
University of Michigan Medical School	(1916)	Michigan
Ensworth Medical College	(1897)	Illinois
Northwestern Medical College, St. Joseph	(1888)	Nebraska
St. Louis Medical College	(1868)	Kansas
Lincoln Medical College	(1902, 2)	Nebraska
University of Nebraska	(1903)	Nebraska
Jefferson Medical College	(1919)	Penna.
University of Pennsylvania	(1890)	Idaho
Vanderbilt University	(1897)	Texas

Mississippi June Examination

Dr. W. S. Leathers, secretary, Mississippi State Board of Health, reports the written examination held at Jackson, June 20-21, 1922. The examination covered 12 subjects and included 96 questions. An average of 75 per cent. was required to pass. Of the 29 candidates examined, 27, including one undergraduate, passed, and 2 failed. Sixteen candidates were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Northwestern University	(1922)*	82, 82, 83, 84, 87, 89
Rush Medical College	(1922)*	86
Louisville National Medical College	(1911)	78
Tulane University	(1922)	84, 89
Mississippi Medical College	(1911)	82

University and Bellevue Hospital Medical College	(1922)	88, 90
University of Pennsylvania	(1922)	85, 86, 87, 89
University of Tennessee	(1922)	87
Meharry Medical College	(1922)	76, 76, 80, 81, 82, 84
University of Virginia	(1920)	84, 88
Undergraduate		81

FAILED

Meharry Medical College	(1922)	67, 71.5

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Louisville Medical College	(1903)	Alabama
University of Louisville Medical Dept	(1886)	Kentucky
Tulane University	(1901), (1904), (1905), (1920) (1921)	Louisiana Alabama
Tufts College Medical School	(1907)	Mass.
University of Minnesota	(1920)	Minnesota
Washington University	(1920)	Tennessee
Cleveland-Pulte Medical College	(1896)	Ohio
University of Pennsylvania	(1920)	New Jersey
Chattanooga Medical College	(1905)	Arkansas
Meharry Medical College	(1920) Georgia, (1921)	Arkansas
University of Tennessee	(1916)	Tennessee

* These candidates have finished the medical course and will obtain the M.D. degree after they have completed a year's internship in a hospital.

Iowa June Examination

Dr. Rodney P. Fagen, secretary, Iowa State Board of Medical Examiners, reports the written examination held at Iowa City, June 1-3, 1922. The examination covered eight subjects and included 100 questions. An average of 75 per cent. was required to pass. Forty-one candidates were examined, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Northwestern University	(1922)*	90.9
Rush Medical College	(1922)*	91.4
State University of Iowa College of Medicine	(1922)	83.5, 88.3, 88.4, 88.5, 88.9, 89.1, 89.5, 89.6, 89.8, 90, 90, 90, 90, 90.3, 90.4, 90.4, 90.4, 90.4, 90.5, 90.5, 90.5, 90.8, 90.9, 90.9, 91, 91.4, 91.5, 91.6, 91.7, 91.8, 91.9, 92.1, 92.1, 92.3, 92.4, 92.4, 92.5
University of Minnesota	(1922)†	92.2
University of Manitoba	(1921)	92.6

Dr. Fagen also reports that on July 6, 1922, nineteen candidates were licensed by reciprocity. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Bennett Medical College	(1911)	Tennessee
Northwestern University	(1915), (1921)	Illinois
Rush Medical College	(1921)	Illinois
University of Maryland	(1917)	Delaware
St. Louis University School of Medicine	(1912), (1918)	Missouri
University of Michigan Medical School	(1918, 2), (1919)	Michigan
Washington University	(1921, 2)	Missouri
Creighton University	(1921, 2)	Nebraska
University of Nebraska	(1921, 2)	Nebraska
University of Cincinnati	(1921)	Ohio
University of Oklahoma	(1921)	Oklahoma
University of Vermont	(1906)	Maine

* These candidates have finished the medical course, and will receive the M.D. degree after they have completed a year's internship in a hospital.

† This candidate has finished the medical course and received the M.B. degree, and will obtain the M.D. degree after he has completed a year's internship in a hospital.

Maine July Examination

Dr. Adam P. Leighton, acting secretary, Maine State Board of Registration in Medicine, reports the written examination held at Augusta, July 5-6, 1922. The examination covered ten subjects and included 100 questions. An average of 75 per cent. was required to pass. Fifteen candidates were examined, all of whom passed. Four candidates were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Yale University	(1922)	81. 84, 85, 86, 86
Johns Hopkins University	(1917)	90
Boston University	(1921)	83, 88, 89
Tufts College Medical School	(1922)	80, 80, 84, 86
College of Phys. and Surgs. in the City of New York	(1895)	80
University of Montreal	(1919)	83

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Maryland Medical College	(1912)	W. Virginia
Dartmouth Medical School	(1895)	New Hamp.
Columbia University	(1909)	New Hamp.
Chattanooga Medical College	(1904)	Alabama

Book Notices

Radium Therapy. By Frank Edward Simpson, A.B., M.D., Professor of Dermatology, Chicago Policlinic. Cloth. Price, $7. Pp. 391, with 166 illustrations. St. Louis: C. V. Mosby Company, 1922.

A textbook on radium therapy by one whose clinical experience with its use has been so extensive as that of Dr. Simpson could be expected to furnish a useful and reliable addition to the literature of this field, and perusal of the book bears out this belief. The book, although not large, offers a comprehensive review of the modern science of radiology, including, as it does, a consideration of every phase of the subject, from the origin and chemical nature of radium to its therapeutic application. The bibliography, which contains fifty-nine pages, attests the full investigation which underlies the work. The first ten chapters, comprising eighty-six pages, are concerned with the technical and theoretical phases of the subject, covering radioactive substances in general; the origin and chemical nature of radium, radium emanation and radioactive deposit, with the technic of preparation of the former for its therapeutic use; absorption and filtration of rays; physical and chemical effects of radium rays, and their biologic effects. Included here is a rather long and largely technical chapter covering the author's experimental work on the absorption of gamma rays. On the whole, however, in view of the highly specialized nature of the subject, this portion of the book is written in such a style that the greater part of it can be easily understood by the physician who has no special knowledge of the physics of radium. The next four chapters, dealing with radium reactions, therapeutic apparatus, dosage and the technic of irradiation present the general considerations of radium therapy in adequate fashion, although the formulas used in determining dosages are so complicated that the average reader will find himself beyond his depth. Following this is a discussion of the use of radium or its emanations in the special fields of medicine, with a full statement of the form of the agent best suited for the special condition; type and thickness of screens to be employed, and mode and time of application for each disease in which its use is advised. In the chapters dealing with its employment in general surgery and gynecology, the author displays a conservative and open-minded attitude which is likewise evidenced in the chapters on radium in dermatology, diseases of the eye, ear, nose and throat, diseases of the ductless glands, and internal medicine. The instructions for its employment in the various conditions are so clearly and simply stated, and warnings against overdosage so emphasized, that the casual user of radium finds this an excellent guide for his efforts. The closing chapter deals with the professional injuries due to radium. The book is liberally illustrated with engravings, which include various charts, depiction of apparatus and a number of clinical photographs showing the condition before and after treatment. Most of the latter illustrate gratifying results, but others are included, which, like the text, do not hesitate to record the limitations of the agent employed. Simpson's textbook can be highly recommended as an able and modern exposition of the subject of radiology, of value to physicians generally as well as to those actively occupied with radium therapy.

A History of the National Tuberculosis Association. The Anti-Tuberculosis Movement in the United States. By S. Adolphus Knopf, M.D. Cloth. Price, $4.50. Pp. 505. New York: National Tuberculosis Association, 1922.

This book is divided into three parts: The first part—149 pages—is devoted to a history of the development of the knowledge of tuberculosis in this country, to the early efforts to secure general recognition of the fact that tuberculosis is communicable, and to the organization of the National Tuberculosis Association. A special chapter describes the Framingham demonstration; in a rather long chapter is a brief account of each of the state tuberculosis associations. There is also a special chapter by Dr. Philip P. Jacobs on the Sixth International Congress. The second part—104 pages—contains brief acounts of the annual sessions of the association since its organization. The third part—190 pages—consists of biographies, portraits, and bibliographies of the officers of the association, and of noted men interested in the work, such as Grover Cleveland, Sir William Osler, Major-General Gorgas and President Harding. Each of the biographies is accompanied with a portrait, and most of them with partial bibliographies. There are three appendixes: The first—nine pages—makes a brief reference to the work done by the Army, Navy and Public Health Service during the World War; the second—three pages—gives a list of publications of the National Tuberculosis Association, and the third—thirteen pages—is a list of some 260 contributions to the literature, by the author, Dr. S. Adolphus Knopf. This is an excellently gotten-up, well-printed and attractive book of a little more than 500 pages. It is, however, a book that will have little general appeal; its primary interest will be to those who are personally concerned in the work of the organization it describes.

Medical Ophthalmology. By R. Foster Moore, O.B.E., M.A., B.Ch., Assistant Ophthalmic Surgeon, St. Bartholomew's Hospital. Cloth. Price, $3.50. Pp. 300, with 80 illustrations. Philadelphia: P. Blakiston's Son & Co., 1922.

For the man in general practice who is desirous of knowledge of the eye complications of the diseases that come within his sphere, this book is to be most highly recommended, at least in part. The first portion of the book deals with diseases of the general nervous system, more from the standpoint of the ophthalmologist than from that of the neurologist or the internist. It is an excellent review of our ophthalmologic knowledge of the visual tracts, based to a great extent on the war work of Gordon Holmes and Lister. The subsequent chapters are written more for the general practitioner, and are well done. No undue emphasis is laid on the refinements of ophthalmic diagnosis, but the attention is called rather to the possibilities of ocular disease that may occur consequent to systemic derangement. In a few details, the ophthalmic reader may not agree with Mr. Moore; but those details are not of sufficient import to impair even slightly the general value. The bibliography is far from complete; but in a book of this character that is designed as a bridge between the paths of the ophthalmologist and the internist, there is no great need for extensive references. The mechanical work of the book is excellent, and the illustrations, to a great extent diagrammatic, are well reproduced. True it is that this book is not the English equivalent of Heine's work; but, without doubt, Mr. Moore has given us the best modern book on this subject that we have in English.

Typhoid Carriers and Typhoid Immunity. Omnis Typhus ex Typho. By Abraham L. Garbat, M.D. Monographs of the Rockefeller Institute for Medical Research, No. 16. Paper. Price, $1.25. Pp. 110. New York: The Rockefeller Institute for Medical Research, 1922.

This interesting monograph is based on an elaborate and properly prolonged study of 164 cases of typhoid developing during the war in an internment camp in North Carolina. Among the many important observations is the fact that in as many as 15 per cent. of typhoid convalescents, typhoid bacilli may be discovered in the bile after three consecutive stool cultures have proved negative. The author considers that two consecutive negative bile cultures and two consecutive negative feces cultures are necessary to give an absolutely safe indication of complete absence of typhoid bacilli in the intestinal tract. Many interesting laboratory details are contained in the paper. The author found Endo medium very satisfactory for isolating the typhoid bacillus. It is to be regretted that some recent writers on typhoid, among whom the present author is one, are inclined to exaggerate the importance of typhoid at the present time in order to enhance the importance of their thesis. A curious oversight appears on page 4, in a statement regarding case mortality in typhoid based on city statistics enumerating reported cases and deaths. If the author had pushed his inquiries farther he would have found that in some communities more deaths are reported than cases.

Miscellany

THE LEGAL STATUS OF THE HOMOSEXUAL

Shall a man be punished for having red hair? If not, why punish him for being homosexual? Leonard Williams points out that homosexuality may depend on conditions for which the victim is not responsible and the results of which he cannot prevent or even modify, and says:

> "I am entirely of the opinion, suggested rather than expressed in a recent lecture by my friend, Julian Huxley—namely, that the present law on the subject requires revision. Regarded in the light of pure physiology, it is no more reasonable to punish a man for being homosexual than it would be to punish him for having red hair. Both of these things are burdens cast upon him by forces over which he has no sort of control, nor can he alter or even modify them by any effort of the will. It is high time that the members of our profession expressed strong and clear views on this question. Let us remember that it is not so very long ago that people were tortured for being insane, and that it was a great-hearted French physician, Philippe Pinel, who died in 1826, who, at the risk of his own life and liberty insisted upon humane reforms which were afterward generally adopted."—*Brit. M. J.* **1**:833 (May 27) 1922.

Williams' suggestion, however, simply raises questions as to how far a person should be required to control a supposedly overpowering instinct, and how far the prospect of punishment in event of default will serve as a stimulus to self-control; and these questions are unanswerable except as they may be answered in a practical way, in the light of experience. The forces of impulsion and self-control cannot be measured and weighed, the one against the other; they vary to almost unlimited degrees in different persons, and vary widely even in the same person, with age, experience, observation and bodily and mental vigor. The best that we can do is to express the experience and judgment of mankind in customs and laws, having in mind, always, the welfare of the race. Undoubtedly, until our vision becomes infinite, injustice will occasionally be done and the innocent will suffer; but this is the penalty to which we are all exposed by reason of our human frailty.

For that class of offenders against our standards of morality and law who may be utterly unable to control its conduct, the situation as outlined by Williams has opened interesting possibilities. From a social standpoint it is impossible to consider such cases "in the light of pure physiology alone" (and this is all Williams professes to have done), but they must be considered in the light of social conditions also. Certainly present practice is unsatisfactory, which views all homosexual acts simply from the standpoint of criminal law; for it does no good to the offender, and but little good to society, to undertake to dispose of a homosexual offense by the exaction of a fine or by imprisonment for a longer or a shorter time. Such a proceeding simply does not dispose of the case at all. On regaining his freedom, the offender sooner or later repeats his offense, is again punished, and again set free to offend again—and so the matter goes on. If society is to be protected, and if youth is to be guarded against the blandishments and the seduction of incurable and irresponsible homosexual persons, there would seem to be but one course open—incarceration and institutional care.

The parallel drawn by Williams between homosexuality and insanity seems well drawn. The difficulty in one case, as in the other, lies in the determination in each instance as to whether the failure of the individual to conform to the standards set by society is due to his inability to conform rather than to his unwillingness to do so. In the one case, as in the other, if it is determined that asocial or antisocial conduct is due to the absence of the power of intelligent self-control, then unless some sort of guardianship outside the walls of an institution may be found sufficient for the protection of society, the unfortunate victim must be incarcerated, not as a punishment but simply for the protection of the community and the preservation of our social standards.

Medicolegal

Mother Not Liable for Services for Adult Daughter—Compensation of Expert Witnesses

(McClenahan v. Keyes (Calif.), 206 Pac. R. 454)

The Supreme Court of California, which reverses a judgment obtained by the plaintiff, says that he sued the executor of the will of a Mrs. Howard, on a claim for $1,821 for services rendered as a physician to a daughter of the decedent who was thought to be insane. The plaintiff, whose incompetency to testify to a conversation with the decedent was waived by the taking of his deposition by the defendant, testified that the mother had had him explain the condition of her daughter, what had been done and what was necessary to be done, and assured him in words and manner that she wished him to go ahead and render all of the necessary services—that he would be adequately compensated. But the court does not think that the evidence was sufficient to support the findings in favor of the plaintiff. The daughter was a wealthy woman, able to pay for the services rendered her, and, notwithstanding the alleged contract of employment by the mother, the plaintiff continued to make the charges on his books against the daughter, and subsequently sued the latter for the full amount of the claim, but was defeated therein largely by the daughter's contention that his services were hostile to her rather than for her benefit.

The mother was not liable for the services in the absence of a contract on her part to pay for them. The general rule is that one who calls a physician to render services to another is not liable for those services in the absence of an express agreement to pay therefor. This rule applies when the physician is called by a parent to render services to an adult son or daughter, and to services rendered to a daughter-in-law or to a wife's relative. Here, too, it should be borne in mind that the plaintiff advised the mother that the daughter was incompetent and should be placed under guardianship; wherefore, the amount of compensation to be allowed to the plaintiff would be passed on by the mother or such other relative as was appointed guardian; and it was therefore important that he should know that the relatives of the patient, including the mother, desired him to render services, and were willing that he should be compensated for them. If it had been the intention either of the plaintiff or of the mother that she should become personally responsible for the payment for such services, it would have been very simple for him to secure from her a direct statement to that effect. Moreover, if the services were performed on the credit of the daughter or if she was in any degree liable for the indebtedness, the mother would be a mere guarantor, and the contract of guaranty, not being in writing, would be void under the statute of frauds. The fact that the plaintiff was unsuccessful in establishing his claim against the daughter could not change the situation. In order that the promise of the mother to answer for the antecedent obligation of the daughter should be considered an original obligation, not required to be in writing, the statute required that the promise be made on a consideration beneficial to the promisor; and none was shown.

The plaintiff's claim against the mother included $789.50 for his services as an expert witness in the insanity and guardianship cases. The authorities are not in accord as to the circumstances under which an expert who is called as a witness may receive compensation. Some courts even hold that a contract to pay extra compensation is void. The authorities, however, all agree that, in the absence of an express contract to pay a physician for his testimony as an expert, he is entitled only to the statutory fee. The uniform rule seems to be that a physician who has acquired knowledge of a patient or of specific facts in connection with the patient may be called on to testify to those facts without compensation other than the ordinary witness receives for attendance on court. In those states recognizing the right to extra compensation for a physician who testifies as an expert, it is uniformly held that, when such testimony is sought to be elicited without requiring any particular investigation on the part of the physician, he is required to testify without extra compensation. The court does not need to determine the exact limits of the rule in California, for the reason that there was absolutely no showing of any agreement to pay the physician as an expert witness, as distinguished from his services as a physician in the case. There was no implied contract for the payment of extra compensation due to the fact that he was used as a witness. The law fixes the fees of a witness, and the only obligation incurred in the summoning of a witness is the obligation to pay the fees which the law fixes for the attendance of a witness.

Liability of Health Officers for Inhuman Treatment in Quarantining Patients

(Moody v. Wickersham (Kan.), 207 Pac. R. 847)

The Supreme Court of Kansas, in affirming a judgment in favor of the plaintiff for $1,212.50, or $25 for pain and suffering, $25 for loss of time, and $1,162.50 for punitive damages, holds that actual damages were shown, and punitive damages were properly awarded; that health officers, in quarantining patients in time of smallpox or other epidemics, must act in a reasonably humane and considerate manner. The court says that the plaintiff, who was a housekeeper for a hotel and had been earning $50 a month, became sick and called a physician, who pronounced the case one of smallpox and notified the defendant, who was the secretary of the board of health and acting health officer. Her story, in brief, was that the defendant came to the hotel and, without giving her any reason, gave her fifteen minutes in which to get ready, and took her away in an open car on a very cold day. In passing through the cemetery he said: "You had better pick you a headstone, 'cause here's where I am going to take you next." He left her at a small shanty that was in charge of a very unkempt man. She protested at being left there. The condition of the house was dirty and nasty. The defendant told her that she could clean it up if she wanted to, but she had nothing to clean with. There was a box for a table, off which they ate dinner, a little coal stove to cook on, and two beds which stood end to end, in the one-room house. The house was boarded up and down, but the boards did not fit together, and there were cracks. Quilts were put up around the bed to keep the wind out. There were no conveniences to answer the calls of nature. The man went out. He also carried out the slop jar. At night a nurse came, who sent out for material and made a curtain, and took care of the plaintiff until she was removed by the defendant, after three days, in the same car in which she was taken to the shanty, so that she got very cold again, in the chilly wind that prevailed. The people with whom she was left said that they could not keep her, but the defendant went away and left her there, where she suffered from cold all the rest of the evening, and the people took care of her, while for much of the time for several days she was in a sinking condition.

The defendant's version of the affair was that he told the plaintiff she would have to be isolated; that the place was crude, and not sanitary, but he knew of no other place to segregate people having contagious diseases; that he told her he would remove her to a better place as soon as one could be obtained; that he had jocularly remarked, "Well, now, here is the cemetery right handy if anything happens," and she laughed.

The jury by their answers to special questions said that the defendant did not act in good faith; that he was not considerate toward the plaintiff at all times in removing her from the hotel to the pesthouse and from there to the home mentioned; that she suffered unusual inconvenience, and that the defendant was negligent toward her; that the negligence consisted of improper conveniences and being confined with a man alone for twelve hours in an insanitary pesthouse.

A health officer, while required to obey his lawful orders and perform his official duty, is never excused from wanton conduct and inhuman treatment of patients suffering from serious illness. It was argued that, as the defendant was a quasi-judicial officer, he was not responsible in damages for his acts, and it was pointed out that it is the duty of health officers to segregate from the public and to quarantine all persons sick with smallpox, and it was said that in moving the plaintiff from the hotel he was exercising quasi-judicial powers and performing a governmental function. A physician had already pronounced the case smallpox, and it took no exercise of judicial power on the part of the health officer to move the patient to a place where the guests and occupants of the hotel would be free from danger of infection. Of course, in removing her he was acting in a governmental capacity, but persons who act in that capacity are required to treat other human beings in a reasonably humane and considerate manner. The law no less than humanity requires humane and decent treatment of those who must be segregated from their usual conveniences and friends, and whoever acts with utter disregard of this requirement renders himself liable. The contention that the evidence in this case was insufficient to establish a cause of action needs no discussion. The evidence warranted the finding that the defendant acted carelessly, wantonly or maliciously.

Legal Definition of Insane Delusion

(Wigginton's Executor et al. v. Wigginton et al. (Ky.), 239 S. W. R. 455)

The Court of Appeals of Kentucky, in reversing a judgment rendered against the validity of a contested will, says that insane delusions are spontaneous, and are not controlled by circumstances or the presence of others, or limited in their manifestations to a narrow period of time and never again discoverable. An insane delusion affecting the power of testamentary capacity, as uniformly construed, is the spontaneous production of a diseased mind, leading to a belief in the existence of something which either does not exist or does not exist in the manner believed. Prejudice, resentment, anger and moral delinquency may all exist without reason therefor; but if the delusional phase is not the spontaneous production of a diseased mind, based on no evidence whatever, it will not be classed as an insane delusion.

Attendance of Patient at Office Under Narcotic Law

(Hurwitz v. United States (U. S.), 280 Fed. R. 109)

The United States Circuit Court of Appeals, Eighth Circuit, in reversing a judgment of conviction of defendant Hurwitz and granting him a new trial, says that, to the charge against him of selling about an ounce of morphin, to a named person, without having registered as a dealer in such derivatives of opium, his defense was that what he did he had a right to do as a practicing physician. The evidence showed that he was a practicing physician and duly licensed to dispense opium, etc., by the United States revenue collector for the district in which he resided, and that what he did was done at his office. Section 2a of the Harrison Narcotic Law provides that nothing contained in this section shall apply to the dispensing or distribution of any of the enumerated drugs to a patient by a physician registered under this act in the course of his professional practice only; provided he shall keep a record of all such drugs dispensed or distributed, showing the amount dispensed or distributed, the date and the name and address of the patient to whom such drugs are dispensed or distributed, except such as may be dispensed or distributed to a patient whom such physician shall personally attend. Under the authority conferred by Section 1 of the act, as amended in 1919, the commissioner of internal revenue promulgated the following rule:

> *Dispensing by Practitioners.*—Practitioners are permitted to dispense narcotic drugs to bona fide patients, pursuant to the legitimate practice of their professions, without prescriptions or order forms. However, a record of drugs so dispensed must be kept, except when the practitioner is in personal attendance upon the patient. A practitioner is not regarded as in personal attendance upon a patient, within the intent of the statute, unless he is in personal attendance upon such patient away from his office.

The trial court, in its charge to the jury in this case, said: "A physician is not in personal attendance unless he is in personal attendance upon such patient away from his office." Presumably, the court took the language used from the rule mentioned above. Exception was taken to this language of the court by the defendant; and the circuit court of appeals is of the opinion that error was committed by the trial court in making such a statement. The power of the commissioner of internal revenue, with the approval of the Secretary of the Treasury, to make all needful rules and regulations for carrying the provisions of the narcotic act into effect, did not confer the power to say that a physician could not personally attend a patient in his office. The enforcement of the act did not require any such rule, and it is contrary to the language of the act itself, which is plain and unambiguous, and says nothing about where the patient shall be when personally attended. If Congress had intended to exclude personal attendance at office, it would have said so. The fact of omission is strong evidence that it did not intend to say so. Congress cannot delegate legislative power to an executive officer.

Testimony as to Venereal Disease in Rape Case

(Riley v. State (Ga.), 111 S. E. R. 729)

The Supreme Court of Georgia, in affirming a judgment of conviction of defendant Riley, says that, on the issue as to whether he had had sexual intercourse with the female child alleged, a physician testified to the effect that, at a stated time, about seven months prior to the alleged criminal act, he had treated the accused for a particular venereal disease. That testimony was relevant in connection with other evidence tending to showing that the child developed that disease within about seven days after the alleged criminal act; that the alleged disease was usually communicated from one person to another by sexual intercourse, and that, when communicated, it usually manifested itself within a period of from three to ten days after the act. The fact that another physician testified that, shortly after the offense was alleged to have been committed, he made several examinations of the accused, and that, in his opinion, the latter was not infected with the disease, would not render the testimony of the first physician inadmissible. It would make a conflict of evidence, going to the credibility of the witnesses or the evidential value of their respective opinions, but would not go to the admissibility of the evidence of either.

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. Louis J. Mitchell, 29 E. Madison St., Chicago, Secretary.

American Child Hygiene Association, Washington, D. C., Oct. 12-14. Miss G. B. Knipp, 111 Cathedral St., Baltimore, Md., Secretary.

American Public Health Association, Cleveland, Ohio, Oct. 16-19. Mr. A. W. Hedrich, 370 Seventh Ave., New York, Secretary.

Association of Military Surgeons of the United States, Washington, D. C., Oct. 12-14. Col. James Robb Church, M. C., U. S. Army, Medical Museum and Library, Washington, D. C., Secretary.

Central States Pediatric Society, Cincinnati, Oct. 16-17. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.

Colorado State Medical Society, Colorado Springs, Oct. 3-5. Dr. F. B. Stephenson, Metropolitan Bldg., Denver, Secretary.

Delaware State Medical Society, Dover, Oct. 9-10. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Hawaii, Medical Society of, Honolulu, Nov. 19-21. Dr. F. J. Pinkerton, 45-46 Young Building, Honolulu, Secretary.

Kentucky State Medical Association, Paducah, Oct. 16-19. Dr. J. A. McCormack, 532 W. Main St., Louisville, Secretary.

Medical Association of the Southwest, Hot Springs, Ark., Oct. 16-18. Dr. W. H. Bailey, 115 West 21st Street, Oklahoma City, Okla., Sec'y.

Minnesota State Medical Association, Minneapolis, Oct. 12-13. Dr. Carl B. Drake, Central Bank Building, St. Paul, Secretary.

Mississippi Valley Medical Association, Rochester, Minn., Oct. 10-12. Dr. Henry Enos Tuley, 244 Francis Bldg., Louisville, Ky., Secretary.

Nevada State Medical Association, Reno, Oct. 6-7. Dr. Horace J. Brown, Goldfield, Secretary.

Pennsylvania, Medical Society of the State of, Scranton, Oct. 2-5. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Southern Medical Association, Chattanooga, Tennessee, Nov. 13-16. Mr. C. P. Loranz, Empire Building, Birmingham, Alabama, Secretary.

Tri-State District Medical Society, Peoria, Ill., Oct. 30-Nov. 2. Dr. William B. Peck, Freeport, Ill., Managing Director.

Vermont State Medical Society, Burlington, Oct. 12-13. Dr. W. G Ricker, St. Johnsbury, Secretary.

Virginia, Medical Society of, Norfolk, Oct. 31-Nov. 3. Mr. G. H. Winfrey, 104½ W. Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

August, 1922, **164**, No. 2

Action of Digitalis in Case of Auricular Fibrillation and Flutter. T. Lewis, London, Eng.—p. 157.

*Spleen and Digestion. Study III. Spleen in Inanition; Effect of Removal of External Secretion of Pancreas on Spleen. W. DeP. Inlow, Rochester, Minn.—p. 173.

Gastrospasm: Clinical and Roentgenologic Study. I. W. Held, New York, and J. Roemer, Paterson, N. J.—p. 188.

*Best Technic for Gastro-Enterostomy as Determined by Functional Results. A. O. Wilensky, New York.—p. 209.

Male Sexual Gland in Prevention of Creatinuria. M. D. McNeal, Rochester, Minn.—p. 222.

Clinical and Pathologic Study of Neuritis in Tropics, with Special Reference to Beriberi. W. E. Musgrave, San Francisco, and B. C. Crowell, Rio de Janeiro.—p. 227.

Clinical Differentiation of Epidemic Encephalitis, Acute Poliomyelitis, Botulism and Certain Forms of Food and Drug Poisoning. G. E. Ebright, San Francisco.—p. 253.

Status of Exercise in Tuberculous Considered from Neuromuscular Viewpoint. F. P. Miller, Los Angeles.—p. 263.

Postoperative Massive Collapse of Lungs. F. J. Hirschboeck, Duluth, Minn.—p. 268.

*Bacterial Endocarditis as Sequel to Syphilitic Valve Defect. L. H. Briggs, San Francisco.—p. 275.

Spleen in Inanition.—The data submitted by Inlow justify the conclusion, he says, that the spleen loses markedly in weight in inanition and are in general corroborative of the findings of other investigators. The loss in the weight of the spleen is out of all proportion to the decrease in body weight, being almost three times as great as a maximum in extreme cases of acute inanition, and approximately twice as great in cases, less acute. The removal of the external function of the pancreas by ligation of the pancreatic ducts or resection of the duodenal portion of the gland likewise leads to an excessive decrease in the size of the spleen. This finding confirms the observations of Sweet and Ellis. However, the shrinkage of the spleen under these conditions can be explained as due to the inanition resulting from the exclusion of the pancreatic juice from the intestine, and does not require for its elucidation the postulation of a specific pancreatic splenic interrelationship.

Best Gastro-Enterostomy Technic.—Evidence is presented by Wilensky which seems to show that the functional result of a gastro-enterostomy made with the aid of a Murphy button is superior to that of a gastro-enterostomy made by the suture method.

Bacterial Endocarditis Sequel of Syphilitic Endocarditis.—From a study of the literature, Briggs says, it would seem that the sequence of bacterial endocarditis on a syphilitic endocarditis is a decided rarity, despite the frequency of the latter condition and the fact that the former infection often has a selective action on the aortic valve. No reason can be assigned for this, although the age incidence of the two diseases probably plays some part. Another factor may be the increased vascularity of the valve previously damaged by rheumatic fever as compared with that damaged by syphilis. A case is reported of an individual suffering from a typical syphilitic aortitis and aortic endocarditis. One year later the patient enters the hospital with a nonhemolytic streptococcic endocarditis, which pursues the usual course and terminates in death. At necropsy a characteristic syphilitic aoritis with involvement of the aortic ring is found, together with an acute verrucose endocarditis of all the aortic cusps and perforation of one, with an extension into one mitral leaflet.

American Journal of Obstetrics and Gynecology, St. Louis

August, 1922, **4**, No. 2

Morphometry of Human Fetus with Special Reference to Obstetric Measurements of Head. L. A. Calkins, Minneapolis.—p. 109.

*Brief Review of Physiologic and Embryologic Genesis of Pseudohermaphroditism, with Report of Case. M. A. Goldberger, New York.—p. 130.

*Preoperative Digitalization. Method to Reduce Postoperative Complications. S. H. Geist and J. S. Somberg, New York.—p. 135.

Reflex Gastric Symptoms in Diseases of Female Pelvic Organs. A. F. R. Andresen, Brooklyn.—p. 142.

Ectopic Pregnancy. Analysis of 186 Cases. P. Graffagnino, New Orleans.—p. 148.

Tubal Patency Test and Unsealing by Simple Air Filled Pipet. R. L Dickinson, New York.—p. 159.

Some Moot Points in Diagnosis of Causes and in Treatment of Sterility. B. C. Hirst, Philadelphia.—p. 160.

Unsuspected Male Sterility. W. H. Mackinney, Philadelphia.—p. 165.

Review of Seventy-Five Consecutive Hysterectomies for Fibromyoma Uteri. R. C. Van Etten, New York.—p. 169.

Treatment of Syphilis in Pregnancy in Department of Health in Detroit. W. E. Welz and A. E. Van Nest, Detroit.—p. 174.

*Prevention of Striae Gravidarum, Diastasis of Recti Muscles, Visceroptosis and Ptosis of Breasts in Pregnancy. G. C. H. McPheeters, Fresno, Calif.—p. 178.

Method of Disposing of Spill in Cesarean Section. E. L. Cornell, Chicago.—p. 183.

Case of Pseudohermaphroditism.—Goldberger classifies his case as one of pseudohermaphroditismus feminus, as the external female organs were present and normal except for an overdevelopment of the clitoris. Internally there was a gonad in the right labium majus presumably a rudimentary testis, possibly to be classified as similar to a free martin gonad of cattle. The uterus, tubes and ovaries were apparently absent. An important fact in the history was that two aunts on the father's side are known never to have menstruated or borne children and they had no mammary development whatever.

Importance of Preoperative Digitalization.—Assuming that any measure which will help to maintain the pressure, and especially the pulse pressure, would also be of value in reducing the incidence of the complications dependent on vascular disturbances, Geist and Somberg decided that digitalis, or any of its derivatives, being powerful cardiac stimulants, would be of value, and a series of operative cases was investigated to determine the value. The patients were subjected to practically all of the more severe gynecologic and general surgical procedures. There were practically no complications. The postoperative course was excellent and there were no pronounced ill effects from the digitalis. The blood pressure drops were minimal, the pulse pressure being maintained throughout. Of a group of thirty-nine undigitalized cases, postoperatively, 30 per cent. of these had a poor pulse; two patients developed such a poor, weak, irregular pulse that hypodermic stimulation with a digitalis preparation had to be used. Fifteen per cent. showed poor color, either pallor or cyanosis. Fifty-seven per cent. vomited several times; 43 per cent. did not vomit or had only nausea. The alertness seen in the digitalized cases was lacking, instead the usual postanesthetic mental aberration was the rule. The rapid recovery seen in the digitalized cases was also missing in the greater portion, and the asthenic condition of some of the patients was quite striking, when compared to the digitalized cases, who had had similar operative procedures. There were six cases of pneumonia, two cases of shock, two cases of bronchitis and one case of phlebitis. The total percentage of complications is 27 per cent. in these undigitalized cases, compared to the zero percentage of complications seen in the digitalized groups. This Geist and Somberg regard as being by far the most important and likewise the outstanding feature of this series of experiments.

Prevention of Striae Gravidarum and Visceroptosis.—McPheeters claims that persistent, systematic daily massage with both hands, after a method developed by him, will positively prevent the formation of striae gravidarum. He also advocates wearing a suitable maternity corset, or, maternity abdominal supporter, fitted by a competent corsetierre under the attending physician's supervision, for the purpose of supporting the lower half of the abdomen. It is asserted that this gives complete relief from backache, the discomfort of distention, groin pains, persistent frequency of urination and fatigue on slight exertion. Nearly all patients are thereby enabled to be active on their feet and continue needed physical exercise until actual lightening. Diastasis of recti muscles with the accompanying enlargement of the umbilical space is prevented thereby and fewer patients are left with visceroptosis.

American Journal of Ophthalmology, Chicago

August, 1922, **5**, No. 8

Hernia Through Tenon's Capsule with Extrusion of Orbital Fat a Birth Injury. W. S. Franklin and W. D. Horner, San Francisco.—p. 601.
Lymphosarcoma of Orbit Probably Arising in Choroid. I. Hartshorne, New York.—p. 604.
Exophthalmos in Exophthalmic Goiter: Study of 400 Cases. I. Bram, Philadelphia.—p. 609.
Agricultural Conjunctivitis. J. M. Patton and S. R. Gifford, Omaha. —p. 623.
Bilateral Blood Staining of Cornea. H. S. Gradle, Chicago.—p. 638.
Third Nerve Reflexes. J. P. Williams, Lincoln, Neb.—p. 642.
Glaucomatous Cupping with Low Ocular Tension After Wood Alcohol Poisoning. F. A. Morrison, Indianapolis.—p. 645.
Anomalous Movement of Blind Eye on Closing Other. A. W. Stirling, Atlanta, Ga.—p. 645.
Unusual Type of Vitreous Opacity. L. W. Deichler, Philadelphia.—p. 646.
Total Coloboma of Iris. L. W. Morsman, Hibbing, Minn.—p. 647.

American Journal of Physiology, Baltimore

August, 1922, **61**, No. 3

*Voluntary Acceleration of Heart. N. B. Taylor and H. G. Cameron, Toronto.—p. 385.
Relation of Blood Volume to Tissue Nutrition. I. Effects of Hemorrhage on Circulatory and Respiratory Response to Changes in Percentage of Oxygen and Carbon Dioxid in Respired Air. R. Gesell, E. Blair and R. T. Trotter, Berkeley, Calif.—p. 399.
Id. II. Effects of Graded Hemorrhage on Volume Flow of Blood Through Striated Muscle of Dog. R. Gesell and C. A. Moyle, Berkeley, Calif.—p. 412.
Id. III. Effects of Hemorrhage and Subsequent Intravenous Injection of Gum Saline Solution on Response of Striated Muscle to Rapid Stimulation with Supplementary Data on Effects of Hemorrhage and Infusion on Salivary Secretion Elicited by Intravenous Injection of Pilocarpin. R. Gesell and C. A. Moyle, Berkeley, Calif.—p. 420.
Statistical Study of Pulse Rate and Arterial Blood Pressures in Recumbency, Standing and After a Standard Exercise. E. C. Schneider and D. Truesdell, Long Island, N. Y.—p. 429.
Studies in Fatigue. XI. Effect of Intravenous Injection of Massive Doses of Epinephrin on Skeletal Muscle at Rest and Undergoing Fatigue. C. M. Gruber, St. Louis.—p. 475.
Further Studies on Hydrogen Ion Concentration of Human Sweat. G. A. Talbert, Chicago.—p. 493.
Estimation of Cardiac Volume in Living Animal by Means of Teleroentgenogram. J. H. Skavlem, Madison, Wis.—p. 501.
Studies of Cell Division. I. Effect of Dilute Sea Water on Fertilized Egg of Echinarachinius Parma During Cleavage Cycle. E. E. Just. —p. 505.
Fertilization Reaction in Echinarachnius Parma. V. Existence in Inseminated Egg of Period of Special Susceptibility to Hypotonic Sea Water. E. E. Just.—p. 516.
*Studies on Physiology of Capillaries. V. Reaction of Human Skin Capillaries to Drugs and Other Stimuli. E. B. Carrier, Copenhagen. —p. 528.
Responses of Fundulus to White, Black and Darkness. G. H. Parker and A. J. Lanchner.—p. 548.
Protoplasmic Effects of Papaverine, Histamin and Other Drugs, in Relation to Theory of Smooth Muscle Contraction. H. S. Hopkins, Baltimore.—p. 551.
Comparative Study of Different Methods of Artificial Respiration. R. Burton-Opitz, New York.—p. 562.
*Effect of High Protein Diet on Blood Catalase. W. E. Burge and J. M. Leichsenring, Champaign, Ill.—p. 574.

Voluntary Acceleration of Heart.—A case of voluntary heart acceleration is described by Taylor and Cameron and a brief account is given of the manner in which the accomplishment was acquired. Dilatation of the pupils, vasoconstriction and elevation of the blood pressure, are associated with the increased heart rate. Atropin administration depresses but does not abolish the power of voluntary acceleration. Decided glycosuria occurs as an after effect of a series of acceleratory efforts. The conclusion is drawn that the acceleration is due, in part, to the withdrawal of vagal tone and in part to excitation of the accelerators, the two influences being called into reciprocal action by the voluntary effort.

Physiology of Capillaries.—Using Lombard's method, the smallest vessels in the human skin have been examined microscopically by Carrier. By this method the rate of flow, the character of the stream and the state of contraction of the capillaries can be seen. Cold produces a contraction of arterioles with a slowing in the blood stream and contraction of the capillary wall. When the cold becomes extreme, the capillaries are paralyzed, open up and fill ultimately with venous blood. Stroking an area of skin with a blunt point opens all the underlying vessels. This initial flush is followed by the usual dermatographic reactions. Epinephrin, from 1:1,000 up to 1:10,000 produced contraction of both capillaries and arterioles. Histamin from 1:1,000 up to 1:10,000, at the end of the nail, produced dilatation of the capillaries with hastening of the blood stream. On the back of the hand the effect was complicated by edema. Pituitary extract up to 1:100 produced contraction of the capillaries. Acetylcholine, 1:5,000 and 1:10,000 dilated both capillaries and arterioles. Amyl nitrite, undiluted, dilated the capillaries slightly and increased the rapidity of the stream. When inhaled, all the capillaries were open with a very rapid flow. Urethane, 25 per cent., dilated both arterioles and capillaries. All the observations agree with the view that the diameter of the capillaries is not necessarily dependent on the pressure in the arterioles, but rather on their own tone and state of contraction. They normally contract or reflex independently of the pressure behind them, but in response to local or general stimuli.

Effect of High Protein Diet on Blood Catalase.—Burge and Leichsenring found that the ingestion of a large meal of meat produces an increase in catalase parallel with the increase produced in metabolism. The ingestion of large quantities of meat for several successive days increases catalase corresponding with the rise produced in basal metabolism.

American Journal of Public Health, New York

September, 1922, **12**, No. 9

Federal Aid for Protection of Maternity and Infancy. G. Abbott.—p. 737.
National Research Council. V. C. Vaughan, Washington, D. C.—p. 746.
Rapid, Simple Method of Making Charts. G. H. de Paula Souza, Sao Paulo, Brazil.—p. 757.

American Journal of Roentgenology, New York

August, 1922, **9**, No. 8

Graduate Instruction in Roentgenology. J. S. Shearer, Ithaca, N. Y. —p. 459.
Graduate Instruction in Roentgenology. G. W. Holmes, Boston.—p. 465.
Measurement of Roentgen Radiation by Means of Ionization Chamber and Galvanometer. W. Duane Cambridge, Mass.—p. 467.
*Roentgen-Ray Treatment of Chronically Infected Tonsils and Adenoids. C. A. Waters, P. B. MacCready and C. H. Hitchcock, Baltimore.—p. 469.
Radiation Therapy. G. Failla, E. H. Quimby and A. Dean, New York. —p. 479.
Effects of Roentgen Rays and Radioactive Substances on Living Cells and Tissues. L. Loeb, St. Louis.—p. 497.
Present Field for Use of Roentgen Rays and Radium in Treatment of Malignant Neoplasms. W. S. Stone, New York.—p. 502.
Ante-Operative Radiation of Carcinoma of Breast. R. H. Boggs, Pittsburgh.—p. 508.
Dosage and Technic in Roentgen-Ray Treatment of Goiter, Tuberculous Glands of Neck, Tonsils and Adenoids. W. D. Witherbee, New York.—p. 514.
*Caput Puddling. A. Bassler and J. R. Lutz, New York.—p. 517.
Case of Kohler's Disease. B. M. Bernstein, Brooklyn.—p. 518.

Roentgenotherapy of Infected Tonsils.—Eight cases treated with two courses of four radiations each are discussed by Waters et al. from the point of view of the bacterial flora of the tonsils and pharynx. Seven were found definitely to harbor the hemolytic streptococcus. Three are regarded as incompletely studied. In three other cases, the hemolytic streptococcus persisted at least four weeks following the termination of treatment. Of the remaining two, one presented an approximately normal flora throughout. The other may be regarded as improved from the bacteriologic point of view, but there is no proof that this improvement is persistent. There is no evidence that reduction in the size of hyperplastic tonsils by irradiation is accompanied by eradication of the carrier state in individuals harboring the hemolytic streptococcus in these tonsils.

Caput Puddling.—Bassler and Lutz draw attention to a form of stasis existent mainly in the caput coli, not because in the study of the cases an entity of importance can be attached to it, but because it does not always exist with so-called cecal stasis, may occur when the rest of the right colon drains practically well enough, and clinically it appears to be of more than casual roentgenologic interest in symptomatic ways, although the symptoms cannot be differentiated sharply from colonic stasis in a general way. This puddling occurs in the caput below the level of the ileocecal valve, and it is this limited residue collection with practically an empty colon distal to the valve that is the distinctive feature of the roentgenologic diagnoses. In the study of the histories of a number of such cases there are no distinctive features leading to a definite diagnosis of caput puddling. Chronic colitis is more frequent and a history of chronic digestive disturbances occurs most often.

Annals of Otology, Rhinology and Laryngology, St. Louis

June, 1922, **31**, No. 2

Fatalities Following Operations Upon Nose and Throat Not Dependent on Anesthesia—Study of Three Hundred and Thirty-Two Hitherto Unreported Cases. H. W. Loeb, St. Louis.—p. 273.
Optic Nerve and Accessory Sinuses. J. van der Hoeve, Leiden, Holland. —p. 297.
Recent Observations on Laryngopulmonary Tuberculosis. J. Dworetzky, Liberty, N. Y.—p. 311.
Use of Ear Plugs in Aviation. L. E. Tefft and E. K. Stark, Mitchel Field, L. I., N. Y.—p. 329.
Larvae of Fly Sarcophaga (Sarcophila) Wohlfahrth in Ear. A. Zebrowski, New York.—p. 335.
Adenocarcinoma of Middle Turbinate, Antrum and Ethmoids Two Years After Radical Operation Without Recurrence. D. N. Husik, Philadelphia.—p. 345.
Chronic Stenosis of Larynx and Trachea with Report of Case Treated by Laryngostomy and Dilatation. E. C. Sewall, San Francisco.—p. 352.
Histopathology and Histogenesis of Benign Growths of Nose and Accessory Cavities. H. L. Baum, Denver.—p. 371.
Nasal Tuerculosis. W. B. Chamberlain, Cleveland.—p. 423.
Problem of Middle Ear Mechanics. Chapter II. A. G. Pohlman, St. Louis.—p. 430.
Misconceptions Regarding Import of Retraction of Drum Membrane. E. P. Fowler, New York.—p. 483.
Acute Infections into Sebaceous Glands and Hair Follicles of Nasal Vestibule. L. M. Hurd, New York.—p. 489.
Variations of Intracranial Symptoms from Frontal Sinusitis. L. Levy, Memphis, Tenn.—p. 493.
Acute Mastoiditis with Unusual Complications. E. P. Norcross, Chicago.—p. 501.
Rôle of Tonsils in Treatment of Nose Conditions, Infective and Obstructive—Study of 111 Cases. T. R. Gittins, Sioux City, Ia.—p. 507.
Suppurations of Labyrinth. E. Cobb, Marshalltown, Ia.—p. 523.
Application of Dental Molding Compound for Maintenance of Skin Grafts in Middle Ear and Mastoid Cavities. J. Israel, Houston, Tex. —p. 543.
Some Remarks on Indications for Simple Mastoid Operation in Adult. J. B. Rae, New York.—p. 546.
Specimens Illustrating Operative Aural Surgery and Making by Graduate Students of Preparations Showing Aural Surgical Anatomy. E. B. Gleason, Philadelphia.—p. 552.

Archives of Neurology and Psychiatry, Chicago

September, 1922, **8**, No. 3

*Visual Defects Caused by Occipital Lobe Lesions: Report of Thirteen Cases. H. W. Scarlett, Philadelphia, and S. D. Ingham, Los Angeles. —p. 225.
*Electromyographic Studies of Paralysis Agitans. S. Cobb, Boston.—p. 247.
Dermal Versus Epidermal Cholesteatomas Having Their Attachment in Cerebral Envelopes. G. Horrax, Boston.—p. 265.
*Epidemic (Lethargic) Encephalitis: Cultural and Experimental Studies. Second Communication. W. Thalhimer, Milwaukee.—p. 286.

Visual Defects Caused by Occipital Lobe Lesions.—The three patients forming the basis of the report made by Scarlett and Ingham had each received a wound of the head which involved one or both occipital lobes. In each of three cases a foreign body had traversed the brain for a considerable distance, in two instances passing from one hemisphere to the other across the median line. In two cases the roentgen ray revealed projectiles in the substance of the brain near the opposite side of the cranium from the points of entrance. In one case there was evidence that a projectile had been removed by early operation at a distance from the wound of entry. In several cases small fragments of bone were revealed within the cranial cavity near the defect in the skull. While none of the patients in this series came to necropsy and it was impossible to determine with accuracy the extent of the brain injuries, it was of some interest to observe the correlation of the visual defects and the brain lesions. The hypothesis is suggested by Scarlett and Ingham that a minute overlap of innervation exists along the entire vertical line separating the retinal halves. Each half of the macula is thus in relation with the corresponding occipital cortex, and the fixation point, situated on the line of division, possesses bilateral cortical connections.

Electromyographic Studies of Paralysis Agitans.—Eighteen cases of tremor were studied by Cobb. All of these showed features of the paralysis agitans syndrome, and in all the tremor was of the coarse type found in that condition, but only eleven of the cases were typical Parkinson's disease or the senile form of paralysis agitans. Cobb found that the tremor of paralysis agitans gives a characteristic electromyogram, with large, slow waves at the time of muscular contraction, and smaller, more frequent waves between these tremor contractions. The rate of the tremor of paralysis agitans is remarkably constant, the average being 5.8 per second. Little variation is observed in any one case when reexamined months later. In children the rate of the tremor may be much more rapid (9 per second in Case 12). Scopolamin may stop the tremor, but does not seem to slow the rate when acting less completely. Various muscles in the same person show practically the same rate of tremor.

Cause of Epidemic Encephalitis.—The investigations of epidemic encephalitis by Loewe and Strauss, which antedate other similar studies, seem to indicate that a filtrable, living agent, or virus, is regularly associated with this disease. This virus causes a disease in animals which is similar to, and in many animals identical with, epidemic encephalitis. The microscopic cerebral lesions in the animals are the same as those which have been found to be characteristic of this disease. From this virus, an extremely minute filtrable organism was grown in the ascites-tissue culture medium perfected by Noguchi. Cultures of this organism likewise produced the characteristic disease and lesions in animals. Thalhimer confirms the findings of Loewe and Strauss in their entirety.

Archives of Occupational Therapy, Baltimore

August, 1922, **1**, No. 4

Psychograph as an Instrument to Measure Working Capacity. J. Amar.—p. 255.
Occupational Therapy for Orthopedic Cases. N. Green. —p. 269.
Importance of Measurement of Movement in Orthopedic Cases. E. Bowman.—p. 279.
Results of Occupational Therapy with Regard to Health, Economics and General Welfare of Community. E. A. Griffin, Winnipeg, Man. —p. 281.
Organizing Occupation Therapy in New York County Hospitals. R. B. Harter, New York.—p. 291.

Archives of Surgery, Chicago

September, 1922, **5**, No. 2

*Intestinal Adenomas of Endometrial Type. Their Importance and Their Relation to Ovarian Hematomas of Endometrial Type (Perforating Hemorrhagic Cysts of Ovary). J. A. Sampson, Albany, N. Y.—p. 217.
*Autotransplantation of Endometrial Tissue in Rabbit. V. C. Jacobson, Albany, N. Y.—p. 281.
*Direct Transfusion of Blood. Report of Cases. J. S. Horsley, W. T. Vaughan and A. I. Dodson, Richmond, Va.—p. 301.
*Experimental Study of Methods for Bridging Nerve Defects: With Description of New Method of Autotransplant (Auto-Autotransplant). E. Sachs and J. Y. Malone, St. Louis.—p. 314.
*Preoperative Treatment of Malignant Tumors of Bladder by Radium. A. J. Scholl and W. F. Braasch Rochester Minn.—p. 334.
Leukoplakia of Kidney Pelvis. H. L. Kretschmer, Chicago.—p. 348.
*Primary Squamous Cell Carcinoma of Kidney as Sequel of Renal Calculi. H. G. Wells, Chicago.—p. 356.
Scoliosis Accompanying Chronic Infected Open Pneumothorax: Its Causation and Correction. F. B. Gurd, Montreal, Can.—p. 366.
Function of Gallbladder in Biliary Flow. C. Jacobson, Seattle, and C. Gydesen, Minneapolis.—p. 374.
Normally Developing Knee. I. Cohn, New Orleans.—p. 395.

Intestinal Adenomas of Endometrial Type.—Twelve cases are reported by Sampson and the pathology is discussed fully. He states that intestinal adenomas of endometrial type are implantation growths, similar in many ways to those arising from a rupture or perforation of a malignant (carcinomatous) ovarian cyst. The portions of the intestinal tract most frequently involved are those usually found in the pelvis; as the sigmoid, rectum, appendix and terminal loop of the ileum. In the twelve cases reported in this series, the rectum and the sigmoid, including the epiploic appendages, and the mesentery of the latter were involved in eight, the appendix in four and the small intestine in two. In the eight instances of implantations developing between adherent folds of peritoneum and other adherent structures (pocketed implantations) are best seen in the culdesac between the posterior wall of the uterus and the rectum, which are often fused together. The intestinal lesions are often only of histologic interest and do not give rise to any symptoms. In other cases the lumen of the intestine is encroached on by indentations, by hypertrophy of its walls, and by hematomas; the latter may become larger during menstruation so that symptoms of obstruction may only occur or be more marked at that time. The operative treatment of intestinal adenoma of endometrial type is at present an unsettled problem. On finding what appears to be an intestinal lesion, Sampson examines carefully the surface of the intestine for dots and areas due to hemorrhage, to look for other implantations in the pelvis and most important of all to examine carefully the ovaries for any signs of a hematoma with evidence of a previous perforation, bearing in mind that it may be very small and is most frequently situated on the lateral or the under surface of the ovary. If the evidence found indicates an adenoma of endometrial type he does not disturb the intestinal lesion, except as it may be easily removed for histologic study, but deals with the pelvic organs as their condition requires.

Autotransplantation of Endometrial Tissue.—Experiments are reviewed by Jacobson as proof that endometrial tissue transplanted into the ovary and pelvic fat of the same animal will grow for as long as seventy days and probably much longer. Adenoma-like growths and multilocular cysts, which, histologically, show much similarity to "ovarian" cystadenomas of women, are produced. Under the influence of pregnancy, a more rapid epithelial growth occurs, with the production of a papillary "cyst-adenoma" which has some of the characteristics of a malignant growth. All of these observations are in agreement with Sampson's explanation of adenomas of endometrial type.

Direct Transfusion of Blood.—Horsley, Vaughan and Dodson emphasize the fact that in indirect transfusion, and particularly in citrate transfusion, there are chemical and biologic changes in the blood, and it seems probable that the reactions which often follow this method of transfusion are due to these changes. These reactions are sometimes very severe, and occasionally cause death. In the series of twenty-four cases of direct transfusion reported, which comprise all of the transfusions performed by the authors during the last eighteen months, there has been no reaction of any kind.

Bridging Nerve Defects.—In their experimental work Sachs and Malone tried a number of different methods of nerve repair, but all were discarded except three: (*a*) Anastomosis of the central and peripheral ends of an injured nerve into longitudinal incisions in a normal nerve. (*b*) Anastomosis of the central and peripheral ends of an injured nerve to flaps cut in the same quadrant of a normal nerve. (*c*) Autotransplant of half of the central end of the injured nerve, the segment removed being just long enough to bridge the defect (auto-autotransplant). It is shown that nerve fibers will grow down the trunk of a healthy nerve through a longitudinal incision without impairing its function and part of the fibers connect up with the peripheral end. It is, therefore, of distinct advantage to implant the central end of a cut nerve as well as the peripheral end. On account of the branching of regenerating fibers, enough axons are produced when a nerve is cut longitudinally to fill the sheaths in the implanted nerve, indicating that in a nerve anastomosis, an end-to-side implantation is perfectly satisfactory. This confirms clinical experience with anastomosis in faciohypoglossal anastomosis. The study of cross-sections of nerves as well as the results following the method of auto-autotransplant described throw doubt on, in fact disprove, the content that peripheral nerves have an internal topography as maintained by Stoffel. The most important factor in a successful nerve anastomosis is the accurate approximation of the nerve ends so that there is no tissue between them which may interfere with the regeneration of the fibers. The method of auto-autotransplant described for bridging defects too long to permit of an end-to-end anastomosis is to be preferred to cable autotransplants because no normal nerve has to be injured and the operation can be carried on in one field. The method of choice for bridging large defects whenever possible is the double implantation method of anastomosis. Its advantage over the auto-autotransplant lies in the fact that some axis cylinders have only one suture line to grow through, while in the auto-autotransplant they all have to go through two suture lines.

Preoperative Radium Therapy of Bladder Tumors.—At the Mayo Clinic, the flat, infiltrating, rapidly recurring type of bladder tumor is exposed to radium before operation in an effort to reduce the activity of the malignant cells and prevent operative transplants and early postoperative recurrences. Tubes of radium emanation are inserted through the direct cystoscope into the substance of the tumor, which later is removed surgically. Specimens for histologic study are removed from the tumor before irradiation, and their histologic structure is later compared with that of the surgically removed area. In the majority of cases, there is a marked reduction in the size of the tumor, with a widespread and constricting fibrosis.

Squamous Cell Carcinoma of Kidney Pelvis.—The formation of keratinizing squamous cell carcinoma in the renal pelvis is a rare occurrence. In the case reported by Wells, which is of this sort, the metaplasia of the transitional epithelium to the squamous form was apparently the result of chronic irritation from renal concretions.

Boston Medical and Surgical Journal

Aug. 24, 1922, **187**, No. 8

*Roentgen-Ray and Tuberculosis in Infants and Children. F. W. O'Brien and F. B. Ames, Boston.—p. 279.
Interstitial Pregnancy, with Report of Case Operated Before Future. G. A. Moore, Brockton.—p. 284.
Unrecognized Fracture of Spine. M. G. Sturgis, Seattle, Wash.—p. 288.

Roentgenoscopy for Pulmonary Tuberculosis in Children.—Among seventy-eight infants and children, studied by O'Brien and Ames from the standpoint of correlating roentgen ray and clinical findings, there were twenty cases of definite chronic pulmonary tuberculosis in children under 14 years of age, or 24 plus per cent. Ten, or 50 per cent., of these cases were in children under 10 years of age. The authors believe that a large number of positive findings points to more widespread incidence of pulmonary tuberculosis in children than has yet been sufficiently emphasized. Eight patients were examined in whose lung fields the roentgenogram showed typical markings consistent with pathology caused by tubercle bacilli. These cases were negative clinically. The authors urge strongly that the making of serial roentgenograms should become a routine part of methods of procedure in the diagnosis and preventive treatment of tuberculosis of the lungs in infants and children.

Aug. 31, 1922, **187**, No. 9

Chronic Sepsis in Pregnancy. J. E. Talbot, Worcester.—p. 315.
Epilepsy. D. A. Thom, Boston.—p. 320.
Physician and Laboratory. F. W. Peabody, Boston.—p. 324.
Lead Poisoning. W. Wright, Boston.—p. 328.
*Treatment of Rheumatic Fever. H. F. Swift, New York.—p. 331.
Sting of Sea-Nettle. D. H. Stewart, New York.—p. 337.

Treatment of Rheumatic Fever.—An attempt is made by Swift to summarize present conception of the disease as an infection lasting longer than is ordinarily believed, to show that only certain of the well-recognized symptoms yield readily to antirheumatic drugs, and that these drugs often simply depress or mask the activity of the virus. Proper treatment consists not only in administering antirheumatic drugs, injecting foreign protein, or removing possible points of focal infection, but also in prescribing rest, guarding the heart against overstrain, regulating exercise, attending to the diet, and in devising measures to increase the patient's general resistance against infection.

Georgia Medical Association Journal, Atlanta

August, 1922, **11**, No. 8

Syphilis of Nervous System. N. M. Owensby, Atlanta.—p. 297.
Statistical Data in Connection with Examination of 734 Ex-Service Men from December 1, 1919, to November 15, 1921. W. H. Lewis, Rome.—p. 300.
Have We Drifted Too Far? S. A. Visanska, Atlanta.—p. 305.
Colloidal Gold Reaction: Diagnostic Aid of Unquestionable Value. A. G. Kelley, Atlanta.—p. 310.
Hemorrhoids. J. F. Burdashaw, Augusta.—p. 312.
Mental Disease Problem. G. L. Echols, Milledgeville.—p. 317.

Journal of Infectious Diseases, Chicago

July, 1922, **31**, No. 1

Experimental Production of Bovine Mastitis with Streptococci and Other Bacteria. C. M. Carpenter, Ithaca. N. Y.—p. 1.
Bacteria in Normal and Diseased Lungs of Swine. R. S. Spray, Chicago.—p. 10.
Local Inflammatory Reaction Produced by Tetanus Bacillus. F. H. Stangl, Chicago.—p. 22.
Biologic Properties of Pathogenic Moids. S. S. Greenbaum, Philadelphia.—p. 26.
*Specific Erythroprecipitins (Hemoglobin Precipitins?). L. Hektoen and K. Schulhof, Chicago.—p. 32.
Streptococci of Bovine Udder. IV. Studies of Streptococci. S. H. Ayers and C. S. Mudge, Washington, D. C.—p. 40.
*Immunity in Experimental Pneumonia. P. F. Clark and E. J. Murphy, Madison, Wis.—p. 51.
Precipitation of Colloidal Gold in Cerebrospinal Fluid of Horses with Dourine. F. H. K. Reynolds, Ft. Sam Houston, Tex., and H. W. Schoenig, Washington, D. C.—p. 59.
*Encapsulated Nongas Forming Bacilli. G. R. Lacy and A. C. Murdoch, Pittsburgh.—p. 64.
Specific Precipitin Reaction of Normal and Cataractous Lens. L. Hektoen, Chicago.—p. 72.
*Development of Paratyphoid-Enteritidis Group in Various Foodstuffs. S. A. Koser, Washington, D. C.—p. 79.

Specific Erythroprecipitins. — Precipitin formation in response to extracts of various corpuscles were studied by Hektoen and Schulhof on the same general plan as Klein and Leers have done. Aqueous extracts of red corpuscles give rise in rabbits to precipitins the action of which appears to be limited to erythrocytic constituents, in some cases of the species furnishing the corpuscles only, in other cases extending also to such constituents of related species. While other antigens may be present in crude aqueous extracts of corpuscles, the main precipitinogen seems to be hemoglobin, which is shown to be a species specific precipitinogen in confirmation of the early work of Ide and his pupils. Conversion of the hemoglobin in extracts of red corpuscles into carboxyhemoglobin, sulphydrohemoglobin or methemoglobin does not affect the specific serum precipitation of the hemoglobin. On splitting hemoglobin into hematin and globin by means of acetic acid, the precipitinogenic elements remain in the solution after removal of the globin, which does not appear to be responsible for the antigenic properties of the hemoglobin, the globin-free solution, however, being antigenic not only in tests with antiserum but also on injection in rabbits. While the precipitinogens in extracts of red corpuscles and in hemoglobin may exist independently of hemoglobin after treatment with acids, they ordinarily are attached closely to the hemoglobin molecule, not being removed or diminished in proportion to the amount of hemoglobin by repeated crystallization or by treatment with aluminum cream, the antigen being apparently either closely absorbed to the hemoglobin molecule or forming a part of it which can be split off by acids.

Immunity in Experimental Pneumonia.—The injection of *B. typhosus* by the intratracheal route caused bronchopneumonia, and coincidentally with recovery specific agglutinins were found in the blood by Clark and Murphy. The agglutinin titer in the group animals with pneumonia did not reach as high a level as in the group of intravenously treated animals but the peak of the curve is reached on the same day, the eighth following the injection of the bacteria. The failure of attacks of pneumonia to produce any considerable immunity is believed probably to be due, therefore, to the nature of the organism causing the disease rather than to any peculiar properties inherent in the lung tissue.

Encapsulated Nongas Forming Bacilli.—Lacy and Murdock have isolated from different sources three organisms conforming to the description of *B. pneumoniae*, *B. acidi-lactici* and *B. lactis-aerogenes.* his paper is a report of the morphologic, cultural, and immunilogic characteristics of these organisms. Each of the three patients was suffering from some pathologic condition of the genito-urinary tract. It was not possible to determine whether the organism was the primary etiologic factor in producing the lesions or a secondary invader.

Paratyphoid Enteritidis Group in Foodstuffs.—The investigation reported on by Koser was made to gain some idea of the ability of several type strains of the paratyphoid-enteriditis group to develop in miscellaneous foodstuffs, such as various vegetables, fruits, meats and evaporated milk. The effects of different conditions, such as temperature of incubation, the hydrogen ion concentration and the texture of the food, were considered in relation to multiplication and the ability to spread throughout the foodstuff. All the strains of the Gaertner group multiplied readily in the liquor of several common cooked vegetables, with the exception of the highly acid sauerkraut. In the fruit juices a rapid destruction of the organisms occurred. In several meat products Gaertner group organisms exhibited a marked ability to spread from one original point of inoculation throughout the foodstuff, although this occurred only under optimum temperature conditions. The development of the Gaertner group in foodstuffs is usually not accompanied by visible alteration or spoilage. The present observations on this point are in accord with the reports of previous outbreaks of "food poisoning" caused by this group of organisms.

Journal of Laboratory and Clinical Medicine, St. Louis

August, 1922, **7**, No. 11

Determination of Lactic Acid in Blood. J. J. R. Macleod, Toronto, Can.—p. 635.
*Therapeutic Use of Germanium Dioxid in Anemia. L. Kast, H. M. Croll and H. W. Schmitz, New York.—p. 643.
*Relation of Achylia Gastrica to Chronic Focal Infections and Pernicious Anemia. L. A. Levison, Toledo, Ohio.—p. 652.
II. Value of Refractoviscosimetric Properties of Blood Serum in Cancer. M. E. Bircher, Rochester, Minn.—p. 660.
Suggested Adaptation to Gasometer Method of Determination of Basal Metabolic Rate from Carbon-Dioxid Elimination. C. A. McKinlay, Minneapolis.—p. 665.
Clinical Value of Basal Metabolism Determination. R. J. Pickard, San Diego, Calif.—p. 669.
New Type of Recording Spirometer. R. Burton-Opitz, New York.—p. 681.
Self-Feeder for Rats. R. Hoagland, Washington, D. C.—p. 687.
Removable Water Bath Tops for Paraffin Embedding and Low-Temperature Evaporation. O. T. Schultz, Chicago.—p. 689.
*Injection Method for Aiding in Identification of Tapeworm Species. R. Isaacs, Cincinnati.—p. 691.
Method for Separation of Spore-Bearing Anaerobes from Other Spore-Bearing Bacteria. J. H. Brown, Princeton, N. J.—p. 692.

Germanium Dioxid in Anemia.—Sixteen patients suffering from anemia have been treated by Kast et al. with germanium dioxid, the drug being administered by mouth in 0.2 per cent. water solution. In order to dissolve the germanium dioxid it was found necessary to boil the solution for several minutes; the oxid does not precipitate out on cooling. Doses between 100 and 200 mg. of the oxid were given daily, or every two or three days until about 1 gm. had been given. There were four cases of anemia following hemorrhage, ten cases of secondary anemia and two cases of pernicious anemia. In some of these cases the germanium was found to have distinct erythropoietic action.

Relation of Achylia Gastrica to Focal Infections.—Three cases are cited by Levison in each of which patients having foci of severe infections passed through the stage of an achylia gastrica and later pernicious anemia. The assumption that long continued foci of infection may depress the gastric secretion and produce an achylia gastrica is held to be justifiable, but there is no reason to believe, Levison says, on the basis of any evidence yet brought to bear, that achylia gastrica in itself is a predisposing cause of pernicious anemia. There is clinical evidence to believe that focal infections long continued may depress the function of the bone marrow and prevent the formation and development of new red blood cells. It is urged that when achylia gastrica is discovered in a patient showing evidences of chronic focal infections that the possibility of the development of pernicious anemia be carried in mind with the view of insisting that all infections be removed in so far as is humanly possible. Achylia gastrica is used here in the sense of a depression of the gastric secretion with relation to hydrochloric acid and not necessarily with complete absence of gastric ferments.

Injection Method for Identifying Tapeworms. — A simple method for visualizing the uterus in tapeworm proglottids, to identify the species, or for demonstration purposes, as used in the wards and laboratories of the Cincinnati General Hospital for the past five years, consists in the injection of the canals with India ink. A hypodermic syringe (½ c.c.), fitted with a fine needle, is filled with India ink. The segment to be injected is held flat on a piece of glass by means of a wooden match stick or applicator, and the needle inserted into the substance of the fresh proglottid, near the lateral genital pore. With a little manipulation, one of the diverticulae of the uterus is easily entered, and the ink readily fills all the branches. Pressure between two glass slides brings out the details very clearly, and the sparsely branched organ of T. solium is easily differentiated from the more abundant ramifications of T. saginata. The method is also applicable to other cestodes, and may also be used with preserved material although the results are not as complete as with fresh. Permanent preparations may be made by preserving the flattened segment in 10 per cent. formaldehyde, dehydrating in alcohol, and, after clearing in xylol or carbol-xylol, mounting in balsam.

Journal of Metabolic Research, Morristown, N. J.

May, 1922, **1**, No. 5

*Transformation of Protein into Fat and Fat into Carbohydrate in Body. H. V. Atkinson.—p. 565.
*Immediate Influence of Alcohol Ingestion on Diabetic Glycosuria and Blood Sugar. L. S. Fuller, Morristown, N. J.—p. 609.
*Experimental Studies in Diabetes. II. Internal. Pancreatic Function in Relation to Body Mass and Metabolism. Influence of Thyroid on Diabetes. F. M. Allen, New York.—p. 619.
*Clinical Observations Concerning Progressiveness of Diabetes. J. W. Sherrill, Morristown, N. J.—p. 667.

Transformation of Protein Into Fat and Fat Into Carbohydrate.—When the glycogen reservoirs of the body are low, Atkinson asserts, the ingestion of meat in large quantity results in the deposition of glycogen. The continued ingestion of much meat brings about the retention into the body of a pabulum consisting partly of glycogen and partly of fat. Only when meat in very great excess is given is fat alone retained. Morphin depresses the oxidative processes in the body. The opinion that fat is transferred into sugar is supported by Atkinson's observations. When fat alone is given to a dog in large quantities there is an increase in the blood sugar. This increase in sugar also supports the opinion that fat can be transformed into sugar.

Influence of Alcohol on Blood Sugar.—Fuller states that the immediate effect of alcohol is to reduce both hyperglycemia and glycosuria in most cases of mild or moderate diabetes. This effect is most pronounced when the alcohol is substituted for the caloric equivalent of fat, but is also frequently manifest when the alcohol is given as an addition to the previous diet. These effects are usually lacking in diabetic cases of great severity.

Internal Pancreatic Function.—Allen's experimental work has shown that thyroid excess may aggravate the symptoms of an existing diabetes, but has never been demonstrated as contributing to the actual causation of diabetes. Thyroid deficiency may partially or wholly suppress diabetic glycosuria and hyperglycemia, but this effect is rationally explained as the result of injury or cachexia. There is no indication that the intrinsic severity of the diabetes is lessened or that one deficiency can neutralize another. Neither the excess nor the deficiency experiments can properly be interpreted in favor of an antagonism between the pancreas and the thyroid or of a thyroid element in diabetes.

Progressiveness of Diabetes.—The records of five patients with the youthful severe type of diabetes are presented by Sherrill partly because obtained so largely under conditions of strict institutional supervision. They appear to be in no way exceptional, but on the contrary to correspond fully with the conditions in several hundred other patients observed during the same period, in so far as it has been possible to keep these others under exact dietetic control. These observations are opposed to the belief in a mysterious, spontaneous progressiveness of typical diabetic cases. They support the view that functional deterioration in diabetes can be traced to definite causes, particularly infections and dietary excesses, that downward progress clinically depends on the different susceptibilities of different patients to these injurious influences, and that by the strict avoidance of such influences downward progress can be largely or wholly prevented.

Journal of Nervous and Mental Disease, New York

September, 1922, **56**, No. 3

*Case of Congenital Megacolon (Hirsch-Sprung's Disease) Associated with Mental Disorder and Terminal Cerebellar Hemorrhage. N. D. C. Lewis Washington, D. C.—p. 193.
German Research Institute. E. Kraepelin, Munich.—p. 207.
Anthropology and Insanity. A. Hrdlicka, Washington, D. C.—p. 215.

Congenital Megacolon Associated with Mental Disorder.—Lewis cites the case of a man, aged 50, who had suffered from a psychosis of degenerates for fifteen years. For a number of years he was said to have had many attacks of acute abdominal distention in which the outlines and the peristalsis of the intestine could be observed on the abdominal wall. He had an unusually severe attack of ileus in 1916 and an operation was considered necessary but the acute distention was relieved by rectal tubes without surgical interference. Then he became suddenly ill, complaining of pain in his "stomach," and when examined his abdomen was found to be tremendously distended as had been the case in several previous attacks, but this one seemed much more severe than any of the others. His pulse became weak and rapid and signs of shock quickly developed. Enemas were given without relief, and he rapidly failed and died. The abdominal walls were thin, the muscles being unusually so and exhibiting fibrous replacements. The other skeletal muscles were fairly well developed. The abdominal viscera were displaced, and the space largely occupied by an enormous pelvic colon. The walls of the rectum were universally ¾ cm. thick but the intestine was not dilated; however, at the brim of the pelvis the intestine suddenly passed into a huge pelvic balloon, involving the entire sigmoid loop which had forced itself upward, occupying the upper half of the abdominal cavity. The convexity of this loop measured 1 meter, the lower end at the rectal junction measured 52 cm. in circumference and the upper end near the descending colon, 47 cm. in circumference. The walls of this loop were universally greatly hypertrophied, and particularly were the teniae coli prominent throughout. Gas and very little liquid fecal matter composed the contents of this section. This dilated structure rather abruptly changed at the sigmoid flexure and the remainder of the colon as far as the ileocecal junction was nearly twice the size of the normal, this being due to hypertrophy of the muscular walls and not to gas content. The condition is believed to have been congenital.

Minnesota Medicine, St. Paul

August, 1922, **5**, No. 8

Fractures. W. H. Magie, Duluth, Minn.—p. 451.
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Artificial Pneumothorax in Pulmonary Tuberculosis. E. K. Geer, St. Paul.—p. 469.
Repair of Peripheral Nerves. B. F. Davis, Duluth, Minn.—p. 474.
Rectal Approach to Pelvic Abscess Complicating Acute Appendicitis. J. A. Evans, La Crosse, Wis.—p. 477.
Rat and Human Disease. W. A. Riley, Minneapolis.—p. 481.
Case Reports. Case of Abscess of Transverse Sinus with Hemolytic Streptococcemia; Operation and Recovery. C. E. Connor, St. Paul.—p. 483.
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Case of Brain Abscess and Sinus Thrombosis. M. G. Peterman, St. Paul.—p. 487.
Case of Fractured Pelvis. E. H. Marcum and R. J. McAdory, Bemidji, Minn.—p. 489.

South Carolina Medical Association Journal, Greenville

August, 1922, **18**, No. 8

Plan By Which Great Desire of Public for Better Health May Be Utilized by General Practitioner for His and Public's Mutual Benefit. J. A. Hayne, Columbia.—p. 218.
Aortic Insufficiency. J. F. Woods, Charleston.—p. 221.
Basal Metabolism as Aid in Diagnosis of Toxic Goiters. J. H. Cannon, Charleston.—p. 224.
Diagnosis and Treatment of Toxic Goiters. C. J. Lemmon, Sumter.—p. 226.
Surgical Treatment of Goiter; with Case Reports. C. B. Epps, Sumter.—p. 230.
Diagnosis of Cystitis. M. Weinberg, Sumter.—p. 235.
Cinematographic Academy of Medicine. S. O. Black, Spartanburg.—p. 237.
Manic-Depressive Insanity. B. O. Whitten, Clinton.—p. 238.
Post-Mortem Examinations. Plowden, H. H., Charleston.—p. 239.
Typhoid Fever: Sanitary Index. L. Banov, Charleston.—p. 240.

Virginia Medical Monthly, Richmond

August 1922, **49**, No. 5

After-Care of Abdominal Surgical Patients. O. T. Amory, Newport News.—p. 237.
Organization and Functioning of Medical Department of Division. G. Peed, Fortress Monroe.—p. 240.
Relation Between Dentist and Physician. F. Longan, Newport News.—p. 244.
Physiologic Rest to Large Bowel by Surgical Intervention. R. L. Payne, Norfolk.—p. 246.
First Aid to Injured Eye. C. P. Jones, Newport News.—p. 249.
Arteriosclerosis. T. M. Wood, Hampton.—p. 250.
Laboratory as an Aid to Diagnosis. M. B. Beecroft, Newport News.—p. 251.
Artificial Feeding of Infants. J. W. Hope, Hampton.—p. 256.
Cooperation of Physician in Preventive Dentistry. E. J. Applewhite, Newport News.—p. 258.
Congenital Pyloric Stenosis. G. K. Vanderslice and G. G. Hankins, Phoebus.—p. 262.
Effect of Our Modern Women on Future Generation. W. W. Kerns, Bloxom.—p. 265.
Diagnosis of Pulmonary Tuberculosis. H. G. Longaker, Newport News.—p. 266.
Diagnosis and Treatment of Neurosyphilis. C. M. Byrnes, Baltimore.—p. 269.
Roentgen Ray as an Aid to Diagnosis. R. A. Davis, Newport News.—p. 276.
Interpretation of Cardiac Irregularities. J. M. Hutcheson, Richmond.—p. 279.
Focal Infection and Its Relation to Obstetrics. S. Downing, Newport News.—p. 282.
Necessity for Determination of Origin of Jaundice Before Surgical Treatment. D. W. and E. S. Bulluck and R. H. Davis, Wilmington, N. C.—p. 284.

Wisconsin Medical Journal, Milwaukee

August, 1922, **21**, No. 3

Goiter Problem as it Concerns General Practitioner. E. F. Bickel, Oshkosh.—p. 87.
*Memory Defect of Korsakoff Type, Observed in Multiple Neuritis Following Toxemia of Pregnancy. F. A. Ely, Des Moines, Ia.—p. 90.
Diagnosis of Renal Tuberculosis. W. G. Sexton, Marshfield.—p. 97.
Treatment of Fractures of Hip by Whitman Abduction Method. J. W. Powers, Milwaukee.—p. 100.
Vincent's Angina. J. M. Severson, Rockford, Ill.—p. 102.

Memory Defect of Korsakoff Type in Toxemia of Pregnancy.—In the four cases cited by Ely there existed in the early months of pregnancy hyperemesis. In two cases, therapeutic abortion was performed at the end of the third month, and in one case during the fourth month. In one case, the patient went to the eighth month and was delivered spontaneously. In three cases, although there was abundance of evidence of profound toxemia before abortion, the symptoms of neuritis did not occur until a short time after the uterus was emptied. In one case, the patient struggled through the state of hyperemesis and just prior to spontaneous delivery during the eighth month, seemed to be recovering from her neuritis. In all four cases the clinical evidences of multiple neuritis were sufficiently classical to place the diagnosis beyod reasonable doubt. Two cases, because of temporary sphincter incontinence, suggested the possibility of spinal cord involvement, and in one case the irregular distribution of the muscular atrophies much more strongly suggested cord disease. In all the cases a loss of recent memory and unreliability of statement were very pronounced symptoms. In one case, retroactive amnesia was a prominent feature. In one case, death occurred after delivery, while in one case sufficient time has not yet elapsed to make a report possible. The patient is, however, convalescent. Two patients feel that they have never fully regained their original powers of immediate memory, seven and five years respectively, after the onset of their illnesses. One woman still has absence of the patellar reflexes and a slight tendency to foot drop. Ely emphasizes that toxic multiple neuritis is a frequent sequel to hyperemesis gravidarum. Multiple neuritis may develop during gestation or in the puerperium any dependable evidence of underlying infection. A mild psychosis of the Korsakoff type is very prone to occur in this type of multiple neuritis. Therapeutic abortion is, perhaps, too long deferred in many cases of hyperemesis and is the best remedial measure, and the most sure means of preventing multiple neuritis. The Korsakoff psychosis was recognized as a very common accompaniment of multiple neuritis following hyperemesis gravidarum, long before Korsakoff affixed his name to the same syndrome which he observed in alcoholic neuritis.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Journal of Laryngology and Otology, Edinburgh

August, 1922, **37**, No. 8

So-Called Prolapse of Laryngeal Ventricle, and Eversion of Sacculus. I. Moore.—p. 381.
Epidemic Cerebrospinal Meningitis from Otolaryngologic Standpoint. D. M'Kenzie.—p. 401.

Journal of Tropical Medicine and Hygiene, London

Aug. 1, 1922, **25**, No. 15

Serologic Researches on Protozoa. L. Anigstein.—p. 241.
*Intolerance of Quinin: Case Report. M. E. Barnes.—p. 246.

Unusual Intolerance of Quinin.—In the case of malaria reported by Barnes the intolerance shown was of a most marked degree, resulting in exfoliation of the skin of the scrotum, leaving an angry, purulent, denuded surface. The administration of quinin on each of four occasions was followed by identical reactions with a promptness that leaves no doubt as to the toxic effect of the drug. An attempt was made to overcome the intolerance by beginning with very small doses of quinin and gradually increasing the dosage, but the immunity thus secured was only partial and very transient, lasting only one month.

Practitioner, London

August, 1922, **109**, No. 2

Sensitization in 270 Cases of Asthma. A. Latham and F. Coke.—p. 121.
Hay-Fever: Essential Factor. N. Davies.—p. 142.
Causes and Diagnosis of Stridulous Breathing. F. H. Diggle.—p. 147.
*Chronic Appendix. C. H. Whiteford.—p. 155.
Reeducation in Relation to Spa Treatment. R. G. Gordon.—p. 166.
After Treatment of Fractures of Cervical Vertebrae by Mechanotherapeutics. E. F. Cyriax.—p. 177.
*Hemopericardium, Resulting from Rupture of Right Coronary Artery, Secondary to Chronic Interstitial Nephritis. E. J. Jones-Evans.—p. 184.

Chronic Appendicitis. — Whiteford is convinced that the enormous number of patients whose abdominal ailments are now diagnosed as chronic appendicitis chiefly are suffering with symptoms of widely varying causation and for which symptoms the appendix is not responsible. The symptoms attributed to the appendix are not explained by the pathologic findings, and are not cured by removal of the appendix; in fact, the operation frequently makes the patient worse. The chronic appendix theory hinders investigation into the causes of abdominal pain; produces laxity in diagnosis and, in operating, incisions so small that thorough examination of the abdominal contents is made a mechanical impossibility. In the layman, the operation for removal of such an appendix, because of its failure to cure and because of its after effects, is producing doubt about the necessity for operation in acute appendicitis and mistrust in the bona fides of the surgeon. Therefore, in the interests of surgeons and patients the diagnosis of chronic inflammation of the appendix as a condition requiring operation should be abandoned.

Hemopericardium from Ruptured Coronary Artery.—Hemorrhage into the pericardium, when not traumatic in origin, usually results from rupture of the myocardium, of an aneurysmal dilatation, or of vessels in a malignant growth. Certain blood conditions such as scurvy or purpura may also give rise to pericardial hemorrhage. The result is usually fatal. Evans' case is of interest since none of the foregoing conditions were present. The patient, aged 58, with no history of specific or kidney disease, had been lifting heavy sacks. While thus employed he suddenly complained of severe pain in the left side of the neck, which radiated along the left sternomastoid, down the left arm, and was most severe over the upper part of the left trapezius muscle. There were no local signs of injury, nor could any pain be elicited on deep palpation. He complained of no pain or discomfort in the chest, nor was there any dyspnea. The pulse was strong and of good rhythm. The heart sounds were normal and quite distinct, and the breathing purely vesicular. The next day he seemed better, his temperature was normal, and the pain was considerably less. Twelve hours later he died, apparently during sleep. The pericardium was enormously distended with blood, one pint being removed. There was a small rupture in the right coronary artery, 1 cm. from its origin at the root of the aorta. The artery itself was slightly sclerotic, but there was no sign of aneurysmal dilatation. The intrapericardial and extrapericardial portions of the aorta showed no morbid change. Both kidneys were hydronephrotic and in a condition of chronic interstitial nephritis. The interest in this case lies in the remarkable absence of symptoms and clinical signs. The usual clinical features such as dyspnea, cardiac oppression, and syncope, were entirely wanting. The second clinical feature of interest was the site of the hemorrhage, rupture of the lenticulostriate branch of the middle cerebral artery being of common occurrence in chronic kidney disease, whereas hemorrhage from the coronary arteries is somewhat of a rarity.

Quarterly Journal of Medicine, Oxford

July, 1922, **15**, No. 60

*Creatinuria and Glycosuria in Myasthenia Gravis. B. W. Williams and S. C. Dyke.—p. 269.
*Therapeutic Value of Quinidin in Treatment of Auricular Fibrillation. A. E. Clark-Kennedy.—p. 279.
*Quinidin Sulphate in Cardiac Disease. J. Hay.—p. 313.
*Congenital Porphyrinuria, Associated with Hydroa Aestivale and Pink Teeth. L. Mackey and A. E. Garrod.—p. 319.
*Investigation of Basal Metabolism in Unstable Conditions of Certain Endocrine Glands. H. G. Hill.—p. 332.

Creatinuria and Glycosuria in Myasthenia Gravis.—In the four cases of myasthenia gravis investigated by Williams and Dyke creatinuria was present. In one case considerable amounts of creatin were passed while the patient was on a "creatin-creatinin-free diet." Inability to deal with comparatively small amounts of creatin, when given by mouth, was observed in two cases. Creatinuria appears to be a definite feature of myasthenia gravis. The two cases examined showed a somewhat low muscle creatin percentage. This creatinuria appears to be connected with defective carbohydrate metabolism, the defect being probably located in the muscles.

Value of Quinidin in Auricular Fibrillation.—The clinical histories, treatment and progress of twenty cases of auricular fibrillation treated with quinidin are given by Kennedy. The cases are classified in three groups. Group A includes those cases in which quinidin has led to a return to normal sinoauricular rhythm which has persisted until the patient was discharged. Group B includes those cases in which only a transitory return to normal rhythm was effected, and in which relapse into fibrillation occurred prior to their discharge from hospital. Group C includes those cases in which quinidin has failed completely to exert this action. Group A is divided into two subgroups, 1 and 2. Subgroup 1 includes those cases in which auricular fibrillation has been of comparatively short duration, and which prior to the admission to hospital, during which they were submitted to the action of quinidin, had received no previous digitalis treatment. Subgroup 2 includes those cases in which fibrillation has been of comparatively long duration, and which prior to quinidin administration had received definite courses of digitalis therapy. For details the original paper should be consulted.

Quinidin in Heart Disease.—Hay's experience of quinidin sulphate is confined to fifteen cases. In twelve of these fibrillation was established and of some standing; in one it appeared towards the end of an attack of acute pneumonia: in another it was paroxysmal and the remaining patient was suffering from paroxysmal tachycardia. In six of the twelve established cases quinidin failed. Of these six one patient was so intolerant of the drug that it had to be discontinued after the first dose. In three of the patients pure flutter developed. In one of the three this gave way to a normal rhythm, in another the flutter persisted after the quinidin was stopped, and in the third fibrillation returned while under treatment. Of the seven in whom fibrillation was arrested relapses have occurred in two. In four the improvement has been pronounced and the cardiac reserve has been considerably increased. There was one death among the fifteen. This occurred in a patient suffering from paroxysmal tachycardia. The paroxysm had been cut short, and the patient appeared to be progressing satisfactorily when suddenly, without warning, she died. Death occurred twenty-four hours after the cessation of the abnormal rhythm and after 2 gm. quinidin had been taken. No necropsy was permitted.

Congenital Porphyrinuria and Pink Teeth.—Mackey and Garrod record a fresh example of an extremely rare inborn error of metabolism. In their case the evidence of congenital onset is more complete than in any recorded previously. No other case of the anomaly is known to have occurred in the family of the patient, and his parents are not blood relations. The boy presents the usual association of porphyrinuria with extreme sensitiveness of the superficial tissues to light, as shown by annual eruptions of hydroa eastivale, vel vacciniforme, on the exposed surfaces of his skin. The case is quite exceptional in the deep pink coloration of the milk teeth. The only other patient observed at so early an age (6 years) showed no such coloration of his teeth. Transillumination of the hands affords very strong evidence that the bones also are deeply pigmented. A roentgenogram shows that ossification of the carpal bones is delayed. A résumé is given of the cases of congenital porphyrinuria previously described.

Basal Metabolism in Endocrine Disturbances.—The results of Hill's series of basal metabolism estimations in gross disorders of the thyroid gland agree with those of other observers, and indicate the great value of this method of examination in estimating the degree of glandular activity prevailing at the time of observation; the method also provides a reliable guide as to the success of various methods of treatment. In gross disorders of the pituitary gland, results more or less analogous to those found in the case of the thyroid have been obtained, and have proved of equal value in the diagnosis and treatment of these conditions. Estimations of the basal metabolism at the physiologic epochs of life in persons, especially women, who show any tendency to thyroid or pituitary instability, are of great value in confirming any early abnormality and indicate the lines for suitable treatment. In children suffering from nocturnal enuresis the value of basal metabolism estimations has been established. An indication is obtained as to those likely to derive benefit from treatment with glandular extracts. In an investigation of patients suffering from phenomena which are apparently due to parasympathetic overexcitability, a group of cases has been isolated showing a subnormal basal metabolic rate. These persons benefit greatly from organotherapy.

Tubercle, London

August, 1922, **3**, No. 11

Tidal Expansion of Kronig's Areas. A. N. Robertson.—p. 481.
*Buccal Infection with Bacillus Tuberculosis. S. R. Gloyne.—p. 497.

Buccal Infection with Tubercle Bacillus.—Fifty per cent. of twenty phthisis patients with tubercle bacilli in their sputum were found to have virulent tubercle bacilli in their mouths. The group with profuse expectoration yielded a larger percentage of positive results (80 per cent.) than the group with scanty expectoration (20 per cent.). Sixty per cent. of the group with profuse expectoration were found also to infect the spoons used, whereas none of the group with scanty expectoration did so. Other table utensils were not found to be infected. Plain water, if used in sufficient quantity, appeared to be a satisfactory sterilizing agent.

Annales de Médecine, Paris

July, 1922, **12**, No. 1

*Necrotic Dissecting Pneumonia. M. Letulle and F. Bezançon.—p. 1.
*The Palm-Chin Reflex. A. Radovici.—p. 56.
*Pituitary Extract as Muscle Tonic. C. I. Urechia and F. Graff.—p. 64.
*The Striatal Syndrome in Children. L. Babonneix.—p. 70.

Dissecting Pneumonia.—Letulle and Bezançon conclude from their study of four cases that a fibrinous pneumonia is liable to become complicated with a special infection, subacute and necrotic, capable of destroying a large proportion or the whole of the altered parenchyma. The contrast is striking between the foci of acute progressive necrosis and the oases of prompt cicatricial repair. If the disease can be recognized early and the necrotic pneumonia be arrested by an operation in time, the patient might be saved the secondary suppuration of the lung parenchyma. The photomicrograms from their cases are reproduced. An operation was done in one case but the condition was too grave for recuperation. The symptoms of very grave pneumonia are not accompanied by the usual physical findings. Expectoration is profuse, purulent and hemorrhagic, and by the eighth or ninth day there are signs of a focus. In a few days more there are actual vomicas of creamy hemorrhagic pus, never fetid. The profuse expectoration keeps up, the dyspnea is intense, and the patient dies in marasmus in the fourth or fifth week of the disease. A few specimens of the Friedländer pneumobacillus and streptococci were found. No benefit was observed under vaccine therapy which was given in one case.

The Palm-Chin Reflex.—Radovici asserts that the behavior of the palm-chin reflex is an index of the site of lesions in the pyramidal tract. This reflex is elicited by rapidly and vigorously irritating the thenar eminence with a needle. The muscles of the chin on that side are drawn up, sometimes forcing up the lip. The lips should be relaxed, the mouth partly open. He gives a chart to explain the mechanism.

Pituitary Extract as a Muscle Tonic.—Urechia and Graff advocate pituitary extract in treatment of parkinsonism and somnolency. Their extensive tests indicated that it has a decided influence on striated muscle, increasing the energy and the amount of work accomplished.

The Striatal Syndrome in Infants.—Babonneix remarks that a striatal element is evident in some of the motor disturbances of cerebral origin in infants. He ascribes this to injury of some vessel in the corpus striatum, and this in turn is the result of stasis of the blood in the cerebral veins, for which the difficult delivery was responsible. This lesion may arrest development and entail a striatal agenesia. It differs from the striatal agenesia observed soon after birth only in the fact that it is persisting, instead of subsiding within a few months.

Bulletin Médical, Paris

July 29, 1922, **36**, No. 31

*Permanently High Blood Pressure. A. Clerc.—p. 609.
*Heart Disturbances with High Blood Pressure. R. Lutembacher.—p. 616.
*The Mishaps with High Blood Pressure. E. Donzelot.—p. 619.
*The Treatment of High Blood Pressure. A. Mougeot.—p. 621.

Aug. 5, 1922, **36**, No. 32

What a Physician Should Know of Vaccine Therapy. G. Lyon.—p. 633.

Permanently High Blood Pressure.—This number is entirely devoted to high blood pressure. Clerc concludes his article by saying that our present knowledge of permanently high blood pressure is as vague as ever, only a little less obscure. From the therapeutic standpoint, owing to the complexity of the disturbances, there is no radically effectual treatment. Reducing the intensity of the symptoms, warding off the disturbances they may entail and the danger are the tasks for which the physician must be prepared. The articles that follow show the various means of defense at his disposal to accomplish this.

Aug. 12, 1922, **36**, No. 33

*Movable Gallbladder. T. Asteriades.—p. 649.

Movable Gallbladder.—This is an anatomic, clinical and therapeutic study of ptosis and volvulus of the gallbladder. Intermittent dropsy of the gallbladder and movable gallbladder are different affections, although the latter may be a factor in the former. The characteristic signs of ptosis of the gallbladder are very variable. The clinical picture is sometimes so complicated, the pains so irregular, the symptoms apparently so diametrically opposed to the existing lesion, and the nervous system so upset, that without a minute and methodical examination of the patient the real disturbance would be overlooked. Volvulus of the gallbladder is extremely rare and mention is made in the literature of only eight cases. As a rule, volvulus of the gallbladder is found only in elderly women, feeble, emaciated, and who had complained several years before of pains in the right hypochondrium radiating to the loins and lower abdomen. It can easily be mistaken for appendicitis, intestinal occlusion, cholelithiasis or strangulated hernia. Immediate operative treatment is required, with cholecystectomy.

Aug. 19, 1922; **36**, No. 34

*Pneumonic Plague. P. Delbreil.—p. 669.

Primary Pneumonic Plague.—Delbreil has found the period of incubation in man from one to three days. The onset of the disease is not characterized by any special features and although the patient's condition grows rapidly worse and the clinical picture becomes alarming, the stethoscopic signs remain almost the same. At the hospital for natives at Dakar, in his charge, there were sixty-two cases in 1914-1915, and thirty-two cases in 1919, and all the patients succumbed to the disease. At the onset of the disease, with the early, repeated chills, high temperature, and tachycardia, the latter may be overlooked as it coincides with the rising temperature. It is important to detect any change in the respiration, as dyspnea is an early feature, with a certain amount of distress. The diagnosis of pneumonic plague is very difficult at the onset, and is practically impossible when the plague first makes its appearance in this pneumonic form. Although Delbreil insists on the rapid and grave onset of the disease, he adds that in certain cases there is a latent period for one or two days, with moderate or irregular temperature and slight tachycardia; the dyspnea has to be looked for, and the cough does not appear till later.

Gynécologie et Obstétrique, Paris

June, 1922, **5**, No. 6

*Research on Ovarian Function. III. G. Schickelé.—p. 425.
*Primary Cancer of the Ovary. G. Schickelé.—p. 446.
Corpus Luteum Cysts. R. Keller.—p. 458.
*Primary Abdominal Pregnancy. P. Jacquin.—p. 492.
*Metastasis in Eye of Puerperal Infection. P. Luttringer.—p. 513.
*Vegetative Nervous System in Menstruation. J. Kreis.—p. 543.
Duration of Pregnancy. G. Schikelé.—p. 590.

Research on Ovarian Functioning.—All the articles in this number issue from the clinic for women at the University of Strasbourg, of which Schickelé has charge. The functioning of the ovary is being studied intensively there.

Primary Cancer of the Ovary.—In the woman of 45, with nine living children, both ovaries were affected with the malignant disease. The neoplasms had developed rapidly, with metastasis. Schickelé describes them as a new kind of *néoplasme glandulaire mucipare*, and ascribes them to congenital inclusion of some scrap of entoderm.

Primary Abdominal Pregnancy.—Jacquin concludes from his review of the literature and a case personally observed that the ovum may become embedded primarily in the peritoneum. The pouch of Douglas or its vicinity was the seat in the nine cases on record. The few instances of embedding on the liver, etc., are conclusive as to the primary nature of the phenomenon. In Lane's case the child was living, at term, the placenta in the lumbar and kidney region; this is the only instance, he says, of a viable child.

Puerperal Ophthalmia.—Luttringer relates that in the six cases of metastasis in the eye of puerperal infection, observed at Strasbourg since 1900, all proved fatal. There was also metastasis in other organs. In Axenfeld's compilation of sixty-nine cases, both eyes were affected in twenty-seven cases, and 66 per cent. of the women died.

The Tone of the Vegetative Nervous System in Relation to Menstruation.—Kreis asserts that the play of the antagonist systems in the vegetative nervous system is more complex than has been hitherto recognized. The abnormal conditions are more variable, and may affect only part of the system. In some cases of amenorrhea described, excessive vagotony became reduced to normal as menstruation was reestablished or was started by ovarian and other treatment. Tests for excessive tonus in the vagus or sympathetic system may clear up many dubious conditions, and serve as a guide to treatment in endocrine derangement.

Journal de Chirurgie, Paris

August, 1922, **20**, No. 2

*Technic for Urano-Staphylorrhaphy. V. Veau and C. Ruppe.—p. 113.
*Genital Prolapse in Elderly Women. G. Cotte and J. Creyssel.—p. 145.

Correction of Cleft Palate.—Veau and Ruppe insist on the necessity for improving the usual methods for this purpose, as their reexamination of 89 children years after urano-staphylorrhaphy showed a total failure in 15 per cent. after a single operation, and in 2.6 per cent. even after repeated interventions, while there was no improvement in speech in 60 per cent. They here describe with thirty-two illustrations a method which closes the gap with a double bridge, one plane made from the mucous membrane of the nose and one from the mucous membrane of the mouth. The nasal mucosa is easily separated through an incision on each side of the palate, and it is sutured through an incision on the median line. Before the threads are drawn up, the muscles are sutured together with wire, the long U sutures taken through the side incisions to embrace nearly the whole width of the palate, but not including any of the mucosa. The removal of the wire later is difficult, but they have had no mishaps with this technic in the 35 cases in which it has been applied. The muscular suture can always be done, but conditions may prevent the suturing of the mucous membranes in two planes. When it is practicable, it insures rapid healing.

Genital Prolapse in Elderly Women.—An illustrated description is given of a modified Le Fort technic. The walls of the vagina are freshened and sutured to buttress the sagging uterus.

Journal de Médecine de Bordeaux

July 25, 1922, **94**, No. 14

*Retrobulbar Injection of Procain-Epinephrin. C. Fromaget.—p. 451.
The Fight Against Cancer. J. Bergonié.—p. 455.

Retrobulbar Injections of Procain-Epinephrin.—Fromaget extols the many advantages of these injections in eye surgery. After a retrobulbar injection of 3 c.c. of a 2 per cent. solution of "allocain" containing 2 drops of epinephrin per c.c. in a man of 60 with uveitis of the left eye, with complete seclusion of the pupil, the dull aspect of the cornea disappeared in a few minutes and the iris became visible. The transparency in the upper part of the membrane was perfect and the circumference of the pupil was plainly visible. In a second case with complete loss of vision of one eye due to sclerochoroiditis, terminating in large buphthalmia, and the affection starting in the other eye, after retrobulbar injection of 3 c.c. of allocain, in four or five minutes the cornea became clear except for a few spots where the sclerosing keratitis was apparent. As the eye became clearer, the ocular tension decreased. Sclerectomy and iridectomy were successful without prolapse of the iris. This shows that procain-epinephrin injections, besides being the best anesthetic, can entail almost complete disappearance of glaucoma and reduce the ophthalmo-tonus. This property facilitates the operator's work as he can follow the knife through the cornea and prevent serious accidents in operations for hypertension of the eye. He reports several other cases in which the retrobulbar injection proved to be of great advantage, and concludes that with the many advantages obtained with retrobulbar injections, general anesthesia will soon be discarded in operations on adults, except perhaps in exceptional indications, and for children.

Journal de Radiologie, Paris

July, 1922, **6**, No. 7

The Normal Stomach. Lebon and Colombier.—p. 301.
Physiologic and Therapeutic Action of High Frequency Currents. Ronneaux and Laquerrière.—p. 321.
*Plastic Substances in Radium Therapy. A. Esguerra et al.—p. 331.

To Hold Radium Applicator Against the Surface Being Treated.—Esguerra, Monod and Richard give a long list of substances that have been used to hold the radium applicator in place. In their work at the Radium Institute of the University of Paris they use a sheet of a hardened paste made of wax, liquid petrolatum and finely pulverized sawdust in the proportions of 100 parts, 100 parts and 20 parts. This thin sheet is softened in hot water and fitted like a cast to the surface to be treated. It is then removed and the radium tubes are placed in position on the inside of the cast, as they explain in detail. The cast is then applied and held in place with adhesive plaster or bands. They enumerate a number of advantages with this "colombia paste." It is perfectly plastic heated to 48 C.; is easy to model to any region, and does not soften at the temperature of the body.

Néoplasmes, Paris

March 15, 1922, **1**, No. 2

*Experimental Reproduction of Sarcoma of the Liver in the Rat. F. D. Bullock and M. R. Curtis.—p. 33.
*Serodiagnosis of Cancer. J. Thomas and Binetti.—p. 54.
Is Radiotherapy Dangerous? C. Schmitt.—p. 60. Conc'n No. 3, p. 94.
Intensive Roentgen Ray Treatment of Cancer. A. J. Rivière.—p. 64.

Experimental Reproduction of Sarcoma of the Liver in the Rat.—This experimental work was done at the Institute of Cancer Research. Bullock and Curtis summarize the results of similar research by others, and bring their own report down to date. They now have 210 rats in which sarcoma was induced by feeding with cat feces containing the ova of *Tenia crassicollis.* Their experiments included 1,165 rats and 2,500 descendants through five generations. The metastases and the 90 per cent. transplantable sarcomas amply confirmed the malignant nature of the neoplasms. The primary neoplasms always developed in the wall of the cyst in the liver, the work of the larval stage of this tenia, *Cysticercus fasciolaris.* Seventeen illustrations accompany the article.

Serodiagnosis of Cancer.—Thomas and Binetti relate that the serum from a cancer subject hastens decoloration in tests with cancer extract and methylene blue in a set of test tubes. With normal serum and the serum of the tuberculous and the syphilitic, the decoloration takes an hour to occur, and is manifest only in the tubes containing the larger amounts of the extract. With serum from cancer subjects, decoloration occurs in half the time, and in all the tubes. The test is made with 5, 10, 15 and 20 drops of serum (man, sheep, horse) plus 15, 10, 5, 0 drops of distilled water, plus 1 drop of a 1 : 300 solution of methylene blue to which 1 c.c. of glycerin has been added. Thus applied, the tint of the fluids persists unmodified for two hours at least. Repeating the test with an extract of the total lipoids from a maceration of cancer tissue, using this instead of the serum, the tint of the fluids persists for two hours, at least, in the same way. Repeating the test with progressively increasing amounts of the serum plus diminishing amounts of the cancer extract, plus 1 drop of the stain, results in decoloration of the fluid, but it takes fully an hour, and it occurs only in the tubes with the largest extract content. When the serum is from a cancer subject, however, instead of from a normal, a tuberculous or a syphilitic subject, the decoloration is accelerated, and it occurs in the whole set of tubes. Tests of 63 noncancerous serums were constantly negative, while the response was positive in 39 cancer cases, including 10 of the breast, 9 of the uterus, 5 of the prostate, 5 of the rectum, 2 of the stomach and 3 of the tongue. The baffling fact was noted that this serum test was positive in subjects apparently free from cancer but with a cancer parent. The positive response in 4 of the cases veered to negative a month after removal of the neoplasm. They intend to repeat the test later on these subjects. In one dubious case with pains in the gallbladder-pylorus region and cancer in a parent, the test was positive, but became negative six weeks after a course of mesothorium bromid injections.

Presse Médicale, Paris

July 19, 1922, **30**, No. 57

*Familial Diseases. E. Leredde.—p. 609.
*Postoperative Mishaps Due to Ascarids. C. Lefebvre and Baillat.—p. 612.
Clinical Study of Oscillometer Curve. A. Pruche.—p. 613.

Familial Diseases.—Leredde entitles his article, "Is there such a thing as spontaneous generation of diseases?" In a recent case of familial exophthalmic goiter, syphilis was finally proved to be a factor, and treatment to eliminate this factor cured the previous rebellious thyroid disease. All thyroid affections are of a familial type, he says, but adds that the familial element is merely the local vulnerability. Heredity creates a familial inferiority of this or that organ, and syphilis, by its frequency, its character of chronic infection in the fetus, the child and later, is practically the only hereditary, congenital infection, and it is the only one transmitted beyond one generation. He says that there is no organ and no system in which familial affections may not be observed, but heredity does not create diseases, although it may be responsible for anomalies, malformations, morphologic, physiologic and physiochemical defects. The share of syphilis in univitelline twin pregnancies, and in certain dystrophies preceding placental life is still a question. Every malformation is presumptive evidence of syphilis, but certain hereditary conditions, such as hemophilia, are transmitted through so many generations that inherited syphilis can scarcely be held responsible for them.

Ascarids Complicating Laparotomies.—Four cases are described in which postoperative subacute peritonitis seemed certain. The symptoms had developed suddenly, with profuse vomiting and the peritonitis facies, but the local findings were not severe enough to harmonize with the grave general symptoms. In all four cases the symptoms subsided after an ascarid had been found in the vomit. Lefebvre has been unable to find any analogous cases on record although ileus, etc., from ascarids is not a rare postoperative complication.

July 26, 1922, **30**, No. 59

Bismuth in Treatment of Syphilis. C. Levaditi.—p. 633.

July 29, 1922, **30**, No. 60

*The Mechanism of the Heart's Compensating Action. E. H. Starling.—p. 641.

Arsenical Treatment in Anemia. L. Cheinisse.—p. 646.

Mechanism of Cardiac Compensation.—This is Starling's interchange lecture delivered at the Paris medical school. He describes his research in experimental physiology of the heart during the last ten years.

Aug. 2, 1922, **30**, No. 61

*The Lipoids. H. Iscovesco.—p. 653.

*Compensating Hypertrophy of Vessel Walls. G. Billard and A. Mougeot.—p. 655.

Lipoids.—Iscovesco suggests the term "adipoids" for all the fat substances, to correspond to the term proteins for the albuminoids. The lipoids are adipoids, not colloids, and always have at least four and often five elements while cholesterin has only three. The latter always accompanies the lipoids, and seems to balance them in some way. He mentions his own experimental research with feeding lipoids from different organs. He has demonstrated, he says, that the beneficent action of cod liver oil is due to the liver lipoids it contains. Other facts established are that the lipoid content of an organ grows less when the organ is diseased, and that lipoids incorporated go to settle in the organ corresponding to the organ from which they were derived. This assumption has been amply confirmed by treatment on this basis. Liver lipoids have the same beneficial action as cod liver oil, and even more rapid, constant and regular. Heart lipoid, he says, is perhaps the most potent and the most harmless of heart tonics. Erythrocyte lipoid aids in the regeneration of the blood. If there is actually a vitamin A, it certainly is at its maximum in liver and pancreas lipoids. It is probable that a deficiency of lipoids is a factor in certain cases of endocrine insufficiency, and it is in our power to remedy this by administering the proper lipoids.

Compensating Hypertrophy of Muscle in Artery Walls.—Billard and Mougeot warn that the walls of the small and medium arteries may become thicker and harder as a physiologic compensating phenomenon in persons doing hard manual work. This salutary compensating hypertrophy of the muscular wall of the artery must not be mistaken for arteriosclerosis. There is none of the tortuous course of a sclerotic vessel.

Progrès Médical, Paris

July 1, 1922, **37**, No. 26

*Sodium Sulphate and Cholesterinemia. M. Loeper and E. M. Binet.—p. 301.

Thermotherapy and Physiotherapy in Chronic Intestinal Stasis. J. Baumann.—p. 301.

Lupus Erythematosus. L. Lortat-Jacob.—p. 303.

Action of Sodium Sulphate on Cholesterinemia.—Chauffard and Grigault have shown the dangers of accumulation of cholesterin in the organism and tissues. This accumulation may be due to physiologic hypersecretion, to excessive intake in food, or to obstruction to bile elimination. This increase of cholesterin in certain cases of obstruction of the common bile duct justifies this hypothesis, while any exaggeration of bile secretion and elimination reduces the cholesterinemia. Up to the present time the action of alkalines in this line has been studied, but the action of purgatives has received little attention. Loeper and Binet chose for experiment sodium sulphate, rhubarb and phthalein. The results showed lower cholesterinemia whatever the initial amount. But it was far more pronounced with sodium sulphate than with rhubarb and phthalein, as the drop averaged 0.50 gm. with the former and ranged only from 0.01 to 0.14 gm with the two others.

July 8, 1922, **37**, No. 27

Treatment of Fibroma During Pregnancy. Chifoliau and Benoiste-Pilloire.—p. 313.

Differentiation Between Imaginary and Real Illness in Women. Dalché.—p. 316.

Alkaline Bromids. H. Codet.—p. 318.

Ancient Medicine in Morocco. J. Avalon.—p. 319.

July 29, 1922, **37**, No. 30

*The Standardization of the Wassermann Test. L. Bory.—p. 349.

*Improved Ampule. L. de Saintrat.—p. 351.

Local Treatment of Gonorrhea. Legueu.—p. 352.

Ovarian Opotherapy. E. François.—p. 354.

The Standardization of the Wassermann Test.—Bory emphasizes the necessity for imposing on all laboratories a standard technic for the Wassermann test. In the present state of things, the only way to standardize the Wassermann test is to impose such technical conditions that the personal factor, which is the principal cause today of variations in results, will be practically eliminated. All serologists should be required to make regularly simultaneous tests both with heated serum and with fresh serum not heated; to use for the heated serum tests at least three or four antigens of different known and tested sensitiveness. (This is to prevent a weakly potent serum being considered as negative when an antigen of weak sensitiveness is used, and as strongly positive when a very sensitive antigen is employed); the preliminary titration of complement in presence of these various antigens, and finally, with the antisheep corpuscle hemolytic method, the preliminary titration of the normal hemolytic power of the serums to be analyzed. Without this latter precaution, no negative result can be considered absolutely reliable. This source of error, although known to serologists, is so frequent that many regrettable mistakes have been the result of such negligence. Although all these tests seem to require much time and considerable material, as five or six reactions are necessary for one analysis, Bory states that the adoption of this standard would be an important help to syphilography. He has been using it himself for several years.

Improved Ampule.—De Saintrat describes his new ampule allowing the chemical and its solvent to be kept in different compartments in the same ampule, the solution being made at the time of injection only, thus eliminating the use of two ampules.

Revue Franç. de Gynécologie et d'Obstét., Paris

May, 1922, **17**, No. 5

*The Slope of the Pelvis. L. Demelin.—p. 273.

*Exploratory Ovariotomy. G. de Rouville.—p. 286.

*Peritoneal Fibromyoma. G. de Rouville and Tzélépoglou.—p. 289.

*Treatment of Inoperable Uterine Cancer. L. Chevrier.—p. 291.

The Slope of the Pelvis as Affecting the Use of Forceps.—Demelin's study of the normal pelvis and his experiences with forceps delivery have demonstrated, he says, that the minimum of force is required for extraction when the woman is in the Devraigne position, that is, the thighs drawn up close to the pelvis, the legs flat on the thighs, the knees spread apart a little to prevent their pressing on the abdomen, and to stretch the pubic bones apart by pulling on the interpubic fibrocartilage. He explains how this position brings the superior strait into almost a right angle to the central line of direction for the expelling forces of the uterus and abdomen. This provides the most favorable conditions for the action of the expelling forces and for application of forceps. The anterior surface of the sacrum forms almost a straight line with the lumbar spine, thus practically obliterating the promontory. When the head has advanced to the rotation point, he turns the woman into the regular obstetric position, and when rotation is complete restores her to the Devraigne position once more.

Exploratory Ovariotomy to Distinguish Between Uterine Fibromyoma and Pregnancy.—De Rouville comments on the difficulty in certain cases of recognizing gestation in a fibromatous and even in a normal uterus. In two such puzzling cases it was impossible to say whether the symptoms observed were due to a fibroma in the uterus or whether the woman was pregnant. The evidence apparently testified in favor of fibroma, but the aspect of the uterus at the laparotomy suggested doubts. To make sure, he slit each ovary from the convex margin to the hilus, but no corpus luteum could be found in either. This encouraged him to remove the uterus, and it proved to be nongravid. In a third case the slitting of the second ovary—the first was negative—revealed a large corpus luteum. The pregnancy continued unmolested to term. Of course time will always solve the problem, but if the abdomen has been opened, then this exploratory ovariotomy will satisfy the last doubt. He takes a few catgut stitches to close the incision in the ovary.

Peritoneal Fibromyoma.—The pedunculated subperitoneal fibromyoma in the left iliac fossa had no connection with the uterus or its ligaments.

Intra-Abdominal Radium Treatment of Inoperable Uterine Cancer.—Chevrier compares some recent discussions of this subject, citing Savariaud's two cases with survival for five and seven years, and Souligoux' one survival for seven years, after vaginal exposures alone. Still better results seem to be promised by the intra-abdominal exposures which Schwartz and Proust have recently been applying. Chevrier criticizes their practice of making the intra-abdominal exposures first, saying that it would be safer to give the vagina treatment first, and allow from fifteen to twenty days for recovery from the shock before the laparotomy. He describes the exact technic followed to date.

Archivio Italiano di Chirurgia, Bologna

July, 1922, **5**, No. 5

*Nourishment During Operations on Stomach. D. Fieschi.—p. 467.
Cystic Hygroma on the Neck. N. Giannettasio.—p. 475.
*Movable Kidney and Appendicitis. C. Silvan.—p. 483.
Foreign Bodies in the Bladder. A. Catterina.—p. 520.
*Effect of Malaria on Trauma and Surgery. F. Cioffi.—p. 533.
Blood Cyst on Ascending Colon. E. Leo.—p. 559.

Nourishment During Operations on Stomach.—Fieschi describes how he pours into the bowel, as soon as the abdomen is opened, a liter of some nutrient fluid, before commencing the operation on the stomach. He makes the minute incision for it in the loop which he designs for the gastro-enterostomy. He says that in his last 200 operations for stenosis of the pylorus, only ten of the patients were in such extreme debility from the long inanition that he regarded this *nutrizione interoperatoria* as indicated. He is confident that it was an important factor in the prompt recuperation.

Movable Kidney and Appendicitis.—Silvan relates that in 28,000 operative cases at the Venice hospital in twenty-eight years there were 893 cases of appendicitis and 195 of movable kidney, but the two were combined in only fifty-one instances. This is a proportion of 26.1 per cent. The appendix can be removed without difficulty through the lumbar incision for the kidney.

Malaria in Relation to Trauma.—Cioffi's data confirm anew the tendency for latent malaria to flare up after trauma affecting the bones or the spleen. The evidence is not conclusive as yet on whether trauma or surgery affecting other regions may rouse latent malaria. He thinks this is very dubious.

Pediatria, Naples

Aug. 1, 1922, **30**, No. 15

*Vein Sign of Glandular Disease in Children. O. Cozzolino.—p. 689.
*Leukolytic Power of Blood Serum. G. Caronia.—p. 693.
Infant Mortality in Palermo. S. Maggiore.—p. 703.
*Transmission of Internal Leishmaniasis. R. Vaglio.—p. 728.

Vein Sign of Tracheobronchial Glandular Disease in Children.—Cozzolino has noticed that young children with tuberculous bronchial glands have a bluish cord along the midaxillary line. This cord is the swollen and turgid vein formed by the junction of the thoracic and superficial epigastric vein. The veins on the chest may show some dilation, but usually this one vein is the only one affected. In small children the space between the anterior surface of the trachea and the superior vena cava is extremely small, and any enlargement of the glands in this region interferes with the local circulation, and this bluish cord appears.

Leukolytic Power of Blood Serum.—Caronia's research has confirmed that the blood of children with leukopenia has a leukocyte destroying action. The substances which display this leukolytic action are destroyed by heating, but are not affected by addition of 0.5 per cent. phenol.

Transmission of Internal Leishmaniasis.—Vaglio concludes from his analysis that all the evidence points to the bedbug as the means of transmission of kala-azar. Further research is needed on the relations between leishmaniasis in human beings and in dogs.

Anales de la Facultad de Medicina, Montevideo

March-April, 1922, **7**, No. 1-2

*The Major Disorders of Nutrition. M. Labbé.—p. 8.
*Mumps Meningitis in Children. L. Morquio.—p. 23.
Operative Treatment of Gastric and Duodenal Ulcer. H. Garcia Lagos.—p. 47.
Gastroduodenal Surgery. D. Prat.—p. 76.
*Traumatic Epicondylitis. E. Blanco Acevedo.—p. 88.
The Tartrobismuthate of Potassium and Sodium. L. M. Otero.—p. 93.

The Major Derangements of Nutrition.—Labbé refers mainly to obesity, and explains its pathogenesis as an upset in the balance of matter and energy, the receipts outweighing the outgo. The task is to correct this by tipping the balance in the other direction, reducing the receipts and increasing the disbursements of the organism. The diet must be arranged to impose new organic habits proportioned to the physiologic requirements, so that when obesity has been overcome there will be no tendency to put on fat again. Copious drinking promotes kidney functioning and aids in throwing off the extra weight. Salt should be used very moderately, but proteins are required to protect the muscles. The aim is to get rid of the extra fat while sparing muscle tissue. Proteins in moderate amounts at first, and then, toward the close, in large amounts aid in repair while the patient continues to lose weight. One such patient gained 3 kg. in muscle weight while he was losing 22 kg. in weight. Medical gymnastics, walking, sports, sea and river bathing, cold douches, etc., are useful, but there is only one drug that is effectual, and this only when associated with dieting, etc. This is thyroid extract, and it has to be given with great caution. Massage is useful only to render the tissues more supple, but electric gymnastics have given good results in his hands. Heart tonics, laxatives and sedatives have their indications.

Mumps Meningitis in Children.—Morquio remarks that meningitis as a manifestation of mumps is comparatively common at Montevideo while it is almost unknown at Buenos Aires. This difference in the course and pathologic reaction in adjacent countries has been observed in many diseases. Several cases of mumps meningitis have been published in France, but German literature scarcely mentions it. He has observed numbers of cases, and the symptoms may suggest tuberculous meningitis or there may be a sudden stormy onset with high fever, convulsions, and contractures suggesting cerebrospinal meningitis. There is usually vomiting at first; in one case it kept up for nearly two weeks. The meningitis may precede, accompany or follow the parotitis, and in some cases the meningitis was the only apparent manifestation of the disease. The puzzling clinical picture in this group was explained only by the appearance later of frank cases of mumps in the environment. In one case the meningitis did not appear till two months after the mumps. Another child had mumps meningitis and two months later developed tuberculous meningitis. The rule is, however, that recovery is prompt and complete, but deafness was entailed in some of the cases, total and definite in a few.

Traumatic Epicondylitis.—Blanco reports two cases and relates that in these and in the six or eight others he has seen, repose and relative immobilization cured in time. There is no swelling or edema, and he thinks the trouble is some slight injury of the tendon. Massage is not only useless but does actual harm. Franke partially resected the epicondyle in one young woman who complained of atrocious pains; in this case the bone showed signs of slight inflammation.

Archivos Latino-Amer. de Pediatría, Buenos Aires

June, 1922, **16**, No. 6

*Pediatric Bibliography. J. A. Trillo.—pp. 97-180.

Bibliography in Pediatrics.—This is the concluding half of the classified index of the publications of the pediatricians of Argentina and Uruguay.

Prensa Médica Argentina, Buenos Aires

July 20, 1922, **9**, No. 5

*Saprophytism of Causal Agents of Venereal Disease. S. Mazza, S. Sonnenberg and C. Guerra.—p. 117.
Case of Colibacillosis. R. Vieyra.—p. 119.
Asthma. Pablo M. Barlaro.—p. 119. Cont'n.
Treatment of Sebaceous Cysts. D. S. Cuneo.—p. 127.
*Treatment of Hydrocephalus. R. Ortega Belgrano.—p. 128.

Venereal Disease Agents as Saprophytes.—No spirochetes were found in the vaginal secretions of 110 healthy prostitutes examined, but gonococci were found in 28 per cent. of 171 specimens of vaginal secretions from these women. The Wassermann test was positive in from 20 to 37 per cent. in the different series examined.

Arsenicals in Treatment of Hydrocephalus.—Ortega reports the rapid subsidence of hydrocephalus, in a 10 months infant, under treatment with an arsenical, and calomel internally. He did not apply the Wassermann test to the child or its parents, but the notable improvement confirmed the assumption of inherited syphilis. It had developed apparently normally until the sixth month when the head began to grow very large.

Revista Médica del Uruguay, Montevideo

July, 1922, **25**, No. 7

Visiting Nurses. J. A. Bauzá.—p. 521. Idem. R. Berro and C. Pelfort.—p. 528. Idem. L. Morquio.—p. 575.
*Psoriasis and Pregnancy. J. Brito Foresti.—p. 531.
*Neurosyphilis. H. del Campo.—p. 537.
Cerebrospinal Meningitis in Three Months Babe: Recovery. N. L. Bloise.—p. 568.
*Syphilis Revealed by Skin Infections. J. May.—p. 572.

Psoriasis and Pregnancy.—Foresti reports three cases in which old psoriasis disappeared completely during a pregnancy but returned afterward the same as before. One of the women had this experience repeated in her nine pregnancies. The psoriasis first developed at the age of 18 and was general, and no treatment had ever succeeded in curing it completely. In the second case the psoriasis had preceded puberty and it persisted after the menopause, but it disappeared completely during the six pregnancies. In Montevideo, psoriasis forms about 3 per cent. of all the skin affections encountered, but in none of the other cases observed was there any modification during a pregnancy.

Neurosyphilis.—Del Campo declares that the timid treatment of the past was responsible for allowing neurosyphilis to develop. If we attack syphilis vigorously from the first, and watch for the earliest manifestations from the nervous system and, when such appear, treat them with even greater energy with both the arsenical and mercury, we will ward off tabes, general paresis and hemiplegia.

Syphilis Revealed by Skin Infection.—May has had several cases in which trauma or an intercurrent dermatitis revealed an unsuspected syphilis. In two cases described here the erysipelas or impetigo process was on the nostril or lip of the women.

Deutsche medizinische Wochenschrift, Berlin

July 7, 1922, **48**, No. 27

*Serologic Demonstration of Syphilis by Flocculation. Sachs.—p. 891.
*Plethysmographic Tests in Heart Diseease. E. Weber.—p. 894.
Acquired and Hereditary Immunity to Tuberculosis. Thomas.—p. 895.
*Iodin and Arsenic in Treatment of Goiter. F. Mendel.—p. 896.
*Parenchymatous Injections in Goiter. G. Krebs.—p. 898.
Management of Perforated Gastric or Duodenal Ulcer. W. Röpke.—p. 899.
*Artificial Pneumothorax with Kidney Disease. C. Rowe.—p. 900.
Colloidal Gold in Tuberculosis. E. Levy.—p. 900.
*Necropsy in Case of Paroxysmal Tachycardia. P. Hampeln.—p. 901.
Successful Treatment of Case of Gonorrheal Polyarthritis with Meningococcus Serum. C. Froemsdorff.—p. 902.
*Diathermy in Gonorrhea in Women. Kyaw.—p. 902.
Clinical Value of Routine Blood Examination. Hoffmann.—p. 903.
The Time Element in the Practical Determination of Blood Picture. V. Schilling.—p. 904.
Technic of Deep Tamponing. Wieting.—p. 904.
A Rare Case of Ileus. Lübke.—p. 905.
Paralysis of Facial Nerve Following Use of Chromic Acid in the Mastoid. T. von Liebermann.—p. 905.
Fatal Blood Disease in New-Born Following Recovery from Congenital Mechanical Icterus. Kaboth.—p. 905.
Diagnosis and Treatment of Depressive States. Henneberg.—p. 906.
Technic of Catheterization and Bladder Lavage. Casper.—p. 908.

Precipitation Tests for Syphilis.—Sachs describes the different modifications that have been proposed for the Sachs-Georgi test by various serologists, and emphasizes the confirmation they bring as to the dependability of the principle involved.

Plethysmographic Warning of Incipient Heart Disease.—Weber has serial plethysmographic records from thousands of subjects examined during the last sixteen years. He investigated the effect of exercise, of stimuli of various kinds, repose, etc., and found that by this means it is possible to detect incipient insufficiency of the circulatory apparatus before it becomes apparent in any other way. If the fastened down foot, for example, is exercised vigorously for a few minutes, the blood content of other parts of the body increases, as recorded by the plethysmograph. He ascribes this not only to the heart but to a stimulation of centers in the brain. If the blood contains an excess of waste products, the centers become irritated, and instead of their sending out an impulse for the salutary dilation of the vessels in the muscles, they induce the vessels to contract, and the plethysmograph curve falls. This falling curve is a remarkably instructive index as to the extent of fatigue, and the danger of forcing the heart if the exercise is continued under this negative plethysmograph curve. It is also the earliest sign of insufficiency in the circulatory system.

Combined Use of Iodin and Arsenic in the Treatment of Exophthalmic Goiter.—Mendel surveys the results of the combined intravenous use of iodin and arsenic in the treatment of more than 100 cases of exophthalmic goiter in ten years. The treatment has always had a prompt effect, having never failed absolutely, while in a large percentage of cases considerable improvement was brought about and in a number of severe cases a permanent cure was accomplished. The technic of this intravenous chemotherapy is exceedingly simple. Every other day, or, after the patient begins to improve, once or twice a week, injections of this solution are given: atoxyl 1 gm., sodium iodid 8 gm., water to make 40 c.c. He gives in detail the case report of a 52 year old school principal. The patient was much emaciated, weighing only 120 pounds. The expression and appearance of the face were unusually bad, the skin being livid, reddened and moist. There was a moderate but distinct exophthalmos and a medium-sized soft goiter. A marked pulsation of the carotid arteries was noted. The hands were hot and moist and affected by a rapid tremor. The pulse was 140. The patient was in a despairing frame of mind and complained of general weakness, headache, dizziness, restlessness, insomnia, diarrhea and profuse sweating. Injections of the iodin-arsenic solution were begun, for the first two weeks 2 c.c. being given every other day, then the same dose twice a week over a period of four weeks. After the first few injections the patient's spirits improved, the heart action was better and hidrosis became less marked. As the treatment was continued, all the symptoms of exophthalmic goiter abated rapidly; also the diarrhea, without dietary regime. In six weeks the patient gained 20 pounds. The tremor had disappeared entirely. The patient felt so much better he went away for a vacation trip. During his absence, in spite of good and adequate food, he made no further gain in weight. After his return he did not feel so well as he did when he left. Treatment was recommenced with two injections a week, with the result that all the symptoms of exophthalmic goiter were eliminated. After the lapse of five years the patient feels perfectly well and weighs about 164 pounds, a gain of 24 pounds.

Parenchymatous Injections in Goiter.—Krebs reports his experience, during the past twenty-nine years, with parenchymatous injections of tincture of iodin in nearly 1,000 cases of goiter. A cure was effected in 80 per cent. of the cases. He has excluded from such treatment all cases with much dyspnea, as he feared that the reactive swelling of the thyroid gland, which commonly occurs during the days immediately following the injection, might increase the dyspnea. It must be admitted that there are dangers associated with the method, although these are sometimes much exaggerated. They are slight as compared with strumectomy, which results in about 3 per cent. of mortality, although Kocher reported at the surgical congress in 1911 that he had performed 461 operations without a single fatality. He recalls that operative intervention has other dangers. There is thyroprival cachexia, which Reichel observed even though he had left thyroid remnants the size of an egg. Parathyroprival tetany is another untoward sequel. Paralysis of the recurrent nerve, sometimes bilateral, with its dire results, is also to be feared. One writer reports a 20 per cent. frequency of postoperative disturbances of the labium vocale. Krebs holds that in comparison with the dangers just cited, the risks of parenchymatous injections are not great, though much caution should be observed.

Contraindication of Artificial Pneumothorax in Pulmonary Tuberculosis with Kidney Disease.—Rowe relates a case in which sudden exacerbation of nephritis was caused by the induction of a pneumothorax. He concludes that caution should be exercised in the matter of inducing pneumothorax in the tuberculous with chronic glomerulonephritis, unless by preceding tuberculin treatment the hypersensitiveness can be eliminated.

Necropsy Findings with Paroxysmal Tachycardia.—Hampeln found a band in the pericardium which pulled on the impulse node region. Summation of irritation from this must have entailed the paroxysms—an actual epilepsy of the heart.

Diathermy in Treatment of Gonorrhea in the Female.—Kyaw declares that this treatment can be counted on to cure in all cases. It is equally effectual whether the electrode is applied in the rectum or the vagina. He graduates the heat with thermometers on the pelvis, in the vagina and in the rectum, and applies it for three hours at least, and preferably for nine hours a day with an intermission of three hours. He repeats the application until no gonococci can be found in swabs on three successive days. He has thus cured 40 women in a few days. The gonococci are killed in six hours by a temperature of 40 C.; in three hours and fifteen minutes at 42, and in one hour at 44. His patients bore up to 44.5 C. for hours without harm.

Medizinische Klinik, Berlin

July 30 1922, **18**, No. 31

*Immunity to Cancer. C. Lewin.—p. 983.
Bárány's Methods of Examination. B. Fischer.—p. 987.
Principles for Treatment of Peptic Ulcer. W. Körte.—p. 989.
*Muscular Tension in Mental Disease. P. Schilder.—p. 990.
Retropharyngeal Angina in Young Children. Stickdorn.—p. 991.
Combined Friedmann and Pneumothorax Treatment. V. Bock.—p. 992.
*Palpitations with Mitral Stenosis. K. Fahrenkamp.—p. 994.
Neosilver-Arsphenamin in Syphilis. Liebner and Rado.—p. 996.
The d'Herelle Phenomenon. W. Seiffert.—p. 997. Cont'd.
Fright Neurosis; Traumatic Neurosis. H. Engel.—p. 999.
*Rudiments of Obstetrics. E. Runge.—p. 1001. Cont'd.
Practical Application of Duodenal Sound. L. v. Friedrich.—p. 1003.

Cancer Immunity.—Lewin relates that when he took up anew his work in the Cancer Research Institute after the war, two new elements had entered into the study of cancer during his long absence. These two new elements were the so-called protein therapy, and the fact that white corpuscles are of essential importance in the resistance of the body to malignant disease. Artificially induced leukopenia favors the growth of cancer while leukocytosis checks it. For the last three years he has been experimenting with cancer along both these lines, and reports encouraging results with all, as also with roentgenization and all kinds of means to stimulate the organism to speed up the vital processes. It is a nonspecific action, but it reenforces the natural defences. In one group of twenty-one mice inoculated with cancer it developed rapidly in all but four, but there was no growth at all in any of another group of twenty mice that had been given parenteral injection of from 0.5 to 1 c.c. of a 2 per cent. solution of nucleic acid, before they were inoculated with the cancer. This protection against the cancer was most pronounced when applied beforehand, but a certain degree of protection was evident even when the acid was not injected until afterward. Caspary has reported success along these same lines by stimulating with a weak dose of roentgen rays. All the experiences related confirm that in the fight against cancer we must stimulate the organism as a whole in addition to our local measures. His experiments confirm that the leukocytes and, above all, the lymphocytes are the active agents in this artificially induced immunity against malignant disease, whether brought about by protein therapy, autoserotherapy, autolysates of tumors, embryonal cells, blood or normal tissue, tumor tissue or chemicals of different kinds. In addition to this nonspecific reenforcing of the natural defences we can count also on a tendency to direct active immunization by antibodies generated by the tumor itself. This is too weak to be of much use alone, but it may usefully supplement our other measures. The organism must be still capable of vital reactions.

Psychophysiology of Motor Disturbances with Mental Disease.—A case is described in which a young woman with certain symptoms of schizophrenia seemed unable to control the extrapyramidal motor apparatus.

Palpitations with Mitral Stenosis.—Fahrenkamp found the clinical picture practically identical in fifteen patients with mitral stenosis. All presented symptoms suggesting nervous excitability of the heart, but the aggravation of the symptoms after physical exercise corroborated the physical findings of organic valvular disease. The absolutely identical clinical picture in all seems to indicate that the psychic features of this form of valvular disease are secondary to the latter. In repose the symptoms are like those with purely nervous disordered action of the heart, but with emotional stress or muscular exercise the aggravation is pronounced and the patients are distressed. Especially after retiring or waking in the night, the depression is extreme and there may be tachycardia. This psychic reaction to emotions and to darkness was pronounced in each member of the group. Mild faradization of the heart region, which is so effectual with vasomotor irritable heart, failed completely in these cases. A course of camphor injections for eight or ten days always relieved; the patients felt better and stronger and the heart grew quieter. Carbonated baths invariably gravely aggravated the disturbances. One patient with frequently returning tachycardia was relieved somewhat by quinidin although the heart beat was not slowed. When the heart rate was over 120, prolonged digitalis treatment brought it down to 80, but in other conditions no benefit was derived from digitalis. Bromids to reduce the excitability were given in some cases. The cause for the subjective disturbances is evidently in the heart itself. The cause responsible for the mitral stenosis seems to have injured the terminal apparatus of the heart nerves. The possibly slight clinical findings are liable to mislead to the assumption of a purely functional disturbance, and the mitral stenosis may escape detection unless this psychic picture is interpreted aright.

Rudiments of Obstetrics.—This long continued serial article is like a quiz, Runge asking a question and then answering with full details. He has nearly reached his two hundredth question.

Monatsschrift für Geb. und Gynäkologie, Berlin

June, 1922, **58**, No. 1-2

Fatal Menorrhea in Diabetic Girl. H. Eufinger.—p. 1.
*Blood Pressure and Eclampsia. H. Schlossmann.—p. 4.
*Necrosis of the Pancreas in Pregnancy. N. Ellebroek.—p. 13.
Precipitation Serodiagnosis in the Pregnant. Bathe.—p. 21.
Treatment of Afebrile Abortion. K. Reiter.—p. 28.
Treatment of Febrile Abortion. H. Sehnitzer.—p. 34.
Treatment of Peritonitis After Abortion. W. Simon.—p. 40.
Closing Vagina in Treatment of Genital Prolapse. W. Krull.—p. 49.
Origin of Krukenberg Tumors. A. Greil.—p. 59.
Ratio of Sexes in the New-Born. E. Graff.—p. 65.
Limitation of Midwives. E. Martin.—p. 78.

Blood Pressure and Eclampsia.—Schlossmann found a blood pressure above 120 in all of the 200 pregnant women examined who showed signs of edema or albuminuria or other complications. The data related sustain his assumption that the rise in the blood pressure is the earliest and the most reliable sign of injury from the toxic action of some product generated in the course of the pregnancy. A blood pressure over 125 is a far more reliable index of the intoxication going on than the amount of edema or the urine findings. The blood pressure showed promptly the favorable influence of restriction of salt, fat and proteins in the diet in cases suggesting eclampsia. The edema may or may not subside; this is immaterial. The important thing is to reduce the toxic action on the capillaries. Eclampsia is always preceded by a rise in blood pressure.

Pancreas Necrosis in Relation to Pregnancy.—Ellebroek reports a case of acute fatal necrosis of the pancreas developing soon after delivery. He suggests that this may have been overlooked in some cases of supposed puerperal fever and postoperative complications. An early operation is the only recourse, but the differential diagnosis is difficult.

Münchener medizinische Wochenschrift, Munich

June 23, 1922, **69**, No. 25

Chemical and Pharmacologic Synergy. H. Fühner.—p. 915.
*Roentgen Irradiation of Cancer of the Uterus. E. Opitz.—p. 917.
*The So-Called Arndt-Schulz Biologic Law. K. Süpfle.—p. 920.
The Pathogenesis of Metasyphilis. W. Gennerich.—p. 922.
*Serodiagnosis of Syphilis. P. Esch and J. Wieloch.—p. 926.
*Concentration of Cerebrospinal Fluid. G. Wüllenweber.—p. 927.
*Effect of Saponin on Flocculation Reactions. P. Niederhoff.—p. 929.
Treatment of Old Congenital Luxation of Hip Joint. A. Schanz.—p. 930.
Accidents in Paravertebral Cervical Anesthesia. O. Winterstein.—p. 931.
Experiences with the Roentgen Spectrometer. K. Staunig.—p. 933.
Bladder Injury from Pessary Broken in Vagina. W. Rübsamen.—p. 934.
Asthma and Tuberculin. W. Pfalz.—p. 934.
Notions of Inflammation and Inflammation Theories. L. Aschoff.—p. 935.
Pathology and Therapy of Chlorosis and Secondary Anemias. P. Morawitz.—p. 937.

Roentgen-Ray Treatment of Uterine Cancer.—Opitz discusses this subject from the biologic point of view, and describes the experiences at the Freiburg gynecologic clinic.

The Arndt-Schulz Biologic Law.—Süpfle reports bacteriologic research on this so-called law, which fails to sustain its validity.

Serodiagnosis of Syphilis.—Esch and Wieloch report research on women during pregnancy and during and directly after parturition, and on the new-born. One of the practical conclusions is that the statistics that have been published need revision so far as these groups of subjects are concerned.

Concentration of Cerebrospinal Fluid.—Wüllenweber comments approvingly on the Löwe interferometer method for determining the concentration of the cerebrospinal fluid in diagnosis of disease of the central nervous system.

Effect of Saponin on Serologic Tests.—Niederhoff reports that addition of saponin inhibits positive flocculation in the Sachs-Georgi test, and disturbs it in the Meinicke test, but not in the Uhlenhuth precipitation test.

Wiener klinische Wochenschrift, Vienna

June 29, 1922, **35**, No. 26

Gunshot Injuries from Medicolegal Standpoint. G. Strassmann.—p. 575.
*So-Called Acute Abdomen. J. Schnitzler.—p. 577. Conc'n.
Smallpox Vaccine Immunity. G. Morawetz.—p. 580.
*Thiosulphate Test of Kidney Functioning. W. Nyiri.—p. 582.
*A Case of Adnexal Hernia. A. Birmann.—p. 583.
Embryology of Heart Malformations. A. Spitzer.—p. 584. Conc'n.

So-Called Acute Abdomen.—Reviewed on page 1087.

Thiosulphate Test of Kidney Functioning.—Nyiri injects intravenously 10 c.c. of a 10 per cent. solution of sodium thiosulphate, and examines the urine voided once each hour thereafter for three hours. About 20 c.c. from each portion of urine is mixed with 0.5 gm. of animal charcoal, stirred well for two or three minutes, and then filtered. Each filtrate is then mixed with 10 c.c. of starch solution and then one tenth normal solution of iodin is added and the blue tint is titrated. The urine voided just before the test is treated the same way. From 60 to 70 per cent. of the sodium thiosulphate is oxidized in the body to sodium sulphate, and the remaining 30 or 40 per cent. is eliminated unmodified in the urine, if the kidneys are sound. If the kidneys are diseased, they do not eliminate the drug, only from 1 to 23 per cent. being refound in the urine. The elimination occurs almost entirely during the first hour. The charcoal gets rid of the substances in the urine which might disturb the test, while it does not affect the thiosulphate. As 1 c.c. of the one tenth normal iodin solution corresponds to 15.8 mg. of the sodium thiosulphate, the number of cubic centimeters of the iodin solution that were used is multiplied with 15.8 to obtain the number of milligrams of thiosulphate in 10 c.c. of urine (after deducting the 1 c.c. or other figure representing the amount required by the urine voided before the test). He gives a few from the sixty cases in which he has repeatedly applied this test, charting the invariable 25.3 to nearly 40 per cent. in patients with sound kidneys, in contrast to the 0.20 to 0.85 at most in the patients with kidney disease.

Gravid Tube in Hernia.—Birmann states that he has found four cases on record of incarceration of a gravid fallopian tube, and he adds another case to the list. In Beck's case the pregnancy corresponded to two and a half months.

Zeitschrift für klinische Medizin, Berlin

June 30, 1922, **94**, No. 4-6

*Streptothrix Meningitis. R. Neumann and L. Rabinowitsch-Kempner.—p. 215.
*Hemoglobin. E. Leschke and K. Neufeld.—p. 224.
*Action of Parenteral Sulphur. R. Meyer-Bisch.—p. 237.
*Metabolism in Obesity. W. Arnoldi.—p. 268.
*Insufficiency of the Sweat Glands. W. Siebert.—p. 317.
Oxyhemoglobin and Hematoporphyrin in Human Bile. W. Robitschek.—p. 331.
*Functional Tests of the Kidneys. S. Litzner.—p. 338.
*Splenectomy in Treatment of Hemorrhagic Diathesis. G. Cori.—p. 356.
*Etiology of Infectious Diseases. L. Paneth.—p. 370.
*Tests for Occult Bleeding. J. Gattner and E. Schlesinger.—p. 426.
*Bence-Jones Proteinuria. A. Perlmann.—p. 436.
The Thrombocyte Question. W. Steinbrinck.—p. 447.
*Group Agglutination in Blood Transfusion. J. Vorschütz.—p. 459.

Streptothrix Meningitis.—The boy of 3 succumbed speedily to meningitis following otitis media. This is the fourth case of the kind to be published. In this and in one of the other cases there was tuberculosis in the family.

Research on the Hemoglobin.—Leschke and Neufeld report that the oxygen and iron content was found constantly the same in the hemoglobin from healthy persons and cases of pernicious and secondary anemia, hemolytic jaundice and polycythemia.

Action of Sulphur.—Meyer-Bisch gave the sulphur parenterally and tabulates the findings showing its important action on the metabolism and on the composition of the blood, and comparing this action with that of protein therapy, etc. All of these substances induce a nonspecific reaction in the sick and the well. This "protoplasm activation" modifies the water metabolism, and, after sulphur and milk, there is constantly also urobilinuria with glycuronuria. There seems to be further a causal connection between the sulphur and certain constitutional diseases. The research described indicates the importance of further study of the sulphur content of the body fluids.

The Metabolism in Obesity.—Arnoldi's monograph is devoted principally to study of the metabolic processes which entail obesity. He emphasizes the differences in the metabolism according as the vagus or the sympathetic system abnormally predominates. Three pages of bibliographic titles set solid are appended, the references following the style adopted in this country, volume, page and year—an innovation in German bibliography.

Research on Persons Unable to Perspire.—The effect of pilocarpin, atropin and epinephrin was studied on subjects with insufficiency of the sweat glands, with parallel tests in normal subjects.

Functional Tests of the Kidneys in Relation to Prognosis.—Litzner refers to test elimination of substances foreign to the organism, such as potassium iodid and lactose. He has been investigating the present condition of 70 patients tested in this way ten years ago. A similar study of tests with organic substances, natural to the body, was published in the preceding volume of the *Zeitschrift*. The verdict is in favor of tests with substances foreign to the organism as the more sensitive and reliable indicators of slight functional derangement under certain conditions, the tests with lactose in particular. When the findings were unfavorable in regard to the duration of elimination of lactose, the amount eliminated in the first four hours, and the curve of concentration, the outcome was always unfavorable. This research has established further that these functional tests can be relied on for the prognosis, notwithstanding that they are supposed to reveal the condition of the kidneys merely for the moment. Even in the cases of acute glomerular nephritis, the outcome corresponded approximately to the deductions from the functional tests. In cases with much interference from extrarenal factors, the tests with alien substances gave more reliable findings. On the other hand, when merely the kidney itself was abnormal, tests with substances natural to the body revealed this often earlier than the tests with alien substances.

Splenectomy for the Hemorrhagic Diathesis.—Cori refers to that manifestation of the hemorrhagic tendency which is known as thrombopenia. He describes three cases in which he removed the spleen in treatment of this thrombopenia. The blood platelets in the splenic vein blood numbered only 1,200 while in the peripheral venous blood the average was 4,000. This apparently testified to excessive destruction of platelets in the spleen. Other features also apparently testified that the spleen, and the spleen alone, generates some substance which injures the vessel walls, and that this factor in the hemorrhagic tendency was eliminated by splenectomy. In Case 1, the girl of 13 had blue patches almost continuously for four years, on the whole body, with recurring profuse epistaxis. No internal measures gave any relief and a particularly severe hemorrhage followed roentgen treatment. The platelets kept always below 5,000. Splenectomy transformed conditions, the platelets rose to 109,000 in six hours and by the end of the tenth month were still 23,000. There has been no trace of hemorrhage since. The girl began to menstruate seven months after the operation, and menstruation has been normal. In the second case the thrombopenia was pronounced in the boy of 12, but as there were no severe hemorrhages, intervention was restricted to protein therapy, calcium, etc. The parenteral injections of milk were followed by a rise in the platelet count. The third case was a young woman incapacitated by the profuse hemorrhages, epistaxis and menorrhagia. The platelets numbered 4,000 but only 1,200 in the splenic vein. Eight hours after splenectomy they numbered 63,750. A subphrenic abscess developed and proved fatal, the twenty-ninth day after the operation. During the septic fever the platelets ran up to 1,150,000.

Etiology of Infectious Diseases.—Paneth calls attention to the fact that the diphtheric local process is not characteristic for diphtheria. He asserts further that the efficacy of antitoxin in prophylaxis indicates that diphtheria is unable to develop in the absence of the vital products of the diphtheria bacillus. The disease as we know it, however, seems to be a combination of diphtheria and ordinary infectious sore throat or sepsis. Antitoxin has no action on the streptococci, etc., of the latter. The problem is not so simple as we have been assuming hitherto. He quotes the saying that it is a poor tribute to a teacher to remain his pupil always. We do most honor to our teacher by carrying on his work to further heights, and he thinks he has accomplished this here by his demonstration that infectious diseases are seldom pure. They generally represent a combination of biologic units.

Occult Bleeding.—Gattner and Schlesinger describe how to apply the benzidin test for invisible blood as a quantitative indicator of remarkable precision. We can thus supervise the wave of the hemorrhagic tendency and guide treatment accordingly. Each of the set of test tubes, except the first, contains 2 c.c. of distilled water. In the first and in the second is placed 2 c.c. of the suspension of the stool (2 gm. of feces in 8 c.c. of distilled water). From the second tube, 2 c.c. of the contents are transferred to the next tube, and so on through the series. Then 3 c.c. of the reagent is added to each tube. The number of the last tube giving a positive reaction varies as the bleeding rises and falls. The formula for the reagent is 10 c.c. of a 10 per cent. solution of benzidin in glacial acetic acid; 2 c.c. of hydrogen dioxid (perdrydol); 8 c.c. of decinormal sulphuric acid, and 10 c.c. of distilled water. They found pulverized desiccated blood from the slaughter house useful for comparative research.

Bence-Jones Proteinuria.—Minute details of a case in a man of 43 confirm the descriptions of others. Perlmann adds that no case of multiple myelomas is known in which during life the Bence-Jones proteinuria had failed to appear. Its absence, however, does not exclude the assumption of multiple myelomas.

The Blood Groups from Transfusion Standpoint.—Vorschütz presents evidence that the previous taking of a drug, or general anesthesia, or roentgen irradiation may modify the blood enough to change it from one group to another for the time being. This may interfere with transfusion work. He points out, further, that serum from persons with cancer, tuberculosis or inflammatory processes in the subacute and chronic stages lake the blood cells and conglutinate them. He classifies bloods in five separate groups.

Zeitschrift für Tuberkulose, Leipzig

July, 1922, **36**, No. 5

*Phrenicotomy. H. Alexander.—p. 325.
*Tuberculous Rheumatism. B. Valentin.—p. 336.
*Predilection of One Side to Tuberculosis. A. E. Mayer.—p. 338.
Alternating Hot-Cold Air in Treatment of Tuberculosis. H. Mueller.—p. 347. Idem. Schelenz.—p. 350.
*Staining of Tubercle Bacilli. F. Geschke.—p. 351.
"Suspension Stability of Erythrocytes in Diagnosis of Tuberculosis." A. V. Frisch.—p. 360. Reply. G. Katz.—p. 361.

Phrenicotomy in Treatment of Pulmonary Tuberculosis.—Alexander severed the phrenic nerve on one side in 7 cases and in 7 others severed and tore out part of it. In 6 cases striking benefit followed; the bacilli disappeared from the sputum in 4 of them. In 3 cases there was distinct but slight benefit; in 4 cases no effect was apparent, and in 1 instance there was transient aggravation. In 12 of the total 14 the other lung was already involved, and all were severe cases, in which artificial pneumothorax was impracticable. A great advantage of the phrenicotomy is that it does not interfere with other measures. In one of the cases described, pneumothorax could be induced later. The diaphragm stood 4.25 cm. higher afterward, and 2.15 cm. higher after mere phrenicotomy. The operation on the phrenic nerve is simple and easy; it helps the lung in the natural curative shriveling process, and might advantageously precede thoracoplasties. Exclusion of the phrenic nerve is useful also in the estimation of recent changes in the other lung.

Tuberculous Rheumatism.—In the case described, both wrists and ankles and other joints presented typical Poncet rheumatism, secondary to a small tuberculous focus in the lung. Cheesy masses were found in one bursa that had to be resected. No treatment proved effectual to ward off ankylosis in the girl of 12.

Unilateral Tuberculosis.—Mayer relates that of the 2,500 patients treated at the Turban sanatorium, other organs besides the lung were affected in 630 cases. The lesions were all on the same side in a little over 50 per cent.

Staining of Tubercle Bacilli.—Geschke gives the findings in parallel tests with five different staining methods in the sputum from 56 cases and from the pus in 40. All this evidence testifies, he asserts, that the Spengler method, or the modification of it by Jötten-Haarmann, is far more reliable than any other. We are liable to be misled by the unreliable Ziehl-Neelsen findings. The number of tubercle bacilli shown by the Ziehl-Neelsen in one visual field averaged only 4.67, in marked contrast to the 25.18 found with the Spengler technic in the same sputum. The Konrich method yielded only 9.26. The Ziehl-Neelsen twice was entirely negative when the other methods showed 2.8 and 0.65. In one case the Ziehl showed 19.7; the Spengler, 370.3. With the Spengler method, the ordinary carbolfuchsin stain is followed by picric acid-alcohol for two or three seconds after pouring off the fuchsin. Then 3 or 4 drops of a 15 per cent. solution of nitric acid for five seconds. This is then poured off, and the picric acid-alcohol is applied again until the sputum looks yellowish. Then wash in water; dry, etc. The picric acid solution is made with 2 gm. of picric acid in 40 c.c. of distilled water, allowed to stand for twenty-four hours; then it is filtered, and an equal volume of 96 per cent alcohol is added.

Zeitschrift für urologische Chirurgie, Berlin

July 12, 1922, **10.** H. Kümmell Festschrift

*Hydronephrosis. F. Oehlecker.—p. 1.
*Roentgenography of Destroyed Kidney and Ureter. F. Oehlecker.—p. 47.
*Nephrectomy in Pyelitis. Idem.—p. 52.
*Hydronephrosis in Half of Horse-Shoe Kidney. Idem.—p. 66.
Abscess in Bed of Displaced Kidney. Idem.—p. 74.
Own Urine and Own Serum Tests for Tuberculosis. E. Roedelius.—p. 77.
*Radiography of Kidney Calculi. H. Kümmell, Jr.—p. 92.
*Absorbable Tampons. H. Kümmell, Jr.—p. 98.
Congenital Diverticulum of Bladder; Five Cases. W. Anschütz.—p. 103.
Local Anesthesia in Urologic Surgery. M. Kappis.—p. 113.
*Scrotal Hypospadias. H. Flörcken.—p. 119.
Hydronephrosis from Vascular Anomaly. G. Ekehorn.—p. 122.
Calculus in Lower Ureter. M. Zondek.—p. 125.
*Intrarenal Aneurysms. P. Janssen.—p. 130.
Treatment of Nonmalignant Bladder Tumors. P. Wulff.—p. 137.
Prostatectomy at One Sitting. P. Wulff.—p. 140.
Cystic Degeneration of One Kidney. P. Wulff.—p. 142.
*Syphilitic Disease of Bladder. S. Faragó.—p. 144.
*Latent Stretching of Kidney Pelvis. O. Orth.—p. 150.
*After-Treatment of Prostatectomy. N. Kleiber.—p. 156.
Primary Suture of Bladder After Prostatectomy. F. Bonhoff.—p. 161.
Pathology of Neck of Bladder. O. Schwarz.—p. 167.
*Urine and Kidney Findings with Renal Tuberculosis. C. Steinthal.—p. 184.
Operative Treatment of Incontinence of Bladder. P. Frangenheim.—p. 190.
Calculus in Prostatic Urethra. E. Wehner.—p. 204.
Hypernephroma with Single Metastasis. F. Colmers.—p. 214.
The Prostatectomy Question. Guleke.—p. 219.
Necessity for Nephrectomy in Renal Tuberculosis. H. Nieden.—p. 230.
Exact Chromocystoscopy. Pflaumer.—p. 245.
Roentgen Findings with Surgical Kidney Disease. E. Joseph.—p. 251.
Ureter Calculi from Clinical Standpoint. H. v. Engelbrecht.—p. 265.
*Kidney Cancers from Clinical Standpoint. K. Scheele.—p. 283.
*Mishaps with Pyelography. H. Brütt.—p. 295.
War Wounds of the Bladder. J. P. Haberern.—p. 315.
Hydronephrosis of Kidney Pelvis. W. v. Gaza.—p. 318.
Vascular Complications with Hypernephroma. E. Rehn.—p. 326.
*Profuse Hemorrhage from the Kidney. H. Rubritius.—p. 333.
Pyelography from Anatomic Standpoint. M. Grauhan.—p. 343.
*After-Treatment with Suprapubic Prostatectomy. R. Roedelius.—p. 353.
*Hemorrhage After Nephrotomy. E. Rehn and P. Röttger.—p. 359.
Cystic Degeneration of the Kidney. E. Wossidlo.—p. 385.
Pseudo Tumors of Ureter Papilla. F. Necker and R. Paschkis.—p. 394.
*Local Treatment of Kidney Pelvis. K. Schramm.—p. 402.
Treatment of the Over-Distended Bladder. M. Waldschmidt.—p. 416.
*Pyelography. Lehmann.—p. 420.
*Diverticula of the Bladder. O. Kneise and R. Schulze.—p. 461.
*Papillary Tumors of Pelvis and Ureter. H. Brütt.—p. 500.
*Pneumoradiography of the Bladder. P. Rosenstein.—p. 511.
*Primary Carcinoma of Ureter. F. Suter.—p. 522.
Diagnosis of Small Concretions in Pelvis and Ureter. V. Blum.—p. 528.
List of Works Published from Kümmell's Service Since 1895. H. Brütt.—p. 537.

Hydronephrosis.—Oehlecker's study of the various forms of hydronephrosis is profusely illustrated, showing the various means devised for treatment. He insists that even large hydronephrotic kidneys are capable of recuperation to an astonishing extent. Plastic operations to correct the anomaly should be applied more extensively. It is important to keep patients under supervision after such operations as long as possible, and apply the functional tests. Pyelography in particular would be highly instructive, and with sodium bromid no mishaps need be feared.

Spontaneously Destroyed Kidney.—In the characteristic roentgenogram of a *kittniere,* the ureter cast a broad shadow also.

Nephrectomy with Pyelitis.—Oehlecker describes with illustrations his method of operating through an incision along the edge of the rectus, with two curving incisions in the peritoneum, overlapping and suturing the outer edges together. By this means the peritoneum is closed, and the operation on the kidney can then proceed entirely extraperitoneal. He drains through the lumbar region. This method was particularly advantageous in a case described in which he successfully operated for hydronephrosis in one half of a horse-shoe kidney.

Radiography of Kidney Calculi.—Kümmel placed transparent kidney calculi in rubber cots and then filled the cots with contrast suspensions for roentgenoscopy. His numerous experiments demonstrated that silver nitrate is the most effectual for this purpose. He suggests that injection into the kidney pelvis of a 2 per cent. solution of silver nitrate is justified in dubious cases, as this by impregnating the calculus may reveal previously invisible concretions. Inflation with air is also liable to enhance the visibility.

Absorbable Tampons.—Kümmell uses a substance resembling cotton or felt which is made from animal membranes in a catgut factory. They are reduced to fine fibers and threads, and these are packed to form pads and sheets, and these serve as tampons over which the skin can be sutured. The thrombokinase in them aids in the effect of the mechanical tampon, and the fibers swell up and cling closer the longer they lie in the tissues. This tampon comes to look finally like a thrombus, and is gradually resorbed in about six weeks. Its tissues seem to aid in repair. In urologic operations, it effectually combated capillary hemorrhage, and it always healed smoothly in place.

Scrotal Hypospadias.—Flörcken advises Rochet's technic when the Helferich method is not practicable. The urine should be diverted through the perineum as the first step.

Intrarenal Aneurysm.—Janssen remarks that in many cases of supposed essential hematuria an intrarenal aneurysm may have been responsible, as in two cases reported. In the first, the man succumbed to the losses of blood, although prompt nephrectomy arrested the hemorrhage. A sharp edged calculus had been removed a week before; the injury of the vessel from this had not been recognized at the time. In the other case, cardiorenal disease and high blood pressure had been the main factors. The symptoms had indicated suppuration around the kidney, but an exploratory operation the day before the rupture of the aneurysm had been negative.

Syphilitic Disease of Bladder.—In both of Faragó's two cases the symptoms resembled those of nervous pollakiuria only, but the cystoscope revealed minute gray nodules scattered over the bladder mucosa, each with a red halo but no ulceration. Nothing was known of infection with syphilis in either case, and there never had been other appreciable manifestations from it. In both cases all the symptoms and the nodules promptly subsided under mercury and arsenicals. Both patients were married women.

Latent Hydronephrosis.—In the five cases reported by Orth, the dilatation of the kidney pelvis escaped detection until it was revealed by the ureter catheter and pyelography. Four were clinically cured by draining the pelvis with a ureter catheter at regular intervals; it was sometimes left in place over night. The pelvis was treated further with silver nitrate. In the fifth case a plastic operation to reduce the size of the pelvis did not have much effect; nephrectomy would have been better.

After Prostatectomy.—Kleiber wards off bleeding from the raw bed of the prostate by drawing a tampon down into this bed with a string held in a Bellocq cannula, introduced from the urethra below, the tip emerging in the suprapubic incision. This does not interfere with the drainage of urine through the incision. The only drawback is the tenesmus induced by the pressure from the tampon; but this can be combated with a sedative suppository. He ascribes epididymitis to infection from the retention catheter, and for this reason postpones its use for a week, using smaller and smaller drains in the meanwhile.

Renal Tuberculosis.—Steinthal asserts that our present means for determining tuberculous disease of the kidney are so reliable that we can rely implicitly on positive findings even when an exploratory operation fails to confirm them. In one such case he slit the kidney to make sure, and even this was negative. Necropsy revealed that a tuberculous focus had escaped the nephrotomy, and miliary tuberculosis soon developed. Although the kidney seemed sound in Stöckel's case, he trusted to the positive bacteriologic and other findings, and removed the kidney. Only one minute focus was found. In Braatz' case, he sutured the apparently sound kidney after nephrotomy, and nephrectomy four years later revealed both old and recent foci.

Kidney Cancers.—Scheele remarks that the irregular and apparently causeless appearance and subsidence of hematuria are suggestive of malignant disease, as also when it follows palpation of the kidney. Symptomatic varicocele was never encountered in his cases, but in one case there had been recurring fever for five years, with intervals of a few months at first, the fever finally becoming continuous, with evening rises. Tuberculosis and later slow endocarditis had been the diagnosis at first. The tumor was inoperable when discovered. Fever may thus be the first and only symptom for a time. In one case the knobby renal tumor was mistaken for the spleen. The weight of the tumor may make the kidney sag. The lungs and bones are the common site of the metastases, but he had a patient with metastasis in fingers and brow after removal of the primary tumor. Metastasis is often single, which fact may encourage operative relief.

Mishaps with Pyelography.—In the three cases described by Brütt collargol had been used, and some obstruction to the outflow had induced retention and distention of the pelvis. In one case at a later operation on the kidney the collargol infarct could be studied, and the infiltration of the kidney substance with the silver. He now uses sodium bromid exclusively in pyelography, in a 20 or 30 per cent. solution. He had one disagreeable experience with a 10 per cent. solution of potassium iodid, and likewise with a 13.5 per cent. solution of sodium iodid. In the latter case there were not only severe general disturbances in the young woman, but also transient local damage of the kidneys. The pyelography had been applied on both sides in this case.

Profuse Hemorrhages from the Kidney.—The kidney was finally removed to put an end to the recurring hemorrhages without apparent cause. An almost microscopic hypernephroma close to a sclerotic vessel explained the hemorrhage.

Treatment After Prostatectomy.—Roedelius applies drip irrigation with hot water or saline before and after suprapubic prostatectomy. This does away with the necessity for tamponing and wards off infection of the bladder. Sometimes the suture threads for closing the bladder and abdominal wall were passed during the operation, but they were not all tied until after two or three days of this thorough flushing of the bladder and urethra. The exact technic is shown in three illustrations.

Hemorrhage After Nephrotomy.—Rehn and Röttger refer to the hemorrhage which follows the nephrotomy in from two to twenty days or later. They explain it as the result of the unphysiological mechanical conditions in the kidney. The organ had been drawn out and its anchoring and circulation disturbed for the nephrotomy. When it is merely pushed back into its normal place, these disturbances persist. By carefully replacing and fastening the kidney, restoring the physiologic mechanical conditions and preventing the loosened organ from sagging or twisting, this after-hemorrhage need not be feared, if free outflow of urine is provided for. Obstruction of the ureter from kinking or clots is liable to induce such pressure as to bring on hemorrhage from the healing nephrotomy tissues. These premises were sustained by experiments on animals and clinical experiences in ten cases of nephrotomy, in the last two years, described in detail. They fasten the inferior pole of the kidney to the twelfth rib and by this means, they say, render nephrotomy an entirely harmless procedure.

Rinsing Out the Kidney Pelvis.—Schramm's experiments on pigs' kidneys confirmed that the kidney tissue is liable to be injured by any pressure. A pressure of only 30 cm. of water is enough to force a fluid up close to the capsule. In filling the kidney pelvis with any fluid, it must never be forcibly injected. He utilizes gravity by raising the pelvis a little, and leaves the fluid in the pelvis for half an hour. Days of restriction of fluids allow more efficient action of the antiseptics taken internally, and take advantage of the disinfecting action of concentrated urine, while occasional days of drinking up to 2 or 3 liters flush out the urinary system. In one case the ureter catheter twisted into a knot.

Pyelography.—Lehmann discusses the possible dangers of pyelography and means to avoid them. He warns to use a catheter not larger than 5 or 6 Charrière and approves of raising the pelvis a little. Some of his experimental researches and clinical experiences are described, with twenty-six illustrations. He insists that pyelography is no more dangerous than catheterization of the ureter alone.

Congenital Diverticulum of the Bladder.—A total of fifty-two cases are known treated by a radical operation, with recovery in all but four. The diverticulum in the majority of cases is not congenital as supposed, but acquired, from some hindrance to the outflow of urine. Some muscular fold or depression starts the process.

Villous Tumors in Kidney Pelvis or Ureter.—Brütt adds two more cases to the three he has previously published. A malignant tendency is frequently evident, an apparently harmless polyp proving to be cancer later or entailing extensive papillomatosis of the urinary apparatus.

Pneumoradiography of the Bladder.—Rosenstein expatiates on the instructive findings with a combination of pneumoradiography and filling the bladder with a contrast suspension.

Carcinoma of the Ureter.—Suter describes a case of primary cancer of the ureter in a man of 65 and a woman of 64. The woman has been apparently cured during the year to date since the ureter was resected. The cancer was inoperable in the man. This brings to twenty-three the number on record.

Zentralblatt für Gynäkologie, Leipzig

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Repeated Tubal Pregnancy on Same Side. W. Sigwart.—p. 690.
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Torsion of Tube, with Hematoma; Its Etiology. A. Hansen.—p. 707.
A Case of Uterine Myoma with Extreme Ascites. O. Dunkhase.—p. 709.

The Birth Act and the Constitutional Element in the Genesis of Albuminuria in the New-Born.—Lindig recalls that the kidneys of the new-born have been shown, during the first few days after birth, to present almost regularly a certain degree of permeability for the albumins of the blood plasma. The general opinion has been that the principal cause for the phenomenon lay in the effect of the mechanical strain of the birth act on the fetus. Lindig's observation leads him to ascribe considerable importance to the constitutional factor. It is hard to explain otherwise why infants who are quickly and easily born sometimes present an intensive and long enduring albuminuria.

Polska Gazeta Lekarska, Cracow, Lodz, Lwow, Vilna, Warsaw

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*Organization of Hospitals and the Ways to Fight Cancer. B. Wejnert.—p. 459.

Extrapyramidal Innervation.—Orzechowski gives minute differences, which are very easy to distinguish, in examination of the patient, between pyramidal paralysis and extrapyramidal paralysis, or paralysis which results from pathology of other than the pyramidal tract. Differential diagnosis tables are given for these two types of paralysis, and also anatomical charts.

Organization of Hospitals and the Ways to Fight Cancer.—B. Wejnert gives statistical tables showing the steady increase of mortality from cancer in different parts of the world, while no extra means are prepared in hospitals to take care of these patients. According to the statistical data of Reichman, based on statistics from England, Germany, Holland and Spain, there were on a given day 104,550 cases of cancer in the whole world, and 300,000 die from cancer each year in Europe alone. Out of forty persons over the age of 40, ten have cancerous pathology in their system.

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District of Columbia, Med. Soc. of	A. W. Boswell, Washington	C. B. Conklin, Med. Science Bldg., Washington	Washington, Jan. 8, 1923
Florida Medical Association	L. M. Anderson, Lake City	Graham E. Henson, Jacksonville	Jacksonville, May, 1923
Georgia, Medical Association of	J. M. Smith, Valdosta	Allen H. Bunce, Healey Bldg., Atlanta	Savannah, May 4-6, 1923
Hawaii, Medical Society of	Grover A. Batten, Honolulu	F. J. Pinkerton, 45-46 Young Bldg., Honolulu.	Honolulu, Nov. 19-20, 1922
Idaho State Medical Association	John R. Gray, St. Anthony	E. E. Laubaugh, Overland Bldg., Boise	Idaho Falls, 1923
Illinois State Medical Society	E. P. Sloan, Bloomington	W. D. Chapman, Silvis	Decatur, May 15-17, 1923
Indiana State Medical Association	W. R. Davidson, Evansville	Chas. N. Combs, Terre Haute	
Iowa State Medical Society	Charles J. Saunders, Fort Dodge.	T. B. Throckmorton, Bk. Tr. Bl., Des Moines.	Ottumwa, May 9-11, 1923
Isthmian Canal Zone, Med. Assn. of	C. D. Briscoe, Ancon	L. S. Chapman, Ancon Hospital, Ancon	Ancon, Dec. 15, 1922
Kansas Medical Society	Middleton L. Perry, Topeka	J. F. Hassig, 800 Minnesota Ave., Kansas City	Kansas City, May 2-4. 1923
Kentucky State Medical Association	J. A. Stucky, Lexington	A. T. McCormack, 532 W. Main St., Louisville	Paducah, Oct. 16-19, 1922
Louisiana State Medical Society	Paul J. Gelpi, New Orleans	P. T. Talbot, 1551 Canal St., New Orleans	N. Orleans, April 10-12, '23
Maine Medical Association	Langdon T. Snipe, Bath	B. L. Bryant, 265 Hammond St., Bangor	Houlton, June 12-14, 1923
Maryland, Med. and Chir. Faculty of	Herbert Harlan, Baltimore	J. A. Chatard, 1211 Cathedral St., Baltimore	Baltimore, April 24-26, 1923
Massachusetts Medical Society	John W. Bartol, Boston	W. L. Burrage, 42 Eliot St., Jamaica Plain, Boston	Pittsfield, June 12-13, 1923
Michigan State Medical Society	W. T. Dodge, Big Rapids	F. C. Warnshuis, 410 Powers Bldg., Gr. Rapids	
Minnesota State Medical Assn	James Frank Corbett, Minneapolis.	Carl B. Drake, Central Bank Bldg., St. Paul	Minneapolis, Oct. 12-14, '22
Mississippi State Medical Assn	S. W. Johnston, Vicksburg	T. M. Dye, Clarksdale	Jackson, May 8-9, 1923
Missouri State Medical Association	Arthur R. McComas, Sturgeon	E. J. Goodwin, 3529 Pine St., St. Louis	Joplin, May, 1923
Montana, Medical Association of	H. T. Rhoads, Choteau	E. G. Balsam, 222 Hart-Albin Bldg., Billings	Butte, 1923
Nebraska State Medical Association.	Benjamin F. Bailey, Lincoln	R. B. Adams, 1013 Terminal Bldg., Lincoln	Lincoln, 1923
Nevada State Medical Association	R. A. Bowdle, East Ely	Horace J. Brown, Goldfield	Reno, Oct. 6-7, 1922
New Hampshire Medical Society	Herbert L. Smith, Nashua	D. E. Sullivan, 7 N. State St., Concord	Concord, May 23-24, 1923
New Jersey, Medical Society of	James Hunter, Jr., Westville	William J. Chandler, South Orange	AtlanticCity,June21-23,'23
New Mexico Medical Society	Harry A. Miller, Clovis	J. W. Elder S. F. H., Albuquerque	
New York, Med. Soc. of the State of	Arthur W. Booth, Elmira	Edward L. Hunt, 17 W. 43d St., New York	
N. Carolina, Med. Soc. of the State of	John Wesley Long, Greensboro	L. B. McBrayer, Sanatorium	Asheville, April 17-19, 1923
North Dakota State Med. Assn	Eric P. Quain, Bismarck	H. J. Rowe, Lisbon	Grand Forks, 1923
Ohio State Medical Association	Robert Carothers, Cincinnati	Mr. D. K. Martin. Ex. Sec., 131 E. State St., Columbus.	Dayton, May 1-3, 1923
Oklahoma State Medical Association	McLain Rogers, Clinton	C. A. Thompson, 508 Barnes Bldg., Muskogee.	Tulsa, May, 1923
Oregon State Medical Association.	Clarence J. McCusker, Portland	T. Homer Coffen, Journal Bldg., Portland	
Pennsylvania, Med. Soc. of State of	Frank G. Hartman, Lancaster	W. F. Donaldson, Jenkins Arcade, Pittsburgh.	Scranton, Oct. 2-5, 1922
Philippine Islands Medical Assn	Henry H. Steinmetz, Manila	I. Concepcion, Coll. of Med. & Surg., Manila	
Porto Rico, Med. Assn. of	P. Gutierrez Ingaravidez, San Juan	Augustin R. Laugier, San Juan	Ponce, Dec. 15-17, 1922
Rhode Island Medical Society	Frank E. Peckham, Providence	J. W. Leech, 111 Broad St., Providence	Providence, June 7, 1923
South Carolina Medical Association.	Charles F. Williams, Columbia	Edgar A. Hines, Seneca	Charleston, Apr. 17-19, 1923
South Dakota State Med. Assn	Gilbert G. Cottam, Sioux Falls	R. D. Alway, 423 S. Lincoln St., Aberdeen	Watertown, May, 1923
Tennessee State Medical Assn	Holland M. Tigert, Nashville	Larkin Smith, 154 Eighth Ave., N., Nasbville.	Nashville, April 10-12, '23
Texas, State Medical Association of.	Joseph D. Becton, Greenville	H. Taylor, 207½ W. Eleventh St., Fort Worth	Ft. Worth, May, 1923
Utah State Medical Association	Augustus C. Behle, Salt Lake City	Wm. L. Rich, Boston Bldg., Salt Lake City	
Vermont State Medical Society	F. W. Sears, Burlington	W. G. Ricker, St. Johnsbury	Burlington, Oct. 12-13, 1922
Virginia, Medical Society of	Edward C. S. Taliaferro, Norfolk.	Mr. G. H. Winfrey, 104½ W. Grace St., Richmond	Norfolk, Oct. 31-Nov. 3, '22
Washington State Medical Assn	W. D. Read, Tacoma	C. H. Thomson, 508 Cobb Bldg., Seattle	
West Virginia State Med. Assn	John N. Simpson, Morgantown	Robert A. Ashworth, Moundsville	Beckley, 1923
Wisconsin, State Med. Society of	Sidney S. Hall, Ripon	Rock Sleyster, Wauwatosa	
Wyoming State Medical Society	G. A. Fox, Cheyenne	Earl Whedon, Sheridan	Laramie, June 19-21, 1923

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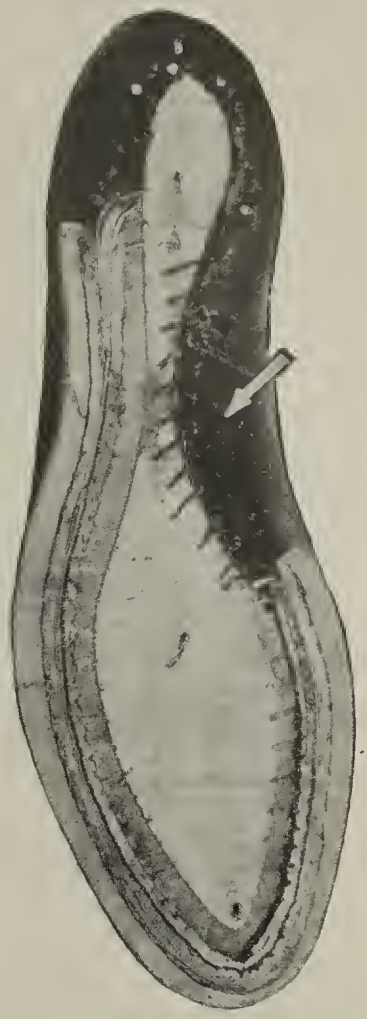

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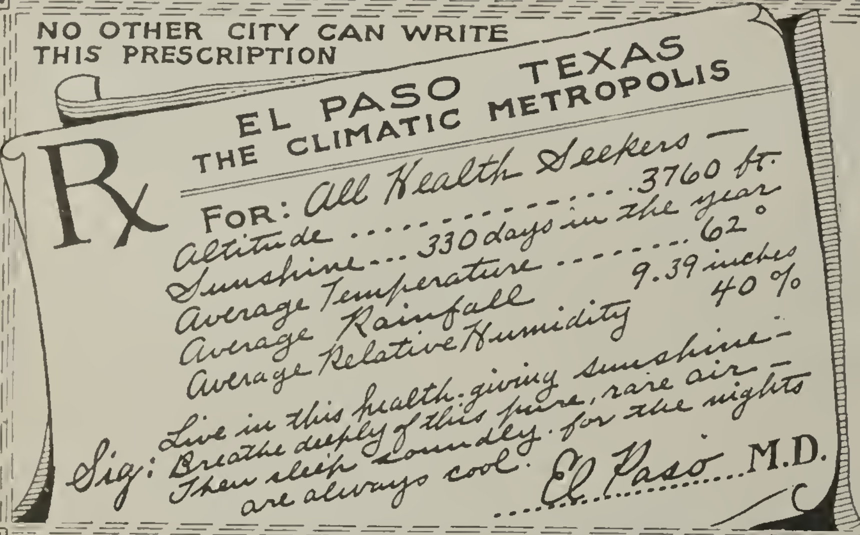

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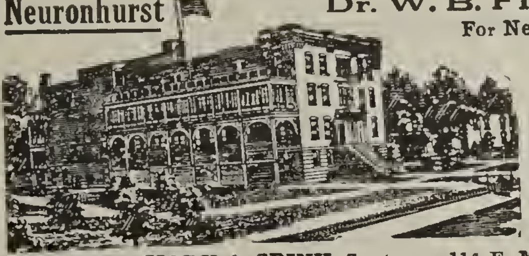

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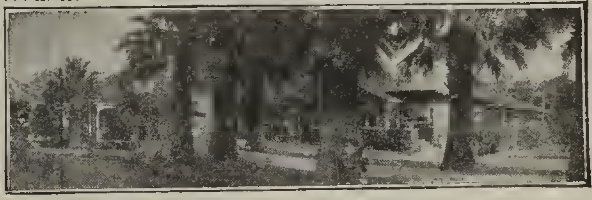

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PRICES POSTPAID: Pamphlets Nos. 1 to IX Inc., single copy, 10 cents; No. X, 25 cents. One set of 10 pamphlets, 90 cents.

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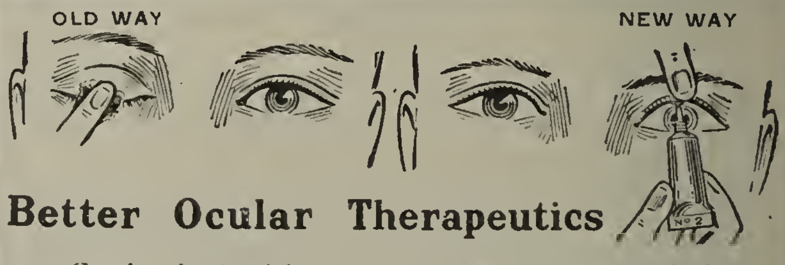

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WITH AMPOULES DISTILLED WATER

THE Dermatological Research Laboratories were first in the United States to produce Arsphenamine. Due to the systematic efforts of our research staff, with laboratory facilities and personnel adapted to intensive concentration largely in this particular field, we are now producing an **ARSPHENAMINE** and **NEO-ARSPHENAMINE** of Great Purity.

For the convenience of physicians who have not ready access to reliably distilled sterile water, we supply a bulk package (illustrated) containing 10 ampoules of any one dosage of neoarsphenamine with 10 ampoules of chemically pure sterile water, (free from organic matter). Solution may be effected in the ampoule and syringe.

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(introduced as Novatophan)

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TOLYSIN replaces the salicylates in the treatment of Rheumatism, Gout, Arthritis, Sciatica, Neuritis, Lumbago, Neuralgia and similar conditions.

TOLYSIN is inert in the stomach and produces no gastro-intestinal disturbances.

TOLYSIN Tablets, 5 grains each, in boxes of 20 and 50 tablets, usually prescribed two to three tablets with a glassful of water, three or four times daily.

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Pharmaceutical Division
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Not a substitute for, but a potent solution of Arsphenamine, eliminating the dangers of oxidation and improper alkalinization; avoiding the necessity for costly apparatus and reagents; and obviating the loss of time spent in preparing solutions extemporaneously.

A scientifically prepared and accurately alkalinized solution of Arsphenamine Squibb prepared under license of the U. S. Public Health Service and accepted by the Council on Pharmacy and Chemistry, A. M. A.

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For Local and General
ANESTHESIA

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(Pure Chloride of Ethyl)

In automatically closing tubes
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Widely used for many years

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THE original vaccination wound should be made as small as possible to guard against infection. Years of experience have proved that the correct way to make a vaccination against smallpox is by using a *steel needle point*, and the most approved location is the upper arm in the region of the depression formed by the insertion of the deltoid muscle.

The United States Public Health Service recommends the multiple *puncture method* as one of three methods calculated to secure best results.

> "A sterile needle is held nearly parallel with the skin and the point pressed through the drop of virus so as to make about six oblique scratches or small punctures, through the epidermis to the cutis, but not deep enough to draw blood. The pucture should be confined to an area not more than one-eighth inch in diameter."—(*Public Health Reports*, Nov. 30, 1917.)

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1. Surest safeguard against infection—there is no open wound.
2. Leaves practically no scar—hence has an added advantage when vaccinating girls.
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Vaccine Virus—Lederle—is supplied in *glass capillary tubes* with rubber bulb and a sterile needle for each vaccination.

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The purity, reliability, constant unvarying quality and special properties of **Packer's Tar Soap** have given it unique value for toilet, hygienic or therapeutic use. It is pleasant to use, and is unsurpassed for cleansing purposes.

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In many Skin Diseases as a preliminary and an adjunct to treatment.

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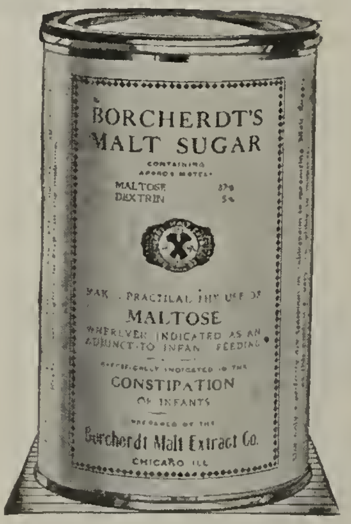

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Requires little if any digestion; hence, its ready tolerance by weak, mal-nourished infants as well as those in normal tone. High percentage of maltose enables quick and definite adjustment to overcome constipation. Send for samples, literature and analysis.

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Of recognized value in diet of marasmic or mal-nourished infants. Typical Malt Soup results are obtained from this product. Usual weight increase; change in character of stools and generally satisfactory improvement. Samples and descriptive literature gladly sent on request.

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(Continued on page 22)

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A Page of ADLETS Classified for Easy Reading

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The Winkley Adjustable Double Slip Socket Leg warranted not to chafe the stump. Perfect fit guaranteed from cast and measurements without patient leaving home. Send for large illus. catalogue. Minneapolis.

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3¼ inches in diameter.
Ready for any car.
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$1.50.
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Since 1911
Prompt—Accurate—Dependable
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Fig Meat Makes Good, Healthful Desserts
Write for recipes and prices. The value of figs in the diet is well established. For well people or sick people, cooked or frozen fig desserts.
California Peach and Fig Growers, Fresno, Calif.

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A strictly private Maternity Hospital for the care and protection of unfortunate women. Babies adopted or boarded. Address Mrs. J. H. Sweeney, Supt., 1230 Second Ave., So., Nashville, Tenn. Phone Main 3791.

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POSTURE BEDS GIVE VARIOUS POSITIONS
A distinct aid to the patient and doctor. Easily adjustable—dependably stable. Write for catalog showing advantages. Smith & Davis, St. Louis.

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Let us show you the advantages of these beds for your favorite hospital. Lessen the strain on patients and hasten recovery. Write.
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INDIAN MOOSE-HIDE MOCCASINS
in lace or slipper style for outdoors or indoors. Send outlined tracing of stockinged foot for size. Prices, delivered — men's (sizes 6-11), $4.75; boys' and women's (sizes 2-6), $3.75; youths' (11-1), $2.75; children's (7-10), $1.75. Send cash with order. Sizes exchanged, no extra charge. Write for free catalog. Metz & Schloerb, 120 Main St., Oshkosh, Wis.

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DR. WEST'S TOOTH BRUSH

The New Tooth Brush that really cleans inside, outside and between the teeth. Shaped to fit the mouth with graduated bristles and curved handle. Endorsed by leading dentists, this tooth brush starts children the right way in the care of their teeth. Made in 3 sizes, for adults, youths and children. Let us send you a complimentary brush to prove our claims.
Western Company, 402 Randolph Street, Chicago, Ill.

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Professional Stationery Printed to Order
Hammermill Bond—you know that is good quality—100 letterheads and 100 envelopes printed—postpaid, $1.25. Office or home address.
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make diagnostic or pathological records accurate—graphic—simple. One imprint can clearly show what a page of notes might leave obscured. Catalog on request.
The Barton Mfg. Co., 89 Duane St., New York.

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Beautiful, Everlasting Solid Bronze Signs of finest quality. Especially designed for Doctors, Dentists and Professional People who demand the very best. Illustrated leaflet, with prices, mailed on request. The Ellison Bronze Co., 1875 Main St., Buffalo, N. Y.

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CASTLE STERILIZERS CANNOT BOIL DRY—Automatic control breaks the current before the water is all gone. Ask for catalogue of Sterilizers for Physicians, Hospitals and Laboratories. WILMOT CASTLE COMPANY, 1167 University Ave., Rochester, N. Y.

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Kimpton-Brown & Vincent tubes for blood transfusion are always reliable. Buy through your dealer or order direct from us. Further details sent in Bulletin No. 1. Macalaster Bicknell Company, Cambridge, Mass.

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Tonics and Sedatives

TYPES IV

THE ORATOR.—He arises at the meeting slowly and profoundly, elevating his seventy-five pounds of embonpoint before him. He smooths back what in the old days would have been called his "cowlick." His voice is deep. He mentions his trip abroad, his hundreds of cases, the men who called him in consultation, the fact that it is a large evening and a wonderful paper; his contribution to the discussion is twelve hundred words.

THE SCIENTIFIC DISCUSSION. — He leaps to his feet; he states emphatically two proved facts; he sits down.

THE USUAL DISCUSSION. — I would like to ask the doctor if, in his opinion, — — — —? We have found — — — —. In one of my cases — — — —.

◆

The Ray Shows Everything

Spokane (Wash.) Chronicle

COLVILLE, Wash., Sept. 16. — (Special.)—Lee Thomas, a junior in the high school, is in the Mt. Carmel hospital as the result of being hit by an auto while riding his bicycle. He was trying to dodge a dog when struck by a Studebaker car driven by a woman whom he did not recognize. Dr. W. A. Olds took an X-ray of his head and found a broken ear drum.

◆

A GOOD DEED A DAY

"So you do a good deed every day?" questioned the old lady of the very young Boy Scout.

"Yes, ma'am," he answered earnestly. "Yesterday I visited my aunt in the country and she was very glad. Today I came back home, and she was very glad again."—*Pickup.*

◆

Ye Country Ed!

Rogers (Ark.) Democrat

Lark Cloe, Sr., who had been suffering from poison ivy was taken quite ill Monday. He fell in his yard and help was summoned, who carried him into the house. Dr. Lindsey was called and soon relieved his intense suffering. Mr. Cloe caught poison ivy when he went in swimming and the poison went into his system to such an extent that it stopped indigestion. He is improved at this writing, however.—Centerton Correspondent to the Benton County Record.

We would think that Mr. Cloe would feel much improved if he had been suffering from indigestion and the poison ivy stopped it. It is our first time to hear that poison ivy was good for anything.

◆

ANOTHER LIMERICK

THE LOST VOICE

There was a young girl in the choir,
Whose voice rose hoir and hoir,
Till it reached such a height,
It was clear out of sight,
And they found it next day in the spoir.

◆

AND A RIDDLE

Question. — What was the largest island in the world before the discovery of Australia?

Answer.—Australia!

◆

Electrical Phenomena

Chicago Evening Post

WENATCHEE, Wash., Sept. 2.—A human circuit formed by members of the family holding hands at the direction of a physician drew electric gradually from the body of Henry Besel, after he and his father, John Besel, were struck by lightning on their ranch at Waterville, twenty miles north of here, yesterday. Three horses were killed by the stroke and the Besels were severely burned.

When a thunderstorm arose the father and son stepped to the heads of the horses to quiet them, each holding three of the animals. Two horses on one side and one on the other were killed.

When the doctor got a shock on taking hold on the pulse of Henry Besel, 16, he ordered formation of the human circuit.

(Continued on page 24)

(Continued from page 20)

WANTED — ASSISTANT SURGEON FOR mining property in South America; two or three year contract; high altitude; good living condition; temperate climate. Add. 4557 B, % AMA.

WANTED—ASSISTANT PHYSICIAN AT Cherokee State Hospital; male, single; $1,500 per year and maintenance; larger salary paid if experience in mental diseases can be shown; must be available at once. Add. George Donohoe, Superintendent Cherokee State Hospital, Cherokee, Iowa.★ B

WANTED — ASSISTANT FOR GENERAL practice in mining town, southwestern Pennsylvania; salary $200 per month, with room and extras, amounting to $50 per month or better; Pennsylvania license; single man; write full particulars regarding qualifications and recommendations first letter. Add. 4577 B, % AMA.

WANTED — ASSISTANT PHYSICIAN AT Bangor State Hospital, Bangor, Maine; single man; salary $1,500 to $1,800 per annum and maintenance; state age, qualifications, time of graduation and medical school. Add. Carl J. Hedin, Supt., Bangor, Maine. B

WANTED — PATHOLOGIST, EXPERIenced in hospital work, in a 300-bed California hospital; give full statement of training, experience and references first letter. Add. 4534 B, % AMA.★

WANTED — ASSISTANT PHYSICIAN (single) for mining practice in Upper Peninsula of Michigan; good salary; must have Michigan license; quarters and transportation in practice included; surgical experience desirable. Add. 4537 B, % AMA.

WANTED—RESIDENT PHYSICIAN (graduate), general hospital, 40 beds; salary and maintenance; references required. Add. Superintendent, Northeastern Hospital, Allegheny and Tulip St., Philadelphia, Pa. B

WANTED—WOMAN ASSISTANT PHYSIcian at Home for Feeble-Minded; salary $1,500 per year and maintenance; give full particulars in first letter. Write Superintendent, Box 340, Chippewa Falls, Wis. B

WANTED—ASSISTANT AT ONCE—MINing contract, general practice, northern Michigan; salary $150 a month and room to start; everything furnished; must be single Prostestant, under 30; give full particulars in first letter. Add. 4526 B, % AMA.

WANTED — INSTITUTION NEAR NEW York, exceptionally equipped for metabolic investigations, offers clinical or laboratory positions for young men with adequate chemical or pathological training; salary $50 to $150 monthly, with living. Add. 4312 B, % AMA.

WANTED—ASSISTANT RESIDENT PHYsician and surgeon, Mary McClellan Hospital, Cambridge, N. Y.; please state experience, qualifications and references, religion, age, married or single. B

WANTED—PHYSICIAN TO ASSIST BUSY physician and surgeon; capable of taking charge of laboratory and x-ray and administer anesthetics; give in detail age, nationality, date and place of graduation, experience, references and salary expected. Add. Columbia Hospital, Columbia, Miss. B

WANTED—ASSISTANT—110-BED TUBERculosis sanatorium middle west; hospital modern and thoroughly equipped to do scientific work; experience in tuberculosis not necessary, but applicant must be thoroughly qualified otherwise; salary $1,800 to begin; details with reference first letter; also recent snap shot. Add. 4449 B, % AMA.

WANTED — ASSISTANT MALE PHYSIcian, in state institution for feeble-minded, under 35; salary, $2,000 to $2,400 and maintenance; replying give age, nationality and experience; photograph desirable. Add. 4427 B, % AMA.

WANTED—A YOUNG MAN, SINGLE, AS an assistant physician in a large hospital for the insane in Pennsylvania; must be a graduate of A1 medical school, have good appearance, refined, good health, of good habits and come well recommended. Add. 4381 B, % AMA.

PHYSICIANS WANTED

WANTED—LADY PHYSICIAN TO DO REfraction and assist with general work. Add. 4495 C, % AMA.

(Continued on page 24)

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Collection of blood for the Wassermann test is a simple procedure with our sterile containers. Every specimen painstakingly cared for by us until report goes out to you. All tests performed by specialists. Containers with complete instructions sent on request.

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SANBORN VITAL CAPACITY SPIROMETER

The physician's diagnosis

in lung and heart cases is more accurate if he uses a Sanborn Spirometer, because it gives him additional facts.

It is equally useful in guiding the after treatment.

Full Details in Circular A 100

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(Tonics and Sedatives Continued)

DR. PEPYS' DIARY

Sept. 14.—This day to see a collection of medical books of ye old masters—Galen, Hippocrates, Eustachius, Boerhaave, Bartholinus Paulus Aeginus, Rhazes, Celsus, Morgagni, Fracastorius, Sydenham, all of them—ye same collected by a scholarly physician in a small town. Did marvel at ye urge which compelled ye collection. Truly in ye midst of Main Street one findeth ever and anon a jewel of ye purest water. Reading also in "Babbitt," ye latest tale of Lewis, and did bethink me how ye old physician might have called in ye successful men of ye town to show them his treasures and how they must have murmured, "Surely ye same is fine, but where is ye deck, for we would have a game of piquet."

Sept. 15.—This day with a goodly crew to ye town of Berkey and Sligh to play at golf. Come also three from ye home of ye vegetarians and among ye doctors ye best to be seen; so did cogitate that ye physicians who work on ye chest do always blow in ahead of ye others; then, too, one who studieth ye heart did beat it at a marvelous rate and ye intestinal specialist did drive ye ball in wonderful coils; afterward ye chief surgeon of ye town of sticks and velour hath shown ye marvels of ye city. Best of all, to see that even ye laundryman and ye wood polishers living each in his own home and ye same not so costly, either; perhaps as a factor of land ye guide was a good surgeon.

Sept. 18.—Now back to ye office and ye first signs of cold weather bring in ye snufflers and running noses. So to all did give ye tried old remedies. Dr. Smith doth inject all sorts of vaccines which indeed a fine thing for him, but how doth he know ye causative organism? He may say "streptococcus," but ye bacteriologists have shown some several hundred varieties of this member of ye chain gang. Indeed, ye idea worse than seeking a club to a bobtail flush, for there are thirteen clubs in fifty-two cards, but only one streptococcus out of four hundred types.

◆

Oh! Say! Can You See?

Pharmacal Advance

As can be readily seen, hard, sibilant masses or bulky passages have a tendency to stretch the flabby muscles of the floor of the pelvis, consequently our treatment must begin with a thorough cleaning out of the intestinal tract.

◆

THE WORST WHEEZE

Anxious—Frank, you're wheezing dreadfully. Is it asthma?

Frank—Nope. I'm all out breath trying to catch up with my sleep.—*Notre Dame Juggler.*

◆

Let Joy Be Unconfined

Ft. Worth Star Telegram

IRISH NATIONALS TAKE CORK FROM IRREGULARS

◆

Where Was the Appendix?

Abbott's Hints

Dr. A. H. Staples, of San Mateo, Calif., recently had to deal with a pyogenic infection after an operation for appendicitis. It was a bad pus case. As the doctor said, "the smell filled my hospital." He applied a 5 per cent. Dichloramine-T solution to the appendix and adjacent tissues. The result was that the smell disappeared within twenty-four hours.

◆

Health Facts for the Public

Answer in San Francisco Bulletin

Question—Why is cigarette smoking so injurious to an athlete's wind? B. K.

Answer—The nicotine clogs the lung passages lessening their capacity.

◆

The Scientific Facts

Hamlet (N. C.) News

Hamlet was shocked Saturday afternoon by the news that Mrs. F—— had passed from us. Mrs. F—— had not been well for three or four months, suffering with hyperemis gravedorum. Her death seems particularly sad in that she had been married only four weeks.

(Continued on page 26)

(Continued from page 22)

PHYSICIANS WANTED—DOCTORS wanted immediately for salaried appointments in hospitals, sanatoriums, industrial plants, railroad companies, mining and contract practice. Apply "The Medical Echo," 30 Cowdrey Ave., East Lynn, Mass.

WANTED—PHYSICIAN—ONE WHO CAN serve a thriving village and rich farming community, comprising German, Holland and English nationalities; good school, 2 churches, railroad. For further information write H. H. Born, Village Clerk, Fairwater, Wis. C

WANTED — DOCTOR TO TAKE OVER $9,000 practice in Pennsylvania manufacturing city of 50,000; property 7-room house, gas, electricity, hot water heating system; full office equipment; price, $8,500; unusual opportunity on account of death of physician. Add. 4551 C, % AMA.

WANTED—MAN TO TAKE CHARGE OF large surgical practice; Indiana; must be A1 man, able to do first-class abdominal surgery; unusually good opportunity; taking extended vacation. Add. 4579 C, % AMA.

WANTED — WOMAN PHYSICIAN FOR position as resident physician in state tuberculosis sanatorium in the northwest; must have good personality with knowledge of laboratory work and physical diagnosis. Add. 4535 C, % AMA.

WANTED—PHYSICIAN FOR NORTHERN Minnesota thriving and modern town of 1,000 mixed population; excellent territory; practice worth $5,000 to $10,000; state years of practice, single or married; write at once. Add. 4536 C, % AMA.

WANTED — EXPERIENCED DOCTOR, married; in good town of 300; center of thickly populated government irrigated project of 30,000 acres; good office and living rooms available. W. V. A. Dodds, Secretary Commercial Club, Worden, Mont. C

WANTED—AT ONCE—RESIDENT PHYSICIANS; salary to start $160 a month plus maintenance, and junior resident physicians, salary to start $115 a month plus maintenance; should have experience in psychiatric work; also interns, recent graduates, no experience necessary; large state hospital, one hour from New York City; active medical and surgical service; new psychiatric reception building, 400 beds; new staff house; opportunity for advancement on merit; apply by letter, enclosing references, including pastor's, and stating specifically experience and college education. Marcus A. Curry, Superintendent, Greystone Park, N. J. C

WANTED — GRADUATE IN MEDICINE, single, who has completed general hospital internship; for one year's service, junior assistant, in a hospital for mental diseases in an eastern state; $150 per month and maintenance. Add. 4502 C, % AMA.★

WANTED—CLASS A PHYSICIANS, PATHologists, laboratory technicians for salaried positions; internists, assistants, surgeons, hospitals, sanatoriums, contract, industrial, partnership, group, appointments; if you desire a permanent position anywhere in United States, send for application form. Aznoe's National Physicians' Exchange, 30 N. Michigan Ave., Chicago. C

WANTED — MALE PHYSICIAN WITH good psychiatric training and experience for responsible position in large eastern hospital; good salary and maintenance; please give full particulars and references in first letter. Add. 4475 C, % AMA.

INTERNS WANTED

Advertisements marked with a star (★) are of hospitals on the list of those approved for intern training by the Council on Medical Education & Hospitals of the A. M. A.

WANTED—THREE INTERNS AT ONCE in 200-bed general hospital, located in manufacturing city of 125,000 population; graduates of Class A schools desired; salary $25 per month and maintenance. Apply Dr. J. B. Howe, 932 Peach St., Erie, Pa., president of staff of St. Vincent's Hospital.★ D

WANTED—INTERN FOR EYE AND EAR hospital of 40 beds; immediate service; 18-month term; must have working knowledge of bacteriology and desire for study and work. Dr. C. B. Meding, 113 East 54th St., New York City. D

(Continued on page 26)

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$1335

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To Order: State sex of patient; fracture; which limb; length of perineum to heel; circumference of chest, hips, and thigh at perineum. Wire and mail orders expressed on receipt, adjusted to fit, with complete directions for application.

Specify this modern splint and our patented

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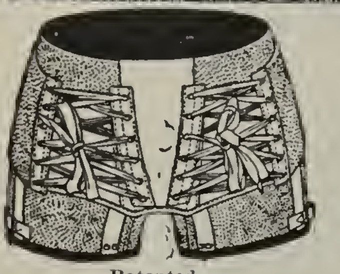

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MONEY'S WORTH
—or just a pair of gloves for your money? The difference is in the number of times you can wear them and the satisfaction you get.

When you buy KINNEY'S Surgeons' Gloves you are sure of value for what you pay. Perfect fit and repeated sterilizations assured.

	6 pair	12 pair
Medium weight plain, sizes 6 to 10....	$3.25	$ 6.00
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Obstetrical gloves (20 in.) sizes 7, 7½, 8—per pair..........		$2.75

Sent prepaid on receipt of price in U. S. A.

NOTE—Hospitals and Clinics, let us quote you on lots of six or twelve dozen.

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See The Adlets, page 21.

(Tonics and Sedatives Continued)

Ruining the Taste

Circular letter issued by P. A. Born Co.

"Dentists are allowed (2) gal. non-beverage alcohol, no whiskey. Physicians (5) gal. non-beverage alcohol and (1½) gal. non-beverage whiskey per anum."

◆

FROM THE NURSES' RECORDS

Contribution from a California colleague

A nurse in recording progress during the first stage of labor in a very nervous primipara, made the following entry on her chart:

"4: 10 p. m. Vaginal examination made by Dr. R.

"4: 20 p. m. Pains every 3 minutes lasting 6 minutes."

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

RODENT INFESTATION AND RAT-PROOFING CONDITIONS IN MASSACHUSETTS SEACOAST CITIES, NEW YORK CITY, AND BALTIMORE. By Louis L. Williams, Jr., United States Public Health Service, and J. C. Mosman, Massachusetts State Department of Health, Junior Assistant Sanitary Engineer E. C. Sullivan and Associate Sanitary Engineer A. F. Allen, United States Public Health Service. Public Hearth Bulletin No. 121. Paper. Price, 10 cents. Pp. 41. Washington: Government Printing Office, 1922.

TRAITÉ DE PATHOLOGIE MÉDICALE ET DE THÉRAPEUTIQUE APPLIQUÉE. Publié sous la Direction de Émile Sergent, Professeur de Clinique médicale propédeutique, L. Ribadeau-Dumas, Médecin de la Maternité, et L. Babonneix, Médecin de la Charité. Tome X: Sang, Organes Hématopoïétiques Rate, Os. Par Pr. Bezançon, Le Sourd, Agasse-Lafont, Pagniez, Hazard, Sainton, Apert. Paper. Price, 25 francs. Pp. 544, with 71 illustrations. Paris: A. Maloine et Fils, 1922.

PEYOTE. An Abridged Compilation from the Files of the Bureau of Indian Affairs. Prepared by Dr. Robert E. L. Newberne, Chief Medical Supervisor, Under the Direction of Chas. H. Burke, Commissioner. Paper. Pp. 38, with 6 illustrations. Washington: Government Printing Office, 1922.

HISTORY OF MEDICINE AND SURGERY AND PHYSICIANS AND SURGEONS OF CHICAGO. Endorsed by and Published under the Supervision of the Council of the Chicago Medical Society. Cloth. Pp. 928, with illustrations. Chicago: The Biographical Publishing Corporation, 1922.

THE DIAGNOSTICS AND TREATMENT OF TROPICAL DISEASES. By E. R. Stitt, A.B., Ph.G., M.D., Rear Admiral, Medical Corps, and Surgeon General, U. S. Navy. Fourth edition. Cloth. Price, $4. Pp. 622, with 159 illustrations. Philadelphia: P. Blakiston's Son & Co., 1922.

L'ADÉNOPATHIE TRACHÉO-BRONCHIQUE SIMPLE CHEZ L'ENFANT. (Etiologie, pathogénie, complications broncho-pulmonaires). Par Henri Forgeron, Ancien externe des Hôpitaux de Paris. Paper. Price, 8 francs, 90 centimes. Pp. 193. Paris: Louis Arnette, 1922.

LABOR PROBLEMS AND LABOR LEGISLATION. By John B. Andrews, Ph.D., Secretary, American Association for Labor Legislation. Second edition. Cloth. Price, 75 cents. Pp. 135, with illustrations. New York: American Association for Labor Legislation, 1922.

AIDS TO DENTAL ANATOMY AND PHYSIOLOGY. By Arthur S. Underwood, M.R.C.S., L.D.S. Fourth edition. Cloth. Price, $1.75 net. Pp. 170. New York: William Wood & Co., 1922.

CONSEJOS PRACTICOS DE HIGIENE INFANTIL. Por el Dr. José J. Callejas. Paper. Pp. 223, with illustrations. Comayagüela, Honduras: Imprenta "El Sol", 1922.

TRANSACTIONS OF THE MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE RAILWAY SURGICAL ASSOCIATION. Paper. 1920.

(Continued from page 24)

WANTED — INTERN AT THE PROTESTANT Hospital, Columbus, Ohio.★ D

WANTED — INTERN FOR 200-BED GENERAL and tuberculosis hospital; young unmarried man preferred; salary $1,200 per year with full maintenance. Oneida County Hospital, Rome, N. Y. D

WANTED—INTERN WITH ONE YEAR OR more hospital experience to act as house surgeon for general emergency hospital with surgical, medical, obstetrical and pediatric service, including x-ray work; full maintenance and fair compensation; service of 6 months or more. Apply Superintendent North Hudson Hospital, Park Ave., Weehawken, N. J. Vacancy open Oct. 1, 1922.★ D

WANTED—AT ONCE—TWO INTERNS TO serve for one year in a general hospital; rotating service; interns receive $25 per month, uniforms and full maintenance. Apply to Chairman Intern Committee, Grace Hospital, New Haven, Conn.★ D

WANTED — TWO MALE MEDICAL INTERNS, state hospital mental and nervous diseases; excellent opportunity for specialization; one or two years' service; $1,500 per year and maintenance with opportunity of qualifying for permanent position on staff; positions now open; give full information as to age, religion, date and school of graduation, etc. Add. 4533 D, % AMA.

WANTED — HOSPITAL INTERN FOR A 65-bed general hospital in western Pennsylvania; salary per month, $75 and maintenance; service until July 1, 1923. If interested apply Dr. Milton Goldsmith, Jenkins Arcade Bldg., Pittsburgh, Pa.★ D

WANTED — INTERN—ONE YEAR SERVICE; liberal medical, surgical and maternity service; compensation offered. Apply Superintendent Highland Hospital, Rochester, N. Y.★ D

WANTED—BY THE COOPER HOSPITAL, Camden, N. J., an intern for duty until July 1; there are five residents and an active service. Address Chairman of the Staff.★ D

WANTED — INTERNSHIPS OPEN FOR service on or before January in large, modern hospital in Minneapolis, Minn.; 12 months' service; only men of highest professional attainments need apply; excellent opportunity. Add. 4508 D, % AMA.★

WANTED—A CHRISTIAN INTERN, ONE year rotating service, including obstetric and traumatic surgery; 87-bed hospital; supplying surgical and medical needs of Nassau County; services begin immediately. Add. 4520 D, % AMA.★

WANTED—TWO INTERNS FOR GENERAL hospital, 200 beds; rotative service, medical, surgical, gynecologic, ear, nose, throat, etc.; salary $600 per annum, room and board; give full information and reference first letter. Add. Superintendent French Hospital, Geary St., San Francisco, Calif. D

WANTED——TWO INTERNS FOR IMMEDIATE service at the Beekman Street Hospital, New York City; surgical service; 50 beds; service 15 months; salary. Add. Secretary Medical Board, Beekman Street Hospital, 117 Beekman St., New York City. D

LABORATORY TECHNICIANS WANTED

WANTED—FIRST-CLASS LADY TECHNICIAN; x-ray and laboratory work; capable of doing Wassermanns; Oklahoma location. 1502, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. V

WANTED—LABORATORY TECHNICIAN—A young lady of pleasing personality with a knowledge of routine laboratory work; must be well educated and willing to assist in a doctor's office; give in detail age, reference and salary expected. Communicate with Dr. J. Schwartz, 604 Stone Ave., Brooklyn, N. Y., and arrange for interview. V

WANTED — TECHNICIAN TRAINED IN urine, feces, blood, gastric contents, clinical bacteriology, especially diphtheria work; serology not essential but desirable; knowledge of typewriting preferable; salary $125 per month; state training in full and experience. Apply Superintendent McKeesport Hospital, McKeesport, Pa.★ V

(Continued on page 28)

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JOHNSON & JOHNSON ZONAS ROLLER GAUZE BANDAGES. 20 packages of 6 yards to a carton, or 120 yards.

	Per 20 Bandages.
1 inch	$0.50
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2½ inch	.95
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JOHNSON & JOHNSON'S PLASTER-OF-PARIS BANDAGES, in metal packages, 3-inch width (list price, $3.60), per doz..$1.80

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JOHNSON & JOHNSON'S GAUZE, ½ by 1 yard, wrapped in glazed paper, 28 by 24 mesh (Bellevue grade), per dozen........ .50

SEABURY & JOHNSON'S PLAIN ABSORBENT GAUZE, two ½-yard by 1 yard pieces to the carton, per dozen cartons........... .90

CATGUT, in glass hermetically sealed tubes, 60-inch lengths, plain or chromicized, all sizes (except Chromic No. 1), original packages as marketed by the manufacturers themselves, including Wilson & Hollister, Watters Laboratory, W. D. Young, etc., per dozen tubes (any size)................................ 1.25

Try at our expense; if not as good or better than you are using your money will be refunded.

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1 tube No. 0 — 3 tubes No. 2
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BECTON, DICKINSON'S PLUNGERLESS G-U ASEPTO SYRINGES, Style No. 204, ¼-oz. (lists at $3.60), our price, per doz.......... 1.50

YOUNG'S PLUNGERLESS G-U® ASEPTO SYRINGES, Style No. 204, ¼-oz., our price per doz.................................. 1.00

B. & B. IODINE AMPOULE SWABS, 6 to a package, 1½ c.c. ampoules of 3½% Tincture of Iodine, and 70% Alcohol, per dozen packages 72 Swabs.................................. .75

An impressive way of applying Iodine from a sanitary point of view, and an exceptional way of carrying Iodine in doctor's kit, avoiding possibility of ruining instruments.

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PARKE, DAVIS & CO.'S ADRENALIN TABLETS, 3/200-gr., 25 tablets to the tube, our price per tube......................$0.25

In boxes of 4 tubes, per box.................................. .75

SQUIBB'S OR PITMAN-MOORE'S CAFFEINE CITRATE TABLETS, 65 mgm., 500 to a bottle (list price $5.50), our price per bottle.... 1.00

Same, 250 to a bottle, our price per bottle..................... .60

NORWICH'S BICHLORIDE OF MERCURY TABLETS, 7½-gr. blue coffin-shaped tablets, 250 to the bottle (list price, $1.75), our price per bottle.. .60

Same in Squibb's make, our price per bottle..................... .80

SQUIBB'S NORMAL SALINE SOLUTION TABLETS (Sodii Chloridium C.P. 1.0625 Gm. tablets) (list price, 45c), our price per bottle of 200 tablets.. .15

In case lots of 50, our price per bottle......................... .10

SQUIBB'S SOLARGENTUM (Colloidal Silver 20% Ag.) list price, $1.50 per oz.), our price per oz................................. 1.00

SQUIBB'S PROTARGENTUM (8% metallic silver), in 1 oz. bottles (list price 75c), our price per oz. .... .30

MERRELL'S BROWN'S MIXTURE (Mistura Glycyrrhizae Compositae), 1,000 tablets to the bottle (list price $1.50), our price per bottle .... .25

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MULFORD'S DIGITALIS, TINCTURE, 0.3 mil. in each tablet, 500 tablets to the bottle (list price $1.50), our price per bottle....... .60

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PARKE, DAVIS & CO.'S SODII BROMIDUM, U.S.P. 324 mgm. in bottles of 500 tablets (list price $1.50), our price per bottle....... .40

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ANTOINE CHIRIS CO.'S BARBITAL, Diethyl-Barbituric Acid, introduced as Veronal, in one ounce packages (list price $2.00), our price per package.. 1.35

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MAY & BAKER'S THYMOL BI-IODIDE, U.S.P., in 1-oz. and ¼-oz. bottles. One ounce (list price $1.00), our price.......... .75
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THILO'S TRIPLE REDISTILLED WATER (not distilled), and packed as follows:

20 ampoules	2 cc.	$1.00		10 ampoules	20 cc.	$2.00
10 "	5 cc.	1.00		5 "	30 cc.	1.25
5 "	10 cc.	.75		10 "	30 cc.	2.50
10 "	10 cc.	1.50		1 "	50 cc.	.50
5 "	20 cc.	1.00		1 "	100 cc.	1.00

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In cartons with TWO needles

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2 cc.	.70	50 cc.	3.00
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(Continued from page 26)

WANTED — TECHNICIAN FOR LABORATORY on Long Island; must be well trained in all chemical and microscopical work and careful and conscientious worker and able to work without supervision; give experiences references and salary expected. Add. 4521 V, % AMA.★

WANTED — IMMEDIATELY—A LABORATORY and x-ray technician; private laboratory; state qualifications. Add. 4559 V, % AMA.

WANTED——LABORATORY AND X-RAY technician; excellent opportunity; good salary; modern hospital Illinois. 1514, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. V

WANTED—EXPERT LABORATORY TECHNICIANS, pathologists and x-ray operators, male and female, for positions in all parts of the country; excellent opportunities. Write Aznoe's National Physicians' Exchange, 30 N. Michigan Ave., Chicago. V

WANTED — LADY TECHNICIAN, WELL trained in laboratory and x-ray work, preferably one with nurse's training; must be educated, with pleasing personality and willing to generally assist in a busy doctor's office; give in detail age, experience, references and salary expected. Add. 4459 V, % AMA.

PARTNERS WANTED

WANTED — PARTNER IN $10,000 GENERAL practice; town of 2,500 in eastern South Dakota; must do x-ray work and assist in surgery; Catholic preferred. Add. 4574 G, % AMA.

PARTNERSHIP WANTED

WANTED—PARTNERSHIP WITH A ONE surgeon with the idea of future, or association with group of first class doctors, as surgeon; married; age 37; 32 Mason; prefer middle West or West. Add. 4300 H, % AMA.

FOR SALE — NORTHERN MICHIGAN—Unopposed general practice in town of 600; good roads, schools, railroad facilities; nearest doctor 20 miles; sale of property takes practice; business from the start. Add. 4576 H, % AMA.

WANTED—PARTNERSHIP WITH ESTABLISHED physician or surgeon; wide experience in major surgery; graduate A1 school; two years abroad; two years intern; aged 45, married; speak German; accept three months on salary to prove efficiency; references. Add. 4532 H, % AMA.

REPRESENTATIVES WANTED

WANTED—MEDICAL BOOK SALESMAN required for eastern Canada; the line is well known and well advertised; conditions are good and the territory will be a money maker this fall and winter; remuneration commission with drawing account, or expenses and commission; replies treated in confidence. Add. 4519 JJ, % AMA.

WANTED—REPRESENTATIVES — A PUBLISHER of high grade medical journals offers attractive proposition for energetic, well educated solicitors; good territory open; all supplies furnished free; work is very pleasant and is exclusively with the medical profession; men with ability can make a good income; also men now calling on physicians can make extra money with this as a side line. For further particulars add. 2077 JJ, % AMA.

GROUP PRACTICE

WANTED—ASSOCIATION WITH GROUP —General surgeon; special work in operative cystoscopy, orthopedics, local anesthesia; experienced; aged 37; F.A.C.S., Shriner; rotarian; class A school; references ability and character; personal investigation favorable openings. Add. 4562, % AMA.

WANTED — HAVE JUST SPENT YEAR Wertheim Klinik, Vienna; want to join group preferably established any smart city; will invest; age 40; weight 200; good mixer; 15 years' general practice. Add. 4293, % AMA.

WANTED — MAN UNDER 40 TO JOIN group in medicine; private institution in the southwest; prefer man with experience in general practice; personality, integrity and ambition necessary; real opportunity; give deetails of training, experience and qualifications in reply. Add. 4433, % AMA.

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LOCATIONS WANTED

WANTED—WILL BUY GOOD PRACTICE or accept assistantship by physician; Class A school, with 2 years of Class A hospital work. Add. 4545 E, % AMA.

WANTED — LOCATION, POSITION OR partnership in south or southwest; B.S. and M.D. degrees from Tulane University; 15 months' internship in Charity Hospital, New Orelans; 6 months in charge obstetrics, internal medicine and pediatrics in private hospital; last 18 months in general practice; desire change on account of bad rural roads; licensed in Louisiana and Texas; would consider association with group as obstetrician; American, Protestant, aged 28; good social and professional references. Add. 4578 E, % AMA.

WANTED—LOCATION — ARMY DOCTOR, leaving service about December 15, desires location in a live city; will affiliate with group of ethical doctors or buy partnership in a paying x-ray and clinical laboratory or other paying practice. What have you to offer? Southern city preferred, but will consider location in any live city. Add. 4494 E, % AMA.

WANTED—CONTRACT PRACTICE, GOOD opening for general practice, salaried position or public health work in Hawaiian Islands or Panama Canal Zone; will go any place; ambitious, willing to work; want position with a future in it; graduate Jefferson Medical College; single; age 27; Mason; Protestant; A.B. degree; 1 year internship in good hospital; 10 months' health work; 8 months' general practice; licensed in North Carolina; best of references. Add. 4414 E, % AMA.

WANTED — A LOCATION OR CONTRACT practice in Kentucky or Indiana; must be near good high school; aged 42; 15 years' experience; best of references. Add. Jos. G. Hale, M.D., Glen Dean, Ky. E

WANTED—LOCATION IN SMALL TOWN in Maryland, West Virginia or Alabama; married; 2 years' internship, 7 years' practice, 3 years in Army; post-graduate work in French University. Add. 4415 E, % AMA.

NURSES & DIETITIANS WANTED

WANTED—SUPERINTENDENT OF nurses, assistant superintendents, surgical, general duty, supervisors, instructresses, laboratory technicians, dietitians desiring hospital positions anywhere in United States, write for free book. Aznoe's Central Registry for Nurses, 30 N. Michigan Ave., Chicago. T

WANTED—SUPERINTENDENT OF nurses for 60-bed general hospital with a training school for nurses; position permanent and applicant must be settled and possess executive ability. Add. Kanawha Valley Hospital, Charleston, W. Va. T

NURSES AND DIETITIANS' LOCATIONS WANTED

WANTED—MERCY HOSPITAL, CHICAGO, graduate nurse, desires ward, supervising, assistant superintendent position; aged 28; American; Chicago preferred. 1543, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED — X-RAY TECHNICIAN AND office nurse desires position; graduate registered nurse; good experience; west preferred. 1534, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED — TWO GRADUATE NURSES, registered, ages 27 and 23, desire general duty hospital positions; Michigan or west. 1537, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED—GENERAL DUTY, GRADUATE nurse, registered, desires hospital position; willing to report for duty anywhere east. 1535, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED — DIETITIAN, THREE AND half years' hospital experience, desires position, Philadelphia or New York City; good dietitian. 1531, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED — GRADUATE NURSE, REGISTERED, desires general or surgical hospital position; good references; California preferred. 1533, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

(Continued on page 30)

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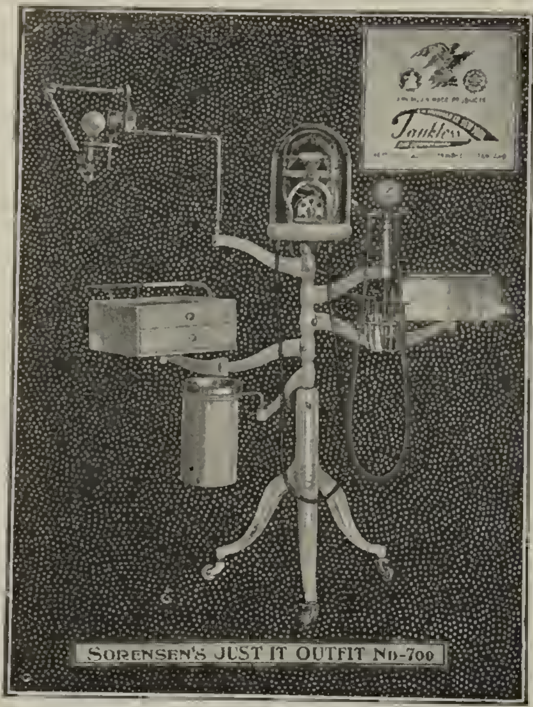

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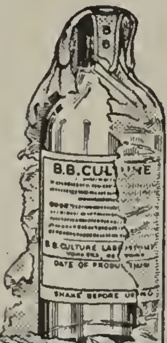

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(Continued from page 28)

WANTED—OPERATING ROOM SUPERvisor, graduate registered nurse, desires surgical appointment; southern states preferred; good surgical experience. 1536, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED — STATE REGISTERED GRADuate nurse desires general duty hospital position, days; Chicago, Michigan, North Carolina preferred. 1518, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED — GRADUATE NURSE, REGIStered Missouri, desires general duty position; aged 24; south or southwest. 1533, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED — TWO STATE REGISTERED graduate nurses desire head ward or supervising hospital position; western states preferred. 1500, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED—GRADUATE NURSE, REGIStered California, desires assistant superintendent or supervisor of ward; location not important. 1503, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED — STATE REGISTERED, MISsouri, graduate of accredited school, desires general day duty hospital position, Texas or Louisiana. 1508, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED — SUPERINTENDENT OR ASsistant, registered nurse, with successful experience, desires superintendency; Michigan preferred. 1509, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED — GRADUATE NURSE, REGIStered Illinois, desires general duty hospital position; Illinois or Indiana preferred. 1512, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. W

WANTED—SUPERINTENDENT OF nurses, assistant superintendents, surgical, general duty nurses, supervisors, dietitians, laboratory technicians, furnished promptly anywhere in United States; no charge for this service. Aznoe's Central Registry for Nurses, 30 N. Michigan Ave., Chicago. W

SITUATIONS WANTED

WANTED — POSITION BY GRADUATE nurse with over 2 years' experience in eye, ear, nose and throat work; registered optometrist; prefer position with specialist or group; available at once. Add. 4529 I, % AMA.

WANTED — PHYSICIAN OVER FIFTY, wants position as health officer, sanitary, school or industrial examiner; am a criminologist believing crime can be prevented by endocrine and psychic methods; has specialized in behavior, crime, defectiveness of schoolchildren. Add. 4572 I, % AMA.

WANTED — IN CHICAGO — PART OR whole time position as laboratory technician by young woman; sophomore at Rush Medical School; capable of doing routine Wassermann blood chemistry and vaccine therapy. Add. 4547 I, % AMA.

WANTED — ASSISTANTSHIP OR ASSOciation with surgeon or in group; Pacific Coast preferred; graduate Class A school; internship large New York hospital; 12 years' surgical experience; married; one child; references furnished and required; available immediately. Add. 4539 I, % AMA.

WANTED—M.D., RUSH MEDICAL COLlege, licensed Illinois, aged 26; American; Protestant; desires internist, assistantship; middle west. 1538, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED — COMPETENT BACTERIOLOgist and serologist desires clinical or public health position; experienced in bacteriological examination of milk and water, smears, Wassermann, urinalysis, sputum, Widal, animal inoculation, blood counting and research work; university graduate; Master of arts degree. Add. 4550 I, % AMA.

WANTED — POSITION BY LADY WHO lately studied Wassermann and blood chemistry in Chicago college; have 6 years' experience in hospital laboratory routine; reasonable compensation asked in order to gain experience. Add. 4556 I, % AMA.

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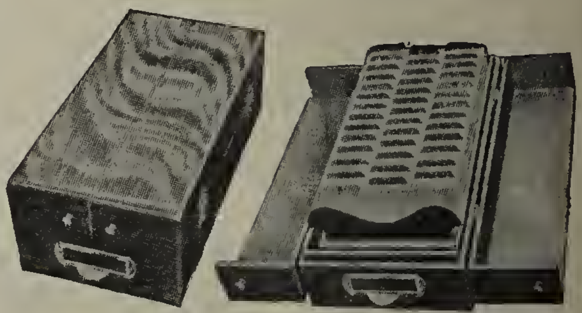

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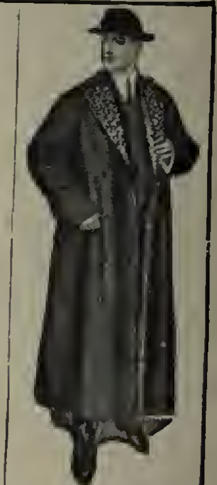

NURSES
use the Classified Columns of **The Journal** in securing positions

WANTED—DIETITIAN — GRADUATE DIETITIAN; 3 years' practical experience; can furnish references; west preferred. 1540, Aznoe's Central Registry for Nurses, 30 N. Michigan, Chicago. I

WANTED—LABORATORY POSITION BY young woman; university graduate with practical experience; capable of work in bacteriology, serology, pathological technic, physiological and blood chemistry. Add. 4553 I, % AMA.

WANTED — A COLLEGE GRADUATE thoroughly trained in laboratory procedure desires a position with a firm dealing with bacteriological and pathological supplies. Add. 4549 I, % AMA.

WANTED — BACTERIOLOGY, LABORATORY in hospital or public health work; male; aged 29; single; American; desires appointment. 1539, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED—X-RAY TECHNICIAN, STENOGRAPHER bookkeeper, desires institutional or physician's office appointment; aged 33; American; good refcrences; west of Chicago. 1541, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED — LABORATORY AND X-RAY technician, Cornell University man, aged 30, American, Protestant, desires position; excellent experience; east. 1542, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED — ASSISTANTSHIP TO EYE, ear, nose and throat surgeon or internship in specializing hospital; postgraduate work in same; single; A plus college; 3 years hospital. Add. 4570 I, % AMA.

WANTED — POSITION AS RESIDENT physician or assistant by woman physician; graduate A plus school; institutional experience; references; middle west preferred; state details and salary in first letter. Add. 4573 I, % AMA.

WANTED—POSITION BY WOMAN DOCTOR, regular, ten years' experience as assistant, refractionist and capable of carrying the clerical work of an office or hospital; good anesthetist. Add. 4575 I, % AMA.

WANTED — SALARIED POSITION, CONTRACT practice, industrial or institutional work, whole or part time; graduate A plus school; 3 years' hospital, 1 year general practice; aged 34, married, Gentile; New York license; will consider reciprocating states. Add. 4558 I, % AMA.

WANTED — ROENTGENOLOGIST, M.D., who can furnish highest recommendations as to competency in x-ray diagnosis and therapy, wants position in a large hospital or with a clinical group on a salary and partnership basis. Add. 4563 I, % AMA.

WANTED—YOUNG LADY X-RAY TECHNICIAN desires position in hospital or with group; 5 years' experience; unquestioned ability; best references; exceptional services offered; commensurate compensation necessary; Chicago preferred. Add. 4546 I, % AMA.

WANTED—CLINICAL LABORATORY AND x-ray technician desires position in Illinois; all or part time; 10 years' experience in bacteriology and Wassermann; have spent two years as assistant to industrial surgeon. Add. 4580 I, % AMA.

WANTED — CLASS A MAN, AGED 30, American, married; will consider any appointment with a future; New York City or east. 1532, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED—PATHOLOGIST OF 13 YEARS' experience would consider change; have been always connected with A1 institutions and in charge of hospital laboratories; have done research work and teaching. Add. 4531 I, % AMA.

WANTED — A RESIDENT SURGEON OR gynecologist position in hospital of good standing; graduate of Harvard Medical School and 2 years' internship in 500-bed hospital; available after October 1 for a year. Add. 4540 I, % AMA.

WANTED—HYDROTHERAPIST-MASSEUR open for a hospital position; teacher of both branches; 12 years' hospital experience; best references. Add. 4451 I, % AMA.

(*Continued on next page*)

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WANTED—M. D., UNIVERSITY OF VERmont College of Medicine, experienced, capable, desires salaried appointment; western states preferred. 1513, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED — M.D., HARVARD MEDICAL School; bacteriologist, statistician, director of laboratories, research work; west or north preferred. 1517, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED — CLASS A GRADUATE DEsires assistantship to surgeon or specialist; aged 28; single; American; south preferred. 1521, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED—X-RAY TECHNICIAN, YOUNG man with 4 years' experience, desires position in hospital or physician's office. 1528, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED — LABORATORY TECHNICIAN, graduate nurse, desires a position in doctor's office, medical clinic or technician and surgical nurse combined. 1529, Aznoe's National Physicians' Exchange, 30 N. Michigan, Chicago. I

WANTED — POSITION AS RESIDENT physician or surgeon in hospital; have completed internship in general hospital; graduate of Class A school; best references furnished. Add. 4515 I, % AMA.

WANTED — YOUNG WOMAN DESIRES position as laboratory technician in New York City or vicinity; over 3 years' experience in routine bacteriological work, Wassermanns, complement fixations, blood counts, urine, milk and gastric analyses, histological technic; B.S., eastern college; references. Add. 4199 I, % AMA.

WANTED—ROENTGENOLOGIST, M.D., desires position with group or hospital; experienced in therapy, radiography and fluoroscopy; minimum salary, $5,000; will consider furnishing laboratory if satisfactory guarantee is given. Add. 4422 I, % AMA.

WANTED—POSITION—COLLEGE trained woman in clinical pathology and bacteriology with experience, as assistant or laboratory technician; anywhere in United States; available immediately; can furnish references. Add. 4420 I, % AMA.

WANTED—POSITION AS TECHNICIAN or assistant; male, college graduate; capable of taking charge; experienced general routine, vaccines, Wassermann, tissue sectioning; excellent references. Add. 4408 I, % AMA.

WANTED — ASSOCIATION OR ASSISTantship to reputable internist or surgeon by 1920 graduates, class A medical school of middle West; 3 years' preparatory work; age 28, married, Protestant, American; one year's experience in teaching hospital medicine and surgery; have done major surgery; do routine laboratory work; familiar with x-ray; Illinois license; 14 months' general practice; desires permanent location; prefer middle western states; interview if possible. Add. 4303 I, % AMA.

WANTED—ASSISTANTSHIP TO AN INternist or neurologist by a thoroughly qualified young physician; graduate Class A school, 1917; licensed New York and Pennsylvania. Add. 4319 I, % AMA.

WANTED — ASSOCIATION WITH INternist or surgeon by physician with 5 years' experience in roentgenology (civil and military); 1 year of general practice; can do routine clinical laboratory work; also cystoscopy; aged 31; married; licensed Illinois and Wisconsin. Add. 4309 I, % AMA.

WANTED—POSITION BY PH.D., PATHOLogist and bacteriologist; qualified for responsible position; do not answer unless you can offer good salary. Add. 4416 I, % AMA.

WANTED—WOMAN PHYSICIAN, GRADUate A plus school; one year of intern work; five years' general practice; wishes several months' active hospital experience beginning October 1 or November 1. Add. 4480 I, % AMA.

WANTED — POSITION BY A YOUNG woman, university graduate, as laboratory technician; can do blood chemistry, tissue, bacteriological and serological work; have had 9 months of practical experience; available any time. Add. 4409 I, % AMA.

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WANTED—POSITION BY EXPERIENCED laboratory and x-ray technician with group, hospital or busy internist; training Chicago and Illinois post-graduate schools; Ph.C. degree; registered; place must be attractive, where good work and ability are appreciated; A 1 references. Add. 4418 I, % AMA.

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FOR SALE — ILLINOIS — UNOPPOSED practice in wealthy farming community for sale for price of residence and office; terms easy; large territory; collections 99 per cent.; good man can make money from the start; poor health reason for leaving. Add. 4538 N, % AMA.

FOR SALE—EASTERN INDIANA—WITHin 75 miles of Indianapolis, and 10 miles of county seat; 50,000 population; town about 2,000 population; electric lights, water system, high school, churches, good roads; practice established 25 years; competition right; cash collections 95 per cent.; a number of transferable appointments; will sell office equipment and practice; purchase or rent of residence optional; retiring. Add. 4421 N, % AMA.

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FOR SALE—IOWA — $8,000 PRACTICE—Town of 850; one other doctor; rich farming community; American; will sell for price of office equipment and stock of drugs, $700. R. W. Henderson, M.D., Lone Tree, Iowa. N

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FOR IMMEDIATE SALE—KANSAS—UNOPPOSED $6,000 to $8,000 practice; German Catholic settlement; good pay, church and schools; purchase my $5,000 residence. Add. 4568 N, ℅ AMA.

FOR SALE—KANSAS—FOR A MAN WHO can do surgery, an ideal location with no competition; city 2,000; large territory; retiring; nothing to sell except office equipment and small stock of drugs; adv. appears once. Add. 4561 N, ℅ AMA.

FOR SALE—MASSACHUSETTS — $2,000 per month eye, ear, nose and throat practice with large residence and five offices; please send your professional and bank references in first letter. Add. 4541 N, ℅ AMA.

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FOR SALE—MINNESOTA—$5,000 UNOPPOSED practice; established 6 years; dairy country; population 400; good roads; competition 14, 20, 20, 40 miles; mixed nationalities; 12-grade school; drug store; office with dentist; rent reasonable; moving to another state; invoice price all or part equipment. Add. 4544 N, ℅ AMA.

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FOR SALE—NEBRASKA — SOUTH CENTRAL town, 1,000 plus; practice $6,000 to $7,000; established 17 years; one other physician; no real estate; transferable appointments; income can be doubled by doing surgery; price, $1,200; introduction 50-50 basis; office equipment and pharmaceuticals at invoice price; retiring. Add. 4554 N, ℅ AMA.

FOR SALE—NEBRASKA — UNOPPOSED country practice and keen modern drug store in town of 300; large neighboring territory; successful practice; desire to specialize; $5,000 cash; all particulars on request. Add. 4569 N, ℅ AMA.

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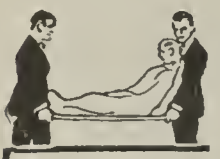

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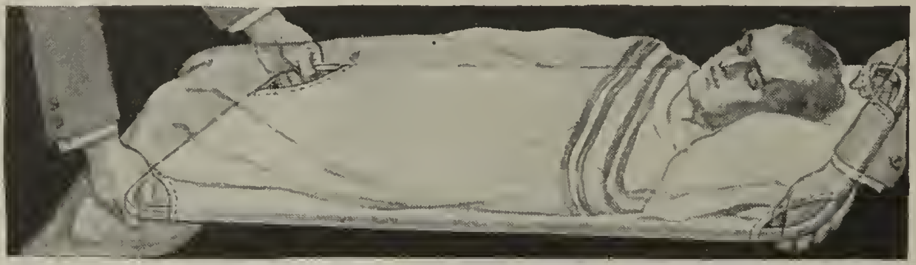

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A LIMITED NUMBER OF DRUG ADDICTS of the higher type who have the opportunity and are capable of doing serious work if freed from their habits will be accepted for private treatment by the Sceleth method; cases will be treated at private hospitals or sanitaria; for particulars address Dr. Chas. E. Sceleth, 25 E. Washington St., Chicago.

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FOR SALE — 160 ACRES FARM AND woodland, Westchester County, within 60 miles by state road of New York City; large stone and single 30-room house (6 bathrooms); garage with flat; large stable with flat; master's cottage and two double farmhouses, besides barns, etc.; plentiful water supply, modern heating, lighting and sewage disposal; all in perfect condition; water frontage and bathing in 10-acre lake; especially suited to convalescent home or high class sanatorium; separate laboratory built of stone on the place; would make financial concessions for charity purposes. Apply to Gordon K. Bell, 22 Exchange Place, New York N. Y. P

DRUG STORES FOR SALE

FOR SALE—AT INVOICE PRICE—FINE drug store on good down-town corner location in the city of Pocatello, Idaho. Fred E. Logue, Realtor, Bancroft, Idaho. U

FOR RENT

FOR RENT—MEDICAL OFFICES IN ONE of the best locations in eastern Pennsylvania; practitioner recently deceased; office established over 35 years; population over 25,000. Add. 4571 Q, % AMA.

FOR RENT — NEW YORK CITY, EAST Side, 36th St., 163 East, in exclusive Murray Hill, doctor's apartment, two or three rooms; all doctors' conveniences; $1,800 to $2,750. Q

FOR RENT—CHICAGO — PHYSICIAN'S modern office in connection with dentist; will furnish reception room; rent reasonable; new building; North and California Aves.; busy section of city. Phone Armitage 4306, or write Dr. M. Berger, 2313 W. Iowa St. Q

FOR RENT—NEW YORK CITY—WELL known rhinologist will share spacious, well equipped offices; location central; night and day telephone service; office hours can be arranged; rent reasonable. 43 West 69th St., Telephone Columbus 5450. Q

HOSPITAL CONSULTANT

HIGH EXPENSES — SMALL REVENUE not always justified; planning, construction, operation. Hospital Consultation Bureau. Oliver H. Bartine, Director, Æolian Hall, New York City.

EDUCATIONAL

TRAINING CLASS FOR TEACHERS AND mothers of deaf children opens October 3. Add. Mary S. Garrett, Home for the Training in Speech of Deaf Children Before They Are of School Age, 2201 Belmont Ave., Philadelphia, Pa. CC

ABSTRACTING, TRANSLATING

SCIENTIFIC TRANSLATIONS — FRENCH, English. Add. Translator, 941 N. Franklin St., Philadelphia, Pa.

PUBLISHERS AND PRINTERS

DOCTORS' STATIONERY SAMPLES — Price list free. Physicians' labels, 2" x 3", noncurling, gummed paper; name, address, blank lines for directions; 1,000 prepaid, $1.00 cash. Fuller Press, 1843 Ogden Ave., Chicago, Ill.

STEEL DIE EMBOSSED STATIONERY — Distinctive and impressive for the medical profession; will send samples and prices upon request. Hammond Printing Co., Fremont, Neb.

"EDICION EN ESPAÑOL DEL JOURNAL of the American Medical Association." Si habla o lee Ud. el español, y desea conocer esta publicación quincenal, pida un número de muestra de la "Edición en Español del Journal," y con gusto se lo enviaremos libre de porte a su dirección. American Medical Association, 535 North Dearborn St., Chicago. GG

AUTOMOBILES & ACCESSORIES

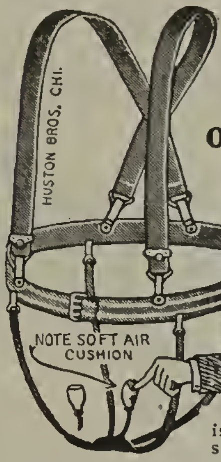
THE AUTO EMBLEM ON YOUR RADIATOR cap. Signaphore, shown on page 37, offers in a new useful form the Physician's Auto Emblem. It is now combined with a motor thermometer. The Signaphore is an ornament to any car and help to the driver. Order direct. American Medical Association. II

(Continued on next page)

EQUISETENE (Huston)

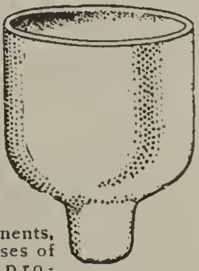
Otherwise known as "Silk Horse Hair" has many great advantages over all others—uniformly smooth; no infection; no scar; very strong—will not break when knotted; boilable; very economical. Send $1.20 for two large sample packages, or $5.00 for 250 ft.

Dr. Ochsner of Augustana Hospital, Chicago, says: "Equisetene is, I believe, without a fault. I would not think of going back to the old suture materials under any circumstances." Dr. Truman W. Brophy, the mouth surgeon, says: "I am delighted with Equisetene—use it constantly." Over 2,000 leading surgeons of the United States speak similarly. Names on request.



Free Trial

Our Bairds Air Cushion



is designed to aid in the correction of uterine displacements, especially cases of procidentia, prolapsus, retroversion, etc. The price to physicians is $5.00 complete or $3.00 without the shoulder attachments. Send check with order and we will refund the money if you are dissatisfied after faithfully using the outfit for ten days.

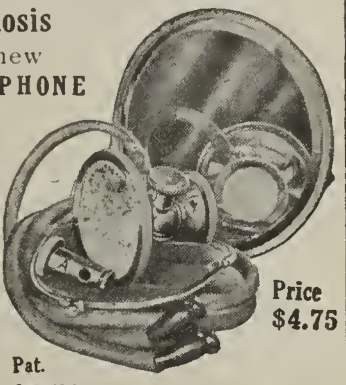
DOCTOR! Minimize Failure Through Incorrect Diagnosis

by using the new

HUSTON AKOUOPHONE

The Only Differential Stethoscope

2000 of your colleagues can TESTIFY TO ITS GREAT MERIT



Send for our circular, or, better still, send us $4.75 and try the Akouophone for 10 days. If dissatisfied, send it back. Your money will be refunded IMMEDIATELY and no questions asked.

Price $4.75

Pat. Jan. '10

Slips into your pocket like a watch. Its cost is less than your fee for just one diagnosis.

HUSTON BROS. CO., 30 East Randolph St., Chicago

Manufacturers and retailers complete lines Surgical and Electrical Instruments

The Impressiveness of a Bank Sign

radiates from our bronze nameplates for physicians: signs of exactly the same type are supplied by us to banks all over the country. Made of heavy bronze, our physicians' signs carry an air of dignity and bespeak confidence to the passer-by. They are sturdy in construction and artistic in design, commanding attention without being blatant or gaudy.

Let us make a nameplate for you in the size desired at a surprisingly low cost.

12"x3½"	$10.00	14"x4½"	$15.00
14"x8½"	30.00	15"x10"	37.50

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We deliver to you the nameplate you want, and if it fails to meet with your approval, you need not accept it. This liberal offer is made simply because we have faith in our product.

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Distinctive signs in bronze, brass and glass.

WHETHER you prefer maltose or milk sugar in your milk modifications for increasing the carbohydrates, if you will use part barley water instead of all plain water as the diluent you will get very much finer curds and very much better results.

BROOKS' BABY BARLEY

Made from whole barley, rich in vitamines

Samples on request
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Boston, Mass.

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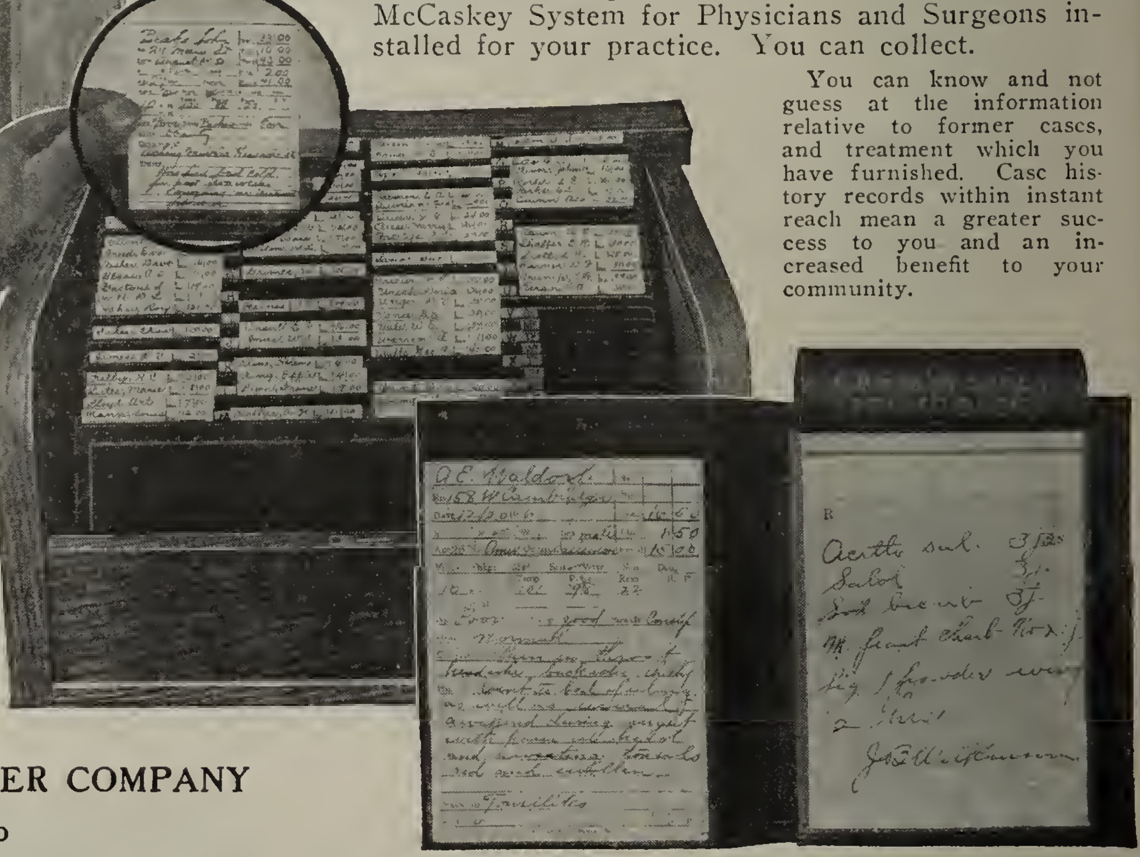
A 20 page pamphlet of directions for mothers, telling them what to do before the baby comes; how to care for the newborn; how to nurse the baby, etc. Just such advice as the mother or prospective mother appreciates. Order a supply today. Single copy, 10 cents; 25 copies, $2.00; 100 copies or more, each 5 cents.

American Medical Association, 535 North Dearborn Street, Chicago, Ill.



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You can always have with you the records of amounts owed you by patients if you have a McCaskey System for Physicians and Surgeons installed for your practice. You can collect.

You can know and not guess at the information relative to former cases, and treatment which you have furnished. Case history records within instant reach mean a greater success to you and an increased benefit to your community.

THERE IS NO COST FOR THIS INFORMATION

It will cost you nothing to send us a card asking for information on the McCaskey System — you will be placed under no obligation whatever.

It is costly to you, however, to waste your time bookkeeping, to let records of cases and finances slide. The McCaskey System can stop this and save you hours of effort and many dollars of earnings.

THE McCASKEY REGISTER COMPANY
Alliance, Ohio

A 568

NESTLÉ'S MILK FOOD (A Modified Milk—Not a Milk Modifier)

Does not require the addition of raw cows' milk to prepare, simply the necessary amount of water to a given quantity of the Food, and boiling for one minute

STERILE :: NOURISHING :: DIGESTIBLE :: CONVENIENT

NESTLE'S FOOD COMPANY

112 Market Street
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Nestlé Bldg.
New York.

SEAT UPHOLSTERED IN GENUINE leather that will wash and wear—that is just one of the features about Dodge Brothers' Business Coupé that should make the doctor seriously consider this car. See further details of construction on page 23. Dodge Brothers. II

MISCELLANEOUS

WRITE FOR INTERESTING LITERATURE describing uses of the Vitonet Electrical Blanket, composed of 15,000 feet of protected magnet wire woven into fabric. See advertisement on page 32. Vitonet Mfg. Co. KK

SAMPLES OF BORCHERDT'S MALT Sugar and Malt Soup Extract which are sent to physicians on request enable them to be sure of the value of these products in the diet of marasmic or malnourished infants. Write for your free samples and analysis. See page 20. Borcherdt Malt Extract Co. KK

TRY DR. WEST'S NEW TOOTHBRUSH at our expense. Send today for your free sample of the brush that makes it possible to clean the teeth thoroughly outside, inside and between. This is a special offer made to physicians in order to introduce quickly this high-grade regular 50 cent brush. See adlet on page 21. Western Co. KK

NOTE THE IMPRESSIVE LIST OF USERS of the Baumanometer on page 38. The Metropolitan Life Insurance Co. has ordered more than 1,000 of these blood pressure instruments. Write for informative literature. W. A. Baum Co., Inc. KK

Useful Cathartics

By Bernard Fantus, Associate Professor of Therapeutics, Rush Medical College

This handy volume condenses into the space of 120 pages the essentials of material which it would take days to secure from the larger works. It tells

Why Cathartics Cause Constipation.
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How to Administer an Oil Enema.
How to Make Castor Oil Unobjectionable.
How to Serve Bran in Appetizing Dishes.
How to Administer Agar.
When to Use Cascara, Senna.
How to Choose a Phenol Saline Preparation.
How Salines Affect the Intestine and the System in General.
How to Make Salines More Palatable.
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"Useful Cathartics" should be among the handy books on every practitioner's desk. Bound in green cloth; price, $1.00. Remit with order.

American Medical Association
535 North Dearborn Street, Chicago, Illinois

USE THE COUPON ON PAGE 41 AND OBtain full facts concerning the DupleXray, the complete plant for radiography and fluoroscopy. Engeln Electric Co. KK

READ A. E. LITTLE'S LETTER FROM his factory on pages 8 and 9 of this issue. Write him if you want to learn the name of the nearest dealer showing these specially made shoes. A. E. Little Co. KK

RUBBER TIPS ON CRUTCHES AND canes save the nerves of everybody as much as rubber heels. Foster's rubber tips have other uses. Read about them on page 39. Write for prices. Foster Rubber Co. KK

MAKE AN AMBULANCE OF YOUR AUTO —How often could you save time and expense as well by having a means of transferring patients without calling an ambulance. With an Arnzten Auxiliary Stretcher you can handle many of these patients in your own car. The Arnzten Stretcher is so made as to be easily carried through narrow halls, around close corners and placed directly into the automobile. Occupies little space in car when not in use. A nicely illustrated folder showing the many uses of the Arnzten Stretcher will be sent you on request. See page 34, this Journal.

SPECIAL OFFER ON UNDERWEAR TO Journal readers—Do you want maximum freedom for your arms and upper part of the body with warmth for the legs and lower part of the body? If so, a Balrib Union Suit will exactly answer your wants. This new type of underwear is fully described on page 31, this Journal, and to acquaint Journal readers with its comfort and everyday satisfaction a special introductory order is made. Order today before you lay the Journal aside. Money refunded if not satisfied.

ESKAY'S
Albumenized
FOOD

The second advertisement of this series will appear in the next issue of this journal.

THE COMPLETE MILK MODIFIER

IN its food elements, cow's milk differs from human milk quantitatively rather than qualitatively. These quantitative differences are, however, fundamental, and for infant-feeding cow's milk must be modified to suit the requirements of the child's digestive tract.

A complete modifier has three functions—

(1) Flakes the Curd.
(2) Emulsifies the Fat.
(3) Corrects the Lactose Deficiency.

ESKAY'S FOOD fulfills these three essentials. Moreover, the addition of the Food does not devitalize the milk by excessive heat or destroy its vitamines.

But more convincing than any statement of ours will be the results of your own experience. Will you not send for samples of ESKAY'S and give them a clinical trial in your next case of food-intolerance?

SMITH, KLINE & FRENCH COMPANY, PHILADELPHIA, PA.

Physicians' Motor
SIGNAPHORE
(SIG-NA-FORE)

Makes You Known . . . . Keeps You Going

THIS newly-created device for the radiator cap of physicians' cars does double duty for the doctor user. The front face presents the well-known Physicians' Auto Emblem. It will identify your car in a dignified, attractive manner—truly the "right-o'-way" sign.

The reverse face of the Signaphore is your motor thermometer. It tells whether the motor is too hot, too cool or at normal temperature for efficient operation. Acts mechanically; no chemicals, no electric complications. Only two working parts. Readable night or day while driving.

Gold-plated; Caduceus emblem protected by heavy beveled plate glass. Installed by simply drilling hole in cap and fastening with nut. Price, $8.50; postpaid, insured. Give name of car when ordering.

AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street **CHICAGO, ILL.**

DRIVER'S VIEW

Red Signal
Motor too Hot

Green Signal
Motor too Cool

Signals Balanced
Normal Temperature

An Aristocrat among Bloodpressure Instruments

The Desk Model

"Handsome is that Handsome Does"

Unsurpassed for

ACCURACY
SIMPLICITY
RELIABILITY

THE intrinsic value of the Baumanometer lies not alone in what it *is*, but also in what it *does*;—in its quick, accurate, efficient performance is to be found the best reason why it is conceded to be without a peer. And the remarkable character of service which it can at all times be relied upon to render has, in fact, earned for it the enthusiastic endorsement of users here and abroad.

Who Uses the Baumanometer?

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¶ Mayo Clinic ¶ Rockefeller Institute for Medical Research ¶ U. S. Army, Navy and Public Health Service ¶ Battle Creek Sanitarium ¶ Loomis Sanitarium.

¶ Columbia University ¶ Cornell Medical School ¶ Harvard University ¶ Johns Hopkins University and Hospital ¶ Post Graduate Medical School ¶ Yale Medical School ¶ Bellevue Hospital ¶ Hahnemann Hospital ¶ Henry Ford Hospital ¶ Lakeside Hospital ¶ Neurological Institute ¶ New York Hospital ¶ Peter Bent Brigham Hospital.

¶ American Telephone & Telegraph Co. ¶ Baltimore & Ohio R. R. ¶ Pennsylvania R.R. ¶ Union Pacific System ¶ Carnegie Steel Works ¶ Standard Oil Company ¶ Tata Steel Works, India ¶ Equitable Life ¶ First Mutual Life, Japan ¶ *Metropolitan Life ¶ Mutual Life ¶ New York Life ¶ Northwestern Mutual Life, &c.-&c.-&c.

***The Metropolitan Life alone has purchased more than one thousand Baumanometers.**

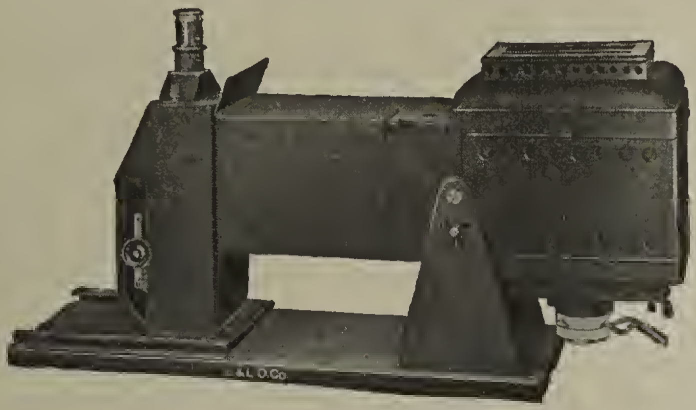
Informative literature sent upon request. Please mention your dealer's name.

W. A. BAUM CO., INC.
100 FIFTH AVENUE NEW YORK

Baumanometer

"STANDARD FOR BLOODPRESSURE"

New
Nephelometer and Colorimeter Illuminator



THE latest addition to the Bausch & Lomb Colorimeter line—can be used with our Biological Colorimeter as a Nephelometer or Colorimeter Illuminator. With proper cup equipment the change from one to the other is made by merely tilting the lamp house and inserting opaque shields under the cups.

The Nephelometer is mounted upon a substantial baseboard, fitted with slides holding the colorimeter in place.

Write for descriptive circular

Nephelometer and Colorimeter Illuminator	$60.00
Biological Colorimeter	60.00

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NEW YORK WASHINGTON CHICAGO SAN FRANCISCO LONDON

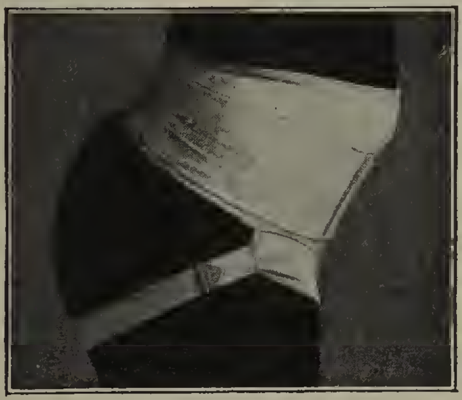
Leading American Makers of Photographic Lenses, Microscopes, Projection Apparatus (Balopticons), Ophthalmic Lenses and Instruments, Photomicrographic Apparatus, Range Finders and Gun Sights for Army and Navy, Searchlight Reflectors, Stereo-Prism Binoculars, Telescopes, Magnifiers, Automobile Lenses and Other High-Grade Optical Products.

TRADE MARK **STORM** TRADE MARK

Binder and Abdominal Supporter

(PATENTED)

TRADE MARK



TRADE MARK

Lifts and gives support to the lower middle abdomen as no ordinary belt or corset can do.

For Ptosis, Hernia, Pregnancy, Obesity, Relaxed Sacroiliac Articulations, Floating Kidney, High and Low Operations, etc.

Ask for 36-page descriptive folder.

Mail orders filled at Philadelphia only—within 24 hours.

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Originator, Patentee, Sole Owner and Maker

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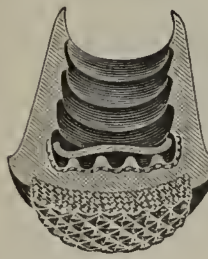
For Safety Quietness, Comfort

Use these Foster Safety and Silence Tips on crutches and canes. They not only suppress the clumping sound, prevent slipping and relieve the jar upon the shoulders—they wear longer. Note interior construction, which prevents punching through.

Crutch Tip with Corrugated Bottom

Foster rubber-headed tacks and screws, tips for canes, crutches, chairs, straight legs or for rockers, may be had in many different styles, each for a definite purpose.



Note How Fabric Extends into Sides

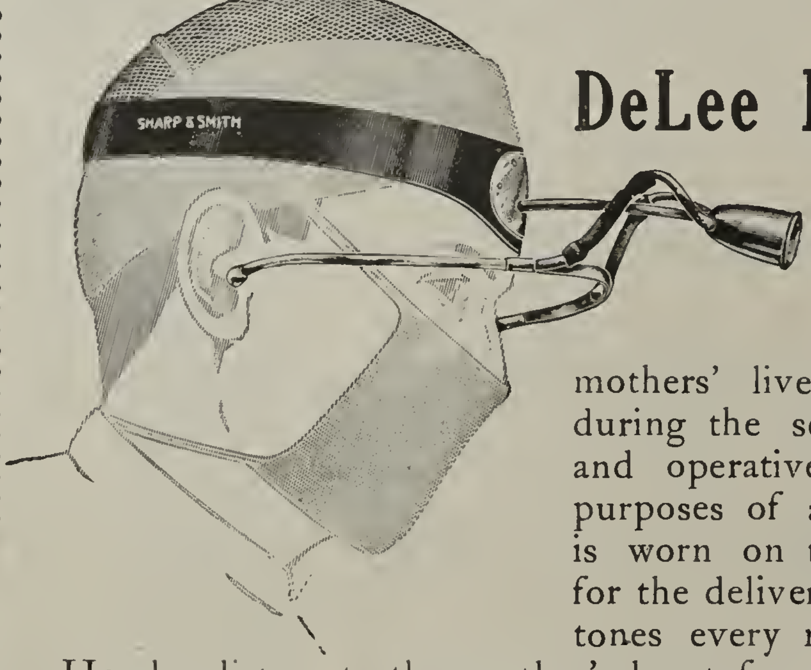
The Foster Friction Plug (patented) is used in rubber tips where it is desirable to absolutely prevent slipping.

FOSTER RUBBER CO.

112 Federal Street, Boston, Mass.

Makers of Cat's Paw Rubber Heels, and Sole Originators and Patentees of Foster Friction Plug which Prevents Slipping.

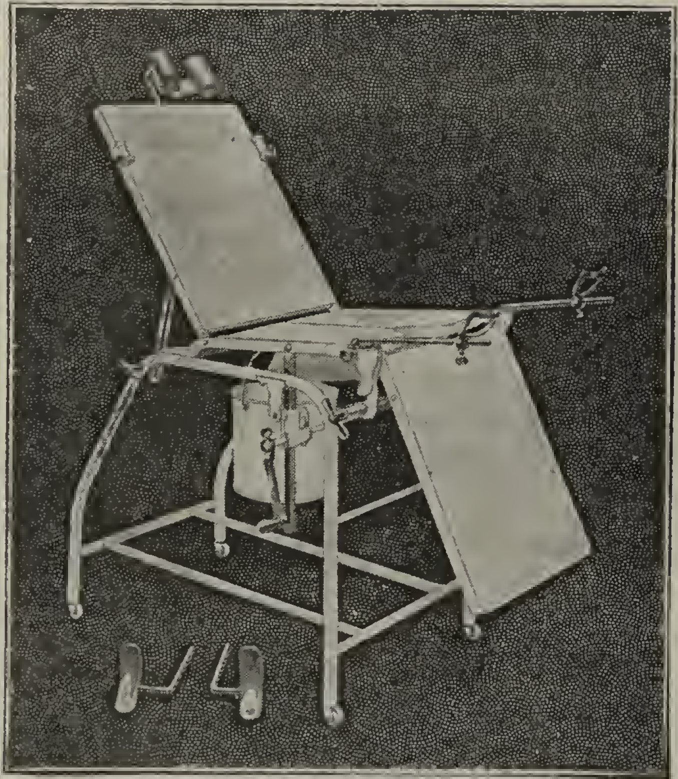
THE
DeLee Hillis Head Stethoscope
Latest Model



THIS most useful instrument should be part of the outfit of every obstetric practitioner. It will save many infants' and mothers' lives. It was designed especially for use during the second stage of labor of both (spontaneous and operative), but it is even more useful for all the purposes of a stethoscope, than the usual varieties. It is worn on the head after the doctor is "scrubbed up" for the delivery and enables him to listen to the fetal heart-tones every minute or two without infecting his hands. He also listens to the mother's heart frequently to learn how it is bearing the strain of labor. In addition to this great advantage the head stethoscope has valuable acoustic properties. Extraneous sounds are excluded; by pressure the bell can be applied in deeply, bringing it closer to the fetal heart—there may also be a little audition from bone conduction. It is made up with a band over the top of the head, with a circular fibre head band, and for easy portability, with a ribbon-woven strap. **Price, $7.50** each

SHARP & SMITH, *Manufacturers and Exporters of High-Grade Surgical Instruments and Hospital Supplies*
65 East Lake Street (Between Wabash Ave. and Michigan Blvd.) CHICAGO, ILL.
ESTABLISHED 1844 *INCORPORATED 1904*

A Worthy assistant



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IN CHAIR POSITION

DR. ISAAC'S CYSTOSCOPIC CHAIR-TABLE

A practical and substantial examining and treatment table for Genito-Urinary and Gynecological work. Back is independently adjustable and foot board is removable for Cystoscopic examinations. Trendelenberg, chair and horizontal positions obtainable. Top is slotted and provided with pan for drainage. Center is cut back in U-shape to allow for easy manipulation of cystoscope.

SPECIFICATIONS

Size: 35 inches high, 25 inches wide, 75 inches long. Equipment: Heel stirrups; shoulder supports; leather padded head rest; easy-roll steel casters. Construction: Electric welded furniture steel top; torch welded, tubular wrought iron frame. Finish: Betzco snow-white washable enamel; accessories nickel-plated.

6AM736 Dr. Isaac's Cystoscopic Table	$55.00
6AM737 Leatherette Top Cushion	7.50

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Frank S. Betz Co.
Hammond, Indiana, Enclosed is $55.00 for which you may send me your guaranteed 6AM736 Cystoscopic Table which I may return if not well satisfied.

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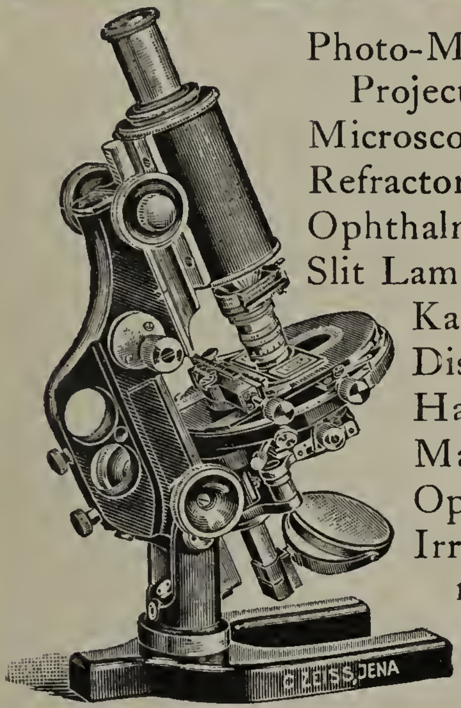

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LESS THAN ½ PRICE
REGULAR PRICE $40.00 SALE PRICE $19.75
GRASP THIS CHANCE
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$19.75 REGULAR PRICE $40.00
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An exceptional bargain opportunity for doctors, surgeons and hospitals

An unquestioned $40.00 value for the pre-war price of only $19.75

OUR tremendous purchase from U. S. Government of unused Army Operating Tables enables us to offer this cut-price bargain. Suitable for examining, treatment and operating. Adjusts easily. Made of steel enameled "snow white." Heel stirrups and leg holders free. Just $2.25 brings it to you. *Try it for 30 days; if not thoroughly satisfactory, return it and we will refund your money. If satisfied, send balance in 7 payments of $2.50 each. If you prefer to pay cash, we allow 10% discount, making the net cash price $17.78.*

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The DupleXray *with Motor-Drive Table*

$1750.00

More than a Transformer and Control—Its Complete

The DupleXray is a complete X-Ray Plant for Radiography and Fluoroscopy at $1750.00. The specifications outlined in the catalogue indicate that the DupleXray is ready for operation upon installation.

The apparatus is highly developed for complete ease in operation and control. These features relieve you of many unnecessary details in operation. You will note that the DupleXray is very compact so that it can be readily adapted to your office.

The Kelley-Koett motor drive tilt table will go to any position automatically. It's a part of the DupleXray. We believe it will be your gain to obtain further information.

The Coupon is Worth Sending

THE ENGELN ELECTRIC CO.
4615 Euclid Ave. Cleveland, Ohio

Please send me the facts and terms on the DupleXray, a complete plant for Radiography and Fluoroscopy.

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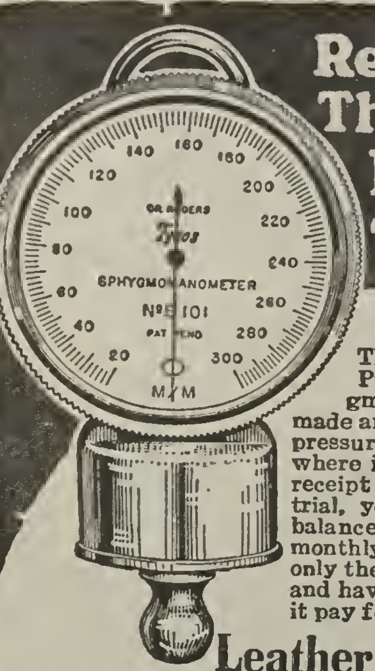
Street___________________________________

City___________________ State______________



Rent This TYCOS Nine Months Then It's Yours

$2.50 Monthly Brings It

The new 1922 model celebrated Blood Pressure Apparatus, Dr. Rogers' Sphygmomanometer is very accurately made and registers both systolic and diastolic pressures. The cash price of the Tycos everywhere is $25.00. We will send it to you on receipt of only $2.50 and, if after ten days' trial, you wish to keep it, simply pay the balance—$22.50—the same as rent—in nine monthly payments of $2.50 each. You pay only the cash price (no interest—no extras) and have nine full months in which to make it pay for itself.

Leather Case and Booklet Free

With every Tycos is included **Free** a genuine morocco leather case. You can put your Tycos into this case and carry the entire instrument in your pocket. Besides the case, we give you **Free**, a 44-page booklet which explains accurately, thoroughly and plainly just how and why the Sphygmomanometer is essential to the intelligent practice of medicine.

Ten Days' Trial—Money Back

Send today. Just sign and mail the coupon below—enclose $2.50 for first month's rent and we will immediately send you the instrument and you will only have to pay $2.50 each month until the cash price, $25.00, is paid in full. Send that $2.50 today. Remember, we give ten days' trial and return your money if you are not satisfied. The price for all cash with order is just the same, $25.00.

SIGN AND MAIL COUPON

A. S. ALOE CO. Factory Distributors. 557 Olive St., St. Louis, Mo.

I enclose first payment, $2.50, for which send me Dr. Rogers' TYCOS and Outfit on ten days' trial as per your offer. I agree that the title is to remain in you until paid in full.

Name..

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SPECIFY

VEN-SODIUM CACODYLATE
AMPOULES

PAINLESS
FOR
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THE INTRA PRODUCTS COMPANY
"Everything in Ampoules"
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THE PROPAGANDA FOR REFORM in PROPRIETARY MEDICINES

VOLUME TWO NOW READY

COVERING the work of the Council on Pharmacy and Chemistry of the American Medical Association from January, 1917, to April, 1922, inclusive, and the investigations of the Propaganda for Reform during the same period.

THIS volume is a practical conclusion up-to-date of the Council's propaganda for the rational use of drugs. Findings of the Association Chemical Laboratories are included.

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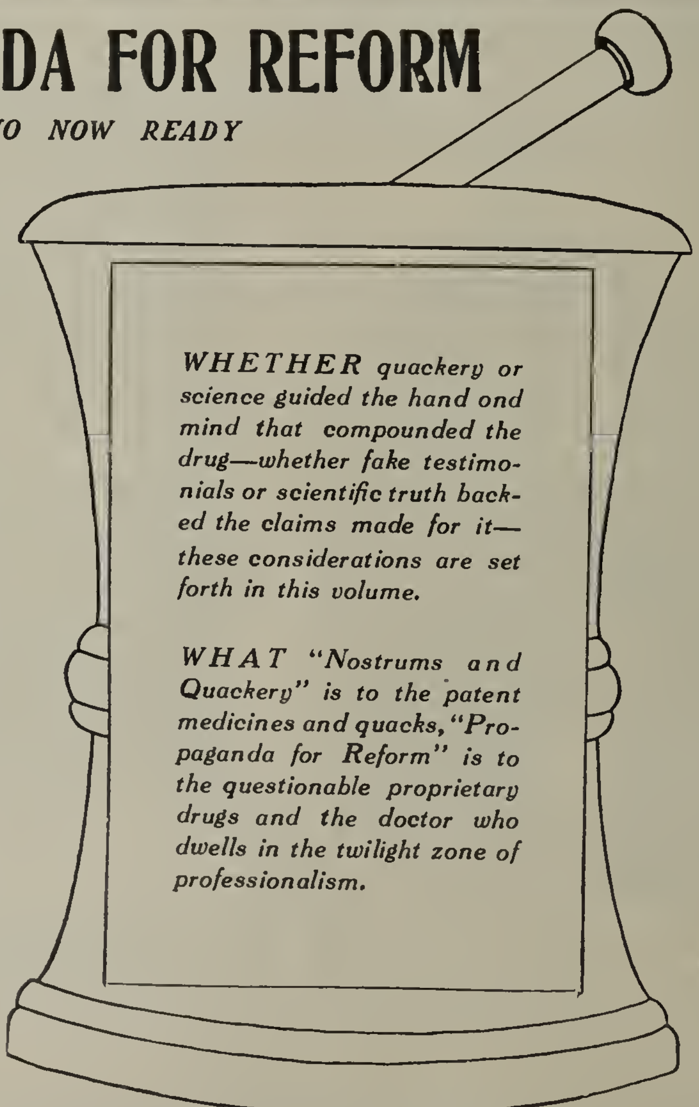
SCIENTIFIC truth and entertaining revelations abound in the accounts of these investigations into the realm of pseudo-medicine. You will be surprised to learn the truth about more than one drug you may have been prescribing.

THE INDEX, which is a bibliography in that it refers to outside articles as well, is a distinctive feature of Volume Two.

ORDER both of these illustrated volumes for $3 and read the whole story from the beginning of the Council's work. Volume Two alone is $2.



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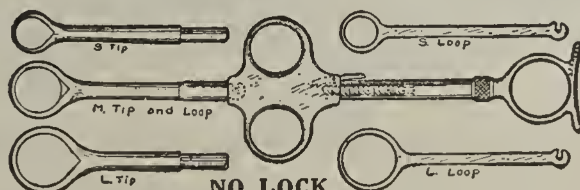

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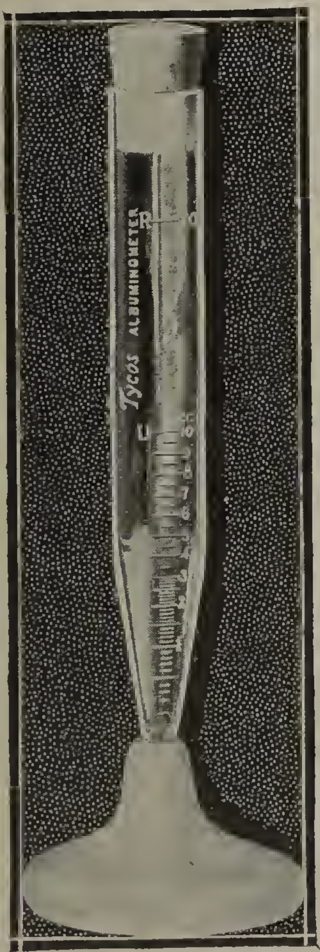

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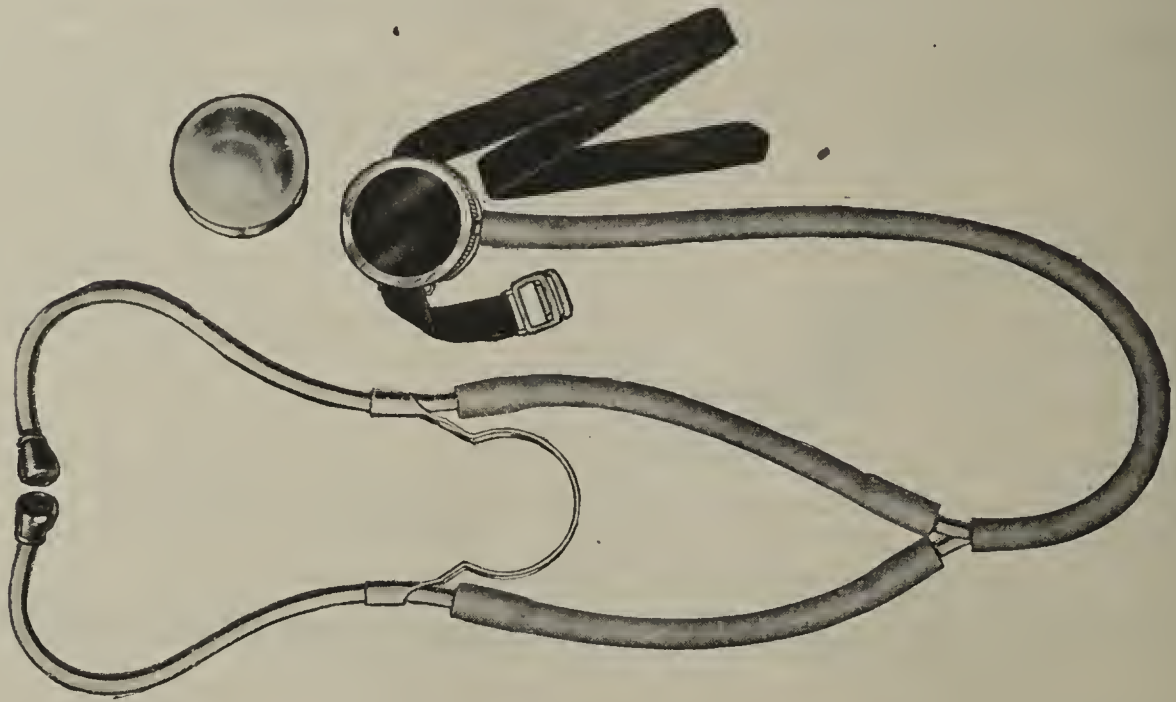

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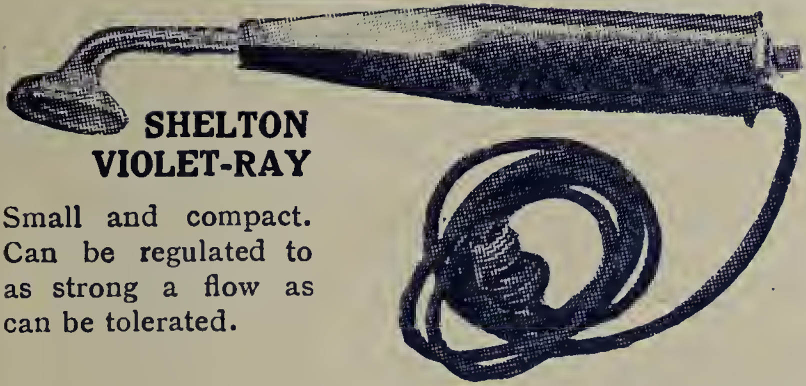

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